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WENJUAN YANG
CROSS-CULTURAL REDESIGN BASED ON THE CULTURAL
DIFFERENCES BETWEEN FINLAND AND CHINA

Master of Science thesis

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ABSTRACT

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With the rapid development of world economic and technology, more and more multinational companies, international business, cross-cultural designs have appeared in people's lives. However, the cultural differences among different cultures affect numerous aspects of economic cooperation and design direction. In this thesis, based on Hofstede's cultural dimensions, Finnish and Chinese were chose as 2 culture groups which were used to analyze how cultural differences influence on human mindsets and the design-related work, especially website user interface design. A Finnish company's website (including its design style and the related website content) were redesigned to meet Chinese users' needs and preferences. 8 Chinese website design implications were summarized at last.

At the beginning of this thesis, the theoretical background and related work of cross-cultural design and website design were provided. Website design principles and current design trends were presented. Then, the Geert Hofstede's culture dimensions were introduced. According to the results of the Hofstede's model, the cultural differences between Finland and China were summarized. By comparing the cultural differences and design differences, totally 24 UI design differences were concluded to support the following design work. Subsequently, semi-structured interviews and online questionnaire investigation were conducted to study on how Chinese users feel about using Finnish websites and participating in Finnish projects, as well as local Chinese users' preferences and website using habits. Combining the results of cultural model analysis and user research work, as well as the design principles and trends summarized in the related work, the Finnish company - Demola's website and project concept was redesigned. After redesigning work, user evaluation (including 3 focus groups, totally 6 participants) was conducted to examine whether the redesigned website conforms to the usage habits of Chinese local users. After completing the redesign work and user evaluation, design implications for Chinese web service design are summarized in order to help designers from other cultures to create the website for Chinese users.

PREFACE

The work of this thesis is nearing completion. Looking back on the road, it is long but meaningful. During the whole process, I learned many things and had a great experience.

I would like to express heartfelt thanks to my supervisor Aino Ahtinen, who guided me with many good advice and suggestions and provided me helpful comments during the writing process.

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Tampere, 20.05.2018

Wenjuan Yang

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LIST OF SYMBOLS AND ABBREVIATIONS

HTI	Human-Technology Interaction
HCI	Human- Computer Interaction
UI	User Interface
UX	User Experience
MNC	Multinational Corporations
PDI	Power Distance Index
IDV	Individualism versus Collectivism
MAS	Masculinity versus Femininity
UAI	Uncertainty Avoidance Index
LTO	Long-term Orientation versus Short-term Normative Orientation
IND	Indulgence versus Restraint

1. INTRODUCTION

This thesis analyzed cultural differences between Finland and China based on the Hofstede Cultural Dimensions, and gave a detailed introduction about how cultural differences influence on website UI design. For the need of this study, a Finnish website (including design issues and website contents) was redesigned on the basis of Chinese culture and background, and Chinese users' expectations and daily usage habits. The website belongs to a Finnish company- Demola. *Demola is a Finnish company which creates innovation cooperation opportunities for companies, universities and students, and aims to build the world's strongest innovation ecosystem.*¹ In order to localize to Chinese culture, 6 semi-structure interviews and an online questionnaire with 35 respondents were carried out. For purpose of evaluating the redesigned website whether applicable in a Chinese context, 3 group discussions (totally 6 participants) were conducted. Design implications for Chinese website design are given in Chapter 8.

1.1 Background and Motivation

With the rapid development of the globalization and internet technology, a man in Japan could buy a book from German Amazon because the book is hard to find in his country. A person in China may book a reservation in the US Airbnb instead of Qunar² because he wants to find a hostel than a hotel. The popularity of the internet has improved the quality of people's life, and brought a great many of customers and benefits for lots of multinational companies. However, what if the Japanese man do not understand German and English, or the Chinese people cannot trust the security of Airbnb website, what will happen? The user's interaction with the website will be terminated, and the company will lose these customers.

In other words, today, the user groups of a website are no longer a single cultural group. Unified websites cannot meet both tangible and intangible needs of users from different cultural contexts. If a multinational company expects a higher quality international development, designing their products according to the cultural differences is very necessary. Google Search and Alibaba company are examples of these successful multinational companies. Google designed its home page for users from different cultures to ensure users can find the results in their most familiar way with the fastest speed. AliExpress³ is an online retail website for international users which has the same content

¹ Demola Company's Current Website: <https://www.demola.net>

² Qunar- A Chinese online travel reservation website

³ AliExpress.com is an international online retail service which is owned by Alibaba.

as Taobao⁴, but with totally different design style. Gradually cross-cultural design has become a hotspot in the design field.

In the recent researches of cross-cultural design, people have studied on the cultural differences between countries, the cultural models [1], approaches [2] and process models [3] which would be used during cross-cultural design process. However, the research about applying cross-cultural design technology to specific cultures and practical case is extremely rare. Besides, owing to more and more cooperation between China and Finland⁵, it is necessary to analyze the cultural differences between Finland and China and summarize design implications localized to Chinese website design. This is the primary motivation behind the thesis.

1.2 Research Objectives and Methodology

This thesis belongs to the domain of User Experience Design, which aims to enhance customers satisfaction by improving usability, applicability of a product and joviality during the interaction process [4]. For the purposes of comprehending the significance and influence of cultural differences while carrying through user experience design work, a study of cross-cultural design is inevitable.

The focus of this thesis is on studying the whole procedure of Cross-Cultural Design which includes related literature reviews, cross-cultural user researches, a certain number of online surveys investigation, website UI redesign process and pertinent user evaluation. In the case of re-designing a Finnish website according to Chinese culture context, how do cultural differences effect on the website service design is explored.

The entire study altogether had 3 research topics:

1. The cultural differences between Finland and China.
2. The influence of cultural differences on website service design.
3. Design implications about Chinese website design for the oversea design team.

The Hofstede's cultural dimensions were selected to analyze the cultural differences between Finland and China. However, analyzing cultural differences only by models is incompletely. For a more comprehensive understanding, conducting user research work is important and necessary.

In this thesis, 6 semi-structured interviews and an online questionnaire with 35 respondents were conducted to intensively study the cultural differences between Finland and China. It is because the scope of the study on cultural differences is very extensive, in this user research process, the author mainly focused on the project concept and website

⁴ Taobao.com is a Chinese online retail service which is owned by Alibaba.

⁵ XINHUANET- Chinese president meets Finnish PM on strengthening cooperation:
http://news.xinhuanet.com/english/2017-06/26/c_136396183.htm

of Demola company to conduct the targeted research work. By studying on Chinese students' views on the Demola's project concept and website to reflect the differences between Chinese and Finnish cultures. During the user research work, the following questions are mainly focused:

1. What are the main differences between participating in Chinese projects and Demola projects?
2. What are the main differences between using Chinese websites and Demola websites?
3. How do these cultural differences influence on redesigning Demola's web service for Chinese users?
4. What are the design implications for Chinese web services?

Combing model analysis and user research work, a more complete and practical analysis of cultural differences between China and Finland was presented. Based on the analysis results, Demola's website and project concept were redesigned to meet Chinese users' needs and preferences.

After completing the redesign work, a user evaluation was conducted to assess the redesigned website whether applicable in a Chinese context. It is because Chinese people is hard to give critical opinions and comments [5], the evaluation processed as group discussions. Each of the participant's commented on the website design, their standpoint about the form of activities and the process of projects, and their satisfaction degree were recorded during the entire event. The complete research process is showed in Figure 1.

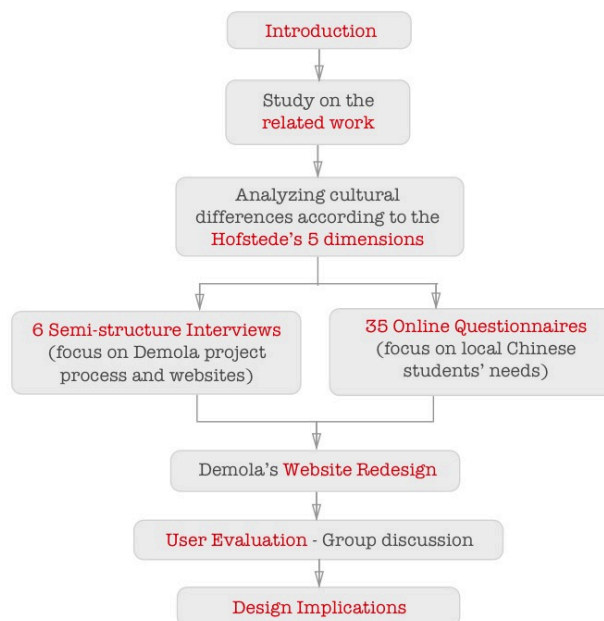


Figure 1 The complete research process.

1.3 Structure of the Thesis

This introduction briefly introduced the background and motivation behind the topic and described the related research topics and methodologies, which will be explained more detailed in the following chapters.

In Chapter 2 and 3, the background theoretical knowledge about cross-cultural design and website design are respectively lucubrated.

Chapter 2 presents a research review on cross-cultural design. On the one hand, the definition of culture, the circumscription of cross-cultural design and the related cultural models, approaches and process models are introduced in detail. On the other hand, the reason why cultural differences have an effect on design work, and the possible design pits and challenges are particular explained.

Chapter 3 introduces an overview of website User Interface design and the design guidelines and principles that need to be consulted during the design progress. Besides, it is very necessary for cross-cultural design to follow up the fashion pace of the times. Thus, the web design trends and challenges are also explored.

Chapter 4 analyzes the cultural differences between Finland and China based on the Geert Hofstede's Cultural Dimensions on 6 aspects: 1) Power Distance Index, 2) Individualism versus Collectivism, 3) Masculinity versus Femininity, 4) Uncertainty Avoidance Index, 5) Long-term Orientation versus Short-term Normative Orientation, 6) Indulgence versus Restraint. Moreover, how these cultural differences influence on website UI design are illustrated with the typical Finnish and Chinese websites in this chapter.

Chapter 5 provides a detailed introduction in regard to user research objectives, methods and process. The results of both semi-structured interviews and 35 online surveys investigation are presented and analyzed.

Chapter 6 introduces the basic information and background of the case company: Demola, and the design of its current website and project system. In addition to this, the redesigned website (contains 9 pages with some new features) are also shown in this chapter.

Chapter 7 reports the way to recruit participants, the whole procedure of the user evaluation and the relevant results.

Chapter 8 discusses the differences between current system (project process and website) and redesigned system, the overall contribution of the thesis, and reflects on user research progress and the whole design process. Furthermore, design implications for Chinese website design are given in this chapter.

2. CROSS-CULTURAL DESIGN

People from different cultural backgrounds generally have different languages, different life styles, different mindsets and different customs. Marcus and Gould illustrate some examples to convince the cultural differences existing in different countries. For instance, sacred colors are different in the Judeo- Christian West, Buddhist and Islamic, designs for background screen patterns are different among Finnish, Hollywood and India. [1]

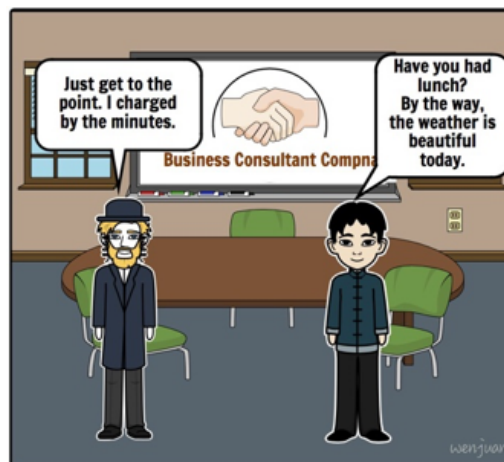


Figure 2 Cross cultural differences existing in people's everyday life.

In order to design a product which can satisfy users' needs and values in a special cultural context, it is essentially to consider about cultural characteristics of the target culture during the design process. In this chapter, author mainly focus on studying recent research and studies on what is culture, the influences of culture, and the related knowledge of cross-cultural design.

2.1 Culture

What is "Culture"? Broadly speaking, there is no pronounced agreement on the definition of the term "Culture" so far.

The term- "Culture" appeared already in 18th century. Afterwards, a number of researchers such as Edward Tylor and Matthew Arnold successively put forward the definition with the world- "Culture". Edward Tylor has defined the culture as a complex entirety which includes various abilities, knowledge, and belief that acquired by people among society. [6]

In 1929, Bose classified the components of culture into legible categories: property, family, organization, government, social systems, nationality, ethnics, religion, and language. He indicated that any single element among these categories is not a unitary entity, but closely associated with each other. [7]

In the mid of 20th century, Kroeber and Kluckhohn reviewed the existing definitions of culture, and listed 164 different definitions emphasis on different territories which include social heritage, ideals or values behind human behaviors, learning and problem-solving ability, habits, patterning of culture, symbols, etc. [7]

In 1980s, Geert Hofstede published a book which entirely studied on the national culture, and the different behaviors behind the different national societies. [8]

“The culture is the collective programming of the human mind that distinguishes the members of one human group from those of another. Culture, in this sense, is a system of collective held values.”
–Definition of “Culture”, Hofstede. [9]

In summary, culture influences an individual’s thoughts, attitudes, behaviors, values and goals. It is the criterion to distinguish a social group from others.

2.1.1 Technology and Culture

However, culture not only affects an individual or a social group, it also plays a vital role in the advancement of science and technology. Technology is usually contextualized into cultures, people would choose to accept it or not based on their cultural backgrounds. Therefore, it is often said that culture influences the development of science and technology. In addition to it, technology also affects culture’s derivation and growth. [10]

In terms of technology impacts culture, the influence of World War II is a typical example. After 1945, with the end of World War II, the global economy and technology systems have produced a rapid evolution. During the war, many countries digged on cryptography and computer science in order to crack each other’s complicated code, which laid the ear of Information Technology, affected the traditional culture of many countries, and formed a new information network culture. [11]

In terms of culture impacts technology, Straubhaar and Larose’s study expressed some views. They investigated the changing media (TV& Radio, Publishers, etc.) in people’s everyday life to study the connection among Media, Culture and Technology. Following the improvement of the quality of people’s lives, everybody expects faster and more accurate channels to obtain and share information, which leads to the appearance of e-book (Kindle), internet, radio, recorded music, film and home video. [12] On the one hand, by using electronic media channels to exchange information, people are accustomed to living in a digital world, which created the culture of pervasive computing. On

the other hand, the transfer of digital information influences the local culture of different territories and promotes the growth of global culture.

However, not every new media will be accepted by all users. Media users are from different cultural backgrounds, and there are varying media policies, laws and ethics for different countries. Beyond that, people always choose and use the product according to their cultural background, habits and values. Therefore, in order to meet the need of users in different regions, considering about regionalization, cultural proximity and national production is vital importance. [12]

It can be seen that culture determines the application and development of technology, which also has been profound impacted. Thence, studying on the role of culture in science and technology field is essential.

2.1.2 Effect of Cultural Differences on Design Work

As mentioned in the previous chapter on the relationship between culture and technology, users usually determine whether to choose the technology or product based on their own cultural backgrounds. Thus, in order to meet users' needs, it is necessary to consider about culture differences while designing the product.

The research of Aykin shows that differences in cultures runs throughout many aspects. For instance, only a small number (8%-10%) of the world's population speaks English as its first language. Thus, design the product with different languages is the most important step. Besides, people have different religious beliefs which leads to various religious references. Violated religious norms and stipulation because of the ignorance of different religious cultures may bring about a negative impact on social stability. For example, it is not suitable to design a dress which shows uncovered body parts for people from Islamic countries. [13]

Moreover, due to cultural differences, colors represent different meanings among different countries. For instance, red means luck and wish in China but means mourning in the South Africa [14]. Applying red color as a website background color for these two countries would get totally different responses. Besides, cultural differences affect many aspects of design, such as icon design, data formatting (data, time, address formats), culture-specific symbols and so on [13].

The cultural differences not only affect the design of the product, but also influence the design progress. Designers need to investigate the related cultural groups and think over user's cultural background (nationality, language, needs, values, know-how, etc.) to assure the design is appropriate and effective.

2.2 Cross-Cultural Design

While developing a practical product, designers need to consider many user related factors to increase the usability of the product, provide a pleasant user experience, and enable the product can launch successfully into different markets of the world. Many of these factors are influenced by the cultural background of users and customers. Thus, considering cultural differences is a key point while redesigning a website located into a special culture.

Aykin described that cross-cultural design is a kind of design technologies which studies on users with different cultural backgrounds (include: languages, life styles, educations, thinking models and economic standings) to make sure the usability of products meet users' needs and values, and across cultural boundaries [15].

The design of cars is a classic example of cross-cultural design technology. The steering wheel on Japanese cars are on the right side, but opposite in mainland China and American [28]. Many of the Japanese motor corporations design and product two kinds of cars and sell them to different countries. Besides, designers also devise appropriate size of cars based on the different body types between western and eastern people.



*Figure 3 Right-Hand Drive Car and Left-Hand Drive Car.*⁶

For the purpose of designing a product that adapts to user's cultural background, a thorough understanding of local culture is of paramount important.

