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## Differences In Cultural Perception In Websites

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By Andrew Allen

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For the degree of Master of Science

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Date

DIFFERENCES IN CULTURAL PERCEPTION IN WEBSITES

A Thesis

Submitted to the Faculty

of

Purdue University

by

Andrew Allen

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Requirements for the Degree

of

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## GLOSSARY

- Analytic culture – “involving detachment of the object from its context, a tendency to focus on attributes of the object to assign it to categories, and a preference for using rules about the categories to explain and predict the object's behavior” (Nisbett, Peng, Choi, & Norenzayan, 2001, pg. 297).
- Collectivism – “societies in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty” (Hofstede, Hofstede, & Minkov, 2010).
- Culture – “the collective programming of the mind that distinguishes the members of one group or category of people from others” (Hofstede et al., 2010).
- Holistic culture - “involving an orientation to the context or field as a whole, including attention to relationships between a focal object and the field, and a preference for explaining and predicting events on the basis of such relationships” (Nisbett et al., 2001, pg. 297).
- Independent – “an individual whose behavior is organized and made meaningful primarily by reference to one's own internal repertoire of thoughts, feelings, and action, rather than by reference to the thoughts, feelings, and actions of others” (Markus & Kitayama, 1991, pg. 226).

Interdependent – “experiencing interdependence entails seeing oneself as part of an encompassing social relationship and recognizing that one's behavior is determined, contingent on, and, to a large extent organized by what the actor perceives to be the thoughts, feelings, and actions of others in the relationship” (Markus & Kitayama, 1991, pg. 227).

Individualism – “societies in which the ties between individuals are loose: everyone is expected to look after him- or herself and his or her immediate family”. (Hofstede et al., 2010).

Multiculturalism - When a person from one culture – for instance, China – goes to another culture – the United States – that person may begin to become acculturated, picking up the same views and ways of perceiving the world as the place they are visiting. Such people are known to be bicultural, or multicultural. Studies have shown that such people tend to have results landing in between the normal results for those two cultures, unless certain steps are taken when designing a research methodology (Hong, Morris, Chiu, & Benet-Martinez, 2000).

## ABSTRACT

Allen, Andrew T. M.S., Purdue University, December 2014. Differences in Cultural Perception in Websites. Major Professor: Patrick Connolly.

The goal of this research was to determine what elements of websites are tied to the value of individualism and collectivism when viewed by two different national cultures. The research determined whether two participant groups (United States or Chinese) looked at the same or different website elements when experiencing the website.

The Website Experience Analysis protocol was used to create a questionnaire that the students filled out as they experienced the website, allowing the researcher to determine what elements of the website they were experiencing when focusing on a particular cultural or organization-public relation value. This research found that culture did have an impact on how a public perceives a website. However, this impact was not the same as what other current research would imply. It also found that website elements may be used to counter this cultural bias, and provides insight into precisely what elements can be utilized to do so.

## CHAPTER 1. INTRODUCTION

### 1.1 Background

In recent years, there has been a great upsurge in digital media. As more and more users come online and join the World Wide Web, companies face a dilemma. Their website may be seen by a far larger market. A person in the United States can view the website of a company in Germany with a click of the mouse, and then go to another website in Sweden with another click. A company that wishes to step up into the international stage must discover the answer to a long series of questions: Is it better to localize a website to target a specific country? Is it better to standardize a website, only changing its language? If a company does intend to localize their website, then how does the company do it?

This long line of questions stretches indefinitely, but what it all comes down to is this: a country's culture. How important is it? How does it impact how a person sees the world? How does it impact how that person sees a website? Finally, and most importantly, how can a company utilize culture to create a website that will satisfy its customers? It is with this last question in mind that this research came into existence. Both from a usability standpoint, as well as a content standpoint, is there a justifiable reason for a company to adjust for culture? If there is, is there a way for a company to determine if they have successfully accommodated a culture's particular worldview?

## 1.2 Significance

Though there has been a large amount of qualitative literature covering culture and how it impacts the world, there has been less research in how culture impacts websites. What few studies that exist have predominantly been quantitative in nature. By approaching this research not from the quantitative, but rather the qualitative, it may show what components or elements of websites evince these cultural values. Is it something concrete, such as the layout and design of the website? Or is it something else, perhaps the content – the images and text - of the website? Furthermore, what elements are aligning with, or conflicting with, a particular culture's set of values? Do different cultures view the same website in a different way, placing more importance in different website elements and content? The significance of this research is that it seeks to address these questions and answer them, so that companies looking into expanding to the international market may be prepared when designing their website. If successful, then companies may use this version of the Website Experience Analysis (Vorvoreanu, 2007) protocol to determine if they have correctly accommodated their target users.

## 1.3 Statement of Purpose

The purpose of this research was to determine what elements of websites align with, or come into conflict with, the cultural values of the user. If this research can show what elements of a website bring in a user's cultural values, and can show that different cultures are looking for different components due to different cultural values, then website designers for international companies may be able to take this information and apply it to their website designs. Furthermore, the WEA protocol (Vorvoreanu, 2007) can be shown to be a viable means of determining whether a company as appropriately

adjusted for a target culture's needs. As there are many values inherent to a single culture, and to attempt to cover all of the possible cultural values would be infeasible, this study will focus on a single, important cultural value – the value of an individual over that of the group. This cultural value is known by several terms, but the primary terminology used for this research is that of Individualism versus Collectivism (Hofstede et al., 2010).

#### 1.4 Research Question

The central questions to this research are:

1. What elements of a website elicit the cultural value of individualism/collectivism in a Chinese undergraduate student user?
2. What elements of a website elicit the cultural value of individualism/collectivism in a United States undergraduate student user?

#### 1.5 Assumptions

The following are the assumptions made in this research:

1. There is a need for a qualitative analysis to determine what elements of websites align with a particular cultural value.
2. Participants responded truthfully when they fill out the questionnaire for this research.
3. The number of participants was sufficient for the WEA protocol used in this qualitative research.
4. Utilizing only the English language did not have a significant impact on this research. In particular, Chinese participants were able to write down their thoughts and opinions in English when filling out the questionnaire.

## 1.6 Limitations

The following limitations took place with this study:

1. This study's participants was limited to volunteer, undergraduate participants from the winter semester of 2013, at the West Lafayette, Indiana campus of Purdue University.
2. This study only took place in English, with an English questionnaire, and a English website.
3. This study did not attempt to look at age.
4. This study did not attempt to look at gender.
5. This study did not attempt to look at time lived in United States.
6. This study was performed only in the United States.
7. This study did not attempt to look at Chinese students living in China.
8. This study only examined a single large corporation and its website, Cardinal Health. This corporation was a corporation from the United States.

## 1.7 Delimitations

The following delimitations took place with this study:

1. Only participants from the United States and China were allowed to participate in the study. No other culture can participate.
2. The study was conducted only at Purdue University, utilizing only volunteer participants from the undergraduates at Purdue University.
3. The study focused only on individualism versus collectivism, and does not attempt to cover any other cultural value.



## 1.8 Overview of the Study

There have been many studies regarding the question of culture. The studies have been both quantitative and qualitative in nature. However, few studies of a qualitative nature have attempted to apply culture to digital media such as websites. The question that this study intends to resolve is what elements of websites – content, design, or otherwise – elicit the cultural value of individualism or collectivism. Furthermore, it also intends to determine whether different cultures – China compared to the United States – look for different elements of websites when determining this cultural value. The questionnaire is meant to bring this cultural value into the forefront of the user’s mind while they are experiencing the website. After the participant read each item, he or she would then state whether he agreed with the item. Then, the participant would be asked to specifically state what element of the website caused the participant to rate the website in that manner.

## 1.9 Organization

This thesis provides four chapters. Chapter 2 covers the literature, first discussing the general impact of culture and how it influences peoples’ lives. It then focuses specifically on the cultural value of individualism versus collectivism. The chapter then covers prior research that has attempted to apply cultural research to other areas, eventually leading into how research in culture has been applied toward digital media. Chapter 3 covers the methodology of this research proposal, discussing the WEA protocol (Vorvoreanu, 2007), participant selection, and material creation. Chapter 4 examines the data and results, bringing it to a final conclusion as well as examining how this study may be further expanded upon.

## CHAPTER 2. LITERATURE REVIEW

### 2.1 Introduction

This chapter will provide an overview of the literature already in existence regarding culture, how culture affects a person's worldview and perception, and how culture is known to affect digital media. It will discuss the importance of these topics, as well as define key concepts to better understand the nature of this research.

### 2.2 Culture

In this section of the literature review, culture will be defined and discussed. Once that has been accomplished, the review will then delve into the research defining two main types of cultures, eventually taking those two main types and showing how they shape every man and woman's worldview.

#### 2.2.1 Defining Culture

There is a large body of literature that has shown that culture – which we define as “the collective programming of the mind that distinguishes the members of one group or category of people from others” (Hofstede et al., 2010), affects how men and women alike perceive the world. Cultural programming, or ‘software of the mind’ as Hofstede and his colleagues call it, falls between human nature and personality. Human nature, Hofstede states, is the equivalent of the mind's operating system. It's the core, the basis, the foundation from which all values are built off of from birth. Personality, in turn, is

that part of a human being that is not shared by another – this personality is in part learned from one's own unique experiences throughout life, and in part learned through one's culture. In short, a person has their basic human nature that they are born with, the cultural programming in which they grew up in, and the personality that has been created based off of that cultural programming as well as their own life experiences.

### 2.2.2 Two Types of Culture: Analytic versus Holistic Culture

According to research accumulated by Nisbett et al. (2001), there are two main types of cultures found in countries. There is 'analytic' culture, and there is 'holistic' culture. These two types of cultures will be shown to be directly tied to Hofstede's cultural value of individualism and collectivism (Hofstede et al., 2010), as well as Markus and Kitayama's (1991) idea of independent versus interdependent culture.

### 2.2.3 Holistic, Interdependent, Collectivist Cultures

Nisbett et al. (2001) define holistic thought as "involving an orientation to the context or field as a whole, including attention to relationships between a focal object and the field, and a preference for explaining and predicting events on the basis of such relationships" (Nisbett et al., 2001, pg. 297). Holistic cultures are tied to the idea of being interdependent. Markus and Kitayama (1991) explain someone who is interdependent with this quote: "Experiencing interdependence entails seeing oneself as part of an encompassing social relationship and recognizing that one's behavior is determined, contingent on, and, to a large extent organized by what the actor perceives to be the thoughts, feelings, and actions of others in the relationship" (pg. 227).

Hofstede et al.'s (2010) research covers several different cultural values, but when discussing holistic culture, the term 'collectivism' fits in perfectly with Markus and

Kitayama's (1991) idea of interdependence. According to Hofstede et al. (2010), the majority of cultures in the world are 'collectivist'. Hofstede defines such cultures as "societies in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (Hofstede et al., 2010). The power of the individual does not come from the individual himself, but rather the power of the group. In such a culture, the individual identifies himself or herself as part of a group – the 'We' as opposed to the 'I'. An important distinction is that this idea of collectivism is not political in nature – collectivism addresses the groups that have formed around the individual from birth onward, rather than the state itself.

How might this type of culture have come about? Nisbett et al. (2001) in particular focus on East Asian cultures, using ancient China as an example to how and why such a culture may develop. They believe that this may be due to individuals of Eastern cultures being part of a more closely knit social collectivity, in which they always view themselves in relation to others in the community. They suggest that this is due to having to constantly keep track of ever-changing social situations; particularly changes based on context.

#### 2.2.4 Analytic, Independent, Individualistic Cultures

Analytic thought, Nisbett et al. define as "involving detachment of the object from its context, a tendency to focus on attributes of the object to assign it to categories, and a preference for using rules about the categories to explain and predict the object's behavior" (Nisbett et al., 2001, pg. 297). Analytic cultures are tied to the idea of being independent. Markus and Kitayama (1991) explains someone who is independent with this quote: "an

individual whose behavior is organized and made meaningful primarily by reference to one's own internal repertoire of thoughts, feelings, and action, rather than by reference to the thoughts, feelings, and actions of others” (pg. 226). Someone who is analytic and independent conceives himself or herself as autonomous and separate from other people and the surroundings around him.