2.2.1 Cultural Models

Hall (1995) presented the Cultural Iceberg model (*Figure 3*) which shows the circumstances of the 10% visible cultural characteristics (languages, data format) and 90% non-visible cultural characteristics (nonverbal communication, unspoken rules). As the non-visible cultural characteristics are hard to identify and describe, it would be particularly important to analyze the existing cultural models while designing the practical application. [16, page 58-70]

⁶ Picture is from Jamal Pasha's blog: <https://www.pakwheels.com/blog/difference-left-hand-traffic-right-hand-traffic/>

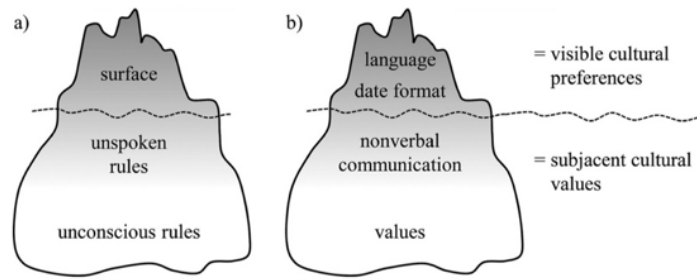


Figure 3 Iceberg model (a) from Hall and (b) associated UX characteristics. [16]

Analyzing cultural characteristics through different kinds of cultural models is the first step during cross-cultural design process. Fryberg explained that cultural models are norms and forms which integrate culturally derived ideas and practices existing in people’s everyday life, and generalize people’s perception, cognition, emotion and motivation [17]. There are a number of cultural models, for instance, Geert Hofstede Cultural Dimensions, Edward T. Hall’s International Variables, Aaron Marcus Matrix Mapping Cultural Dimensions to user interface components, and the Lewis Cultural Model. Among these models, Hofstede’s cultural model clearly presents a society’s culture by specific data in six dimensions and describes the influence of a society’s culture on the value, thinking model and behaviors of its members [19]. Thus, this thesis mainly used Geert Hofstede culture model to analyze the cultural differences between two societies.

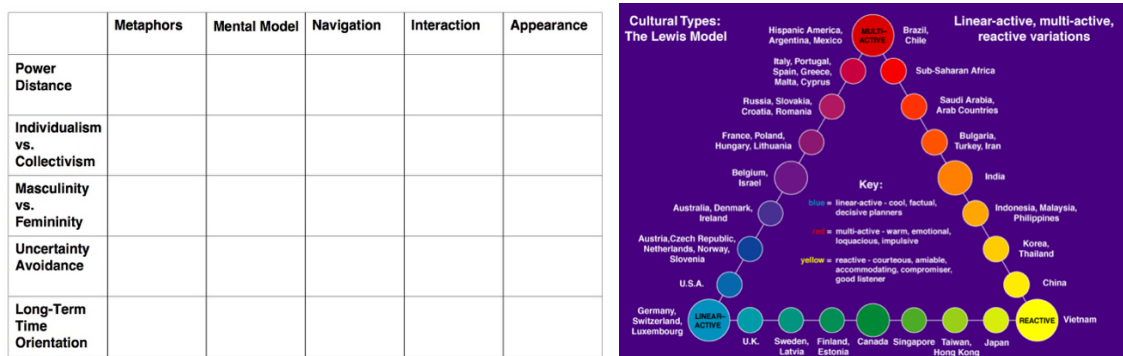


Figure 4 Aaron Marcus Matrix Mapping Cultural Dimensions to UI components [18] (Left) and the Lewis Cultural Model⁷ (Right)

The work of Marcus and Gould (2000) introduced Geert Hofstede’s 5 Dimensions of Culture and showed several website examples which illustrated how these cultural dimensions might affect website UI design. (Details about Hofstede’s cultural dimensions will be introduced in chapter 4.) Marcus emphasized that not everyone perfectly conforms to the cultural patterns, but studying on culture models is still necessary to identify trends and tendencies. In addition to this, designers need to change current development approaches and develop new tools while participating cross-cultural design project. [19]

⁷ The Lewis Model: <https://www.crossculture.com/latest-news/the-lewis-model-dimensions-of-behaviour/>

2.2.2 Approaches and Tools

In regard to cross-cultural design approaches, some designers and researchers have identified a number of approaches, for instance, analyzing existing designs related to the target culture [20], carrying through user-centered design in target cultures [21] and remote interviews, questionnaires and user evaluations [22]. However, as the culture is continuously changing, and remotely investigation costs plenty of money and time, using single cross-cultural approach might be impeded. Besides, Lachner and Saucken rightly points out the gap between literature analyzation and practical application– lack of tools to analyze and present subjective cultural values while doing design work [16].

Smith and Dunckley (2003) studied on developing a set of cultural attractors for each culture or sub-culture which can help companies and organizations to localize their website to target cultural context. They analyzed Taiwanese and Indian bank websites as examples to apply this approach. As a result, they developed a new concept - “Cultural Fingerprint” which represents a profile of a culture and is easy to use while localizing a website from one culture to another one. [23]

Besides, Lachner and Saucken conducted remotely observations and ethnographic interviews, as well as studied and compared several typical cultural dimensions, including Hofstede dimensions and Edward T. Hall dimensions to define the basic problems and cultural differences existing in the current society. Based on the data gathered during the research work, they put the focus area on the countries Australia, China, Germany and Vietnam. Five aspects for each country as results were presented to describe the UX-related cultural differences, and an application-oriented tool – “Cultural Personas” is created to help designers consider and understand cultural characteristics during UX design process and complete the culture-related design work. [16] This thesis will show Chinese cultural characteristics by using Cultural Personas. (See in chapter 5.2.3)

2.2.3 Process Model

In addition to analyzing cultural differences and identifying design approaches and new tools, the whole design process, including, user research process, user evaluation process, design team building process should also be considered while proceeding cross-cultural design work.

The work of Smith and Dunckley (2003) presented a waterfall life-cycle model for developing cross-cultural website. They emphasized four steps during a cultural design process: 1. Involve local website attractors in design process, 2. Compare “Cultural Fingerprint” with local users’ needs, 3. Conduct user evaluation based on guidelines for specific cultural contexts, 4. Build a cross-cultural design team. [23]

They point out that although general cultural analyzation (for example Hofstede’s model) can help to figure out the cultural characteristics, the influence of individual factors cannot be neglected. Besides, users from western countries are willing to be involved with the development process of the products they are looking forward to use, but people from other cultures might be different. Thus, it is very important to develop guidelines for conducting cultural-context based user investigation and evaluation. [23]

This thesis integrated Smith and Dunckley ’s design process and cultural-context based user investigation and evaluation methods to complete the design work. The detailed steps of the process model are showed in figure 4.

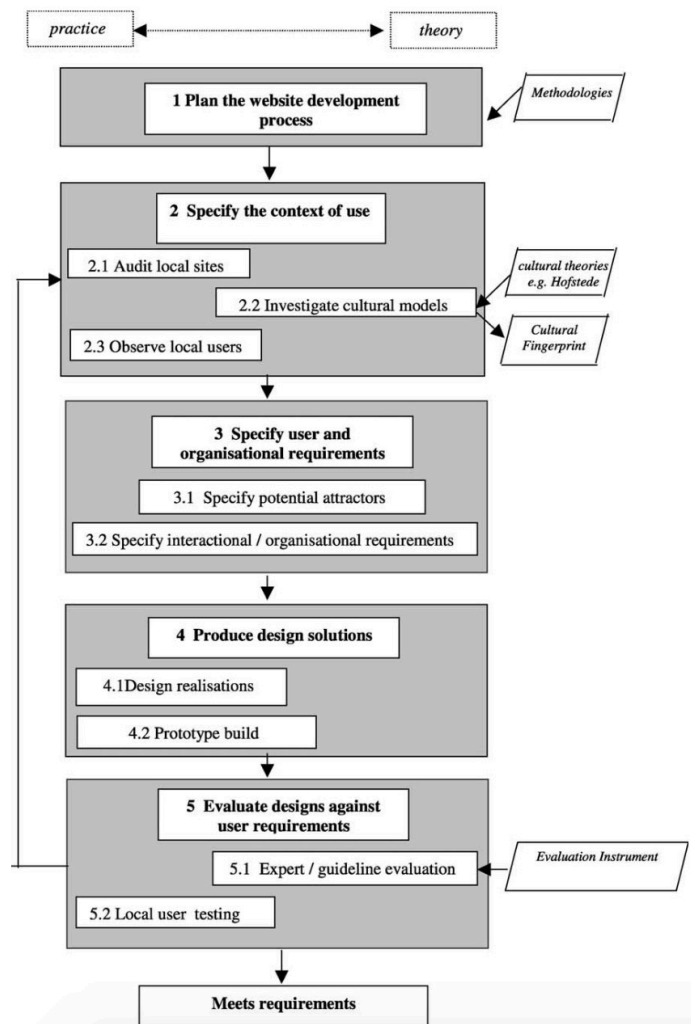


Figure 5 Process model for developing usable cross-cultural website. [23]

2.2.4 Design Pits and Challenges

Although considering cultural differences while designing a product is conducive to satisfy users’ needs and values in target cultural context, there are design challenges existing in cross-cultural design process.

First all of, an incomplete understanding of cultural differences could cause misunderstanding and negative impact on design. Kamppuri strongly believes that not knowing the wider context of use and design will quickly cause misunderstandings and failures [24]. Only figuring out user's preferences is not enough to design a good product. Designers need to know the reasons behind these preferences by learning about the local physical and cultural context.

Secondly, inappropriate user investigation methods will get inaccurate data. Chavan and Gorney pointed out that letting people to express their feeling is a challenging thing [25]. The work of Clemmensen indicates that using think-aloud technique may cause a negative effect on Asian users, but western users express their thought more directly [26]. Cross-cultural design does not only focus on defining design approaches and tools, but also including user research and evaluation process. To get users to voice their likes and dislikes deserves further investigation.

Moreover, in the view of UI design, do not understand the local language and demographics will directly affect the implementation of the design process. For instance, an icon with a "OK gesture" means "Fine, Good" in American and China, but it has insulting meaning in Brazil [27]. Understating and learning the local design culture is also a crucial step.

2.3 Summary

In general, culture is a complex entirety which determined an individual's mind, behaviors and values and as a criterion to distinguish every human group. Cultural differences are existing in people's everyday life, which also affects many aspects of technology and design work. Thus, cultural characteristic is an important element which needs to be considered during design process.

During the cross-cultural design process, analyzing cultural models (such as Hofstede's dimensions) can help designers to understand the cultural differences between countries or organizations. Using suitable tools and methods while doing contextual based user investigation is a crucial step to understand cultural differences and obtain objective data. Besides, designers have to follow the appropriate design models and correct principles to avoid general problems while doing practical design work.

3. WEBSITE DESIGN

In 1989, Tim Berners-Lee put forward a global hypertext project, which was continuously proceed during 1991 to 1993, and later to be known as World Wide Web. At that moment, web pages only contain text and could be viewed through simple browsers. [29] Over the last 30 years, with the emergence and rapid development of new technologies (such as JavaScript and Dynamic HTML) and browsers (such as Chrome and Firefox), people has not only focus on the website implementation process, but also began to consider about the design of the web pages, the aesthetics, usability and user expectations [30].

As Nielsen pointed out, living with poorly designed website would cause numerous usability problems [31]. The experiment of Galitz also shows that inefficient design would increase the processing time, decision-making time and potential errors [32]. To solve the existing problems, Baca and Cassidy redesigned the user interface of an organization, which successful enhanced 15% searching success rate and saved 50% searching time [33]. Therefore, a well-designed user interface plays an important role while users have interactions with the website.

In order to create a well-designed website, designers have to consider about Interaction Design [34], Visual Design [35], Users Psychology [36], and Information Architecture [37] to ensure the interfaces are easy to use and understand, and to avoid the problems that may occur during using the website. Besides, as mentioned in the chapter 2, culture affects many aspects of design work, such as preferred way of interaction, meaning of the color, user's needs and value, and so on. Thus, it is obviously that adapting website to cultural characteristics would also improve communication efficiency and effectiveness.

In this chapter, author mainly focused on studying the principles, guideline, trends and challenges of creating a well-designed website user interface, and analyzing the successful practical examples of cross-cultural website design.

3.1 Web User- Interface Design

The user interface is the visual part of a machine or an application where users can interact with. It is composed of two parts: input (users input data to computer from keyboard, mouse or touch screen) and output (users receive data from computer, such as voice and sound, information on display screen and vibration sensation). Web-based

user interface allows users input or receive data through web pages by using browsers. [38]

According to Marcus, user interfaces (whether web UI or other modes) have 5 components that shall be involved during UI design process [39].

1. **Metaphors:** Metaphors are essential concepts expressed through text, pictures, voice and tactile experiences [39].” The icon design of iTunes, iBook and Trash-can are examples. Applying metaphors into UI design would reduce users’ reacting time and help to understand the meaning of the design.



Figure 6 Icons of iTunes, iBook and trash-can.

2. **Mental Models:** Psychologically speaking, mental model is the explanation about how a person process and structure data in his/her mind and which determines people’s behaviors and reactions [40]. Functions and task hierarchies are examples [39]. There is always a gap between designers’ and users’ mental models. Thus, to understand users’ mental models will help designers to imitate these models and build the website which is easy to follow and understand.
3. **Navigation:** Navigation is focus on the movement between users’ tasks according to mental models. Dialogue boxes and menus are examples. [39] A good navigation could help users find what they want in a very short time and with very low ratio of errors.
4. **Interaction:** Interaction is about how users interact with the user interface, including input and output methods [39].
5. **Appearance:** Appearance includes visual design and auditory characteristics, such as font, color, layout and sound cues. Appropriate visual design would attract users and reduce the ratio of user action errors.

Galitz summarizes the goal of web page interface design is to make the website easy to use and truthful by balancing the structure, the links between every page, the hierarchies of menus and the distribution of contents. [38] In order to build a well-designed website, apart from considering the five UI components mentioned above, comprehending the design principles and following the design trends are also of great concern.

3.1.1 Design Principles

This section mainly focuses on design principles which could help to improve the quality and efficiency of user interface design. Design principles are a set of rules and guidelines summarized by relevant researchers and designers and used to assist design work. They are the foundation for creating a new design. Since the term “UI design” has been put forward, many researchers have studied and summed up the design principles. Some of them are based on researches, others are mainly according to users’ behaviors while interacting with products. There is no complete and unified principle system, many new principles are continued to be considered by designers. [38]

In 1998, Schneiderman and Plaisant summarized “Eight Golden Rules” of UI design in their book according to the two decades of design experience. The rules are: 1) Strive for consistency, 2) Cater to universal usability, 3) Offer informative feedback, 4) Design dialogs to yield closure, 5) Prevent errors, 6) Permit easy reversal of actions, 7) Support internal locus of control, 8) Reduce short-term memory load. [41]

In 1999, Larry Constantine and Lucy Lockwood put forward that design is like a dialogue between designers and users. However, there is also a gap between them. In order to make their communication effectively and efficiency, there should have user models, design rules and principles to help designers understand how to create a high-quality product. They summarized general class of rules and principles of their usage-centered design methods, which are: 1) The structure principle, 2) The simplicity principle, 3) The visibility principle, 4) The feedback principle, 5) The tolerance principle, 6) The reuse principle. These principles are regarded as general design principles and were often complied with during the design process. [42]

1. **The structure principle** is mainly focus on the overall architecture of the user interface which clearly reflects the user mind model and the hierarchy of user tasks. An important rule is to build the architecture explicitly and consistently. Designers have to put similar thing together (for example under same column, or have common tab or appearance) and distinguish or separate dissimilar things (for example with different format or at different position). [42]
2. **The simplicity principle** is concerned about making user interface simple and easy to use. It is not claims that designers have to make everything simple. The overriding thing is to figure out what tasks are common and what tasks are simple from users’ perspective and to make these tasks easy. [42]
3. **The visibility principle** delivers the idea that the design has to be noticeably and succinctly. In addition to all needed information and controls, there is no any other redundant materials. [42]
4. **The feedback principle** requires the design informs users at some time (such as after user’s action, while errors happened or state changed) through their

familiar ways (such as vibration or pop-up windows) to keep them know how the interaction is going on. [42]

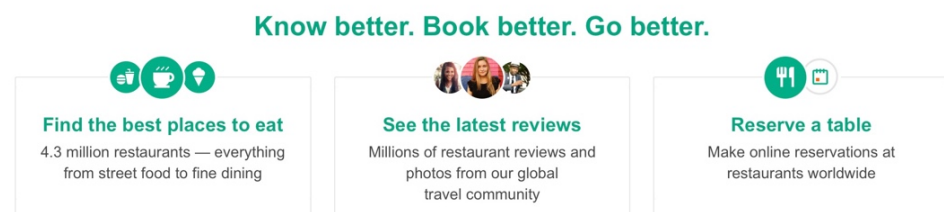
5. **The tolerance principle** is committed to reduce the costs and risks of user's mistakes. The design should provide un-do and re-do options to prevent errors and offer opportunities to restore the former work. [42]
6. **The reuse principle** is focus on reusing design elements and components for same objects or similar purpose to make the design consistency, and to avoid letting users remember and think about large amounts of information. [42]

In 2007, Galitz analyzed the published design principles for the Xerox STAR in his book and concludes the broader and more detailed general principles are: 1) Consistency, 2) Control, 3) Directness, 4) Efficiency, 5) Familiarity, 6) Flexibility, 7) Recovery, 8) Responsiveness, 9) Safety, 10) Simplicity, 11) Transparency and so on. [38] With the ever-increasing and improving design principles, to comply with them could help designers to create high-quality products, which not only satisfy the needs of users, and to avoid interaction errors and risks.

3.1.2 Design Trends

In addition to understanding the design principles, grasping the current design trends is also very important. The design trend is not consistently. With the increase of internet users, as well as the augmentation of user needs, design trends are rapidly changing in recent years. As Webflow⁸'s designers perceptively states, there are 18 design trends that need to be noticed during the 2017 web design work. [43] Besides, the work of Jamie Leeson⁹ summarized 14 important design trends for 2017. [44] Jennevie Tanzon-Corre¹⁰ also indicated 10 trends for 2017, 2018 and beyond. [45] By summarizing the work of above designers and researchers, this paper presented 6 of the most important web design trends.

1. **Layouts that let content shine:** A good layout allows users to quickly and easily find critical information, to avoid wasting too much browsing time. Combined with the card and grid design can categorize a lot of information, and simply and clearly present to users in manageable blocks. [43] [44]



⁸ Webflow is a professional tool for designers to create website prototype. <https://webflow.com>

⁹ Jamie Leeson: A digital designer works for Zazzle Media.

¹⁰Jennevie Tanzon-Corre: Sr. Content Writer/ Researcher at Optimind Technology Solutions.

Figure 7 Card UI of Tripadvisor.com/Restaurant

2. **Bold typography:** Beautiful fonts will enhance the aesthetic perception of the entire website. Different forms of fonts can clearly distinguish the content. However, this is not only referred to the weight and style of the font, which is also concerned on how to use the screen space to display simple but powerful statement, and to avoid information overload. [43] [45]
3. **Vivid and appropriate color:** Not only focus on the web-safe color is the current design trend. Using vibrant hues can quickly attract users' attentions. Nonetheless, it is not only about bright and beauty colors. According to the different theme of the website, color design is usually different. The right color design will provide users a sense of confidence and security. [43] [44]
4. **Illustrations and full-screen videos:** Visual design with illustration and videos can provide users a playful and pleasant user experience. On the one hand, pictures and videos can captures users' attention quickly. On the other hand, they can take full advantage of the space to deliver a lot of valid information. [44] [45]
5. **Longform content and Scrolling:** Users are preferred to browse long form content with only one action- scrolling instead of click navigation to find what they want step by step. To display the content simply and intuitively would be the mainstream of the design. [44] [45]
6. **Animation and micro-interaction:** Applying micro-interaction animation would give users a pleasant and friendly operation experience. However, the designers have to ensure that the added animation is related to the system function, rather than blindly pursue unrealistic and unpractical thoughts. [43] [44] [45]

In fact, except the above 6 primary and typical design trends, there are many others within the creative industry. It is impossible to point every single one out. Understanding and following these design trends will spur designers to create better products that meet the needs of more users. However, it should be noted that during the design process of the website, designers cannot blindly follow the pace of design trends. On the contrary, it is necessary to consider the fundamental functions and using context of the website. In the premise of ensuring the usability and applicability, reasonable following the design trends would enhance the user experience.

3.1.3 Challenges

In the past 2 decades, the web user interface design has been relatively simple to implement. But today, in order to better meet the user experience, web design is facing many challenges.

The work of Galitz generalized the process of web UI design into 14 steps: 1) Know the user and client, 2) Understand business objectives and functions, 3) Know the principle of UI design, 4) Create the proper system menus and navigation system, 5) Select appropriate kinds of windows for the tasks, 6) Identify suitable interaction modes, 7) Design reasonable control mode, 8) Write clear and powerful text, 9) Provide effective feedback, 10) Consider the influence of cultural differences, 11) Create intelligible visual design, 12) Apply the befitting color, 13) Build good layout, 14) Evaluation. For each step, designers are challenged in varying degrees. [38]

First of all, unappropriated visual (color, icon and layout) and interaction design will lead to more operation/ interaction errors, increase the amount of reaction time and result in user dissatisfaction. Besides, misunderstanding business objectives and market requirement will lead to the design of a wrong product which cannot meet the needs of users and clients. Generally speaking, the design of the website also effects on user's sense of security and confidence. Moreover, improper user evaluation will get inaccurate answers. [38] In order to figure out what is the proper design, fully understand users and clients, and their cultural backgrounds would be one of the biggest challenges. Cross-cultural website design is a good solution to this challenge.

3.2 Cross- Cultural Website Design

Culture plays an important role in web design. Faiola and Matei conducted an online experiment which lets American and Chinese users respectively use sites created by both American designers and Chinese designers, and observed their behaviors. The result shows that user will use less time to complete the task or find the information they need when using the website designed by a designer from the same cultural background as him/her. [46]

The work of Radmila, Inhwa and Jasna effectively confirmed the standpoint that culture is a key factor which need to be considered in web design. They identified a checklist which includes verbal, visual and audio elements related in web design, and selected 20 Korean websites and 20 UK's to compare the design differences. From the results of their study, it is obviously to see that websites under different cultural backgrounds have different design styles and frameworks. Besides, there is a big difference in use of colors, texts, images, layouts and the types of menu. [47]

Many researchers such as Dianne Cyr have pointed out that cross-cultural website design goes far beyond translation. In order to design a richer and more comprehensive cross-cultural website, Dianne summarized seven key components (1. Language, 2. Layout, 3. Symbols, 4. Content and Structure, 5. Navigation, 6. Multimedia, 7. Color) which have to be taken into account while doing localization design work based on the recent literatures and researches. [48]

Besides, Rukshan, David and Nik also developed cross-cultural website design guidelines (Figure 8) which require designers to identify HCI factors, cultural factors and prominent design elements, and consider the connection among them. The guidelines aim to effectively help designers to quickly start and complete the design work. [49]

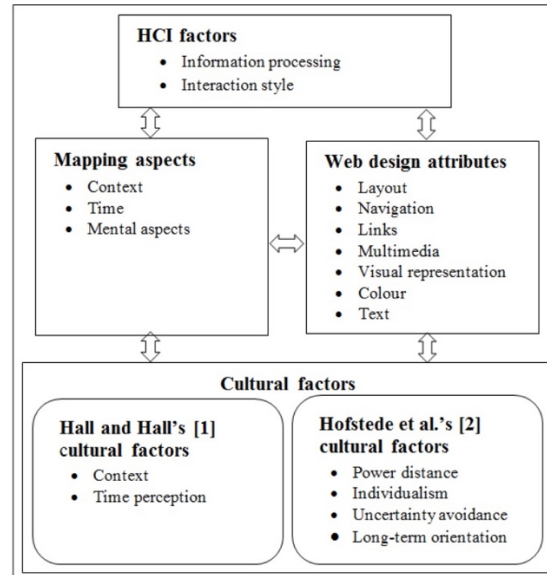


Figure 8 Cross-cultural design guidelines. [48]

3.2.1 Case Analysis – McDonald's

With the development of globalization, many multinational companies have developed their websites for different cultures and successfully attracted local users. McDonald's as one of the biggest fast food restaurant chain takes full account of the impact of cultural differences on its dishes, websites and promotion channels. In term of web design, there is a big difference between different countries. This chapter introduces the different home pages that McDonald's has designed for Chinese, Japanese, Singaporean and Finnish users.

First of all, it is obviously to see that the layouts, menus and background colors are different from each other. The menu on Chinese, Singaporean and Finnish websites are horizontal menu, but on Japanese website it is vertical menu. The Finnish and Singaporean websites use full-screen pictures to introduce the products, but Japanese and Chinese websites use card and grid designs to separate information and products. The background color of Chinese and Finnish websites is black, but it is white on Japanese website and more vivid on Singaporean website.

Besides, there is a difference in the amount of information that each home page contains. Finnish website only shows the picture of food and the price. Chinese website shows the pictures of the food, recent activities and discount information. It also put the picture of brand spokesperson at the most eye-catching location. Singaporean website not only

shows the pictures, but also introduces the details of every products below the picture. Japanese website contains more information about the food and the security information and rules.



Figure 9 Chinese McDonald's.



Figure 10 Japanese McDonald's.

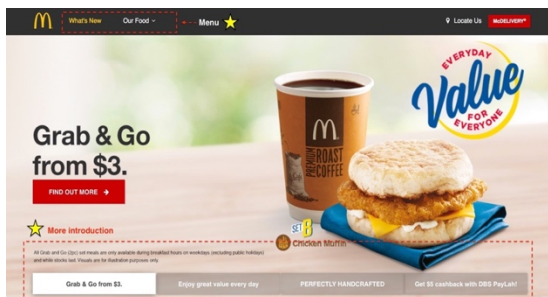


Figure 11 Singaporean McDonald's.

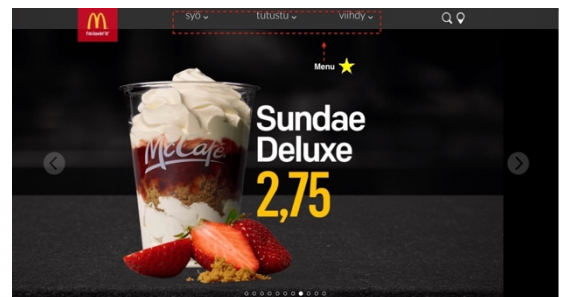


Figure 12 Finnish McDonald's.

In addition to McDonald's, there are many multinational companies have designed their website for users from different cultural background, such as Samsung, HM and so on. To some extent, understanding cultural differences determines whether the design will be succeeded or not.

3.3 Summary

In general, from the emergence of the website to today, the process of web design and the design trends are gradually progressed and developed. With the development of cross-international business, and the progress of the global economy, the design of website is no longer targeted to a single cultural group. In the design and development process of a website, cultural characteristics have a big influence on design work, for instance, choosing the right color, using the suitable and powerful text, defining correct mind models, etc.

Adapting cultural factors to design process will greatly enhance users' interaction satisfaction and effectiveness. McDonald's websites for different countries as examples truly showed the importance and necessity of cross-cultural web design. The next chapter will introduce how culture effects on website user interface design work in detail.

4. CULTURAL DIFFERENCES BETWEEN FINLAND AND CHINA

People from different cultures always have different values, needs, life preferences and thinking patterns. Therefore, exploring the cultural characteristics while doing design work will help designers to understand the users, clients and the current market to build a more suitable and successful product. As introduced in chapter 2.2.1, this chapter mainly studies on how to analyze cultural differences based on Geert Hofstede cultural dimensions, and how does these cultural differences affect website design work. Finnish culture and Chinese culture are the major research objects.

In terms of Chinese and the Finnish cultures, there are very big differences between their social formation, religious belief, human thinking mode and way of socializing. The work of Fey and Pavlovskaya proved the differences of human resource management among Russia, China and Finland, and put forward suggestions for MNCs [50]. The research of Aunio found the differences of young children's early numeracy skills among China, England and Finland, and brought forward the view that from the very early on, children's mathematics skill is influenced by cultural background [51]. Many studies have shown that there are lots of differences between Chinese and Finnish cultures, and these differences affect many aspects of people's lives. The next section will systematically and comprehensively study on the differences between Finnish and Chinese cultures.

4.1 Hofstede's Model of National Culture

Hofstede's cultural dimensions theory is used to describe and measure a country's or an organization's cultural characteristics, developed by a Netherlandish sociologist and psychologist – Geert Hofstede. The theory includes the model of national culture and the model of organizational culture. [52] This thesis mainly studied dimensions of national cultures.

From 1967 and 1973, Hofstede was continuously collecting and analyzing the database of IBM's global employees from more than 60 countries, and developed the initial model of national culture with 4 dimensions: Individualism & Collectivism, Uncertainty avoidance, Power Distance, and Masculinity & Femininity. In 1991, according to the study by Professor Michael Bond on comparison between eastern and western cultures, Hofstede added the fifth dimension: long-term orientation. In 2000, according to Michael Minkov's analysis of the data of World Values Survey, Hofstede added the sixth

dimension to the model: Indulgence- restraint. [52] There are fewer data about the sixth dimension, especially how it links to web UI design. Thus, this thesis only studied on former five dimensions.

By comparing the scores of the Hofstede's 5 dimensions between Finland and China (Figure 13), it is obviously to see that there is a big difference between Chinese culture and Finnish culture. The power distance index, masculinity index and long-term orientation index of China are much higher than Finland, but the individualism index and uncertainty avoidance index of China are lower than Finland. What is the meaning of these terms? What do these numbers represent? What is the meaning of the gaps between these numbers? The following sections will respectively introduce these five dimensions in details, and compare the differences between China and Finland. Besides, the websites of Peking University¹¹ (PKU) and the University of Helsinki¹² (UH) will be used as representative examples of Chinese websites and Finnish websites to illustrate how these cultural differences apply to website UI design.

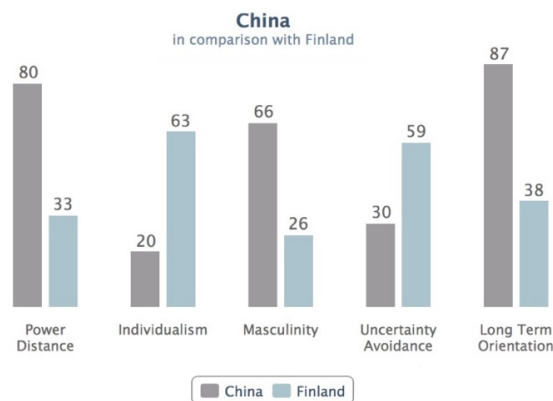


Figure 13 China in comparison with Finland.

4.1.1 Power Distance Index (PDI)

Power distance index(PDI) shows the extent to which the less powerful groups in a society or organization accept and tolerate the phenomenon that power is distributed unequally. There is a big difference in this dimension because of the different understanding of power in each country. In societies with high PDI, there is a higher degree of acceptance for the unequal distribution of power. People are willing to accept the social hierarchy which everyone has their own position and do not need more justification. On the contrary, in the societies with low PDI, the distribution of power is more average.

¹¹**Peking University** is the first national university in modern China. It is also one of the top 3 universities in China. The establishment of Peking University marks the beginning of modern Chinese higher education. The website of Peking University is: <http://www.pku.edu.cn>

¹²**The University of Helsinki** is the oldest and largest university in Finland. It is also one of the top 3 university in Finland. The website of the university of Helsinki is: <https://www.helsinki.fi/en>

People are also committed to maintaining a balanced distribution of rights and equal social status. [53]

China with a score of 80 ranks very high of PDI which means in this society, inequality between people is acceptable. Government, elders, leaders and teachers are in a higher and more important status which always get more respect. [54] On the contrary, Finland got 33 which scores low on this dimension. In this society, unequal relationship between boss and subordinates, as well as parents and child are not that obvious and common. People tend to be more independent and respectful. [55] The following *Table 1* compares the differences between China and Finland in real life. [1]

Table 1. PDI- The differences between China and Finland. [1] [54] [55]

	High PDI- China	Low PDI- Finland
People	The masses do not have much right to participate in political affairs.	Everyone have the right to know and participate in state affairs.
Work	The hierarchical system means there is indeed inequality between employees and leaders (boss).	The hierarchical system established for convenient to manage the work.
	Subordinates are used to do what the boss told them to do.	Subordinates have their viewpoints and expect to be consulted.
Family	Children cannot call their parents' name.	Children can call their parents' name.
	The elderlies are more respected.	Junior and older people view each other more equally.
School	Teaching is arranged according to Education Bureau's instruction and teacher's preference;	Education is more concerned about the actual situation of students, which is committed to improving students' interest in learning.
	Student must respect the teacher.	Students also need to be respected.

As mentioned in the previous chapter, cultural differences have profoundly affected the website user-interface design. Power distance also influence many aspects which are obviously to see from the home page of Peking University (Figure 14¹³) and the University of Helsinki (Figure 15¹⁴).

¹³ PKU- Main Page: <http://www.pku.edu.cn/index.htm>

¹⁴ UH- Main Page: <https://www.helsinki.fi/en>



Figure 14 PKU-Main Page.

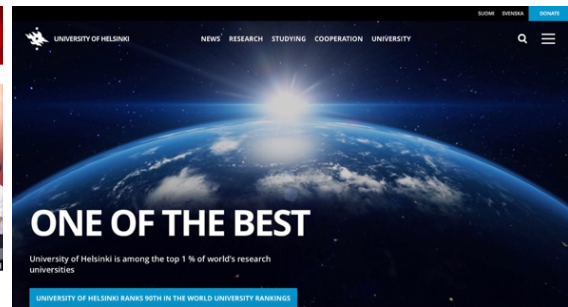


Figure 15 UH-Main Page.

The website of Peking university is designed with red color. In a sense, red represents the party and government in China. The home page displays 6 automatically turning images to introduce the recent events and activities happened in the university. More than half of these six pictures are focused on introducing the monumental research institutions, faculties and administration leaders' visiting. Only one is used for presenting students' life. Besides, there is a detailed introduction to the university, which including presents historical figures, the current leaders, and previous leaders.

In contrast to it, the website of the University of Helsinki shows a full-screen image of earth and use only one sentence to introduce the university's world rankings. There is no information related to university leaders or national superiors.

By observing and analyzing the different design elements of these two websites, this thesis summarizes that PDI may affect the following 6 aspects of web UI design:

Table 2. PDI _UI design - The differences between China and Finland. [1]

	High-PDI (China)	Low-PDI (Finland)
1	Background color and design style are more solemnly and authoritatively.	Background color and design style are more youthful.
2	Information is abundant and the layout is highly structured with more grids and cards.	Information is brief and the layout is simply structured with less grids and cards.
3	Strong sense of logo and symbols.	Weak sense of logo and symbols.
4	Much information about experts, authority and official certification.	Less information about experts, authority and official certification.
5	Images of leaders and cooperative partners are strikingly.	Most of images show normal people and daily activities.
6	Permission is needed for accessing information (upload files and comments).	Information is open and free to comment.