As collectivism matches to interdependent, so does Hofstede et al.'s (2010) idea of individualism match Markus and Kitayama's (1992) idea of 'independent'. According to Hofstede et al. (2010), the minority of cultures in the world are 'individualist'. They define such cultures as “societies in which the ties between individuals are loose: everyone is expected to look after him- or herself and his or her immediate family” (Hofstede et al., 2010). The power of the individual comes from the individual him or herself. There is less 'We', and more 'I'.

Why do such analytic cultures exist? According to Nisbett et al. (2001), analytic cultures stress individualism and personal choice, sometimes to the point of disregarding the social constraints of society. Western cultures such as those in the United States are less concerned with context and social situations and tend to focus their attention more on individual objects as well as people and apply logic to what they see. Nisbett's example was that of ancient Greece, in contrast to ancient China. The Greeks esteemed the individual and his right to live within the laws that he himself created and could change as needed. He applies logic and reasoning to all he sees.

#### 2.2.5 Where Cultures are Found

Thus far the research has established two main types of cultures, but where do these cultures exist? How far can these cultural ideas be generalized? Nisbett et al.'s

(2001) research points to the idea that East Asians such as the Japanese and Chinese have developed a more holistic way of thinking. Meanwhile, North American countries such as Canada and the United States have developed a more analytic style of thinking. Varnum, Grossman, Katunar, Nisbett, and Kitayama (2008) proposed that Eastern and Central Europeans tend to be more interdependent than Western Europeans and North Americans, who tend to be more independent. As such, they should have a more holistic way of thinking, if Nisbett et al.'s (2001) theory of holistic versus analytic perception is correct. Varnum et al.'s (2008) study did find that Eastern and Central Europeans do show signs of a more holistic way of thinking. According to Markus and Kitayama (1991), the same interdependent way of thinking can be a characteristic of certain African and Latin-American cultures as well. This is, to an extent, backed up by Hofstede et al.'s (2010) research into cultural values.

Hofstede et al.'s (2010) research into cultural values has established a value of IDV, standing for Individualism. This index value normally has a value between 0 (very collectivist) and 100 (very individualist). However, according to his method values above 100 and below 0 are possible. According to Hofstede et al.'s (2010) IDV value, North American countries such as the United States (91) and Canada (80), as well as Western European countries such as France (71), Britain (89), Ireland (70), were higher than Central European and Eastern European countries such as Greece (35), Austria (55), or Bulgaria (30). Asian countries tend to score low, such as China (20), Japan (46), and South Korea (18), even as Nisbett et al.'s (2001) research suggests. However, researchers must be careful when making blanket statements about regions, as values vary much by nation, not just by region. For example, Portugal (27) is in the Western Europe region,

and Hungary (80) is in Central Europe. As such, researchers should take care to focus on individual countries, rather than regions of countries, when comparing cultures.

### 2.3 Culture and How It Impacts Perception

The research has shown that there are two main types of culture and to a small extent discussed their impact on how people view the world. Now the literature review will go into greater detail as to how culture impacts a person's worldview – how they view and perceive the world around them. Here, the research will show how culture may impact business, education, language, behavior and even the physical visual mechanisms of how a person sees the world.

#### 2.3.1 Culture and Business

In his book discussing the topic, Hofstede et al. (2010) gives the true story example of a Swedish company who did business with a Saudi Arabian company. A Swedish employee brokered a successful deal with the Saudi Arabian company – as a result, he was promoted and transferred to a different division. Almost immediately afterward the contract was nearly canceled. The problem was this: for the Swedish company, business was conducted by the company. However, for the Saudi Arabians, business was conducted by individuals. In a collectivist culture, business between two in-groups – in this case, two companies – must come from when two individuals from the two in-groups establish a relationship of trust. Impersonal groups, such as a company, are not to be trusted. The Swedish employee had established such a relationship over a period of two years. When a different employee that the Saudi Arabians did not trust was appointed to take care of the deal after the other employee's promotion, they almost canceled the contract. In order to keep the deal, the original employee had to take over

the Saudi Arabian contract and account again, despite the fact that his current responsibilities were now such that he should not have been handling the contract at all.

Another business example comes from Monga & John (2008). In this study, they wished to determine the impact that culture may have on the reaction of consumers when they deal with negative brand publicity – that is to say, where there is bad news about a company's product, and the news reaches the potential buyers. Generally, the consumers blame one of two factors – internal (the brand itself) or external. Monga and his colleague's hypothesis was that holistic thinkers would be more inclined to blame external factors and give the brand itself the benefit of the doubt, compared to analytic thinkers, who would be inclined to blame internal factors and re-evaluate the brand accordingly. Through their studies, they found that “holistic thinkers are more willing to consider external context-based explanations for a brand's misfortunes, whereas analytic thinkers focus on internal object-based explanations for the brand's behavior (Monga & John, 2008, pg. 328).” By 'priming' analytic thinkers to better consider context-based explanations, they were better able to mitigate the negative brand publicity. Increasing a holistic participant's cognitive load reduced the amount of consideration they could give external factors, causing them to react more like analytic thinkers. Thus, by taking cultural differences into account, it may be possible to mitigate some amount of negative brand publicity.

One other idea that Hofstede et al. (2010) commented on was the idea of ‘universalism’ and ‘exclusionism’. A society that is universalist tends to treat people primarily on who they are as individuals and not by their group affiliations. A society that is exclusionist, in turn focuses more on social groups, giving preferential treatment to the



group that the individual is in and excluding outsiders from such treatment. In a universalist culture, there is an inherent respect for other cultures. This has important implications toward business across cultures. A universalist culture may have no problem dealing with another culture through the processes of a business deal. However, an exclusionist culture may instead give preferential treatment in business deals to those inside of their group and will not give such preferential treatment to outsiders.

According to Hofstede et al. (2010), this applies toward hiring practices as well. People from an exclusionist culture tend to hire people from a group they trust, often family members of the employer or other employees. This is seen as reducing the risk of gaining a bad employee. Furthermore, having an employee be a family member creates a group pressure on the employee to do a good job, so as to not reflect badly on the rest of his family. In contrast, those in a more individualist culture tend to avoid family relationships at work, due to fears of conflicts of interest between individuals and the company.

### 2.3.2 Culture and Education

Research by Tu (2001) attempted to address differences in education styles across cultures. He had stated that Chinese international students were having trouble taking classes in the United States, due to their culture, their poor grasp of the English language, and their preference for studying alone. He wished to discover whether or not Chinese students would benefit from a computer medium that would have a lower social presence. Tu's study found that Chinese students did not, in fact, benefit from such a medium. The computer system that they were using was a system of a bulletin board, chat room, and

email that could be used between students and instructors. Chinese students took far more time to post on the bulletin board compared to their fellow students from the United States. They tended to be lost in chat rooms as they could not keep up with the topic changes, and felt that they needed to be very careful in how they emailed their professors so as to not show disrespect. They took everything in the system very formally. They disliked the use of emoticons, as they could generally understand the tone of the poster without them. Lack of response in an email would cause a Chinese student to worry, as they tried to decide whether it would be good to send another one, or if that would bother the instructor. The list of problems the Chinese students ran into continues, but they all revolve around how their culture differed from the students from the United States. Tu's conclusion at the end of the study was that online communication could work, but only if the system was tailored to the Chinese students. According to Nisbett et al. (2001), people from holistic cultures strive to avoid conflict whenever possible. As a result of this, students from such cultures will often avoid classroom discussion in Western classrooms, as they often require debate (a form of conflict). Indeed, this was echoed by Tu's (2001) findings as Chinese students in chat rooms would only disagree with students that they knew, and would remain silent when they disagreed with people that they did not know.

### 2.3.3 Culture and Language

A study by Kashima and Kashima (2003) studied how culture and language interacts. One aspect of language that they studied is that of the 'pronoun drop' – the practice of omitting the singular pronoun "I" from a sentence. What they found is that languages spoken in individualistic cultures often require the use of "I" when an

individual is referring to him or herself. Languages spoken in collectivist cultures allow for (or even approve of) the dropping of this pronoun. As Hofstede et al. (2010) note, the English language, spoken in the most individualistic cultures, is the only language that writes “I” with a capital letter.

Hsu (1971) argues that the Chinese language does not actually have an equivalent work for ‘personality’. Personality, in the Western meaning of the word, is distinct from society and culture. It applies to the individual only. Hsu found that the closest translation was ‘ren’ (note that in his initial study, it was ‘jen’, an older way to transcribe the word), but the word does not only account for the individual, but also society and culture through which the individual finds meaning for his or her existence.

#### 2.3.4 Culture and Behavior

Bond and Smith (1996) examined a list of studies utilizing Asch’s line judgment task. Asch designed a simple experiment to test how an individual would stick to their own judgment compared to a majority. The participant would believe that he or she was a member of a group that was supposed to determine which of two lines was longer. Unbeknownst to the participant, the rest of the group were in on the experiment and would deliberately give a false answer. The participant would have to decide to stick to what he believed to be the correct answer, or conform to the majority. Over time, this experiment has been replicated in multiple countries. Hofstede et al. (2010) found that the higher the country’s individualism was, the more likely the participant was to stick to his or her own judgment. In contrast, the more collectivist the country was, the more likely it was the participant would conform to the rest of the group.

### 2.3.5 Culture and Visual Perception

Following those more general examples, there are also more concrete differences in how men and women view the world around them. First there will be a discussion on cultures' general impact of visual perception. Then, a discussion of how it impacts holistic versus partial cues, focal points and complex backgrounds, salience and context, as well as change blindness. Finally, there will be a discussion of how moving from one culture to another, thereby becoming acculturated in a new, different culture, may impact a study.

A research study by Chiu (1972) examined the differences between Chinese children and children from the United States. When presented with a picture of a man, a woman, and a child, Chinese children tended to group objects based off of perceived relationships – for instance, a 'mother and child' combination. United States children would instead group objects together based on shared features or categories, such as the man and woman both being 'adults'. Ji, Zhang, and Nisbett (2005) replicated the study, this time with Chinese and United States college students. The results were the same.

In a collection of other studies, Nisbett & Miyamoto (2005) mention that the results of Asian Americans, compared to the results of European Americans and Eastern Asians, fell in between the two, tending more toward the analytic than the holistic. This follows what is typical in multiculturalism, which will be discussed later. A study by Fernald and Morikawa (1993) examined the difference in how mothers would play with their children in the United States compared to Japan. A mother from the United States playing with her child would label the child's toys and point out their attributes.

Interestingly, Japanese mothers do not follow this trend, instead putting an emphasis on social practices and engaging in social routines.

#### 2.3.5.1 Holistic versus Partial Cues

A joint study by the University of Michigan and Hokkaido University (Ishii, Tsukasaki, & Kitayama, 2009) compared subjects from both Japan and America. The study's purpose was to discover differences in perception between Eastern and Western cultures – in this case, differences in perceiving holistic cues versus partial cues. It was believed that Westerners (from the United States), when presented with a picture of 'parts' of an object, would be faster to recognize the object than Easterners (Japanese) due to their analytic perception. Both cultures were at the same perceptual ability at understanding holistic cues – when presented with a blurred, whole object, both Japanese and American participants were able to identify equally. American participants were, however, faster at identifying objects solely from partial clues, as the researchers suspected.

The next stage of Ishii et al.'s research (2009) was conducted with Asian-American subjects, following the same methodology as the first part. Interestingly, despite the Asian-Americans having a mean stay of at least 12 years in the United States, European-Americans still perceived partial cues better than the Asian-Americans. This second study is best summed up by his quote: “It is possible that Asian-Americans are socialized in such a way that they acquire the cognitive tools of ‘seeing the forest’, whereas European-Americans appear to acquire the cognitive tools of ‘scrutinizing the trees’ (pg. 108).

So, in summary, Japanese people tend to look at the whole of an object, with a wider range of attention – that is, they took a more holistic point of view. Americans, on the other hand, tend to focus their attention much more, thus tending to perceive parts better. What does this mean for holistic visual perception? This study suggests that certain cultures are better at perceiving an object as the ‘whole’ of the object, and can better identify it when they have a holistic ‘whole’ view of it. While both types of cultures can potentially identify an object by its whole, blurred outline, analytic cultures tend to be better at identifying the object solely by a part of the object. This seems to suggest that certain holistic cultures tend to focus on the entirety of the object, rather than breaking the object down into parts as an analytic culture might.