4.1.2 Individualism versus Collectivism (IDV)

Individualism and collectivism are used to describe whether people in this society are more independent or integrated to tight social groups. The high score of this dimension called individualism, which means people prefer to care about themselves and their immediate family, as well as act based on their own needs and habits. The whole social framework is free and loosely. Its opposite, the low score of this dimension called collectivism, which represents the people in this society care more for the relationship and group collaboration. They are involved in a tight social network and expect others' help and recognition. [53]

With the score of 20, China is a highly collectivist society. People tends to act based on the needs and values of their social groups. The relationship and cooperation prevail over individual work. [54] In contrast to China, as a score of 63, Finland is a typical individualist society. People are willing to act for achieving their own values. In general, they only take care of themselves and direct relatives. [55] **Table 3** shows the differences between China and Finland in terms of IDV.

Table 3. *IDV- The differences between China and Finland. [1] [54] [55]*

	Low IDV- China	High IDV- Finland
People	“We”	“I”
	People exchange personal information to gain trust and sense of belonging.	People are independent of each other and care about privacy.
	Integrate into the collective.	Take care of themselves and direct relatives.
	Team training, Cooperation, Harmony, Socially supportive.	Freedom, Challenge, Self-respect, Personality.
	Consider the situation and context.	Respect the truth.
Work	Considering other people's feeling while making a point.	Everyone has a right to say his/her own opinion.
	Focus on achieving group values.	Focus on achieving personal value.
Government	Government led the way.	Everyone has a right to vote.
Society	Be smooth and slick in establishing social relations.	People tend to be implicit and passive in interpersonal communication.
	Close-knit.	Loose-knit.

Because of these cultural differences, it is necessary for a design team to consider the rules of target societies and the users' preferences while creating website information

structure and interactive models. Some of the design differences can be seen from the website of Peking University (Figure 16¹⁵) and the University of Helsinki (Figure 17¹⁶).



Figure 16 PKU- Studying.

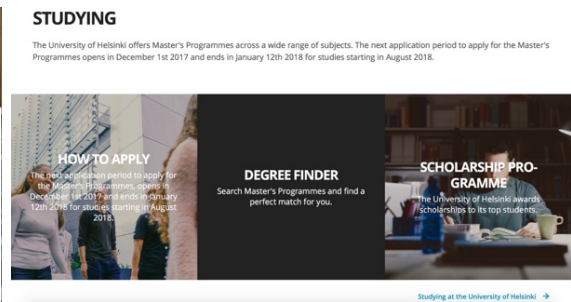


Figure 17 UH – Studying.

These two pages are both used to introduce related information about “studying in university”. But the design style and information structure is totally different.

The Chinese website mainly use pictures to respectively display the life of undergraduates, postgraduates and international students. Besides, each picture shows a group of students rather than a single student. The texts below the pictures show the amount of annual enrollment and the contact information of the admissions office. The information about application process would be displayed if the user clicks on the appropriate degree. However, the Finnish website mainly introduce the related information about application process, programmes and scholarship by text. There are only 2 pictures, and one of them shows an individual student’s learning process. Based on the analyzation of Chinese and Finnish websites, this thesis summarized 5 aspects that PDI may influence on web UI design:

Table 4. *IDV_UI design - The differences between China and Finland. [1]*

	Low-IDV (China)	High-IDV (Finland)
1	Images of groups and experienced people.	Images of youth and single people.
2	Content focus on group achievement.	Content focus on personal achievement.
3	The structure is designed to display organization classification and information.	The structure is designed to meet the individual (users)’s needs.
4	Emphasis on expressing team spirit.	Emphasis on satisfying users’ needs.
5	Show some people’s personal information to encourage others.	Protect individual’s information and differentiate them from the group.

¹⁵ PKU- Studying: <http://www.pku.edu.cn/admissions/index.htm>

¹⁶ UH- Studying: <https://www.helsinki.fi/en>

4.1.3 Masculinity versus Femininity (MAS)

The dimension of Masculinity versus Femininity is mainly used to describe whether the gender roles in a society is representing more of male qualities (such as ambition, competitiveness, achievement and heroism), or female qualities (cooperation, understanding, kindness and care). [53] A high score on this dimension is Masculinity which indicates that the society is driven by achievement, competition, and advancement. Its opposite, a low score on this dimension is Femininity which means that the society is caring more about the quality of life and harmony among people. [54] [55]

China with the score of 66 is a Masculine society. Great competitive pressures make people work harder to get material satisfaction and success. [54] On the contrary, Finland only gets the score of 26 in this dimension which is considered as a Feminine society. People in this society always work for living better. They pay more attention to improve the quality and pleasant feeling of life, as well as maintain the equality and harmony among others. [55] In terms of MAS dimension, some of the differences between Chinese and Finnish society are showed in Table 4.

Table 5. MAS- The differences between China and Finland. [1] [54] [55]

	Masculinity- China	Femininity- Finland
Work	People work hard for success and material satisfaction.	People work to improve the quality of life.
	People are willing to work overtime.	People are willing to enjoy leisure time and holidays.
	People would work far away from home to get more material rewards, work beyond family.	Work and family are equally important.
	A lot of competitive pressures between colleagues and companies.	The competition is not that intensely.
Family	Mostly, father is the head of a family.	Both father and mother can make pivotal decisions.
	Mostly, boys do physical work, girls do housework.	Both boys and girls do physical work and housework.
School	Chinese students value exam scores.	Finnish students value their ability to study.
	School classifies students according to their grades.	School offers a variety of possibilities for students with different interests.

These cultural differences are not only reflected in people's daily lives, but also affect the website construction and design. For example, there are some websites specifically

for female users in China, such as Women’s Website¹⁷. However, the websites in Finland do not focus on distinguishing user’s gender, and mostly users are both males and females. What’s more, there are other design differences can be observed from the website of Peking University (Figure 18¹⁸) and the University of Helsinki (Figure 19¹⁹).



Figure 18 PKU- Studying in University

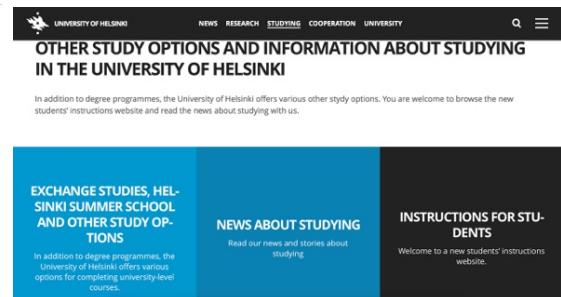


Figure 19 UH – Studying in University

The biggest difference of these two web pages is the contents. In the website of Peking University, it is obviously to see a lot of information about the discipline competition, ranking, grades, as well as the list and introduction of outstanding students. But the Finnish website is only given the relevant information about studying in university. There is no distinct competition and comparison. It is because China is a country with a lot of competitive pressure. Whether get achievement is an important criterion for organizations. Therefore, the Chinese websites usually show the ranking, rewards, and competitive advantages on their website to improve reliability. According to these existing differences, this thesis summed up how MAS affect website design in table 6.

Table 6. MAS _UI design - The differences between China and Finland. [1]

	Masculinity (China)	Femininity (Finland)
1	Distinguish user groups based on gender/ age/ social position/ work roles.	No clear distinction between different gender/ age/ social position/ work roles.
2	Contain more information about competitive advantages, ranking, etc.	No information about competitive advantages, ranking, etc.
3	The design elements are for practical use.	Design according to usability and aesthetics.
4	Horizontal menu and vertical menu are widely used for users to explore information.	Search box is used for users to explore information.

¹⁷ Women’s Website: A website with information and BBS about women’s health, fashion, friendships and relationships. <http://www.seoou.com>

¹⁸ PKU- Studying in University: <http://www.gotopku.cn>

¹⁹ UH- Studying in University: <https://www.helsinki.fi/en/studying>

4.1.4 Uncertainty Avoidance Index (UAI)

The dimension of Uncertainty Avoidance is related to how a society handles the unknown and ambiguous situation: whether to control the future or just let it happen. People from the different cultural background are used to face these potential threats in different ways. Different rituals and institutions are created to prevent the risks. [53] Countries with high UAI have the high preference for respecting beliefs, following rules, and avoiding uncertainties. Besides, the degree of tolerance of unorthodox behaviors and ideas is very low in these societies. Its opposite, countries with low UAI usually have a more relaxed attitude and a greater tolerance while dealing with uncertainties. People may change behaviors, attitudes and principles according to different circumstances. [53]

China with the scores of 30 is pretty low on the dimension of UAI, which means Chinese have greater tolerance and acceptance of the unknown and ambiguous things. [54] Simultaneously, Finland gets the score of 59 which is belong to countries with medium uncertainty avoidance (countries with high UAI such as: Greece-100, Russia- 95), which is a little bit higher than China. In terms of this dimensions, differences between China and Finland exist but not prominent. [55] The following table 7 shows the similarities and differences between China and Finland.

Table 7. UAI- The comparison between China and Finland. [1] [54] [55]

	Low UAI- China	Medium UAI- Finland
Language	Chinese language is broad and profound. The same expression often has different meanings.	People communicate directly. Language is very not that vaguely.
Business	More family business and start-up companies.	Less informal companies.
	Enterprises are more couraged to explore new international market, especially catering.	More inclined to develop in the Nordic countries and European countries.
People	Lower rate of alcoholism and depressive disorder.	Higher rate of alcoholism and depressive disorder.
	People is outgoing and conversable.	People is introverted but easy-going.
	Care more about self-health and body-building.	
	High acceptance of new things, and encourage innovation.	
	High caffeine consumption.	

People from different cultural background treat the ambiguous things in different ways. Some societies allow the occurrence of unknown events, but some take actions or create rules to avoid the risks. Therefore, there will be some differences in the design of web-

sites. The website of Peking University (Figure 20²⁰) and the University of Helsinki (Figure 21²¹) are fully demonstrating the differences.

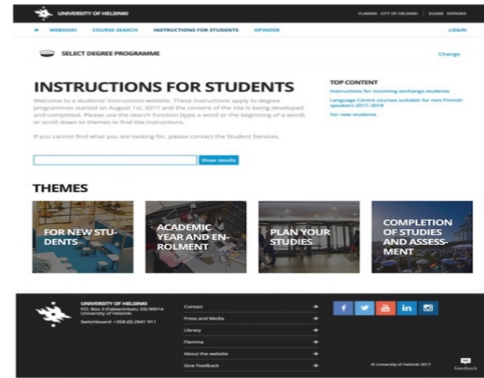
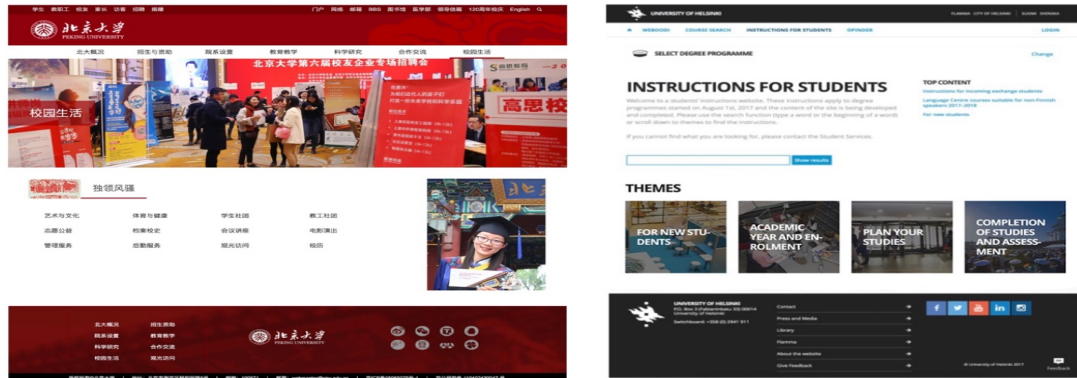


Figure 20 PKU- Instruction for students. **Figure 21** UH – Instruction for students.

These two pages are respectively belonging to two universities' websites, and used to help students find related information about university.

The PKU' web page classifies information related to college life and only lists the names of these categories on this web page. This page does not show any tips to inform users that these directories can be clicked. And the categories are not completely to covering all information. The search bar is on the upper right corner of the website which is not easy to find. In addition, these categories have a general title which is a four-character idiom. The meaning of this idiom seems to be relevant with these categories, but it is actually irrelevant. There are a few high-level words with vague meaning on every page.

The webpage of the University of Helsinki contains three parts (not all shown in the figure 21). The first part shows a big search box which makes it easy for students to find the information they want. The second part shows some of the hot topics related to student's life and recently events. The third section gives a few columns of themes. Each of these themes is distinguished by a grid and have a brief introduction. Besides, there are auxiliary information for users to reduce the operating errors and time.

Compared to these two pages, the UH's page contains more information to avoid operational errors. The PKU's page is more focus on listing information, regardless of possible errors and risks. The following table 8 summarized the design differences on the Chinese and Finnish websites more comprehensively.

²⁰ PKU-Instruction for students: <http://www.pku.edu.cn/campuslife/index.htm>

²¹ UH-Instruction for students: <https://guide.student.helsinki.fi/en>

Table 8. *UAI _UI design - The differences between China and Finland. [1]*

	Low UAI (China)	Medium UAI (Finland)
1	Mostly use text.	More colors, pictures and metaphors are used to help understanding.
2	The information is stacked, users have to find their own.	The module is clearly, and the important information can be found at a glance.
3	Search function is not placed on a visible place on the website.	More search boxes to reduce operating time.
4	Almost no tips.	Tips are used to reduce “user errors”.
5	Titles may irrelevant to contents.	Titles are all “direct words” which are closely related to contents.

4.1.5 Long-Term vs Short-Term Normative Orientation (LTO)

Long-Term versus short-term normative orientation was originally called “Confucian power” which is used to describe whether a society prefers a future-oriented or a present-oriented point of view. It refers to the extent to which members of a culture can accept the delay in satisfying their material, emotional, and social needs. Societies with a low score called short-term normative orientation, which respects the traditions and norms, as well as serious-minded fulfill the social responsibilities. On the contrary, societies with a high score called long-term pragmatic orientation, which encourages thrift and prepares for the future. [53] [54]

China gets a score of 87 in this dimension, which means it is a long-term pragmatic culture. In this society, people are more concerned about the long-term development plan. Material rewards and psychological satisfaction can be accepted as a result of current work and be received in the future. [54] Finland only scores 38 in this dimension which can be defined as a short-term normative culture. People in this society are more respectful of the truth. They prefer to follow the norms and traditions, enjoy the present life, expect immediate rewards, and have a small attention on saving for the future. [55] These differences can be shown in many aspects of people’s lives. The following table 9 listed some differences between China and Finland.

Table 9. LTO- The differences between China and Finland. [1] [54] [55]

	High LTO- China	Low LTO- Finland
Society	Practice oriented.	Truth oriented.
	Focus more on future development.	Prefer to achieve quick results.
	Whether bad or good is depending on the circumstances.	There is a clear definition of good and bad.
	Traditions and rules may change according to the actual situation.	Respect traditions and norms.
People	Learn new skills and work hard to create a better future.	To achieve the current self-worth.
	Have a greater intention to save and invest.	Have a lower intention to save and invest.
	Encourage thrift and save for future.	Enjoy the moment.
Company	Focus more on achieving a long-term market strategy.	Focus more on achieving a short-term market strategy.
Country	Developed very slowly.	Rapid development and fast economic growth.

The societies with different LTO have inequable concerns about long-term development. Therefore, there will be some discrepancies in the content displayed on the site. Peking university's web page (figure 22²²) and the university of Helsinki's web page (figure 23²³) have well illustrated these differences.



Figure 22 PKU- University.

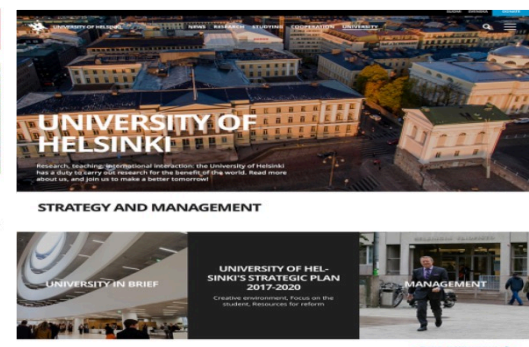


Figure 23 UH – University.

These two pages are used to introduce the related information about the university. But the design style of them are completely different.

PKU's web page contains four horizontal menus, which are: 1) menu used to distinguish user groups (Students, Teachers, Parents, Visitors, etc.); 2) menu with different contact ways (BBS, E-mail, Leader's mailbox, etc.); 3) main menu of the website (Uni-

²² PKU- University: <http://www.pku.edu.cn/about/zsjg/zsjgyxs/index.htm>

²³ UH- University: <https://www.helsinki.fi/en/university>

versity, Study, Research, etc.); 4) submenu under main menu for introducing different aspects of university (Introduction, Leadership, etc.), as well as a vertical menu which is used to distinguish service department, colleges and so on. Besides, when users move the mouse to any item of the main menu, there will show a poem before the submenu. Most of these poems express the intention that Peking University is will to effort for helping China move towards a better and progressive direction in the future.

The difference is that there is only one horizontal menu on UH's web page, which contains five main items. Most of these pages are designed with infinite scroll. Users can browse the web pages by scrolling the mouse and do not need to find information according to different navigations. Besides, the page contains more information about current events and activities. There is no subjective expression and expectation about the future plan and development. According to observation and analysis, this thesis summarized the following 4 design differences between Chinese and Finnish websites.