Another interesting study of a similar nature comes from Abel and Hsu (1949), who presented Rorschach cards to United States-born Chinese participants and China-born Chinese participants. Abel and Hsu (1949) found that China-born participants tended to look at the whole of the Rorschach blot, forming their mental pattern from the whole of the picture. United States-born Chinese participants, having been acculturated in the United States, tended to focus instead on detailed parts of the blots, breaking individual parts down to form their own mental pattern.

#### 2.3.5.2 Interactions with Focal Points and Complex Backgrounds

A study by Chua, Boland, and Nisbett (2005) took place between Chinese and American participants, where they measured the eye movements of the subjects. The subjects were presented with a picture with a strong focal object and a complex background. The researchers found that the eyes of American subjects quickly went to

the focal point and stayed there, and only eventually did they move off of the focal point. In contrast, Chinese subjects were slower to move to the focal point, and had more saccadic eye movements looking away at the focal point toward the background. Furthermore, when presented with the same object in a different background, Chinese participants were less likely to recognize the object as being the same. The opposite happened when the foreground focal object changed, yet the background stayed the same. Westerners were just the opposite, recognizing the same foreground focal point object, yet having difficulty recognizing the background as being the same.

#### 2.3.5.3 Saliency and Context

Takahiko and Nisbett (2006) decided to do further research into the differences between holistic and analytic perception. In their study, they commented how in prior research Americans, when presented with an animated underwater scene, tended to speak first of the most salient objects in the screen. Once again, hearken back to the idea of ‘focal points’. Japanese participants were more inclined to speak first of the context of the situation, or the ‘complex background’. There was a marked difference in this earlier research between viewing the context and the focal point: Japanese students reported more than 60% more details about the context, or the background, compared to Americans. They also noted that when presented with an object from a prior vignette in a different context, Japanese students were more thrown off by the change compared to Americans, who tended to be less affected by the background manipulation.

While Chua et al.’s (2005) study suggested that there were differences between analytic and holistic cultures when viewing a static picture, this particular study by

Takahiko and Nisbett (2006) takes it a step further and introduces the idea of animation and moving objects. Was there a difference between a static image and a dynamic, animated image? This study seems to say no. There is still this idea of focal points and salience versus context and complex backgrounds. As noted above, the Japanese participants – this study's holistic group – took away much more detail on the background of the scene. However, this left them floundering when the background of the scene changed, but the focal point of the swimming fish stayed the same. Compare this to the Americans, who noted the focal point of the swimming fish and focused more on the fish, and less on the background. As a result of this, they reported much less about the context of the situation and the complex background, but were not so thrown off when the background changed. As a result, the Americans, the analytic culture, were still better able to identify the focal point of the fish, even though it was in a different context.

#### 2.3.5.4 Change Blindness

In the same study, Takahiko and Nisbett (2006) spoke of what they and other researchers called a 'change-blindness' paradigm. They wished to see if there was a difference between this idea of change-blindness in Eastern and Western cultures. The first part of the study found that Americans were faster to detect change than Easterners, but Easterners were more sensitive to changes in context, in the background of the scene. The second half of the study showed that, upon viewing animated vignettes, Americans were slightly more likely to pick up changes in the focal point, but Easterners were much more likely to pick up changes in context. The third study replicated much the same results as the second, only more so, perhaps due to the larger participant size.



Americans were more likely to pick up changes in the focal point, and Japanese participants were able to catch changes in context. Interestingly, they also found that American scenes tended to facilitate attention being drawn to foreground, focal objects. Japanese scenes, on the other hand, seemed to facilitate attention toward relationships and background. Takahiko and Nisbett (2006) suggest that perhaps even the environmental characteristics of these two cultures direct attention in different manners. They follow up this suggestion by speaking of other research done into this area, which actually found that Japanese towns tend to contain more objects, and to be more complex. They finish their research by commenting that other researchers have found that this attitude of looking at the context extends to memory, attention domains, and inference processes such as causal reasoning.

Perhaps the most interesting point of the study came toward the end, where Takahiko and Nisbett (2006) mentioned the research done between the difference between Japanese towns and American towns. As noted before, the idea of holistic versus analytic perception does not apply only to visual perception, but rather the entire world view of a culture. The Japanese culture, holistic in nature, tended to have more objects and have more visual complexity in their town scenes. The American subjects had less objects and less visual complexity. This suggests that perhaps the holistic tendency to focus less on objects and more on the holistic view has resulted in a culture that can tolerate large amounts of objects and visual complexity, allowing for what to an analytic culture would seem a much more cluttered world. Americans, the analytic culture, instead tend to focus on objects, and thus it may be that American towns and advertising is a lesson in focal points. Utilization of large signs such as billboards can be used to grab the

attention of the American viewer. A Japanese viewer would require much less in the way of a focal point, as he or she would already have the tendency to take in the whole of the world in their view, not just the biggest thing that draws the eye.

Another study by Boduroglu, Shah, and Nisbett (2009) also examined this concept of how culture may impact change blindness, performing two experiments. In the first experiment, each group was given two trials – color change detection, and a focal detection. The color change detection itself was split into three types of trials, location, expand, and random. The results for this trial was that East Asians scored much higher on expand color change trials, 75% higher, compared to the United States participants, with a score of 33%. They were, in turn, slower than those from the United States on the focal detection trial. According to the researchers, this was to be expected; East Asian attention tends to be allocated to the periphery of the display, rather than the focal point, even as Chua et al. (2005) showed earlier.

The second experiment by Boduroglu et. al (2009) was similar to the first, but with the expand trial of the color change detection changed to a shrink trial. This was because the researchers postulated that the East Asians would do worse on the shrink trial, as the change would be made closer to the center of the display, rather than towards the periphery like the expand trial. As the researchers expected, the East Asians did worse on the shrink trials than the Americans did, and were once again slower at the focal detection trial.

### 2.3.6 Multiculturalism

Dealing with research into culture is a tricky proposition. There are certain effects that arise when studying culture that can and will change the results of a study unless they

are taken into account. One such is multiculturalism, which was briefly mentioned before. What happens when a person from a holistic culture moves to, and spends years in, an analytic culture? How do they react – are they holistic or analytic? The answer, interestingly, is both. According to Hong et al. (2000), people who have a multicultural mindset may switch from one to the other. In their experiments, they 'primed' bicultural participants prior to the main experiment. Each participant was shown what they termed 'cultural icons' - “images created or selected for their power to evoke in observers a particular frame of mind in a powerful and relatively undifferentiated way” (Hong et al., 2000, pg. 711), and asked questions about the icons. What they suspected, and what turned out to be true, is that such priming for bicultural minds would cause them to settle in a particular mindset for each experiment. Otherwise, the control group (who was given no priming) would settle to score in between the two mindsets. This is important research to keep in mind when developing a study that may utilize a multicultural participant – for example, a Chinese international undergraduate student living in the United States. In such cases, the participant should react as a multicultural person, and any results should only be generalized to multicultural participants of the same nature.

#### 2.4 Culture in Digital Media

It has been shown that culture not only has an impact on our general perception of the world around us, but on the mechanics of our visual perception as well. If all of these differences in how people perceive the world are true, how might that apply to digital media? How does culture impact digital media? Why is it important to consider culture when dealing with digital media, such as websites?

Why is digital media – that is, media found on computers, such as websites, important in this day and age? There is a study done by Tripp and Herr-Stephenson (2009) that states that at least 93% of United States teenagers use the Internet in some form. 59% participate in activities such as blogs, making websites of their own, or creating videos. This has had an impact in schools, and schools are still today trying to compensate for that impact. Today, most schools in America have Internet access provided to their students. These students use these connections to access the web from their school environments for various purposes: as part of a course, as a means of finding research, or to keep in contact with their friends and family. More importantly, websites provide an opportunity to teach students even outside of school, in the comfort of their own homes.

This, however, only covers the United States. What about the rest of the world? According to Tiene (2002), most first world countries have as good as, if not better cyber-infrastructure than the United States. As for who is using this infrastructure:

Table 2.1: Global Internet Utilization (Tiene, 2002)

Region of the World	Internet Users (millions)	Global Users (%)
Africa	4.2	0.8%
Asia and the Pacific	144.0	28%
Europe	154.6	30.1%
Middle East	4.6	0.9%
Canada and the USA	180.7	35.2%
Latin America	25.3	4.9%
World Total	513.4	100%

As can be seen, Canada and the United States have the largest contribution to global users, but there are close numbers in both Asia/Pacific countries and Europe. The Internet is very much a global community that is only growing larger every day.

#### 2.4.1 Organization-Public Relationships and Websites

The general goal of an organization's public relations department is to maintain a positive relationship with their customers. Public relations influence how a given public perceives an organization. Websites are an important component of public relations, and having an up-to-date, viable website is very important to maintaining these public relations. To put it simply, a good website with the right elements and content can lead to a good relationship with a given target public (Vorvoreanu, 2007). Tu's (2001) experiment showed that utilizing digital media that has not been tailored toward a particular public (in this case, the Chinese students) led to a poor relationship between the digital media and the students. What if that had been an organization? How might that have impacted the business' relationship with their public?

#### 2.4.2 Website Design and Usability

Tu's (2001) study showed that there were definite differences in expectations as to how digital media should be used, covering bulletin board use, chat rooms, and emails. How does culture apply to one of the most common pieces of digital media – the website? Current research (Vorvoreanu, 2007) states that websites are an important part of organization-public relations; that is to say, they are an important communication device between customers and companies. If this is indeed the case, then researchers must examine whether or not cultures impact the usability of a website, to prevent poor public relations with the users of the website.

There is a field known as HCI – Human/Computer Interaction. This field examines how people interact with computers, particularly with hardware and software interfaces. It looks at the usability of an interface – how easy is it for the user to learn, memorize, and use the interface to perform the functions that it is supposed to be able to do. The primary focus on HCI research is on two things – the user of the interface, and the interface itself. One should always be taking the user into account when designing an interface. Refusing to take the user into account may result in, at best, a less optimal interface. At worse, it may result in a completely unusable interface. A successful human-computer interface is a requirement for a successful website design. Tu's (2001) research is an excellent example of a different culture running into usability issues when using digital media. However, that only covered chat rooms, bulletin boards, and emails. How might culture impact the usability of websites?

#### 2.4.2.1 Cultural Values and Website Design

How might these differences in cultural values affect how people view websites? How might it change how an individual culture designs their website? A study by Singh and Matsuo (2004) compared differences in cultural values found between Japanese and United States websites by performing a content analysis. While they covered other cultural values as well, they did touch upon individualism and collectivism. Website content they believed was tied to individualism and collectivism was as follows: Community relations, clubs or chat rooms, newsletters, family themes, symbols and pictures of national identity, loyalty/membership programs, and links to local websites. What Singh and Matsuo found was that, as expected, the Japanese websites were

collectivist and group-oriented, tending to have more in the way of online clubs, links to local companies, as well as national and family themes. United States websites had fewer instances of these, reflecting the fact that the United States is individualistic in nature.

A study by Robbins and Stylianou (2001) examined corporate websites from across the world. Robbins and Stylianou wished to determine whether or not websites were subject to ‘cultural homogenization’ – that is to say, websites are the same no matter what culture has created them. The researchers used cultural values to evaluate 500 top corporations (according to Fortune Magazine) and their websites. As was suggested by Singh and Matsuo’s (2004) study, Robbins and Stylianou’s (2001) study did in fact find that websites were not subject to cultural homogenization.

Here developers of websites may find a dilemma. From the above research by Robbins and Stylianou (2001) as well as Singh and Matsuo (2004), it can be shown that website content differs between cultures. Imagine that you are a Chinese user, looking at a website in the United States. You are expecting content differing from the content that you are finding on the United States website. Might not this cause a problem in usability? Would it cause the Chinese user to reject the website, based off of content alone? What about the website design? Does culture impact the actual interface of a website as well?

#### 2.4.2.2 Interface Acceptance

Evers and Day (1997) sought to use a research model to examine whether culture has an impact on interface acceptance. They examined two subject groups – 208 Chinese and Indonesian international students – and one control subject group of 38 Australian students. They used culture variables such as uncertainty avoidance, collectivism versus

individualism, high context versus low context, and several others. They ran the three subject groups through a battery of quantitative tests to see if these cultural variables showed any difference between the three cultures. As was expected, the study showed that there were differences in preferences in design features, just as there were differences in how they accepted the interface. As shown in the table on the next page, the acceptance paths differed from culture to culture.