Table 10. *LTO _UI design - The differences between China and Finland. [1]*

	High LTO (China)	Low LTO (Finland)
1	Contain poem or statement to express the positive attitude and the vision of the future.	Simple language, more emphasis on the status in quo.
2	Content is more about practice.	Content is more about truth.
3	More navigations and functions.	Clean structure design with single navigation and search bar.
4	Contents need to be explored by users.	Contents are quickly to find.

4.2 Summary

This chapter mainly explored the cultural differences (including government, society, people, school, and family) between China and Finland according to Hofstede's 5 cultural dimensions. And analyzed the design differences between Chinese websites and Finnish websites by comparing Peking University and the University of Helsinki's web pages. Totally 24 UI design differences are summarized in table 2,4,6,8,10 to support cross-cultural designers' work, which including website structure, information architecture, navigation, user groups, functions, metaphors, and colors.

However, the author found that some of the UI differences summarized according to Hofstede's dimensions are not fully according with the current websites and users' needs (e.g. sense of logo, tips, search function). Besides, the results obtained from the model analysis were affected by many other realistic factors (cities differences, the gap between the rich and the poor), and which do not apply to all Chinese and Finnish. Thus, it is necessary to conduct user research to obtain a more accurate understanding.

5. USER RESEARCH

In order to comprehensively discover and understand the cultural differences between China and Finland, a user research including 6 semi-structured interviews and an online questionnaire with 35 respondents were conducted to strengthen the analysis of Hofstede's cultural dimensions.

For purpose of concretizing the research direction, this process mainly focused on the project concept and website of Demola company. By studying on Chinese student's views on the Demola's project concept and website to reflect the differences between Chinese and Finnish cultures, as well as to prepare for the redesign work of Demola company website and project concept.

In this chapter, the main research objectives and research questions are introduced first. The research methods and the procedure of the interview sessions and online investigation are illustrated next. A summary of the user research is given in the end.

5.1 Research Objectives

As mentioned before, analysing cultural differences only from data and models has certain limitations. On this basis, conducting the investigation of local users is conducive to get a full understanding of the target user group's needs and requirements. This user research is expected to acquaintance the needs of Chinese students for practical projects, as well as their problems and suggestions while participating in Finnish projects and using Finnish websites.

The whole user research process is divided into two parts: interviews and online surveys. On the one hand, the 6 semi-structure interviews which targeted at Chinese students who had participated in Demola project were conducted to understand these students' feelings in the project process, the problems they encountered, the suggestions they made, and their comparisons between Chinese and Finnish project. On the other hand, an online questionnaire investigation which targeted at Chinese local undergraduates and postgraduates were conducted to understand the current status and needs of Chinese students in practical project experiences.

During this user research work, these 4 research questions are mainly focused:

1. What are the main differences between participating in Chinese projects and Demola projects?

2. What are the main differences between using Chinese websites and Demola websites?
3. How do these cultural differences influence on redesigning Demola's web service for Chinese users?
4. What are the design implications for Chinese web services?

Furthermore, during the entire user survey process, participants were encouraged to express their subjective ideas, to give critical opinions, and to make constrictive suggestions for the smooth progress of subsequent redesign work.

5.2 Research Methods and Process

As introduced above, 6 semi-structure interviews and 35 online questionnaires were conducted during the user research process. In order to encourage participants to freely express their opinions and suggestions, all research-related data were ensured to be reported anonymously. The following sections will detail the entire process of interviews and online investigation, and the findings.

5.2.1 Interviews

A total of 6 semi-structure interviews were conducted. The interviewees were all Chinese university students who have participated in the Demola project. Selecting this group of interviewees aims to understand the problems that Chinese users have encountered while participating in Demola projects, and their own expectations and needs for participating in projects which helps the redesign work of project concept. What's more, by observing how this group of interviewees use the Demola website and recording how they answer the questions, to understand and summarize the Chinese users' preferences and special needs for website design.

In order to let interviewees to freely express their ideas and comments, interviews are mostly conducted in a comfortable environment with provided snacks and drinks. During the interview process, guided questions were used to encourage participants to give critical comments and constructive suggestions.

Before the interview began, the main purpose of the interview and the estimated length of time (40-45 mins) was briefly introduced. Participants needed to fill in the data consent form of being an interviewee (Appendix A1). Besides, the interviewees were informed that all the related information of the interview will only be used for academic research and be reported anonymously. When the interview began, firstly, the interviewee needed to complete a background questionnaire (Appendix A2) about his/her basic information to support the following interview process. Then, 14 questions (Appendix A3) about Demola projects and Demola websites were asked.

The basic information of the 6 participants are showed in the following Table 11. Totally 6 Chinese interviewees were participated in the interview process. Half females and half males. Every one of them is between 20-30 years old. All of them are students. All of them are involved in Information Technology field. Half of them participated Demola project only once, and half of them participated twice. Most of them were coder in their team, only 1 of them did UI/UX related design work.

Table 11. Basic information of the 6 interview participants.

	Age	Gender	Occupation	Edu ²⁴	DP ²⁵	Times ²⁶	Role ²⁷	DE ²⁸
1	25	Male	Student	PhD	Wireless Network	2	Coder	Y
2	26	Female	Student	PhD	Signal Processing	2	Coder	Y
3	26	Male	Student	Master Degree	Software Development	1	Coder	Y
4	23	Female	Student	Master Degree	Software Development	1	Coder	Y
5	26	Female	Student	Master Degree	User Experience	1	UI/UX Designer	Y
6	24	Male	Student	Master Degree	Software Development	2	Coder	N

The entire semi-structure interview process consists of 14 questions pertaining to the project concept and the Demola's current website. By constantly asking why to deeply dig out the interviewees' true feelings, as well as their comments and suggestions about the project and the website. The results of these interviews were summarized into the following 6 aspects.

²⁴ EDU: Education

²⁵ DP: Degree Programme.

²⁶ Times: How many times did interviewee participate in Demola project?

²⁷ Role: What was the interviewee's role in his/her team?

²⁸ DE: Design Experience- Does the interviewee have any experience on website design?

Aspect 1: The Chinese student's feeling of Demola Project and Website. (Table 12)

Table 12. The Chinese student's feeling of Demola Project and Website.

	Positive²⁹	Neutral³⁰	Negative³¹
The overall feeling	6	-	-
The feeling of the Projects	3	-	3
The feeling of their Team members	1	2	3
The feeling of the Team Cooperation	3	-	3
The feeling of Jam & Pitching	5	1	-
The feeling of the way to apply projects	2	1	3
The feeling of the Demola current Website	1	4	1

Overall, 6 participants gave positive comments on participating in Demola Project.

Three of them expressed great satisfaction with the content of the project, and three indicated that they were not interested in the project they participated. Five people gave a high rating of the activities (Jam& Pitching) held by Demola, and they believed that such activities are valuable and can help students learn a lot of project-related knowledge, as well as promote cooperation and communication between teams.

Half of the participants gave negative evaluations to other members of the projects team, such as “not actively participating in the project meeting and related activities”, “not following the project tasks assignment”, “hard to communicate”. Half of the participants expressed dissatisfaction with the way they applied for the project. They suggested that Demola should provide a team application mode or a mode where two or more people apply together.

Four people expressed neutrality on the current Demola website. They said that there are great differences between Finnish and Chinese website UI design style, but the Finnish website UI design is also acceptable. Only one participant stated that she was not satisfied with the UI design of the Demola website, because the website is designed with low security and low trustworthiness. She believed that Chinese students would question such educational institutions if the website is design with such design style in China.

²⁹ Positive: How many people of these 6 participants have positive feeling?

³⁰ Neutral: How many people of these 6 participants have neutral feeling?

³¹ Negative: How many people of these 6 participants have negative feeling?

Aspect 2: Problems that Chinese students encountered while participating Demola Project. (Table 13)

Table 13. Problems that Chinese students encountered while participating Project.

		Problems	x/6³²
1	Project	Project with ambiguous requirements.	3
2	Division of the work	Do not know whether to focus on prototyping or coding.	3
		Unclearly division of the work.	3
3	Team	Team members have no related technical background.	2
		Everyone's goal is different, so everyone's responsibility is different.	4
		Bad cooperation with unfamiliar people.	4
4	Activities	During pitching, hard to give critical opinions.	4

In the course of the project, Chinese students have encountered many problems which can be classified as four types. First of all, half of the interviewees said that the project requirements were ambiguous which lead into an unsatisfied result. Secondly, half of the interviewees stated that the division of the work was very unclearly. 3 of them was confused about whether they should only carry out the prototyping work or they have to do coding work. In addition, unfamiliar team members, everyone's different goals, and unappropriated technical background all affected the team's cooperation. Fourthly, 4 interviewees said that they were hard to give critical opinions during Pitching activities.

Aspect 3: The Comparison between participating Chinese project and Demola Project. (Table 14)

Table 14. The comparison between participating Chinese and Demola project.

	Chinese Projects	Demola Projects
1	People build a team with friends first, then think about topic.	People choose topic individually first, then Demola help to build a team.
2	Members have same goal - same credits.	Members may have different goal, some for credits, some for experience, some for rewards.
3	There is always an Experience Sharing Meeting at the beginning.	No such meeting but have Jam#1 & #2 to teach related skills.
4	Pitching- Team only present their results to teachers.	Pitching- Team have to present to other teams, and they have to give feedback.

³² X/6: How many people of these 6 participants have encountered this problem?

5	No clients and topics, students do according to their own idea.	Company bring up real needs and topics, the projects maybe create business value in the future.
6	Usually no rewards (money, license), only credits	License is depending on clients.
7	No facilitator, teacher never give feedback.	Facilitator always motivate and supervise the projects.
8	Teachers hold very formal presentation and activities in classroom.	Demola prepares food and drink, holds interesting and informal activities.
9	Universal phenomenon: 1-2 people handle 80% work; other people do nothing.	Everyone involved in the project and have their own work to do.
10	Groups always write all the diaries once before the deadline.	Scheduled meeting with clients and groups, need to write diary to record the process.
11	After the project, some group members still keep in touch.	After the projects, members are always out of touch with each other.
12	No designers, only coder and documenter in the group.	A group may have manager, designer, coder, etc. Students with different majors all can apply for the projects.

By comparing participating projects in China and Finland, it is easy to find that there are many differences between them, including: 1. The way to apply projects, 2. The way to decide the topic, 3. The way to form a team, 4. Project related activities (Experience sharing sessions, Jam, Pitching), 5. Project awards, 6. With or without Facilitator, 7. The follow-up development.

Aspect 4: Chinese students' comments and suggestions on the Demola project process. (Table 15)

Table 15. Chinese students' comments and suggestions on the Demola project process.

		Suggestions
1	The way to apply a project	Allow more than 2 people apply for a project together.
2	Team building	Gender balanced.
		Allocate team members according to project requirements.
3	Jam & Pitching	Publish presentation related material in advance, in order to be able to give feedback smoothly.
		Build a BBS, QQ or WeChat group for online discussion
		Publish Jam related PPT or PDF after the activity.
		Invite succeed projects to give speech.

4	Project	Make it clearly whether to build a prototype or have to code at the beginning.
		Have to build a punishment mechanism.
		Chinese university do not have 4 periods, project time should not overlap with final exam.
		Rewards is not only according to clients.
		Rewards is not only money. It also can be internship opportunity.

Interviewees brought out many suggestions about how to apply a project, how to build a team, the process of project and the project related activities. They expected that participants can apply for the project as a team or a group of 2+ people. And the proportion of males and females in the team is balanced. In additions, they would like to join experience sharing sessions by previous successful project teams. They hope there is an online platform where everyone can communicate there at any time. Besides, they expect a punishment mechanism to urge every member to be responsible and complete their work. The submission data of the project should avoid the time for the Chinese final exam period. In the end, they expect that the project's reward mechanism will not be confined into money. Internship opportunities are also attractive incentives.

Aspect 5: Chinese students' feedback on using Demola website. (Table 16)

Table 16. Chinese students' feedback on using Demola website.

		Feedback	x/6 ³³
1	Function	Some pages are not organized very well (events, news).	3
		No efficient leading tips/ hints.	2
		Important Information is not centralized.	2
		Cannot check applier projects.	1
		No systematically introduction about the project process.	1
2	Security	Low security management and reliability.	2
3	Design	Too many texts/ typefaces which are monotonous.	4
		Logo is not obvious.	3
		Background color is not good.	3
		Meaning of colors is different (red means warning, instead of completing).	2
		Layout/framework is not clear	2
		Bottom of the page is unaesthetic	1

³³ X/6: How many people of these 6 participants have given this feedback?

The feedback provided by the interviewees was summarized into 3 aspects: functionality, security, and design details. Half of the interviewees expressed that some of the web pages are not organized very well. Some of them thought there is a lack of leading hints. Some commented that important information is not centralized. 2 people considered that the website is designed with low security and reliability. More than half of people said that there are too many words on the site and the fonts are too monotonous. Half of the people thought that logo is not outstanding and the background color is not attractive enough. Besides, the use of color is not in line with the habits of Chinese users.

Aspect 6: Chinese students' suggestions for Demola website redesign work. (Table 17)

Table 17. Chinese student's suggestions for Demola website redesign work.

		Suggestion	x/6 ³⁴
1	Reliability	Successful projects should be showed on main page.	1
		Public CV under Profile.	3
		Project page show members' basic information.	1
2	Security	Information authentication while log in.	2
		An additional page to change password.	1
3	Efficient hints	Shows how many people applied	1
		Show an application flow chart to help understanding.	2
4	Functions	Prefer selected lists.	2
		Blog should be more interactive.	1
		Do not need to show completed Ps.	1
		Use pop-up window instead of going to a new page.	1
5	Design	Prefer pictures more than text.	1
		Abundant typeface, appropriate colors	2

The interviewees put forward suggestions on website's reliability, security, efficient hints, functions, and design details according to their own preferences and Chinese user's using habits. Half of them mentioned that they would like to know more about their teammates. They hope the website can provide authority for users to check their teammates' basic information and CV. Some interviewees said that the website needs authentication information to strengthen the security. In addition, effective tips are helpful for users' operation and understanding. Most interviewees have put forward suggestions in terms of functions. To sum up, they all hope that the functions can be clear and simple. Besides, 2 interviewees believe that suitable fonts and appropriate colors will increase the reliability and aesthetic feeling of the website.

³⁴ X/6: How many people of these 6 participants have put forward this suggestion?

5.2.2 Online Questionnaires

In addition to the 6 semi-structure interviews, 35 online questionnaires (Appendix A4) were conducted to study on the current situation of Chinese students in practical project experience which is used to help Demola company know if it has the possibility of entering the Chinese market. The entire investigation mainly addressed whether Chinese students lack practical project experience, whether they need practical project opportunities, and what do they think about Demola company.

The 35 participants involved in the investigation were all local Chinese students. The age of them is concentrated between 20-30 years old (20-25:65%; 25-30: 35%). Among them, 45% are males and 55% are females. 21 are students, 13 have already employed, and 2 are unemployed or on leave. 28% of them were undergraduates and 72% were postgraduates. Their majors all related to Information Technology which involves Software Development, Software Engineering, Human-computer Interaction, Wireless Communications, Computer science and Technology, and Industrial Information.

During the investigation process, the following 4 aspects were mainly concerned.

Aspect1: Chinese students do not have the opportunity to participate in practical projects which can cooperate with companies or have real clients during their studies.

Research data indicates that 75% of the participants have participated in projects during their studies. Among them, 15 joined Undergraduate Innovation Projects³⁵, 9 took part in Computer Programming Competitions³⁶, only 13 have participated in Companies involved projects³⁷. Among these 13 participants, only 54% of them indicate that they had contact with the project's clients. However, 97% of the participants believe that it is significant to participate in the projects that can cooperate with the company and communicate with real clients.

Aspect2: Chinese students lack practical project experience.

From the investigation result, 23 participants believe what they lacked most during their studies was the practical project opportunity. They cannot accumulate enough project experience before they go to work. 9 of them think professional counseling and academic supervision are what they need most. Besides, 25 participants stated that they really hope to find more opportunities to participate in practical projects while enhancing their

³⁵ Undergraduate Innovation Projects: Students form a team and think about the topic themselves. During the project process, there is no one to give feedback, and no real clients.

³⁶ Computer Programming Competitions: Students form a team and pick the topic related to the requirements of the organizer. After finishing the project, delivering it and waiting for the result. During the project process, there is no one to give feedback, and no real clients.

³⁷ Companies involved projects: Student join a company's development team and participate in process of requirements, development, design, delivery, etc. There are feedback sessions and real clients.

professional knowledge. Meanwhile, it can help to practice the team communication and teamwork capabilities.

Aspect3: The incentive mechanism when Chinese students participated in projects.

65% of the participants indicated that the project they had participated had a reward mechanism (among them, 77% have been rewarded.), 23% said no, and 12% even did not know whether there was a reward for participating projects. Besides, 23 participants said they expect the monetary rewards and internship opportunities. 10 preferred award certificates.

Aspect4: Chinese students opinions on educational institution such as Demola?

According to the data collected, 91% participants believe that the existence of this institution is necessary and meaningful. 6% of them indicated that they do have interest in it. 3% held neutral attitude.

5.3 Summary

This chapter mainly analyzed and summarized the data obtained from user research work, including two parts: semi-structured interviews and online questionnaires, to strengthen the understanding of Finnish and Chinese cultural differences, as well as to help the following redesign work.

For the Demola project concept part, most of the participants indicated that they prefer to apply a project as a team or with a group of familiar people instead of individual application. They believed that working with familiar people will be more efficient. In addition to it, some participants suggested to hold experience sharing sessions to help students know more about the project process and related details. To build an online discussion form is also necessary and helpful. In addition, they also gave advice on the projects seasons, activities and reward mechanism. With regard to Demola's current website design part, participants stated that Chinese users are highly demanding on the security of website. Besides, the framework should be clear, logo should be obvious, and design elements should be in line with Chinese user's preferences and using habits.