Table 2.2: Culturally Based Acceptance Paths (Evers & Day, 1997)

Culturally Based Acceptance Paths	
Chinese	
preferences->usefulness->satisfaction->behavior	
Indonesians	
preferences->ease of use->satisfaction->behavior	
Australians	
preferences->satisfaction->behavior	

#### 2.4.2.3 Objective versus Subject Culture Approach in Usability

As shown by Evers and Day (1997), interface acceptance changes depending on what culture is looking at the interface. They seem to have shown that both content and interface design should be adjusted for when designing for a culture. Yet, how far should a website designer go? According to Ford and Kotze (2005), the Objective culture approach suggests that meaning is the central issue in culture when dealing with human-



computer interaction (HCI). Those in favor of a more objective based method for creating an interface believe that elements of the user interface dealing with meaning – symbols, icons, and language – need to be taken into consideration in translation to the target culture. The Subjective cultural approach, on the other hand, suggests that it is necessary to go farther – to design the interface to reflect values, ethics, and morals of the target user.

#### 2.4.2.4 Language and Perceived Usability

So if a website designer is going to take the Subjective cultural approach, then a website's design must be tailored to a particular culture – not just with design and content, but with the values, ethics and morals of the users. How is the best way that a website designer might do so? What if a website designer decided to design a website from the ground up in that culture's native language? Would that aid in usability? A study by Nantel and Glaser (2008) examined the possibility that online retailers may be reducing the usability of their websites when attempting to sell products abroad. They wished to discover whether it was enough to translate the website, or whether it might be better to go so far as to conceive the entire website, from the ground up, in its native language and culture.

The underlying question of the research is whether or not there were, in fact, ideas and concepts being lost in translation which cause the perceived usability of the website to be impaired. In order to test this, they chose a pair of Canadian websites - one website originally conceived in English with a French translation, and one website originally conceived in French with an English translation. They did qualitative testing on a subject

pool, testing two primary dimensions – the usability of the website, and the quality of the offer. They found that the conceptual language did have a statistically significant impact on the website's perceived usability. French speakers rated the French site higher than the English site on usability. English speakers rated the English site higher than the French site on usability. As Nantel and Glaser (2008) noted, “Thus, even if a translation is perfect, the natural structure of a site still reflects the original logic (cognitive schema) of its native culture and thus, as in these two examples, it can reduce its perceived usability” (pg. 118). They did, however, note that the conceptual language of the website did not seem to impact the 'quality of the offer' dimension, as consumers focused more on quality and price of the product.

How does this impact how websites are viewed by different cultures? How might it affect a website's message, its selling offers, and its advertisements? According to Singh and Matsuo (2004), websites telling people what to do may be taken with a dim view in analytic cultures, but may be better received in holistic cultures. An advertisement that seems to give an analytic culture more freedom to do as they choose may do very well. For a holistic culture, on the other hand, it may be better to move toward a more viral marketing approach, targeting groups as opposed to individuals. When designing an advertisement for an analytic culture, the designer would want the message to be clear and unambiguous, that there is a decision between X and Y, and of course X is the better choice than Y. A holistic culture may, instead, be fine with a message that has multiple meanings, some of them even possibly conflicting with one another. When viewing a website, a person from an analytic culture does not need to think any further than the message that it is showing. The website should be simple

enough to grasp, perhaps even when the listener not paying full attention. There should be fewer contexts, and more explicitness. A person from a holistic culture, on the other hand, may read further into the message, taking from it holistic cues and values from their culture that gives it the message that the website designers want it to say. It may, in part, be due to this that many websites from holistic cultures may seem strange to analytic cultures. If the cultural values are different, then the analytic culture is missing the holistic 'cues' that give the website the intended meaning.

#### 2.4.2.5 Localization versus Standardization

What the entire argument about website design and culture eventually comes down to this question: is it better for a website designer to standardize a website, having the same content while perhaps only changing the languages and measures? Is it better instead to localize and adapt a website to a specific culture, when that culture is the target user group for the website? Another study by Singh, with Furrer and Ostinelli (2004), discusses whether or not companies should localize and adapt their websites to a particular culture, or to instead standardize how their website looks so that it is roughly the same across cultures. Some companies seem to believe that merely translating their website from its current language to the culture's language is enough. According to the study, this translation should only equate to perhaps 10 to 15% of the localization effort. There are many other factors Singh et al. suggests taking into account, such as standard and formats, language dialects, rhetorical style, colors and units of measurement.

Singh et al.'s (2004) study makes mention of a company called Cybex who specializes in translating and adapting websites for their customers. In some cases after

doing so, the hit rate of those websites tended to grow significantly higher, in at least one case almost 2000% or more. Singh et al.'s (2004) goal was to determine how localizing and adapting a website affects the website's effectiveness, and to compare such a website to standardized websites lacking such adaptation. As can be expected, their findings varied from country to country and from culture to culture. However, generally speaking, a normal, local website for the culture scored the highest, followed by an adapted and localized website, followed by a standardized website at the lowest.

## 2.5 Conclusion

Research has shown that there are a myriad variety of cultures in the world (Hofstede et al., 2010, Markus & Kitayama, 1991; Nisbett et al., 2001; Varnum et al., 2008). One of the key cultural values is that of individualism and collectivism. It has been shown by a variety of sources (Abel & Hsu, 1949; Boduroglu et al., 2009; Bond & Smith, 1996; Chiu, 1972; Chua et al., 2005; Fernald & Morikawa, 1993; Hofstede et al., 2010; Hong et al., 2000; Hsu, 1971; Ishii et al., 2009; Kashima & Kashima, 2003; Monga & John, 2008; Nisbett et al., 2001; Nisbett & Miyamoto, 2005; Takahiko & Nisbett, 2006; Tu, 2001) that culture does have an impact on how people perceive the world around them. There has also been further research establishing that localizing and adapting websites (Singh et al., 2004) as a significant effect on a website's effectiveness. As part of that localization effort, keeping varying cultural values in mind (Singh & Matsuo, 2004) may be very important. Perhaps it is at least in part these differences in perception that comes from an analytic or holistic view that help determine a website's effectiveness for a particular culture, as well as those already noted by Evers and Day (1997), Nantel and Glaser (2008), Robbins and Stylianou (2001), and Ford and Kotze (2005). This may

be another factor to consider when localizing and adapting a website for a particular country and culture, and certainly something to keep in mind when entering the growing global marketplace.

Yet, after having reviewed all of this literature, there is still one thing that is not entirely certain. Exactly what content ties into cultural values? There has been some quantitative testing performed, yet there has been much less qualitative. According to the research reviewed above, culture certainly has an impact on the world, how people perceive it, and how people perceive websites. Culture is not easily quantified, and the research could use a qualitative research methodology to aid in determining just what elements of a website tie into a specific cultural value such as individualism versus collectivism.

## CHAPTER 3. METHODOLOGY

### 3.1 Introduction

This study utilized Vorvoreanu's (2007) Website Experience Analysis (WEA) protocol. This protocol was chosen as it provides a means to determine what website elements are being experienced in conjunction with the cultural value of individualism versus collectivism. The methodology is qualitative in nature. Vorvoreanu argues for an experience-centered approach that focuses on the website user's experience, as opposed to utilizing a content analysis approach such as Singh and Matsuo's (2004). According to Vorvoreanu (2007), "The website, taken as a text, is not a repository of meaning awaiting to be extracted by website visitors. Meaning is created in the process of interaction between the visitor and the website" (pg. 6). WEA examines how a user experiences the website. It examines the temporal elements – how the experience folds out over time – as well as the spatial elements – the virtual space composed of the elements of the website

### 3.2 Research Question

The central questions to this research, once again, are:

1. What elements of a website elicit the cultural value of individualism/collectivism in a Chinese undergraduate international student user?

2. What elements of a website elicit the cultural value of individualism/collectivism in a United States undergraduate student user?

### 3.3 Participant Selection

According to Vorvoreanu (2007), website usability research is the closest protocol to Website Experience Analysis, the research protocol used by this study. Nielsen (2000), a known researcher in usability, states that only five participants are needed for website usability research. Any more participants from the same user group result in repetitive results. Nielsen further notes that website designers should test additional users when there are multiple, distinct groups of users. In such a case, a company may wish to utilize participants from each group. Nielsen states that when testing two groups of users, companies need test only three to four individuals from each group. The smaller amount required is due to having the overlap in observations between the two groups.

Therefore, this research had two groups of participants. This research aimed to discover if there are differences in how Chinese users experience a website compared to how United States users experience a website. In accordance with Nielsen's suggestion, there were four participants allowed in each group.

How might the findings from these two groups be generalized? When interpretation may vary from visitor to visitor, it could be argued that it would be impossible to generalize user experiences. Fish (1980) addresses this with the concept of interpretive communities. Interpretive communities are composed of those who see and interact with the world in the same manner. They share the same body of assumptions, knowledge, and speak the same language. People in such communities interpret text and other such communication in the same way, and take similar meanings from the content.

It is through these interpretive communities that findings of the WEA protocol may be generalized.

What else is culture but a form of interpretive community? By its very definition, culture is a form of interpretive community. People from the same culture tend to share the same body of knowledge, the same language, some of the same assumptions, and certainly research seems to imply they interpret text and content in the same way. Therefore, findings of a few Chinese international undergraduate students may be, to a point, generalized to the interpretive community and culture of Chinese, international undergraduate students. Similarly, findings of a few United States undergraduate students may be generalized to the interpretive community and culture of United States undergraduate students born in their country. Fish (1980), Hofstede et al. (2010), and Vorvoreanu (2007) are in agreement that studies of this nature should not be generalized to an interpretive community (or a culture) as a whole. Studies such as this are a tool to understand a small parcel of the culture. It is not a means to grasp such a large concept as an entire culture.

The participants for this study were undergraduate students from Purdue University. While utilizing such a convenience sample may be a limitation, according to Vorvoreanu (2007) it is an acceptable one as undergraduate students are a valid public of corporate websites. Undergraduate students may use such a website as they research products or seek employment. Such students are also certain to be the next wave of consumers as they proceed through life.



### 3.3.1 Chinese Participants

Research (Hofstede et al., 2010; Markus & Kitayama, 1991; Nisbett et al., 2001) indicated that the Chinese make ideal participants for showing a holistic, interdependent, collectivistic culture. These Chinese students were international undergraduate students studying at Purdue University. According to Hong et al. (2000), if measures were taken then these students could be made to react much the same as a person in the Chinese home country. However, this is not the target of this study. This study is not attempting to generalize out to undergraduate Chinese students in general, as Chinese students who have never left their country would not have been subjected to the same multiculturalism. Instead, it focuses on Chinese international students who have spent time in the United States, and the implications of this study should only apply to such international students. Therefore, in order to qualify for this study, the student must have been a native-born citizen of China prior to coming to Purdue University. This study did not, however, look at how long participants had lived in the United States. It is, therefore, expected that Chinese participants, having resided in the United States for some time, would react in a multicultural way.

### 3.3.2 United States Participants

Research (Hofstede et al., 2010; Markus & Kitayama, 1991; Nisbett et al., 2001) indicated that people from the United States make ideal participants for showing analytic, independent, individualistic cultures. In order to qualify for this study, the student must have been a native-born citizen of the United States.

### 3.3.3 Participation Reward

Each participant was been paid five US dollars for participating in this research.

### 3.4 Materials

This study utilized a variety of materials – a Fortune 500 website (Cardinal Health, 2013), a demographics sheet to determine participant viability (Appendix A), and the main focus of the study, questionnaire sheets to evaluate each website (Appendix B).

#### 3.4.1 Website

This research primarily targeted organizations and their public relations. As Vorvoreanu (2007) chose to do in the initial WEA study, this research will also utilize websites chosen from the Fortune 500 list of companies. Specifically, from the Fortune 500 website (Fortune 500, 2013), a single website from the top 100 websites of the Fortune 500 list of 2013 (revenue of \$25,669,100,000 - \$421,849,000,000) was randomly chosen via a random number generator as the website that participants will evaluate with their questionnaire sheet. The website chosen was Cardinal Health (2013), ranked 19 at the time. This corporation's website was easily found by a major search engine.

#### 3.4.2 Demographics Sheet

A demographics sheet (Appendix A) was prepared for each student. Once it had been evaluated, the researcher could choose to disqualify a student from participating in the study if their nationality does not fit the specifications allowed within this study. The demographics sheet had the following: age, gender, nationality, enrollment status with Purdue University, and website design experience.

##### 3.4.2.1 Age

No participant was disqualified due to age.

#### 3.4.2.2 Gender

No participant was disqualified due to gender.

#### 3.4.2.3 Nationality

Only participants from the United States or from China were allowed to participate in this study.

#### 3.4.2.4 Enrollment Status/Academic Level

Only undergraduates who, at the time, were currently enrolled in Purdue University, West Lafayette campus were allowed to participate.

#### 3.4.2.5 Website Design Experience

No participant was allowed to have website design experience (determined by whether or not they had any experience with either HTML or CSS programming for website design).

### 3.4.3 Questionnaire

Each participant was asked to fill out a single questionnaire (Appendix B). They first rated how familiar they are with the Fortune 500 company's website. After that, they addressed a series of statements regarding individualism versus collectivism as well as organization-public relation values. Each item followed Vorvoreanu's (2007) WEA protocol. Each item was composed of a statement, a Likert scale of how much the participant agreed or disagreed with the statement, followed by an open ended question that asked what elements of the website caused the participant to rate the company in that manner. Each item was composed so as to not direct the user toward a particular website element. The questionnaire alternated between cultural questions and organizational-

public relations questions. The five cultural questions came from Hofstede et al.'s (2010) discussion of how individualism and collectivism impact the workplace. The organizational-public relations questions came from Vorvoreanu's (2007) original WEA analysis questionnaire, featuring five dimensions of organization-public relationships: commitment, involvement, openness, dialogue, and trust. The questions were as follows:

1. Do you think that workers at this company pursue their employer's interests, so long as it matches their own interests?

This question was one of the culturally related questions. Employees in an individualistic country will follow the employer's interest so long as it matches their own self-interest. Employees in a collectivist country instead will pursue their in-group's interest instead.

2. Do you believe this company is interested in maintaining a relationship with its customers?

This question aimed to discover how the participant feels about the theme of commitment in the company. It examines the decision of a company to maintain a relationship with a given public, and how they work to achieve it (Vorvoreanu, 2007).

3. Do you think that employees at this company work best when working in a group, as opposed to individually?

This question was one of the culturally related questions. According to research (Hofstede et al., 2010) employees from an individualistic culture tend to do the best when they are working as individuals and are awarded individually. Employees from a collectivist culture tend to do the best when they are working in a team and are awarded as a team.

4. Do you believe that this company enjoys helping its customers?

This question aimed to discover how the participant feels about the theme of involvement in the company – the time and resources invested by the company allocated toward community involvement and building communal relationships (Vorvoreanu, 2007)

5. Do you think that continual poor performance of an employee at this company is seen as reason to fire the employee?

This question was one of the culturally related questions. According to research (Hofstede et al., 2010) poor performance of an employee at an individualistic company, plus a potential better performance from a current or prospective employee, is seen as acceptable grounds for firing an individual. In a collectivist society, however, the workplace becomes its own in-group. Firing an employee is seen as much like firing one's own child. While the employee may not be fired, the performance of an employee determines what tasks for the company are given to him. A poor employee gets relegated less and less important tasks.

6. Do you think that this company is open about sharing information with their customers?

This question aimed to discover how the participant feels about the theme of openness in the company. It primarily looks at how open the company is about its practices and its information, and whether participants may feel it may (or may not be) hiding information.

7. Do you think that customers related to this company's employees get preferential treatment?

This question was one of the cultural related questions. According to research (Hofstede et al., 2010) customers related to employees of a collectivist company tend to get preferential treatment over other customers. In contrast, an individualistic company will avoid being seen as giving preferential treatment to a customer due to family ties.

8. Do you feel that this company is interested in what its customers have to say?

This question aimed to discover how the participant feels about the theme of dialogue in the company. Participants should be examining how the company is listening to and communicating with its customers (Vorvoreanu, 2007).

9. If a bonus in pay is given at this company, do you think it is given to a group of employees as opposed to an individual employee?

This question was one of the cultural related questions. According to research (Hofstede et al., 2010), a collectivist company's bonuses in pay are given to a group of employees that has performed well. In an individualist company, a bonus in pay is given to a particular employee that has worked well, even if that employee is part of a larger group.

10. Do you believe that customers should trust this company?

This question aimed to discover how the participant feels about the theme of trust in the company. Participants should be focusing as to whether they feel that they should trust the company and why they feel that way (Vorvoreanu, 2007).

### 3.5 Procedure

Participants were taken to a room, one at a time, where a single laptop computer was set up with the Cardinal Health (2013) website. Each participant was provided an informed consent form approved by the institutional review board protocol for human

participants. Once they gave their consent, each participant filled out the demographics sheet (Appendix A). Once it was determined that the participant does fit the requisite profile, participants began filling out their questionnaire. Participants were allowed as much time as they like to browse through the website. They were allowed to view the entirety of the website as they thought and wrote down their answers. Once each participant finished his or her questionnaire, the researcher cleared all cookies and temporary internet files in order to ensure each participant had the same experience of the website.

The researcher was nearby in the lab, but not participating in the study in any way unless the participant wished clarification of one of the questions on the questionnaire. If he was asked such a question, it was up to the researcher's discretion whether he feels the question should be answered, and if he does answer, it was to be duly noted. No such questions were asked throughout the study.

## CHAPTER 4. RESULTS

### 4.1 Demographic Information

Four United States participants and five Chinese participants were found for this study. Of the five Chinese participants, one was disqualified due to leaving a question on the questionnaire blank. Participants were all undergraduates from Purdue University. Ages varied between 19-23 years old, with a mean age of 21.125. All four United States participants were male. Three of the Chinese participants were female, and one was male. All participants disavowed having knowledge of website design.

### 4.2 Data Analysis of the Survey

The primary purpose of this research was to identify what features of a given website were the focus on each given question, and why. The questions involved five culture based questions and five organization-public relation questions. The Likert scales were primarily used to gauge whether or not the participants agreed or disagreed with each item's question. Each open-ended question and its corresponding commentary by participants were subjected to thematic analysis, with the focus on whether a) participant agreement/disagreement differed between cultures, b) what website elements were participants looking at when deciding on their answers, c) if there was any difference between the cultures looking at specific website elements, and finally d) if any website element seemed to influence a culture away from how its cultural values may normally



indicate it would respond. This section will examine the results of the study, looking at each survey question item one by one. Selected comments by participants are used to illustrate the themes found. These comments have not been edited for content, nor have they been edited for grammar due to the Chinese participants having English as a second language. There have, however, been minor edits for spelling.

#### 4.2.1 Familiarity with Website and Company

All participants stated little to no familiarity with the website, with most rating it as a 1. Only one participant, a United States participant, rated it as a 2. Similarly, most participants noted little to no familiarity with the company, with seven of eight rating familiarity as a 1. However, one United States participant rated the company as a 4, being somewhat familiar with the company.

#### 4.2.2 Survey Item Analysis

In the following tables, each item is examined one by one. Each participant has been coded in the format of C# (Chinese Participant #) and A# (US Participant #). What follows is the Likert Scale rating for each participant as well as choice commentary included in their qualitative answers.

Table 4.1: Item One

Do you think that workers at this company pursue their employer's interests, so long as it matches their own interests?

Nationality	Rating
C1	3
C2	3
C3	2
C4	3
A1	4
A2	4
A3	3
A4	3

According to research (Hofstede et al., 2010), employees in an individualistic country (in this case, United States participants) should focus on their employer's interest so long as it matches their own. On contrast, employees in a collectivist country (China) will instead follow their own particular in-group's interest instead. Most commentary by the Chinese participants was neutral, with only one actively disagreeing with the question. Website features that appeared in comments of the Chinese participants are that of product and service choices, as well as openness of information. A key point seemed to be job satisfaction. A Chinese participant (C1) commented "The website shows a lot of product and service choices. The workers may find an area in this company that matches their interests. People have different preferences, people may willing to do a high-wage

job that they don't like.” In contrast, another Chinese participant (C4) stated “I cannot see some activities they hold for their employees, but I do know all the employees has their favorite job. If it is, they will not choose this kind of work.” The United States participants were more in favor of the question, with two in agreement with the question and two remaining neutral. As with the Chinese participants, one of the United States participants (A3) commented on job satisfaction, saying “They will pursue what they are hired to do and going to achieve for the company and their own goals.”

Both groups of participants, however, commented on the openness of the website as a key theme in framing their answer. A Chinese participant (C2) stated “The information is clear on the website, and it's easy to access to further information by clicking on the buttons on the left.” A United States participant (A2) stated “The website feels very open and inviting and I guess that should reflect on the employees of the company with respect to their attitude and beliefs.” It seems that the openness of the website – interestingly, one of the organizational-public relations themes also examined in this study – was a key in how participants judged they agreed or disagreed with the question. Focusing on cultural values, it is interesting to find that the Chinese participants were inclined slightly toward disagreeing with the question, whereas the United States participants inclined slightly toward agreeing with it. This tendency matches what the research states should be the case.

Table 4.2: Item Two

Do you believe that this company is interested in maintaining a relationship with its customers?

Nationality	Rating
C1	5
C2	4
C3	5
C4	4
A1	4
A2	4
A3	4
A4	4

This is the first of the organization-public relations questions, focusing on commitment, or how much they felt the company was interested in maintaining a relationship with them as a potential customer. In this particular case, both cultures were in agreement with the question, with no one neutral or disagreeing. A common element found in the comments of both cultures was that of the ‘About Us’ section of the company’s website, as well as other resources that allowed participants to learn more about the company. There was also a lot of commentary on being able to open a dialogue with the company as well. A Chinese participant (C1) commented “They provide detail information on ‘about us’. And there’s ‘partnership’ list in the website. They also provide ‘investor’ information.” Another Chinese participant (C4) noted “...And it also lists their

responsibility as we can see from ‘an open letter to our customers.’” A United States participant (A2) commented “There is a lot of information on this website devoted toward learning about the company. If I wanted to get in touch with the company I would have more than enough information to do so.” Similarly, another United States participant (A3) commented “Since keeping up with customers so they know how to improve their products, services and other aspects of their company and website.” It seems that both cultures were in agreement that having website elements that provided information directly about the company on the website (such as an About Us section) or similar website elements that invited dialogue with the company caused them to agree with the question.

Table 4.3: Item Three

Do you think that employees at this company work best when working in a group, as opposed to individually?

Nationality	Rating
C1	4
C2	4
C3	2
C4	5
A1	3
A2	4
A3	4
A4	3

This is another culturally based item. According to research (Hofstede et al., 2010), the Chinese participants should be agreeing with the question, whereas the United States participants may be more inclined to disagree. In this case, both groups of participants were, as a whole, in favor of agreeing with the question, with the only active dissenter on the Chinese side (which is the opposite of what research would suggest). That participant's comment (Participant C3) was "Even though the website is divided into several pages, I still can see the relation between each department and each person. They should work together to build the links."

There was one common website element that most participants focused on when discussing the question: the pictures of employees. They noticed that most pictures of

employees were not that of individuals, but rather as employees working as a team. One Chinese participant (C1) commented “First of all... from the pictures. There're always a group of people in the picture. And, the medical or pharmacy need deep (unintelligible word) research and experiences product. People usually work as a team.” Another participant, one from the United States (4), commented “I am inclined to agree mainly because the majority of the pictures are of groups of people.”

It is noteworthy that while the Chinese participants were marginally more in favor of agreeing with the question, the United States participants were not far behind. It seems that for this question, the cultural value was less important, or perhaps the smart use of team photography as a website element was able to negate the effect of culture. As one of the United States participants (A3) noted, “They each have their roles. Often, if groups or individuals are a big part of the company culture, that would be mentioned somewhere.” It appears that visually showing employees working as individuals or as a team may be a key element toward appealing to the correct cultural value and can influence how a given culture may respond.

Table 4.4: Item Four

Do you believe this company enjoys helping its customers?