According to online investigation, there are only few opportunities for local Chinese students to participate in regular practical projects during their undergraduate and master studies. There is a general lack of project experience before they go to work. After introducing the Demola institution, 91% participants stated that they have a great interest in it.

6. CROSS-CULTURAL REDESIGN WORK

Based on the analysis of cultural differences between Finland and China according to Hofstede cultural dimensions and the user research of local Chinese students' perspectives and status on practical projects, the website and project process of Finnish company Demola were redesigned based on Chinese users' needs and requirements. This chapter first briefly presents the relevant information about Demola company, as well as its project process. Then, simply introduces the possibility of Demola entering the Chinese market. Finally, a presentation of redesigned website (including some details related to the project process) is given detailedly.

6.1 Case Company: Demola

6.1.1 Introduction of Demola

Demola is a Finnish institution which creates innovation cooperation opportunities for companies, universities and students, and aims to build the world's strongest innovation ecosystem (Figure 24).

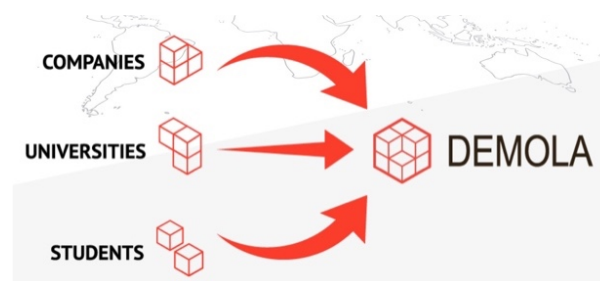


Figure 24 Demola – the world's strongest innovation ecosystem.

For companies, they come up with fresh ideas or product concepts which students can help to research and implement it in a short time and with a low cost. At the same time, through the short-term agile development, Demola service enables companies to make better investment decisions. For universities, Demola service enriches the pedagogy and course catalog, provides research topics and data, as well as offers sustainable universities-business investment and collaboration. For students, Demola provides them opportunities to participate in real cases with veritable clients and requirements. Here success depends on student's talent, capacity and ideas. The success of the project can bring students meaningful experience, credits, rewards, internship opportunities and new friends. This thesis mainly focused on students.

In every academic year, there are totally 3 application periods which are Spring (November-June), Summer (February- August), and Autumn (June-January). (Figure 24) [56, Page 11] There are more projects in Spring and Autumn periods. During these two periods, projects are following Demola’s time schedule. In addition to the prescribed activities, participants have much time for independent work. During Summer Programme, it is mainly focused on summer internships. Participants are required to have a certain number of working hours per day.

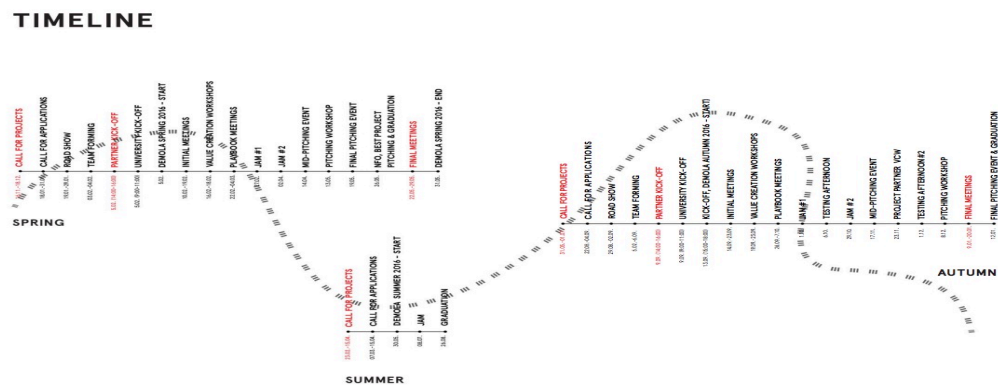


Figure 25 Demola – 2016 Timeline. [56]

During Spring and Autumn periods, in addition to the time for “Call for projects”, there are following activities held for students: 1) Road Show, 2) Kick-off Meeting, 3) Initial Meeting, 4) Value Creation Workshop, 5) Playbook Meeting, 6) Jam #1, 7) Testing Afternoon, 8) Jam #2, 9) Mid-Pitching Event, 10) Pitching Workshop, 11) Final-Pitching Event, 12) Final Meeting. [56, Page 13]

Meetings are held to supervise that every team has effective communication between clients and teammates. Through reporting the work and receiving the feedback to make sure that the team understands the requirement of its customers and clients correctly, and the project is moving into the right direction. Jams are concerned on brainstorming, creating concepts, as well as figuring out how to solve problems and how to build cross-team collaboration. Pitching is focused on getting feedback from clients, supervisors and other teams which is equal to get feedback from users to improve the project. Besides, facilitators are assigned to guide the whole journey in every project team.

If students want to participate in Demola project, they need to wait for an application period to be open, then, register on Demola website, select 3 top project priorities and fill the application form. Project team will be formed by Demola staffs. Once taking part in Demola project which means 5-10 hours work per week is needed to complete the project requirements. If the project is completed successfully and the partner wants to utilize project results, the licensing reward is paid to the team.

6.1.2 Demola and China

Nowadays, Demola has attracted a lot of Chinese students studying in Finland to participate in its projects. Most of these students gave positive evaluations and high recommendations to take part in Demola project. At the same time, Demola as an educational institution which aims to achieve global development and benefits simultaneously for students, universities and companies is turning its attention to China.

To improve students' practical ability has always been a hot topic in the field of education, especially in China which has the largest education system in the world. According to Qing-min and Lin-gen's research, practical teaching and building up open laboratory are effectively to enhance students' practical ability and create ability [57] [58]. Besides, it is showed in Shen and Liu's investigation that Chinese exchange students gain more opportunities to participate in practical projects while they are studying in Europe than in their own countries [59].

Under the circumstance, we can appropriately predict that the West educational institutions such as Demola which cooperates with companies and universities and provides practical projects for students are well suited to enter China.

6.2 Redesigned Work

Demola's basic work can be divided into three parts: for companies, for universities, and for students. This redesigned work is mainly focused on the student part.

Through the above user research on the Demola website and its project process, it is found that Chinese students have encountered certain problems in participating in projects and using websites. Besides, they have special requirements and expectations. Therefore, a redesigned website and some related details of project process was build to meet Chinese students' needs and requirements.

The redesign work of Demola website mainly includes 6 parts: 1) Home page, 2) Application page, 3) Cases page, 4) Submitting application page, 5) Log in Page, 6) Profile Page.

6.2.1 Home Page

Demola's home page has been greatly modified in terms of layout, menu, logo, color, images and site contents according to Chinese users' preferences and using habits.

Based on the design trends and principles, the redesigned layout allows users to quickly and easily browse the critical information by scrolling the long-form content. A half-screen picture gallery is showed to display Demola's recent activities. The automatically

turning images aims to display the success of the institution, award-winning projects and teams, and some meaningful activities. Two horizontal menus are retained. An item about the introduction of Demola organization is added at the beginning of the main menu. Besides, a part of white space above the main menu is used to emphasize on logo and organization name. A poem is added here to inspire and exhort students that practice is the sole criterion for testing truth.

The redesigned home page has maintained the main color tone of the Demola's current website: red, white, yellow, black and gray. But the use of these colors was adjusted. For Chinese people, red represents the party and government. In some way, red provides a sense of formality and trust. Therefore, the main tone of the website is red, gray and white. Yellow is used for buttons and black is used for the bottom part. On this basis, more images of leaders, groups, and experienced people are showed in this page. In addition to that, the content of most images is focused on group achievement.

Under the project application button, 3 grids are used to briefly introduce “who can join?”, “what do we do?”, and “what can we bring to you?” which aims to help users understand the organization simply and quickly. Then, the news, cases, successful project presentations and cooperation companies are respectively showed in 4 horizontal cards. The Chinese social software logos are displayed at the bottom of the page.



Figure 26 New Home Page.

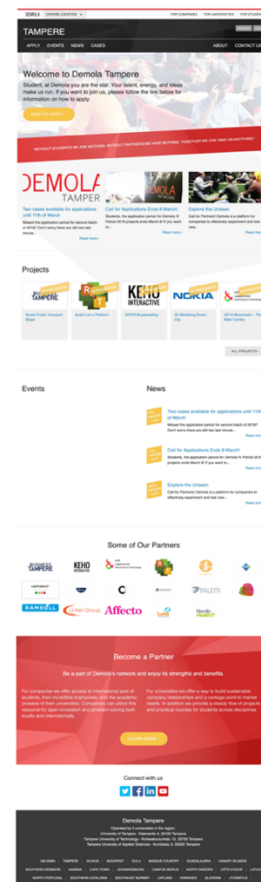


Figure 27 Old Home Page.

6.2.2 Apply Page

Compared to the old “apply page”, a vertical menu is added to the new one. The vertical menu includes the headings of the information on this page which can reduce user’s browsing and searching time, as well as avoid making mistakes. Vertical menus are widely used in many Chinese websites.

In addition, according to the feedback obtained from the user research process, the information about applying for projects is summarized and divided into 3 modules, 1) slogan and application button, 2) project application flowchart, 3) season table. By presenting the project application flowchart and season table, the relevant matters regarding the project application are clear at a glance and provides users a reliable experience.



Figure 28 New Apply Page.

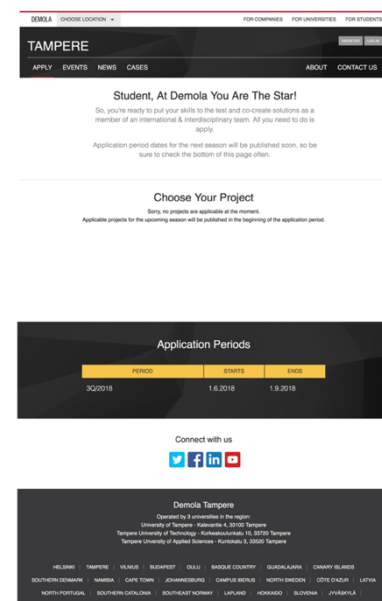


Figure 29 Old Apply Page.

6.2.3 Cases Page

After clicking the “apply for projects” button, it will jump to the page where users can browse the available projects. Different from the old page, in the redesigned page, the available projects and the completed projects are divided into 2 separate pages, which would reduce the confusion and operating mistakes.

In the redesigned page, the “Season” and “Filter by skills” parts are removed and search function is added. Through the search function, users can select the project season, related fields, and skills to browse the projects that are most suitable for themselves or are most interested. Meanwhile, this design improvement will display the information in a neat and concise way, reducing the operating time and provide users a comfortable experience.

In addition, on the old page, red is used to mark completed projects. In Chinese culture, in some situations, red means caution and attention. Thus, gray is used to mark completed projects and red is used to mark available projects on the redesigned page.

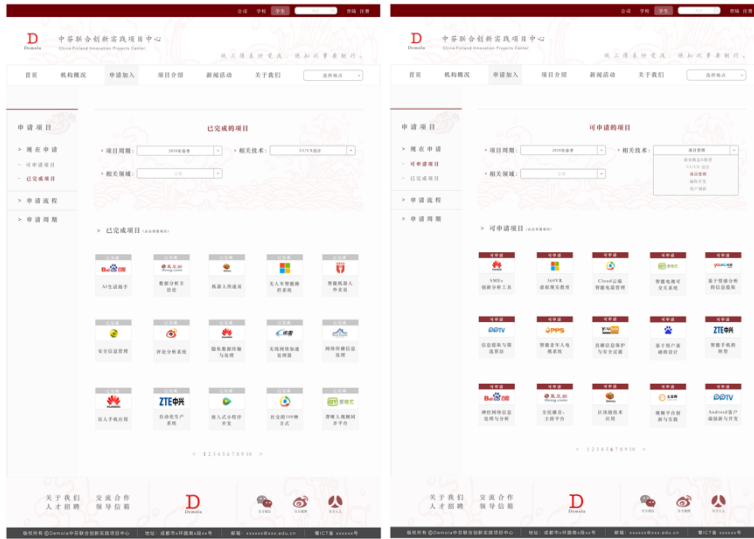


Figure 30 New Check Cases Pages.



Figure 31 Old Check Cases Page.

Clicking on the interested projects, it will jump to the page where the project information is displayed. In this page, the new design allows users to return to “check available projects” page in the vertical menu. And the vertical menu can temporarily save user’s browsed projects. They can directly view the previously browsed projects without re-searching it. The content of the project description is similar to the old Demola page.



Figure 32 New Project_Details Page.

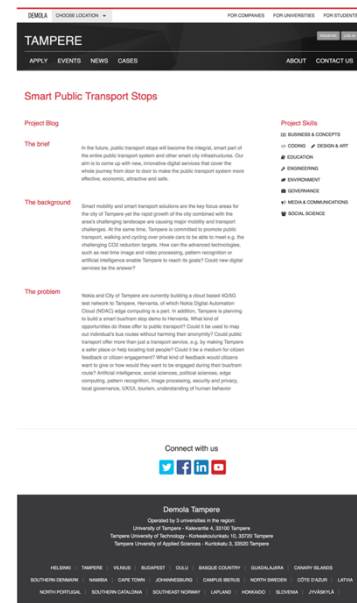


Figure 33 Old Project_Details Page.

6.2.4 Submitting Application Page

On the page for viewing project description, users can click the button to apply for the current project. After clicking, it will jump to the page for submitting application materials. In this page, the optional application methods are added, including individual application and team application. Meanwhile, the number of applicants can be selected. Besides, user needs to fill in the application form, and upload personal (team) resume or portfolio to support the application. At the end, notes can be added.

In addition, users can click on the item in the vertical menu on the left to interrupt the application and return to the previous page. Filled information is automatically saved.



Figure 34 New Submitting Application Page.

6.2.5 Login Page

In order to improve the reliability and security of Demola website, the login mode has been redesigned. According to the common login method of Chinese websites, the redesigned website allows users to login via their mobile phone numbers instead of e-mail accounts. Users can get the verification code on their phone by clicking the provided “Get verification code” button, and log in with that code. When the mobile phone number is tied to the user account, users can be notified of the progress of project application in a timely manner.

In addition to the mobile phone login method, the redesigned website also allows users to login via social software such as WeChat and QQ to facilitate user operations. For current Chinese websites, logging in via third-party software such as WeChat and QQ is a very common and popular way.



Figure 35 New Login Page.

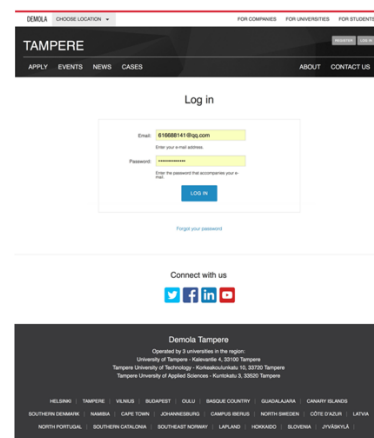


Figure 36 Old Login Page.

6.2.6 Profile Page

The redesigned profile page classifies the personal information and related projects in the vertical menu. For the personal information part, the education and work experience, emails, telephones, and student numbers are included. Besides, the function of changing password is placed on a separate page, which improves the security of the website and reduces the complexity of showing all the information in one page. For the related projects part, users are allowed to check the applied projects, ongoing projects and completed projects which is not available in the old Demola website.



Figure 37 New Profile Page.

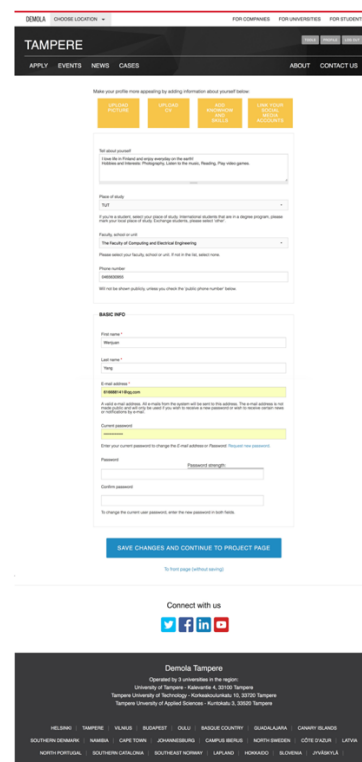


Figure 38 Old Profile Page.

What's more, a function has been added according to Chinese students' suggestions gained in the user research process. If the user clicks to view a project, such as an ongoing project, it will jump to a new page which contains the project logs, information of team members, and the link of team description. Users are allowed to check their teammates' basic information by clicking their pictures. This function can help users to know better about their teammates and maintain contact information even after the project completed.



Figure 39 New Check Project Information Page.

6.3 Summary

This chapter first introduced the relevant information of Demola company and its possibility of entering the Chinese market. Then the redesigned web pages were presented detailedly. In the redesigned website, not only the design elements including the construction of the framework, the use of colors, the content of images and text, but also some functions about the project process and user experience are modified.

In terms of design elements, the color tone of the current Demola website is maintained on the redesigned website. But the use of these colors is changed. Besides, more images of leaders, groups, and experience people were used. Two horizontal menus are retained, and one vertical menu is added. According to simplicity and visibility principles, the flowchart, table, and list are added to display the information more concisely, as well as reduce the operation time and mistakes. For new functionalities, the redesigned website provides users a way to apply the project as a team. Besides, on "Login" page, more options are available, including through the mobile phone number, WeChat, QQ, etc. What's more, users are allowed to check their teammates' basic information.