Nationality	Rating
C1	4
C2	4
C3	4
C4	3
A1	4
A2	3
A3	4
A4	3

This particular question focuses primarily on the organization-public relation dimension of involvement. It examines how much effort the participants feel that the company is putting forth to serve its customers and their community. Almost all of the Chinese participants were in agreement with the question, with only one remaining neutral. The United States participants were half neutral and half in agreement. Both groups of participants seemed to primarily be looking at the services that the company stated it provided to its customers. A Chinese participant (C1) noted “There're detail information provided on the website. They also has a title ‘who we serve’ with three major groups. Under these major groups, there are several individuals for people to look at.” A United States participant (A3) said, “Since they are offering (unintelligible word) and customer care products to make things easier and faster for customers.”



Now, in contrast, there was a common theme in the commentary that leads to the neutrality of participants in both groups. Some participants in both groups noticed a focus on profitability and money in website element text. A Chinese participant (C4) noted “I have to admit I can see a lot of things they done for customers, but I have also seen from the home page ‘improve efficiency and quality, and increase profitability’. I do not know why they put this sentence here, it maybe lacks funds, so I choose neutral here.” A United States participant (A1) commented on the along the same theme with “They enjoy the money, I'm sure. People that like to help people become doctors, people that like money sell stuff to doctors.” Similarly, another United States participant (A3) commented “The website may appear to be inviting but it is still a business and I feel that the main focus of a business is profit.” It seems that more focus on the services provided to customers and less on the profitability on the company may lead to a better reaction by potential customers. Culturally speaking, the reactions were much the same in both participant groups, with both groups either in favor or neutral due to the same website elements.

Table 4.5: Item Five

Do you think that continual poor performance of an employee at this company is seen as reason to fire the employee?

Nationality	Rating
C1	3
C2	3
C3	2
C4	1
A1	4
A2	4
A3	5
A4	2

This is a more culture related question. Research (Hofstede et al., 2010) shows that the answer of the collectivist country (China) should be less in favor of firing the employee. In contrast, the individualist participants from the United States should be more in favor of firing the employee. The actual results from this study indeed follow this line of research. Chinese participants were less in favor of firing the employee with two in active disagreement and two neutral.

Participants from the United States were almost all in favor, with three in agreement and one in disagreement. The Chinese participants seemed to focus on the type of company they felt it was, 'health care'. One Chinese participant (C4) commented with quotes from the website such as "Our clinical experts are exploring new technologies to

improve patient safety. Our engineers... Our warehouse and logistics team... Our customer service representatives” (Cardinal Health, 2013). That participant then stated “It seems the director of this company very proud of his employee.” Mentioning specific jobs and how they were working to serve their customers seemed to sway the participant toward believing that the company would be less inclined to fire employees. However, a different Chinese participant (C1) commented “Maybe. Since this is a 'health care' company, employee may not meet company's eval ‘make health care safer and more productive’. Similarly, a United States participant (A2) commented “The website feels very prestigious and professional. What reason would they have to continue paying someone that can't meet this standard?” Another United States participant (A1) stated “Their size is such that they can easily replace ‘inefficiencies’. Also, poor performance could (unintelligible word) the company in any number of ways.”

It seems that both cultures were primarily looking at the company itself, and how it portrayed itself through the website. Emphasis on employees and pride in their employees in website elements seemed to have a positive effect, while emphasis on the size, prestige, and productivity of the company may have had a negative effect. It is noteworthy, however, that there was a participant in both groups that simply stated that they did not see any indication for or against in the website at all.

Table 4.6: Item Six

Do you think that this company is open about sharing information with their customers?

Nationality	Rating
C1	5
C2	4
C3	2
C4	2
A1	4
A2	5
A3	5
A4	1

This is another organization-public relation question, related to openness. Earlier on in the first item there had already been indication that openness was an important aspect of a website's ability to communication with its public. This remains true, yet here there was more disagreement inside the participant groups. The Chinese participants were split between being in agreement with the question and being in disagreement with the question. The United States participants were primarily in favor, with three in agreement and one in disagreement. Both cultures, however, tended to look at the same website elements when they were looking at openness – specifically, how much information was available on the website.

The two Chinese participants in favor, as well as the three United States participants in favor, all indicated that the large amounts of information about the company, its services, and products testified to its openness. However, the dissenting opinions among both cultures also coincided with one another. A Chinese participant (C3) commented that “Customers need to register the website first before getting any deeper information.” A United States participant (A4) commented “Lack of most recent catalog in universal format, but existing catalog doesn't list prices, large amounts of text distracting.” In both cases, the additional effort required to find certain information worked against the website’s feeling of openness. The quantity of information provided aided the sense of openness found in the website. However, website usability (or rather, lack of usability) may cause problems with feelings of openness. Once again, however, there seems to be little difference in the elements that the two cultures examine when looking at this website.

Table 4.7: Item Seven

Do you think that customers related to this company's employees get preferential treatment?

Nationality	Rating
C1	3
C2	3
C3	2
C4	2
A1	3
A2	3
A3	3
A4	4

According to cultural research (Hofstede et al., 2010), customer's related to employees tend to get more preferential treatment in collectivist countries such as China. This is less the case in individualistic countries such as the United States, where such treatment is seen as nepotism. In an odd turnabout, the Chinese participants were less in favor, with two neutral and two in disagreement. In contrast, the United States participants were predominantly neutral, with one participant in agreement. This is the opposite of what might have been expected from what research would indicate. An examination of the themes found in the commentary by participants show that some participants in either cultural group simply did not see an indication either way,

indicating that this particular cultural question may not have had as much of an impact on the website.

The arguments against by Chinese participants predominantly noted that such benefits were not actually noted as a benefit for being an employee at the company. One comment by a Chinese participant (C3) notes, “The website shows the financial benefit that the employees can get, but not the improvement in their abilities, or emotional benefit” while another Chinese participant (C4) comments “It seem they help others a lot, but few data shows they give some privilege to company's employee. The majority I see here in how many they did for their customers.”

In the case of two United States participants, there was less commentary on actual website elements and more on the company itself, with one comment (A1) of “Maybe at the higher levels. They are a behind-the-scenes company, which would make it easier to get away with.” Similarly, another commented (A4) “Relatives likely to get priority treatment in most businesses.” One could argue that this is cultural values coming into play, yet these comments by United States participants are the precise opposite of what would be expected of an individualistic culture, at least according to current research.

Table 4.8: Item Eight

Do you feel that this company is interested in what its customers have to say?

Nationality	Rating
C1	4
C2	4
C3	2
C4	4
A1	4
A2	4
A3	5
A4	3

This is another organization-public relation question, this time concerning dialogue. Here the participants examine how much they believe that the company in question is interested in communicating with its customers. Here, most participants on either side were in agreement, with one Chinese participant in disagreement and one United States participant remaining neutral. The Chinese participants primarily commented on the various website elements that would enable a customer to contact the company, such as the ‘Contact Us’ form. The sole disagreeing opinion in the group (Participant C3) stated “Although there is a “contact us”, it is hard to find how to contact us if necessary.”

The United States participants noted the same, but also commented on website elements that indicated satisfied clients as well as the many services and interactive



portals the website provided. The only United States participant (A4) not inclined to agree stated "Significant contacts, but no generic comment/complaint form." It seems that contact website elements, as well as the usability of such contact elements, forms a key component in opening a dialogue with a company's consumers for either culture.

Table 4.9: Item Nine

If a bonus in pay is given at this company, do you think it is given to a group of employees as opposed to an individual employee?

Nationality	Rating
C1	4
C2	3
C3	2
C4	2
A1	4
A2	3
A3	4
A4	4

This is the last of the cultural questions. Research by Hofstede et al. (2010) indicates that the standard response here is that Chinese collectivist participants would find this more likely and would be in agreement, whereas the United States individualistic participant would find it more likely that bonuses would be paid toward individuals. This particular question, however, once again goes against what research would lead us to expect. Only one Chinese participant was in agreement as would be expected, two

actively disagreed, and one remained neutral. Meanwhile, three of the four United States participants were instead in agreement, with one participant remaining neutral.

As with a prior cultural question (Item 3), it seems that the website elements may sway participants away from what they may be normally inclined to believe due to cultural values. Here we see Chinese participants looking at website elements. One disagreeing Chinese participant (C3) noted “I don't see any words, such as ‘team’ or ‘group’ in the website.” Another disagreeing Chinese participant (C4) said “They are still taking such a honored jobs. ‘We recognize the value of working in an environment that celebrates individual difference’ (Cardinal Health, 2013). We can see from that.” It seems that the primary website element that was being examined here were certain keywords, such as ‘team’, ‘group’, or ‘individual’. Once again we see website elements (or lack thereof) influencing how a culture perceives a website. Unlike in Item 3, there was no commentary on the pictures. There was one participant in both groups who did not see any indication either way, with the Chinese participant (C2) guessing “No clue to this one but I guess it is given to a group rather than individual. It seems they care team work.” The United States participant (A2) was less inclined to guess, simply stating “There is not much shown on the website that demonstrates how bonuses are paid.”

There are indications that the United States participants did attempt to find out how bonuses were being paid, but they could not find those elements. One United States participant (A3) stated “Probably to the group, though bonus distribution is not shown in the quarterly breakdown.” It seems that, in the absence of website elements that they felt indicated otherwise, the size and nature of the company indicated to most of the United States participants that the employees were most likely paid bonuses as a group. A United

States participant (A1) noted, “Size, business practices make group disbursements more feasible, effective.” Another United States participant (A4) said “General contacts indicate most employees in sales, probably get paid as a group.”

Here once again, as with Item 7, we see that in the absence of website elements the United States participants seem to answer according to how they expect the company functions. Yet their commentary belies what cultural research states they should believe. Instead we see United States participants believing that, with no evidence to the contrary, bonuses would be paid to a group or team of employees as opposed to an individual, as would be expected of their culture.

Table 4.10: Item Ten

Do you believe that customers should trust this company?

Nationality	Rating
C1	5
C2	4
C3	2
C4	4
A1	3
A2	4
A3	5
A4	3

This is the last of the organizational-public relations questions, this one finally asking about trust. It focused on whether or not the participants could feel that they could trust the company based on the website. As the final question in the survey, it seemed to have the largest and longest responses from each participant. In this last item, the Chinese participants had two in agreement, one neutral, and one in disagreement. The United States participants had two in agreement and two neutral. Here there is once again much commentary on the openness of the website, with the abundance of information seeming to make a good argument for trusting the company and a lack thereof cause to mistrust the company. A Chinese participant (C1) stated “They provided a lot information. Not only about the company, but also the partnership companies, and the history of investors. Depend on the abundant information, customer should trust the company.” A United

States participant (A3) also stated “This is a very open and good viewing of the company and allows (unintelligible word) information and interaction with the customer.” Another United States participant (A4) commented “Lack of openness and universal format indicates lack of savvy and high prices, but format generally good indicates good design.”

Similarly, there was also commentary regarding elements of dialogue, with contact website elements being a large part of whether the participant felt they could trust the company. One Chinese participant (C2) notes “There are a lot of trustworthy information on the website. The URL seems trustworthy as well. The ‘contact us’ session also exposes a lot of company information.” Yet a different Chinese participant (the dissenter, C3) follows that with “Although many information is provided by the website, it is hard for customers to find the valuable information. All the contact information is related to the same address and the same phone number, even though it is divided into many sections.” It seems that while having contact elements in the website is a good start, there may yet be work to be done to make it feel as if a customer can truly open a dialogue with the company. Also of note here is that two Chinese participants specifically looked at the many companies and organizations that Cardinal Health has a partnership. They felt that these website elements stating the company’s partnerships aided in establishing trust of the company. However, there was no such commentary on the part of the United States participants.

## CHAPTER 5. DISCUSSION

This study's data analysis focused on four primary items: participant agreement/disagreement between cultures, what website elements were participants looking at when deciding on their answers, if there was any difference between the cultures looking at specific website elements, and finally if any website element seemed to influence a culture away from how its cultural values may normally indicate it would respond.

### 5.1 Differences in Cultural Questions and Cultural Values

First and foremost, there were indeed differences in how the two cultures viewed the culturally related questions. In fact, in four of the five cultural items there was a disagreement between cultures in the answers. This does match up with what research would imply – that cultures look at websites in different ways. However, this is not to say that the participants reacted as was expected. Only two of the cultural items (1 and 5) had the participants react as research would give cause to expect. In item 3, the United States participants agreed when they were expected to disagree. In item 7, the Chinese disagreed when they were expected to agree, and the United States participants agreed when they were expected to disagree. In item 9, the Chinese participants primarily disagreed when they were expected to agree, and the United States participants agreed when they were expected to disagree.

### 5.1.1 Potential Causes for Differences from Prior Research

What could be the cause of these differences from what current research shows? Is it the fact that these were international Chinese students who had been placed into the culture of the United States? Certainly this is a possibility. However that would not explain the differences in the responses of participants from the United States, who have not been exposed to such multiculturalism.

### 5.1.2 The Influence of Website Elements

There were some cases where the change in cultural expectation was specifically called out by website elements – for instance, the use of photographic website elements for team photography seems to have caused participants on both sides to agree with the statement. Similarly, in item 9 Chinese participants specifically called out keywords that they were looking for that seemed to be causing their cultural expectations to shift. Yet this cannot be the complete answer, as on multiple items the United States participants reacted contrary to research expectations with no commentary as to specific website elements that might have swayed their minds. Rather, in most such cases there was an ongoing theme of how they expect the company would be run.

### 5.1.3 Corporate Culture

Both participant groups seemed to be less inclined to overlay their own culture on the company, and instead focused on what their experiences with a company of that size would indicate. Instead of thinking of it as national culture, they were focused on its corporate culture. Comments such as “Their size is such that they can easily replace “inefficiencies”, “Size, business practices make group disbursements more feasible, effective”, “It would be in the best interests of a company to maintain a healthy business

relationship, but the size of the company probably gives them a range of “niceness” in their dealings”, and “It is doubtful that sufficient oversight is always present there. Size means that any potential suits are settled and thus not heard of, keeping profit and image high. Customers have no motive to trust them except business necessity” all seem to point toward the United States participants judging the company based off of their expectations, and not necessarily their cultural values. The Chinese participants were the same on some items, yet in their case there was less commentary on the size of the company and more on the type of company it is. A Chinese participant quoted the website with “Cardinal Health is an essential link in the health care supply chain, providing pharmaceutical and medical products to more than 60,000 locations each day.” (Cardinal Health, 2013). Another noted “Maybe. Since this is a ‘health care’ company, employee may no meet company's eval ‘make health care safer and more productive’”, while another stated “The company only mentioned that join their company can help improve the performance of health care.” All of this commentary was specifically on the type of company that it is. This was hardly seen in the commentary by the United States participants. It may be that specifically what aspect of the company each participant group were looking at differs.

## 5.2 Cultures Viewing Same Website Elements

Another important question to ask, and one of the main focuses of this study, is whether or not participants from either culture were focusing on the same elements when making their judgment as to agree or disagree with a given question. The answer is, surprisingly, yes. Though prior research (Singh & Matsuo, 2004; Singh et al., 2004) may have indicated otherwise, for the most part there was a remarkable amount of similarity



in website design elements picked out by the two cultures on most questions. Even on questions where the two cultures disagreed, the two cultures were almost always looking at (or for) the same website elements. Though the content of websites may differ across cultures (Singh & Matsuo, 2004), it seems that the two cultures seem to look at the same elements when focusing on a cultural value.

### 5.2.1 Chinese and the Value of Involvement

However, this research cannot say that participants from both groups were exactly the same when viewing website elements. In multiple cases throughout the Chinese commentary, the Chinese participants specifically noted website elements regarding how it was tied into supply chains, partnerships, and society as a whole. This does fit with the Chinese worldview that everything is interconnected. Commentary such as “I feel that the website concentrates more on the benefit the company can provide for the society, suppliers, and pharmacies, less on the benefit it can provide for their employees,” “They provide detail information on ‘about us’. And there's ‘partnership’ list in the website. They also provide ‘investor’ information,” picking out a quote from Cardinal Health that “Cardinal Health is an essential link in the health care supply chain, providing pharmaceutical and medical products to more than 60,000 locations each day.” (Cardinal Health, 2013) All of these comments focus on one primary thing: the relationship (or involvement) that the company has with its surroundings. They focus on elements that talk about investors, partnerships, their role in the supply chain, and how the company affects society as a whole. This is not to say that the United States participants do not comment on such website elements at all. However, they do not do so to the degree that the Chinese participants do, and those United States responses specifically come up on

questions where dialogue between customers and the company was involved. This study implies that the Chinese participants may find more value in website elements regarding the theme of ‘involvement’; website designers who are specifically targeting Chinese consumers and customers may wish to focus on this aspect of their website.

### 5.2.2 Adjusting a Website for Cultural Values

Knowing this, can culture’s impact on websites be adjusted for, or even negated? The answer, it seems, is yes. As noted before, there were several occasions where participants reacted in ways different to how cultural expectations might expect them to react according to research (Hofstede et al. 2010). In several occasions, data analysis in the commentary found that participants found that they were very likely specifically swayed away by elements of the website. Item 3 had one of the United States participants in agreement with the Chinese participants due to the same website element, the depiction of employees together as a team in pictures posted throughout the site. In Item 9, the inclusion of website elements speaking of individual difference and the lack of website elements speaking of ‘team’ or ‘group’ led two of the Chinese participants to disagree with the question, when research says that they were likely to agree. It seems that both the inclusion and exclusion of website elements may influence how a given culture views a website.

### 5.2.3 Website Design Elements and Design Implications

Knowing this, precisely what design elements can elicit a response from a culture? The following table looks at each survey item, giving both the cultural or corporate value of each item as well as a positive (+) or negative (-) rating. The value of Individualism versus Collectivism is denoted by IDV, as used by Hofstede et al. (2010).

Table 5.1: Website Design Elements

	Website Element (United States)	Website Element (Chinese)
Item One (IDV)	Job satisfaction (+)	Product/service choice (+)
	Openness of site (+)	Job satisfaction (+) Openness of site
Item Two (Commitment)	About Us section (+)	About Us section (+)
	Data on company (+)	Data on partnerships (+)
	Ability to open dialogue (+)	Ability to open dialogue (+)
Item Three (IDV)	Pictures of employees (+)	Pictures of employees (+)
Item Four (Involvement)	Profitability of company (-)	'Who we serve' (+) Profitability of company (-)
	Size of company (-)	Type of company (-)
Item Five (IDV)	Prestige of company (-)	Pride in employees (+)
	Usability of site (+)	Usability of site (+)
Item Six (Openness)	Amount of information (+)	Amount of information (+)
	Size of company (-)	Employee benefits (+)
Item Seven (IDV)	Contact information (+)	Contact information (+)
	Satisfied clients (+)	
Item Nine (IDV)	Information on salary (+)	Team versus individual (+)
Item Ten (Trust)	Amount of information (+)	Amount of information (+)
	Usability of site (+)	Usability of site (+)

### 5.2.3.1 Item By Item Breakdown

In Item One, the main design element spoken of with favor was a theme of openness – a transparency on the part of Cardinal Health in making their information freely and readily available. A focus on a usable, open information website seemed to work best for a positive rating. Commentary on job satisfaction also seemed to have a positive effect. Chinese participants also noted the products and services provided as a positive element.

In Item Two, the main design element mentioned was that of dialogue between consumer and company. It is best to have a robust system of design elements that allow customers to feel that they can be heard as well as elements that show that the company is willing to reach out to their customers. These elements should be very easy to find for the customer. Access to the ‘About Us’ section of the website was commented on by participants of both sides. Information about the company seemed to provide a positive effect for United States participants, while information on partnerships provided a positive effect for Chinese participants.

In Item Three, the main design element mentioned was that of the pictures – specifically of employees shown as a team. This led both participant groups to believe that there was an emphasis on teamwork in the company. Also, keywords such as ‘team, group, individual’, and others may influence viewers.

In Item Four, design elements speaking of who the company targets (‘who we serve’) seemed to have a positive effect. Very notable, however, is the negative impact that website elements regarding profitability had on both participant groups. This led

members in both participant groups to think that perhaps the focus of the company was on money rather than how it could best serve its customers.

In Item Five, a design element that seemed to indicate pride in employees and what they do strongly affected one of the Chinese participants. Website elements praising or showing pride in employees may aid in this value. However, once again any emphasis on the size or prestige of the company seemed to have a negative effect.

In Item Six, we once again return to the theme of openness on the part of the company. The large amounts of information readily available on the website seemed key to establishing a view of openness in the participants. However, lack of usability of website design elements, or the necessity to login in order to view additional content, had a negative impact on this feeling of openness.

In Item Seven, the specific lack of design elements regarding nepotism and treatment of employee relatives had an effect on how each participant group interpreted their answer. The Chinese participants disagreed primarily because they could not find a website element that stated otherwise. In contrast, the United States participants agreed because they did not see website design elements that stated otherwise. A statement of employee benefits seems to have a positive effect toward making clear what employee expectations may be at the company. Once again, it must be noted that an emphasis on the size of the company has a negative impact.

In Item Eight, the primary theme found was that of dialogue. Once again, maintaining a robust system for communication with customers is very important to establishing a feeling of dialogue between company and customer. Usability issues such as being unable to easily find the contact form as well as the lack of a generic

comment/complaint form were noted by participants. In truth, the latter existed in the form of social media links to Cardinal Health's presence on Twitter, Facebook, LinkedIn, and YouTube, but the website elements are only visible as small button links at the bottom of the page, easily missed unless the customer was actively looking for specifically those icons. There was not a single comment by any participant as to these social media links throughout the entire study. More prominent use of social media might cause a better feeling of dialogue between company and customer. Furthermore, information on satisfied clients seemed to have a positive effect on United States participants.

In Item Nine, the lack of a design element stating the nature of how bonuses were awarded to their employees left the participants focusing on what they could derive from the text of the website, looking for keywords like 'group', 'team', or 'individual' to decide how they could answer the question. Information on salary, or the use of words such as 'team' or 'individual' seemed to aid in participants reaching an understanding.

Finally, in Item Ten, the main theme found that indicated they should trust the company was in the openness of the company. Being open and upfront with company information as much as possible seemed to sway more participants to trust in the company. Additionally, website design elements that indicate that others already trust the company, such as a listing of partnerships and investors, also had a positive impact on participant perception of trust in the company. Lack of usability, openness, and dialogue were all mentioned as potential reasons why there may be a lack of trust in the company.

### 5.3 Design Implications

What, then, should website designers take away from this research? Should website designers consider culture when designing a website for a different culture? This research, as well as other research, implies very strongly that the culture of the target audience does in fact have an impact on how they view a website. Website designers should be building for a target demographic when they first design the website. Designers should already consider age, gender, technological expertise, and other such demographic items when designing a website. This research shows that cultural values do impact how a target public view a website's content, especially when dealing with topics that bring those values into the forefront. While this is something that should be taken into consideration by the website designer, it is also something that can be actively capitalized on to portray a created website in a positive light for a target culture. A website designer can potentially create a website whose content is specifically targeted to be appealing for a specific culture. At worst, a website designer can at least mitigate the negative impact that culture may have by avoiding content that brings such values into their target public's minds.

Yet, how exactly can corporations and website designers either avoid or capitalize on cultural values for their websites? The simplest way for a corporation to do so is to hire local web designers of that specific culture to design the website for them. Unless told otherwise, those website designers will build the website with their own culture in mind. They know what design elements appeal to their own culture. They know what content will work best. However, what if this is not a feasible option? What if a website designer must build a website for another culture? What can they do?

The first thing that website designers can do is simply ask. Involve the target culture in the creation of the website. Ask them how they would prefer the website to look, and more importantly, why they want the website to look like that. The designer can do usability studies to discover exactly how the target culture is utilizing the website. The designer can ask what content the target culture can find appealing. The designer can use the same Website Experience Analysis protocol that this study used to discover exactly how their target culture is viewing the content of the website. All of these methods will work. The one thing that designers should not do is ignore the potential impact of culture on the perceptions of a target public.

Building a website and ignoring the impact of culture on that website can have a negative impact on a target public's perception of that website. Therefore, culture should be taken into consideration just as any other demographic. Website designers already take into consideration age, gender, technology level, geographic location, and other such demographic variables. This research as well as other research noted all suggest that designers should take culture into consideration as well. Do not assume that a different culture will react in the same manner as your own. Instead, take the time to discover what the target culture's preferences are and build the website toward what they prefer.

This is even true when building a website targeting members of your own culture. Members of your own culture have certain expectations as to how a website should be built and what content should be placed in the website. A website designer should not ignore this when designing for his or her own culture. Even when designing for one's own culture, stop for a moment and think of what might work best for both design and content of the website.