To some extent, the redesigned website reflects the influence of cultural differences between China and Finland on the design work. However, conducting user evaluation is necessary to figure out whether the redesigned website completely fits the Chinese users' preference and using habits or not.

7. EVALUATION

After redesigning work, user evaluation was conducted to examine whether the redesigned website conforms to the usage habits of Chinese local users. This chapter introduces participants recruitment at first. Then briefly describes the evaluation procedure and methods. Finally, it presents the evaluation results. A summary of the whole user evaluation process is given at chapter 7.4.

7.1 Participants and Recruitment

In order to look for participants, an advertisement about the thesis work and the redesigned website was posted in WeChat moments which is commonly used by Chinese people. Consequently, participants for the user evaluation process were recruited from those who saw the advertisement on WeChat and interested in taking part in.

A few days later, totally 6 Chinese students (studying in China) contacted and expressed their willingness to participate. They left their basic information and contact details under the advertisement (Information was not be seen by others). After contacting them by WeChat, the time to participate in user evaluation was determined. Gift cards to Aijia supermarket were used to thank for participating.

The background information of the participants is shown in Table 18.

Table 18. Background Information of the participants.

	Participant	Gender	Age	Occupation	Education	Major
Group 1	1	Male	22	Student	Bachelor Degree	Software Development
	2	Male	26	Student	PhD	Machine Manufacturing
Group2	1	Male	25	Student	Master Degree	Signal Processing
	2	Female	24	Student	Master Degree	Art
Group3	1	Male	23	Student	Bachelor Degree	Software Engineering
	2	Female	24	Student	Master Degree	Software Engineering

7.2 Evaluation Procedure and Methods

In the previous user research process, it was found that Chinese people are hard to give critical opinions, especially to those who they are familiar with. Therefore, in order to motivate participants to give objective feedback, the designer of this website was not introduced to them during the user evaluation process. In addition, 6 participants were divided into 3 groups of 2 people. The entire process includes 3 evaluations, each of which was conducted as a discussion session with 2 participants.

Every user evaluation process was around 45 minutes. Firstly, the main purpose and content of the user evaluation were basically introduced. Besides, the participants were informed that all the related information of the user evaluation process will only be used for academic research and be reported anonymously. Then, the Demola's current website was presented to participants. A briefly introduction about Demola and its project process were given here. Next, the redesigned website prototype was provided for participants to browse and use. A tasks list (Figure 40) including 9 tasks were given to participants one by one, and let them complete the tasks and think aloud. After completing the tasks, a few simple questions were asked and discussed. Finally, every participant filled out a user satisfaction questionnaire (Appendix A5).

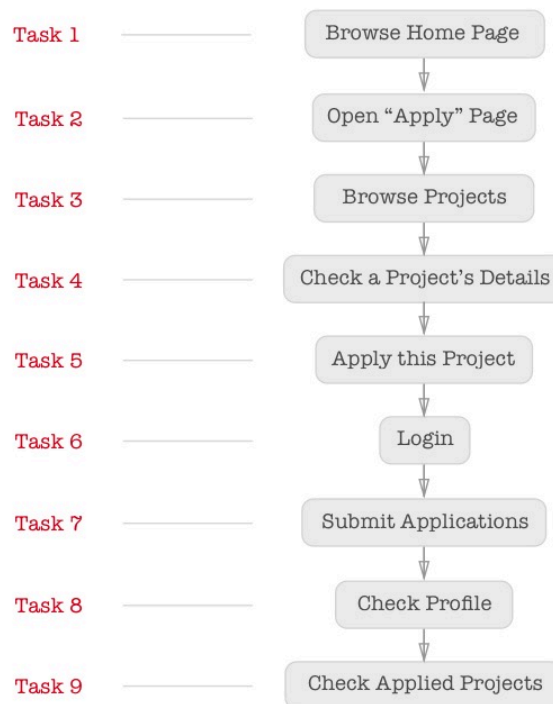


Figure 40 User evaluation tasks list.

In order to let participants to freely express their ideas and comments, user evaluations were mostly conducted in a comfortable environment with provided snacks and drinks. During the whole process, guided questions were used to encourage participants to discuss with each other, as well as give critical comments and constructive suggestions.

7.3 Evaluation Results

After completing the three groups user evaluations, six participants provided effective feedback and suggestions on website design elements, functions, and service.

Positive feedbacks:

All 3 groups expressed their satisfaction with the background color of the redesigned website. “Red, blue, white are colors which are used in most of the regular Chinese websites.” (Group1). “In my opinion, the use of dark red with white color makes me feel reliable.” (Group2). “The background color of the website looks very good. Dark red is very suitable for Chinese people’s aesthetic.” (Group3)

Besides, two groups mentioned that they are very satisfied with the design and location of the logo and title. “I like this logo and title, it is clear and understandable. In particular, I like the design of this title bar very much.” (Group1) “I like this title bar. Besides, there is poem here, which is very much in line with the theme of this site. It enriches the content of the website.” (Group2)

All of these user evaluation groups referred to the vertical menu. They indicated that the vertical menu can help users find relevant information more conveniently and quickly. And the vertical menu is widely used in Chinese websites, which is in line with the habits of Chinese users. “I can find everything I want from this vertical menu.” (Group3)

What’s more, two groups focused on analyzing login methods. They believed that login through mobile phone or WeChat and QQ is more convenient for Chinese users than E-mail. “Login via mobile phone or WeChat and QQ is widely used among Chinese social software and websites, such as Taobao, JDcom. This type of login is the most commonly used one for Chinese people.” (Group2)

Group1 mentioned the “Application flowchart” and “Season diagram” showed on the “Apply” page. They said that this kind of information can help users understand the relevant content, and reduce the time for them to think. “I like this part a lot. It solved my confusion about the application process.” (Group1)

Group3 discussed about the part on the home page which shows the past successful projects. In their opinions, this part is indispensable. “What the Chinese people like most and advocate most is to learn from their predecessors’ experience and share with each other.” (Group3)

Suggestions for improvement:

In addition to these positive feedbacks, they also provided many suggestions for improvement.

Group1 suggested to put the “Application button” (on the homepage) in a more prominent place. And the font in this part should be a little bit bigger. They think that this part of application slogan should occupy more space. Moreover, they stated that the design of the “News and Activities” section on the home page is different from the websites which they commonly used. “For example, this website (Figure 41), the ‘news and activities’ is being typeset separately and horizontally. I prefer this one.” In addition to this, a search based on keywords should be added to the page for viewing available projects. “If my friend invites me to apply for the same project, having a keyword search bar will reduce the time I used for searching it.”



Figure 41 the website showed as an example by Group1.

Group2 stated that they like the pictures showed on the home page very much. They think those pictures can prompt them to have a lot of curiosity and good feeling on this website. But, appropriate images should be added to other pages, for example, on the “Project details” page and “Check applied projects” page. The project-related or team-related picture is more appealing to users than text. In addition, they mentioned that although the background color is very much in line with the Chinese aesthetic, and it looks very comfortable. However, the website which students use frequently should be designed to be more youthful. “In my opinion, it is better to use a more refreshing color such as blue or a more youthful color such as orange.”

Group3 mentioned that in addition to the application flowchart, it is better to add a diagram of all the project-related activities and its dates in the “Apply” page. They also suggested to add the column- “Recently viewed projects” to the vertical menu in the “Check available projects” page to help users browse the project they are interested in quickly. In addition, they prefer that the website has a Chinese-English switching button because they expect the participation of foreign students.

The results of user satisfaction questionnaires

After the discussion session of the redesigned website, each participant filled out a user satisfaction questionnaire about using the website and gave an overall grade (on a scale from 1=poor to 5=very good) to it. The table 19 shows the results of these question-

naires. From the questionnaires, it was found that all of the participants gave a positive evaluation of the redesigned website. Most of them thought the service of this website is easy to use, the appearance of the service is pleasant, the functions are completely, and the navigation is clearly. However, not all of the participants strongly agree with this comment, which means the website still needs to be improved. Finally, 2 out of 6 participants gave 4 as an overall grade to the website, others gave 5.

Table 19. Results of user satisfaction questionnaires.

Evaluate the following statements	Strongly disagree	Disagree	I don't know	Agree	Strongly Agree³⁸
The service was easy to use				3	3
It was hard to perform the given tasks.	3	3			
The appearance of the service was pleasant.				5	1
I was able to find what I needed quickly.				5	1
The service included unfamiliar terms.	3	3			
It was difficult to navigate within the web site.	4	2			
The information provided by the service is valuable.				3	3
I would like to use the service also later.				3	3

7.4 Summary

This chapter mainly introduced the results of user evaluations. The entire evaluation consisted of 3 groups, each group contains 2 participants. The user evaluations were conducted as discussion sessions to evaluate the redesigned website. The feedback and suggestions were given on the website design elements, functions, and services. The 6 participants all expressed that the redesigned website is generally successful and in line with Chinese user's habits and preferences. However, there are some details still need to be improved to meet users' requirements and needs.

The entire evaluation process has progressed smoothly, but it has not received many effective critical comments. Furthermore, because of the small number of participants, the results of the user evaluation are not 100% accurate which can only be used as a reference. The next chapter will discuss and summarize the process of redesigning work, as well as user study and evaluation work.

³⁸ Strongly disagree/ Disagree/ I don't know/ Agree/ Strongly agree: How many of 6 participants had this kind of feeling?

8. DISCUSSION

In this chapter, the main results found in the design and user research process are discussed. Firstly, the differences between Demola current system and redesigned system are compared. Then, the success and challenges of the user research process are discussed. Besides, design implications including 8 aspects for Chinese web service design are summarized. Finally, the conclusion of the whole research process and the future work are presented.

8.1 Comparing Current System with Redesigned System

According to the cultural differences between China and Finland, the Demola system was redesigned to meet Chinese user's habits and preferences. Compared to the current Demola system, its website and project related issues were both redesigned for Chinese local users.

Website part

For the website part, the redesigned work was proceeding according to the analysis of Hofstede cultural dimensions, as well as the design principle and design trends.

The redesigned website retains the main colors (Red, Black, Yellow, Grey, White) of the current Demola website, but the use of these colors was changed. Dark red and white were used as background colors which take the place of dark and white on the Demola website. The background color and design style of the redesigned website are more solemnly and authoritatively.

Meanwhile, in order to enhance the user's awareness and trust of Demola website, the logo and title were emphasized, as well as more images of leaders, groups and experienced people were added, especially the half-screen automatically turning images showed on the main page. Most of these images emphasis on expressing team spirit and group achievement. In addition, some encouraging slogans and poems were also added on the pages to enrich the website's content and reliability.

Furthermore, vertical menu, hints, search list, operation flowchart, and some diagrams were added to reduce the operating time and mistakes. The login method also changed. Logging in via mobile phone or associated software such as WeChat and QQ were used instead of logging in via E-mail account. On the profile page, modifying personal in-

formation and changing account passwords are divided into two pages. Moreover, users are allowed to check the applied projects, ongoing projects, and completed projects.

Project related issues

In addition to the redesign of the website design elements and basic functions, in order to meet Chinese users' preferences, some project related issues were added and modified.

For the project application section, the redesigned system allows users to choose whether to apply the project as a team or apply it individually. The project season (including application time and project completion time) also changed according to the semester system of Chinese universities. In addition, experience sharing of successful projects has been highlighted. The "homepage" also shows relevant information which aims to provide users opportunities and materials to learn from their predecessors. Moreover, the student is required to link their university and student number with the Demola account so as to verify the identify information and make it easy for participants to get credits.

8.2 Success and Challenges of the User Research

After analyzing the Hofstede's cultural dimensions, in order to more accurately understand the differences between Chinese and Finnish cultures, the user research work including 6 semi-structure interviews and an online questionnaire with 35 respondents were carried out. In general, the entire user research process progressed smoothly.

In terms of semi-structured interviews part, the 6 participants were very cooperative throughout the entire process. Most of the interviewees gave very sincere comments on the Demola project. They put forward problems they have encountered while they were participating in the project, and also came up with many suggestions. At the same time, they also gave very objective assessments and suggestions on the future development of Demola in China.

However, all interviewees gave unanimously high ratings to Demola at the beginning of the interview and did not make any critical comments. After many questions, negative comments and effective suggestions were given finally.

Moreover, the first 2 interviews were conducted in the university library which was too formal and cautious. The interviewees were a little bit nervous. Due to the inappropriate interview place and atmosphere, not too much effective information was gained and the interview time was short. Therefore, the interview location was changed in the next 4 interviews. Some of them were conducted in the restaurant and some were in the dormitory. The whole process of these interviews was more relaxed. More effective comments and suggestions have been received.

For the online investigation, obtaining a certain number of online questionnaires is conducive to understand Chinese local students' thoughts and needs in a short time and with a low cost. In this research process, the current situation of Chinese local students in practical project experience is basically acquainted. The answer to these questions (whether Chinese students lack practical project experience, whether they need practical project opportunities, and what do they think about Demola company) are roughly found.

However, only 35 questionnaires were obtained during the whole process. It is hard to get objective results from such a small scope of participants. Besides, most of these questionnaires are located in Sichuan Province. There may be a limitation because of the regional disparity and university differences.

8.3 Design Implications for Chinese web service design

According to the previous research work, including related work and model analysis, as well as the feedback gained from user evaluation process, design implications for Chinese web service design are summarized in order to help designers from other cultures to create the website for Chinese users. There are totally 8 aspects including in the summarized design implications.

Aspect 1: Framework for Chinese websites

The overall architecture of the Chinese website's user interface should be explicitly and consistently. Designers have to put similar things together (for example under same column, or have common tab or appearance) and distinguish or separate dissimilar things. Besides, the important information should be placed in the most prominent place and it should be emphasized. The website framework which is most commonly used by Chinese users are showed below.

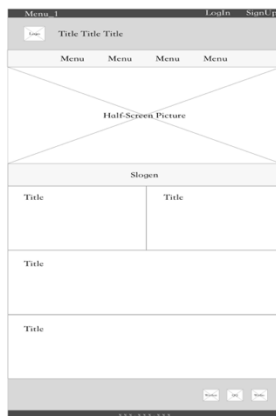


Figure 42 The framework of home page. **Figure 43** The framework of other pages.

Aspect 2: Background color

Besides on the framework shown above, there is a great deal of knowledge about the use of colors. Chinese users generally prefer the calm colors used as the website's background color which can provide them a sense of trust of the website. For instance, brick red, blue, orange, grey and white are commonly used by the websites of banks, schools, hospitals, and online-shopping shops. The most commonly used background colors for Chinese websites are showed below.



Figure 44 The most commonly used background colors for Chinese websites.

Aspect 3: Typeface

Most Chinese websites use “Songti SC” as the basic font. The content of ancient poetry would be displayed in “Kaiti SC”. The content which needs to be emphasized would be showed in “Heiti SC”, such as title and slogan. The size of the font would be different according to its content and position. The most commonly used typeface for Chinese websites are showed below.



Figure 45 The most commonly used Typeface for Chinese websites.

Aspect 4: Menu

A good navigation could help users find what they want in a very short time and with very low ratio of errors. For Chinese users, they prefer to have at least 2 menus in one page, including horizontal menus and vertical menus. The horizontal menu is the main menu of the website. The vertical menu is used to help users find relevant information. For the most Chinese websites, there is a small menu at the top right/ left part of the website which includes the buttons for “log in” and “sign up”.

Aspect 5: Images

The design of Chinese website has to be noticeably and visualized. Images are extremely important and necessary. Generally, there is a scrolling picture gallery on the main page. Besides, many images of leaders, groups, experienced people and cooperative

partners are used to express group achievement and team spirit, as well as to support the text content. In most cases, the pictures about a group will be more influential than the pictures about the individual.

Aspect 6: Logo, symbols and Title

Chinese users have a strong sense of the logo, symbols and title. Good logo and title design and appropriate using of symbols can make them feel that the website is authoritative, safe and reliable. Usually, there is a space at the top of the site dedicated to displaying the logo.

Aspect 7: Bottom part of a website

Normally, the bottom part of a website displays the manual contact information (including the official WeChat, QQ, Weibo), as well as the links of recruitment, cooperation, feedback and complaint. Moreover, the website needs to clearly indicate intellectual property right, copyrights, network business license number and public security registration number. An example of a Chinese website's bottom part shows in the following figure 46.



Figure 46 An example of a Chinese website's bottom part.

Aspect 8: Additional design elements

In order to make the user interface simple and easy to use, tips and hints should be added at the appropriate place. Poem or statement are normally added to express the positive attitude and the vision of the future. Besides, the homepage of some large websites should contain relevant information about the party and the government, such as notes of recent political meetings, party constitutions, etc.

8.4 Conclusions and Future work

Overall, the whole process of this research can be considered as a successful attempt at exploring how cultural differences influence on website design.

According to Hofstede's cultural dimensions and user research work, the differences between Chinese and Finnish cultures, as well as the different preferences and website using habits between Chinese and Finnish users are comprehensively studied. Besides,

the redesign Demola website for Chinese users received positive feedback from most Chinese users. Combined with the theoretical research, Hofstede model analyzation, user research work and user evaluation results, 8 design implications for Chinese web service design are summarized in order to help designers from other cultures to create the website for Chinese users.

Although the satisfactory results have been obtained in this study, there are still some problems not studied in depth.

According to the Hofstede cultural dimensions, China with the scores of 30 is pretty low on the dimension of UAI, which means Chinese have greater tolerance and acceptance of the unknown and ambiguous things. Compared Chinese website with Finnish websites, it is found that there are almost no tips on Chinese websites, and the search function is not taken seriously. However, during the user research and user evaluation process, most of the participants mentioned that a clear navigation and search function are very important and necessary, which can make the website to be simple and easy to use. Besides, they prefer the website with appropriate tips and hints.

It can be seen that there are certain differences between the results gained from the Hofstede's cultural dimensions and the user investigation process. Thus, studying the differences between different cultures only by analyzing Hofstede's cultural dimensions is not comprehensive. It is very necessary to conduct user research work. However, it is found through user research process that Chinese users are used to give positive feedback. They rarely give critical comments. Besides, there are great differences between Chinese users with different age, from different nationalities, or from different regions, for example, users from Beijing and Sichuan province have different living environment and habits. Therefore, summarizing Chinese local user research principles for will be the next step of the research work.

Moreover, during the research process, it is found that many of the requirements put forward by Chinese participants are different from the design elements presented on Chinese current website, including colors, framework, typesetting, and design styles. Some Chinese users believed that the current Chinese style of website design is best suited to them. But another part of the users expressed that the Chinese style is monotonous and boring. They expect fresh design style and design elements.

In my opinions, the best future website design suitable for Chinese users should integrate Chinese elements and global design trends. The new generation of China is rising and the country is opening to the world. The future development should not be limited to Chinese culture. The development of combining Chinese elements with globalization design trends will be the mainstream trend in the future. However, how to combine them will also be a research question for the future work.

REFERENCES

- [1] Marcus A, Gould E W. Crosscurrents: cultural dimensions and global Web user-interface design[J]. *interactions*, 2000, 7(4): 32-46.
- [2] Lachner F, von Saucken C, Lindemann U. Cross-cultural user experience design helping product designers to consider cultural differences[C] //International Conference on Cross-Cultural Design. Springer International Publishing, 2015: 58-70.
- [3] Smith A, Dunckley L, French T, et al. A process model for developing usable cross-cultural websites[J]. *Interacting with computers*, 2004, 16(1): 63-91.
- [4] Kujala S, Roto V, Väänänen-Vainio-Mattila K, et al. UX Curve: A method for evaluating long-term user experience[J]. *Interacting with Computers*, 2011, 23(5): 473-483.
- [5] Wong G H Y, Yek O P L, Zhang A Y, et al. Cultural adaptation of cognitive stimulation therapy (CST) for Chinese people with dementia: multicentre pilot study[J]. *International Journal of Geriatric Psychiatry*, 2017.
- [6] Jahoda G. Critical reflections on some recent definitions of “culture”[J]. *Culture & Psychology*, 2012, 18(3): 289-303.
- [7] Kroeber A L, Kluckhohn C, Untereiner W, et al. *Culture: A critical review of concepts and definitions*[M]. New York: Vintage books, 1963
- [8] Hofstede G. *Culture's consequences: International differences in work-related values*[M]. sage, 1984.
- [9] Hofstede G. Culture and organizations[J]. *International Studies of Management & Organization*, 1980, 10(4): 15-41.
- [10] Murphie A, Potts J. *Culture and technology*[J]. 2003.
- [11] Ratcliff R A. *Delusions of Intelligence: Enigma, Ultra, and the End of Secure Ciphers*[M]. Cambridge University Press, 2006.
- [12] Straubhaar J, LaRose R, Davenport L. *Media now: Understanding media, culture, and technology*[M]. Cengage Learning, 2013.

- [13] Aykin N. Overview: where to start and what to consider[J]. Usability and internationalization of information technology, 2005: 3-20.
- [14] De Bortoli M, Maroto J. Colours across cultures: Translating colours in interactive marketing communications[C]//Elicit 2001: Proceedings of the European Languages and the Implementation of Communication and Information Technologies (Elicit) conference. UK: Paisley University Language Press, 2001: 3-4.
- [15] Aykin, Nuray, ed. Usability and internationalization of information technology. CRC Press, 2016.
- [16] Lachner F, von Saucken C, Lindemann U. Cross-cultural user experience design helping product designers to consider cultural differences[C] //International Conference on Cross-Cultural Design. Springer International Publishing, 2015: 58-70.
- [17] Fryberg S, Rhys R. CULTURAL MODELS[J].
- [18] Marcus A. User interface design and culture[J]. Usability and internationalization of information technology, 2005, 3: 51-78.
- [19] Marcus A, Gould E W. Crosscurrents: cultural dimensions and global Web user-interface design[J]. interactions, 2000, 7(4): 32-46.
- [20] Street, Brian V., ed. Cross-cultural approaches to literacy. Vol. 23. Cambridge University Press, 1993.
- [21] Fiedler F E, Mitchell T, Triandis H C. The culture assimilator: An approach to cross-cultural training[J]. Journal of applied psychology, 1971, 55(2): 95.
- [22] Ross M W, Wälinder J, Lundströ B, et al. Cross-cultural approaches to transsexualism[J]. Acta Psychiatrica Scandinavica, 1981, 63(1): 75-82.
- [23] Smith A, Dunckley L, French T, et al. A process model for developing usable cross-cultural websites[J]. Interacting with computers, 2004, 16(1): 63-91.
- [24] Kamppuri M. Theoretical and methodological challenges of cross-cultural interaction design[M]. University of Eastern Finland, 2011.
- [25] Chavan A L, Gorney D, Prabhu B, et al. COVER STORY The washing machine that ate my sari---mistakes in cross-cultural design[J]. interactions, 2009, 16(1): 26-31.
- [26] Frandsen-Thorlacius, O., Hornbæk, K., Hertzum, M., Clemmensen, T., 2009. Non-universal usability? A survey of how usability is understood by Chinese and

- Danish users. In: Proceedings of the Conference on Human Factors in Computing Systems (CHI). pp. 41–50.
- [27] Munter M. Cross-cultural communication for managers[J]. *Business Horizons*, 1993, 36(3): 69-78.
- [28] Draper, Geoff (1993). "Harmonized Headlamp Design for Worldwide Application". *Motor Vehicle Lighting*. Society of Automotive Engineers. pp. 23–36.
- [29] Berners-Lee T. Longer biography[J]. Dostupné z: <http://www.w3.org/People/Berners-Lee/Longer.html>, 2006.
- [30] Tuch A N, Bargas-Avila J A, Opwis K. Symmetry and aesthetics in website design: It's a man's business[J]. *Computers in Human Behavior*, 2010, 26(6): 1831-1837.
- [31] Nielsen J. User interface directions for the web[J]. *Communications of the ACM*, 1999, 42(1): 65-72.
- [32] Galitz W O. The essential guide to user interface design: an introduction to GUI design principles and techniques[M]. John Wiley & Sons, 2007.
- [33] Baca B, Cassidy A. Intranet development and design that works[C]//Proceedings of the Human Factors and Ergonomics Society Annual Meeting. Sage CA: Los Angeles, CA: SAGE Publications, 1999, 43(13): 777-781.
- [34] Rogers Y, Sharp H, Preece J. Interaction design: beyond human-computer interaction[M]. John Wiley & Sons, 2011.
- [35] Petrie H, Hamilton F, King N. Tension, what tension?: Website accessibility and visual design[C]//Proceedings of the 2004 international cross-disciplinary workshop on Web accessibility (W4A). ACM, 2004: 13-18.
- [36] Garrett J J. Elements of user experience, the: user-centered design for the web and beyond[M]. Pearson Education, 2010.
- [37] Rosenfeld L, Morville P. Information architecture for the world wide web[M]. "O'Reilly Media, Inc.", 2002.
- [38] Galitz W O. The essential guide to user interface design: an introduction to GUI design principles and techniques[M]. John Wiley & Sons, 2007.
- [39] Marcus A. Cross-cultural user-interface design[J]. 2011.
- [40] Marcus A. User-interface design and China: a great leap forward[J]. *interactions*, 2003, 10(1): 21-25.

- [41] Schneiderman B, Plaisant C. Designing the user interface[J]. 1998.
- [42] Constantine L L, Lockwood L A D. Software for use: a practical guide to the models and methods of usage-centered design[M]. Pearson Education, 1999.
- [43] John Moore Williams. 18 web design trends for 2017. December 9, 2016.
<https://webflow.com/blog/18-web-design-trends-for-2017>
- [44] Jamie Leeson. Web design trends for 2017. 2016.
<https://www.zazzlemedia.co.uk/blog/digital-design-trends/>
- [45] Jennevie Tazon-Corre. Web design trends of 2017, 2018 and beyond. January 7, 2017 <https://www.myoptimind.com/web-design-trends-of-2017-2018-and-beyond/>
- [46] Faiola A, Matei S A. Cultural cognitive style and web design: Beyond a behavioral inquiry into computer-mediated communication[J]. Journal of Computer-Mediated Communication, 2005, 11(1): 375-394.
- [47] Juric R, Kim I, Kuljis J. Cross cultural web design: an experience of developing Uk and Korean cultural markers[C]//Information Technology Interfaces, 2003. ITI 2003. Proceedings of the 25th International Conference on. IEEE, 2003: 309-313.
- [48] Cyr D, Trevor-Smith H. Localization of Web design: An empirical comparison of German, Japanese, and United States Web site characteristics[J]. Journal of the Association for Information Science and Technology, 2004, 55(13): 1199-1208.
- [49] Alexander R, Murray D, Thompson N. Cross-Cultural Web Design Guidelines[J]. 2017.
- [50] Fey C E, Pavlovskaya A, Tang N. A comparison of human resource management in Russia, China, and Finland[J]. Organizational Dynamics, 2004, 33(1): 79-97.
- [51] Aunio P, Aubrey C, Godfrey R, et al. Children's early numeracy in England, Finland and People's Republic of China[J]. International Journal of Early Years Education, 2008, 16(3): 203-221.
- [52] Geert Hofstede – Cultural Dimensions: <https://geert-hofstede.com/cultural-dimensions.html>
- [53] Geert Hofstede - National Culture: <https://geert-hofstede.com/national-culture.html>
- [54] Geert Hofstede – National Culture – China: <https://geert-hofstede.com/china.html>

- [55] Geert Hofstede – National Culture – Finland: <https://geert-hofstede.com/finland.html>
- [56] Demola TAMPERE Annual Report 2016: https://issuu.com/demolanetwork/docs/demolaannualreport_innovationguide
- [57] Qing-min L, Gang-nian QIN. Building Open Laboratory to Enhance Students' Practical and Innovation Abilities [J][J]. Research and Exploration in Laboratory, 2010, 4: 162-165.
- [58] Lin-gen W U. Practical Teaching Improvement for Training Qualified Students [J][J]. Research and Exploration in Laboratory, 2004, 10: 004.
- [59] Shen W Q, Liu D, Chen H. Chinese Ph. D. students on exchange in European Union countries: experiences and benefits[J]. European Journal of Higher Education, 2017: 1-14

APPENDIX

A1: CONSENT TO BE AN INTERVIEWEE

We ask you to participate in an interview that is part of my master thesis work on “Cross-cultural website redesign based on the cultural differences between Finland and China”. By participating in the interview, you will help me to know how Chinese people feel about DEMOLA’s current project related issues and the design of Demola’s website.

You will be asked to fill in a background questionnaire and to think deeply about 14 questions. The interview will cost around 45 minutes. We will take pictures during the interview process. The result of the interview will be reported anonymously. All the data from user research process will only be used for academic research and be processed confidentially.

You can stop participating in the interview at any point.

We are happy to answer, if you have any questions.

By signing this form, you will accept the above terms.

Date and place: _____

Signature: _____

Name clarification: _____

A2: BACKGROUND QUESTIONNAIRE

*Nationality: Chinese

*Age: _____

*Gender:

- Male
 Female

*Occupation:

- Student
 Employee
 Unemployed or on leave

*Education:

- Bachelor degree
 Master degree
 PhD

* How many times did you participate in Demola project?

- 0
 1
 2
 3+

*Degree Programme:

*For the most recent project, which phases did you participate during the whole Demola project process?

- Kick-off Meeting
 JAM #1
 Mid Pitching
 JAM #2
 Final Pitching

*For the most recent project, what was your role in your team?

- Project Manager
 UI/UX Designer
 Graphic Designer
 Coder
 Document Writer
 Tester
 User Researcher
 Others _____

*Do you have any experience on website design?

- Yes No

Thank you! Your responses will be processed confidentially.

Signature: _____

Date: _____

A3: INTERVIEW QUESTIONS

-> About Demola Projects

Q1: As you filled in the background form that you participated XX times Demola Project, can you briefly tell me your experience of the most recent project?

Q2: You participated these XX phases, how do you feel about these activities?

Q3: You did not participate these XX phases, what is the reason that you did not show up?

Q4: What kind of form do you prefer to hold these activities? Do you think these forms of activities are suitable for Chinese students?

Q5: Were you assigned to be XX role or you chose to do related work?

Q6: How do you feel about Demola project? Is it different from the projects you have done when you studied in China?

Q7: How do you feel about your team and teammates?

Q8: How do you feel about the way to apply for projects? Is it suitable for Chinese students?

-> About Demola's current website

Q9: Have you used Demola website?

Q10: Let's use it now! How about navigation & structure, appearance (colors, pics, logos etc.), features?

Q11: Is it fully functional and user friendly for you? In your opinion, is it user friendly for Chinese users?

Q12: Could you please give some suggestions if we want to redesign this website for Chinese users?

Q13: And redesign the whole project process for Chinese students.

Q14: Do you have any questions or suggestions? Feel free to tell me.

A4: ONLINE SURVEYS- For Chinese students who are studying/ studied IT

问卷调查 – 对 IT（信息技术）领域中国大学生 / 硕士的实践项目经验调查

1. 是否是中国籍 IT（信息技术）领域的学生？ 是 否
Are you a Chinese student studying Information Technology? Yes/No
2. 年龄 (Age): <18 18-20 20-25 25-30 30+
3. 性别 (Gender): 女 男
4. 职业: 学生 在职 离职 其他 _____
Occupation: Student/ Employee/ Unemployed or on leave/ others
5. 教育情况: 本科 硕士 博士 其他 _____
Education: Bachelor/ Master/ PhD/ others
6. 专业 (Degree Programme): _____
7. 在您本科 / 硕士就读期间, 是否参与过除课程项目外的其他项目? 是 否
During your studies, did you take part in any practical project except course projects?
Y/N
8. 如果有项目经验, 您参与过的项目类型是?
If you have project experience, what kind of project have you participated in?
 大学生创新创业项目 学科竞赛项目 公司实习项目
 其他项目 _____
Innovation Projects/ Discipline Competitions/ Internship Projects/ Others
9. 您参与过的项目是否有机会和公司人员洽谈合作? 是 否
Was it possible for you to work with people in the company while doing your projects? Y/N
10. 您认为就读期间是否有必要参与与公司合作的项目? 是 否
Do you think it is necessary to participate in the projects that work with the company during the study period? Y/N
11. 您参与过的项目是否有奖励机制? 是 否
Was there any reward mechanism for the projects you have participated? Y/N
12. 您是否获得过奖励? 是 否

Have you ever been rewarded? Y/N

13. 您期待什么样的奖励机制?

What kind of reward mechanism do you expect?

奖金 证书 实习 Offer 与公司管理人员共进晚餐

其他_____

Money Bonus/ Award Certificate/ Internship Offer/ Have dinner with company project manager/ Others

14. 您认为在就读期间自己最缺乏什么?

What do you think is the most lacking part during your study period?

专业知识 专业辅导 学业监督 项目经验

实战项目机会 团队

Professional Knowledge/ Professional Counseling/ Academic Supervision/ Project Experience/ Practical Project Opportunities/ Team

15. 你最想提高什么方面的能力?

What do you want to improve the most?

专业知识 项目经验 实战项目机会 交流沟通能力

团队合作能力 团队管理能力

Professional Knowledge/ Project Experience/ Practical Project Opportunities/ Communicated Ability/ Teamwork/ Team Management

16. 如果存在一个教育类机构, 其与学校和公司同时合作, 定期为学生提出项目课题, 以供学生申请参与。您是否有意愿参加? 是 否

If there is an educational institution which cooperates with university and companies to regularly provide project topic for students to apply. Are you willing to participate? Y/N

17. 如果给你一次回到本科学习阶段的机会, 你最希望做什么事来提升自己的竞争力?

If there is a chance for you to return to undergraduate study period, what would you do to enhance your competitiveness?

感谢您的参与! 您的问卷仅被用于学术分析, 我们不会泄露任何私人信息!

Thank you! Your responses will be processed confidentially.

A5: USER SATISFACTION QUESTIONNAIRE

Below are some statements related to the web service you tested. Please check the option that best matches you level of disagreement of agreement with the statement.

Evaluate the following statements	Strongly disagree	Disagree	I don't know	Agree	Strongly Agree
The service was easy to use.	[]	[]	[]	[]	[]
It was hard to perform the given tasks.	[]	[]	[]	[]	[]
The appearance of the service was pleasant.	[]	[]	[]	[]	[]
I was able to find what I needed quickly.	[]	[]	[]	[]	[]
The service included unfamiliar terms.	[]	[]	[]	[]	[]
It was difficult to navigate within the web site.	[]	[]	[]	[]	[]
The information provided by the service is valuable.	[]	[]	[]	[]	[]
I would like to use the service also later.	[]	[]	[]	[]	[]

Which overall grade would you give to the service (on a scale from 1=poor to 5=very good)? _____

Thank you! Your responses will be processed confidentially.

Signature: _____

Date: _____