## 5.4 Potential for Further Research

This research was subject to several limitations, detailed toward the beginning of the study. There are many ways that this research could be expanded upon. An increased subject pool, utilization of different cultures, different cultural values, examining age and gender as variables, looking at a different size or type of company, or utilizing eye-tracking software are all valid possibilities.

### 5.4.1 Increased Subject Pool

A small subject pool was used for this study, with four participants in two groups. This study could easily be expanded upon by utilizing the same methodology on a larger subject pool. Perhaps such a larger subject pool would increase the possibility that participants would react as current research would expect of their culture.

### 5.4.2 National Instead of International

Instead of using international Chinese students currently residing in the United States, this study could be replicated utilizing Chinese undergraduates who have elected to stay in China. This would avoid the potential confounding variable of multiculturalism. It could be that the stay in the United States changed the perception and cultural expectations of the Chinese participants, which may have had an impact on the study.

### 5.4.3 Utilize Target Culture's Language

Another confounding variable in this study was the utilization of English only, despite using Chinese participants. A further expansion of this research could be a formal translation of all documentation into the Chinese native language as appropriate, with Chinese participants answering in their native Chinese. This study chose not to do so as the focus was on international Chinese students living in the United States can be

expected to have a working grasp of English. However, if the study was utilizing Chinese students currently residing in China, then perhaps an effort into translating the study's documentation could cause a shift in results.

#### 5.4.4 Different Cultural Value

This study focused on a single cultural value, Individualism versus Collectivism. Hofstede et al. (2010) have noted other cultural values such as Power Distance, Masculinity versus Femininity, Uncertainty Avoidance, and others. Follow-up research on this study could take a look at these other cultural variables and see how they apply toward website design.

#### 5.4.5 Utilize Gender as Variable

This study did not discriminate between genders when selecting participants. However, the result was that most Chinese participants were female, while all of the United States participants were male. This may have been a confounding variable in the study. As such, this research could be replicated with an equal balance in genders.

#### 5.4.6 Utilize Age as Variable

This study also did not discriminate on age when selecting participants. The only expectation was that participants were undergraduates at Purdue University, who tend (but are not guaranteed) to be of a certain age. This study could be expanded on by limiting the age allowed in the study or, alternatively, targeting a completely different age group. Perhaps the results would change if the study were to use participants past the university age who have already entered the workforce.

#### 5.4.7 Different Size of Company

Cardinal Health (2013) was chosen due to its size and prestige as a Fortune 500 company. However, in multiple cases the website design elements where the company made known its size and profit had a negative impact on the participants' perception of the website. How would this change if, instead of a large Fortune 500 company, the participants were looking at the website of a small business?

#### 5.4.8 Different Type of Company

Cardinal Health is a healthcare company. Its nature as a healthcare company did seem to have some influence on the responses of participants. What would happen if this research was replicated using a company of a different type, such as a more industrial company less focused on customer service?

#### 5.4.9 Different Nation of Company

Cardinal Health is also based in the United States. This may have caused participants to view it in the same way that they view all companies in the United States. What would change if the study was replicated using a Chinese website? What would change if the study was replicated using a website of a nation that either participant group is unfamiliar with? These are all questions that could be answered by further research.

#### 5.4.10 Utilization of Eye-Tracking

One of the more interesting offshoots of cultural research is the strong implication that culture has a direct, tangible impact on visual perception. Eye-tracking studies have been done where different culture participants viewed a picture (Chua et al., 2010). However, this type of research has yet to be applied to websites. A potential expansion of this research could be the utilization of eye-tracking while participants fill out each

question. This way the researcher could see, in real time, exactly how the participants are experiencing the websites and what website elements they are looking at as they examine the website in search of a particular value.

### 5.5 Conclusion

This study sought to examine how culture impacts how different cultures viewed the same website. The results show that culture does in fact seem to have an impact on websites, but that impact may come in unpredictable ways. Singh et al. (2004) suggests it is better to localize a website than it is to standardize. Further research suggests that the best option would be to have a version of the website created specifically by the target culture, for the target culture.

This study does seem to suggest that website designers can mitigate the impact of culture's perception of websites. According to this study, the dimensions of openness and dialogue are especially important for websites. It is best to be open and up front with your customers, providing as much information as necessary to satisfy them. It is important to establish a feeling of open dialogue with the customers through the use of website design elements. As always, lack of usability can cause negative thoughts on the part of customers. In the case of designing specifically for a collectivist culture such as China, the following design elements would be advised: word usage of 'team' or 'group', pictures of employees working as a team, elements showing communal ties such as partnerships and investors, elements showing how the company interacts with society as a whole; effectively, try to utilize design elements that tie into the collectivist, holistic nature of the culture. In the case of designing for customers in the United States, remain focused on providing a usable website, being open, and establishing a solid sense of

communication with your customers. Website designers should realize that the inclusion or exclusion of certain design elements may sway how customers feel regardless of their cultural bias.

Website Experience Analysis remains a viable tool to discover what website elements are impacting how a given public perceives an organization's website, and does seem to pick up on cultural values. Individualism versus Collectivism is only one of Hofstede et al.'s (2010) cultural values. Further research replicating this study on other cultural values is viable. Similarly, replication of this research utilizing a different public and organization would also be viable.

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## APPENDICES

Appendix A Demographics Sheet

**Please fill in the blank or circle your answer.**

How many years old are you: \_\_\_\_\_

Gender: Male / Female

Nationality: United States / Chinese / Other

Current enrollment status at Purdue University: Undergraduate / Graduate / Other

Do you have any website design experience in either HTML and/or CSS? Yes / No

## Appendix B Survey/Questionnaire

### Survey

This is a survey for describing your experience of the randomly chosen website for this study, Cardinal Health ([www.cardinalhealth.com](http://www.cardinalhealth.com)). Please stay on the website as you browse through it. Try to look through as much of the website as possible – follow the links, read through articles, watch any videos, and so forth. As you do so, please fill out this series of questions about the website. Each entry has a 1-5 Likert Scale rating how much you disagree or agree with the proposed question. A 1 is Strongly Disagree, 2 is Disagree, 3 is Neutral, 4 is Agree, 5 is Strongly Agree. Please circle your entry (1, 2, 3, 4, or 5) for each question. After the scale is an additional, open-ended question. Please write as much as possible for each open-ended question before moving onto the next entry. You have as much time as you need to complete the survey. If you need further help understanding what an entry is asking, you can ask the researcher for further clarification.

#### **How familiar are you with this website?**

(1 - I have never heard of it; 5 - I know of it very well)

1      2      3      4      5

#### **How familiar are you with this company?**

(1 - I have never heard of it; 5 - I know of it very well)

1      2      3      4      5

**1) Do you think that workers at this company pursue their employer's interests, so long as it matches their own interests?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

**2) Do you believe this company is interested in maintaining a relationship with its customers?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

**3) Do you think that employees at this company work best when working in a group, as opposed to individually?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

**4) Do you believe that this company enjoys helping its customers?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

**5) Do you think that continual poor performance of an employee at this company is seen as reason to fire the employee?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

**6) Do you think that this company is open about sharing information with their customers?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

**7) Do you think that customers related to this company's employees get preferential treatment?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

**8) Do you feel that this company is interested in what its customers have to say?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?



**9) If a bonus in pay is given at this company, do you think it is given to a group of employees as opposed to an individual employee?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

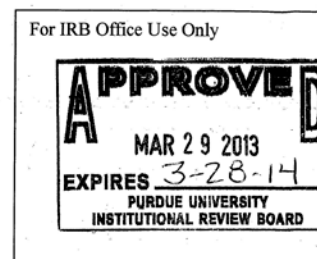
**10) Do you believe that customers should trust this company?**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

What about the website makes you feel that way?

Appendix C IRB Approved Consent FormResearch Project Number 1210012792

RESEARCH PARTICIPANT CONSENT FORM  
 Differences in Cultural Perception of Websites  
 Patrick E. Connolly  
 Purdue University  
 Computer Graphics Technology

Purpose of Research

We are doing a research study. The purpose of this research is to determine what parts of websites are tied to a specific cultural value when viewed by two different cultures. This research will be utilized to better target websites toward your particular culture.

Specific Procedures

If you wish to participate in this study, you will first be asked to fill out several forms: A consent form (this form), a participant payment disclosure form (so you may be paid for your participation), and a demographics form. The demographics form (which asks age, gender, current enrollment status at Purdue, native nationality, and website design experience) is only used to determine that you are a valid participant for purposes of this study – the data will not be used in any other way. Your name will not be asked, and your anonymity will be maintained.

Once the forms are complete, you will be asked to sit down in front of a computer with the website ([www.cardinalhealth.com](http://www.cardinalhealth.com)) set on the browser and given a survey sheet with a series of entries. Each entry has a Likert Scale (1-5, with 1 being Strongly Disagree and 5 being Strongly Agree) and an open-ended question associated with it. The important part of the study is in the open-ended question; therefore, please take your time answering each question. The Likert Scale is solely to aid in understanding your answer to each open-ended question. You may take as much time as you like to fill out the entirety of the survey. It is expected that the survey will take twenty minutes or less. If you have a question about the survey, please ask the researcher for clarification.

Duration of Participation

Active participation only involves the initial session detailed above, which should last 20 minutes. Your individual data will be analyzed for the purpose of the study, the duration of which should last until late May 2013.

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 Participant's Initials

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 Date

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 Researcher's Initials

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 Date

Research Project Number 1210012792

### Risks

Please note that this is a study about two cultures – specifically China and the United States. As such there may be great difference (or great similarity) between each participant's answers on the survey. While answering this survey, you may be considering that your answer may be different from the other culture taking this survey. This is fine. There is no correct answer for any of the questions on the survey. No answer is better or worse than the other, merely different. There is minimal risk in participation in this study – no more than you would encounter in everyday life. As no names are given in this study, anonymity will be maintained and there is minimal risk of a breach of confidentiality. For more detail on the safeguards used to maintain your confidentiality, please review the Confidentiality section of this form.

### Benefits

There are no direct benefits to you as a participant in this study. You may, however, find that this study causes you to view and think about websites in a different way. It may make you more aware of cultural elements that may (or may not) be found in websites.

### Compensation

Once you have completed the survey, you may receive your \$5 compensation for your time and will have our thanks.

### Confidentiality

The project's research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

You will be asked to sign a Participant Payment Disclosure form and a Consent form, which has a written statement as to what the research is about. You will not be required to sign your name on either the demographics sheet or the following questionnaire. Each pair of documents will be labeled A-1 through A-4 in the case of the United States participants, and C-1 through C-4 in the case of the Chinese participants. In the study itself, you will be referred to as participant A-1, C-2, etcetera. The Participant Payment Disclosure form and the Consent form for each participant will be kept separate from each participant's demographics sheet and questionnaire, then randomized such that there will be no means to determine which unsigned form matches which signed form. Therefore, you will be considered anonymous for participation in the study. No code key will be maintained to determine which forms match up to which participant. All forms will be kept at a secured location with no access except by the primary investigator and the co-investigator. Once the research study has been completed, all records will be destroyed, and will not be used for future research purposes.

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Participant's Initials

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Date

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Researcher's Initials

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Date

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Voluntary Nature of Participation

At any time, you may decide against participating in this study. If you decide to so, tell the researcher and he will remove and destroy any data you may have filled out. There is no penalty or punishment for not completing the survey.

Contact Information:

If you have any questions about this research project, you can contact Andrew T. Allen at (765) 748-6487 (who is best suited to answer your questions) or Patrick E. Connolly at (765) 496-3943. If you have concerns about the treatment of research participants, you can contact the Institutional Review Board at Purdue University, Ernest C. Young Hall, Room 1032, 155 S. Grant St., West Lafayette, IN 47907-2114. The phone number for the Board is (765) 494-5942. The email address is [irb@purdue.edu](mailto:irb@purdue.edu).

Documentation of Informed Consent:

I have had the opportunity to read this consent form and have the research study explained. I have had the opportunity to ask questions about the research project and my questions have been answered. I am prepared to participate in the research project described above. I will receive a copy of this consent form after I sign it.

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Participant's Name

\_\_\_\_\_  
Researcher's Signature

\_\_\_\_\_  
Date