Business and Management Review Vol. 2(9) pp. 09 – 23 November, 2012 ISSN: 2047 - 0398
Available online at http://www.businessjournalz.org/bmr

INFLUENCE OF CULTURE ON THE PERCEPTION OF A WEBSITE
A Three Countries Study

Juan Antonio Vargas-Barraza
Associated Professor
Universidad de Guadalajara, Mexico
Centro Universitario de Ciencias Económico Administrativas
Periférico Norte N° 799, Núcleo Universitario Los Belenes, C.P. 45100, Zapopan, Jalisco, México.
Departamernto de Mercadotecnia y Negocios Internacionales, Edificio G-306
E-mail: *javb@cucea.udg.mx*

Monica Libertad Gomez Suarez
Titular Proffesor
Universidad Autonoma de Madrid, Spain
Ciudad Universitaria de Cantoblanco · 28049 Madrid
E-mail: *monicagomez@uam.es*

ABSTRACT

The purpose of the research is to examine how users perceive the cultural origin of a Website, even though the site was developed using principles of usability and trying to minimize culture shock. A B2C site been developed using usability principles. English language is used in order to remove traces of the company´s cultural background that designed and implemented the site. The site sells records from independent and small music labels. The survey was based on a sample of convenience that cannot be regarded as homogenous. The participants from U.S, Mexico and Spain are not necessarily music buyers and collectors of records, consequently the user characteristics of collectors are not reflected in the site preferences. It was found that Hofstede's Cultural values of collectivism and risk aversion have been consistent. The usability-engineering design of a site helps to make it more efficient and reduce fears, although, this is not enough.

Keywords: *Cross-cultural studies, Cultural diversity, Internet marketing, Marketing, Electronic commerce, usability*

1. INTRODUCTION

Research on cultural differences that has been conducted in the academic literature is based on various disciplines such as anthropology, sociology, business or communication, focusing on cultural differences and the perception of the site, but always under a technical scheme. The first studies on the implementation of a Web site focused on development and technical aspects of the site, which has led most research on Web site design to analyze technical aspects of it. Thus, a lot of design elements that apparently will make the website successful have been generated. The examples demonstrate that a mixture of authors are therefore having varied elements to study: usability, the use of images, aesthetics, navigation and search, site interactivity, elements as the power of the brand, and the degree of site customization (Aberg and Shahmenhri, 2000).

Considering this background, the purpose of the research was to examine whether users perceive the cultural background in the development of a Web site when it is showed to people from cultures with different values. Even though the site was developed using design elements based on the principles of usability, including other design aspects recommended minimizing culture shock. It also aimed to analyze whether users perceive the cultural background of the Web site when English language is used in order to remove traces of the company´s cultural background that designed and implemented the site.

A cultural model that has been most developed in the marketing academic literature -Hosftede values (2010) - to determine whether users with similar values prefer the same type of information, or if countries with greater influence of the U.S., as Mexico, have a preference for certain types of information.

For the specific case of this research, a pre-designed Web site based on usability principles was developed; and was oriented to a market with multicultural buyers: buyers of independent music that, as it was discussed below, represent a market oriented mostly to collectors, but also distributed in different parts of the world. The

possibility of having different versions of the site has not considered since content and information are more important that the design itself.

This site has been tested for three different cultural groups: Anglophone students of the U.S. population, and students of the Spanish-speaking population of Mexico (those born in the U.S. being from Spanish speakers parents and those who emigrated to the U.S. from Spanish-speaking countries), and Spain. The reasons for choosing these countries and these sub-samples are listed in the hypothesis section of this paper.

2. LITERATURE REVIEW and THEORY DEVELOPMENT WEB DESIGN and CULTURE

According to Falk et al. (2007), not only the technical design of a Web site is the key to success. Also it should be considered other important factors such as the culture of the users that the site is addressed.

Although many companies make multicultural design or different versions for distinct markets, Becker and Mottay (2001) consider that most organizations tend to develop ethnocentric sites, ignoring cultural and language issues. Most of the sites that study and give support to other markets, emphasize English as the primary language in most of its international sites and with few support for local languages, leaving behind cultural issues, which results in incorrect translations and grammatical inconsistencies.

Nantel and Glaser (2008) have found that a major cultural factor, as is the language, is less important when the quality of the offering is interesting to the prospective buyer. In this case, the native language of the site has no remarkable impact on the perception of the usability of a site and in the purchase decision. These authors focus on the use of language in order to improve the usability of a site and thus attract more visitors, offering to each culture oriented sites rather than a universal site.

Gibbs et al. (2003) found some relevant aspects to Internet portals to provide valuable and useful content to users: greater convenience, improved quality of life and a wider range of products and services. However, there are differences between countries; as a result, U.S. consumers mention all these aspects as the most important, while in Japan, Singapore and China there named only by the youngest consumers and in Brazil, Mexico and Taiwan their absence is considered as an inhibitor in the diffusion of B2C e-commerce.

The success of information systems lies therefore in understanding the local culture and its environment during the implementation stages of a project (Jarvenpaa and Leiden, 1998). It has been proved that a content that includes cultural differences between countries improve the usability of the portal.

There is a concept called "Culturabilty", named by Barber and Badre (1998), which aims to describe the relationship between culture and usability, as well as the implications of these two concepts in the development of a Web site. These authors recommend that designers of Web sites take into account cultural differences, because when it comes to usability, cultural differences play a key role.

But not only usability issues are important when designing a website. The esthetic has also an important role. According to Kurosu and Kashimura (1995), few experts consider the esthetic as less important, or at least, with a minor effect on usability, therefore it is demonstrated in the academic research that esthetic has a fundamental role and it can lead to a positive attitude to the perception of a site and its easiness of use.

Ferreira (2002) focuses on whether the dimension of individualism / collectivism has an effect on preferences or in the use of information regarding the decision making in order to continue with the tasks when making a purchase decision of a product presented in a Web site. Ferreira, (2002) emphasizes on language, in addition to the metaphors used, attitudes and preferences that matter in the cultures that the site is oriented to, and to that effect, the author uses the dimensions of collectivism and individualism.

The relationship between usability and cultural dimensions of Hofstede has been a relevant factor in cross-cultural research, for example, Adeoye and Wentling (2007) use four of the Hofstede dimensions (collectivism,

risk aversion, masculinity and power distance), along with the four design elements of Nielsen that they consider relevant (easiness of learning, memory, errors and satisfaction).

Marcus and Gould (2000) made an analysis of Web sites and classify them in different types of design according to cultural values by Hofstede. The authors catalog, as well, the cultural design elements that are very similar to usability design recommendations used by researchers such as Palmer (2002), Nielsen (2002), Sears (2000) and Shneiderman and Hochheiser (2001).

Several authors have agreed that design of the site must be oriented in the user, anticipating how and why people use the product and taking into account the knowledge of the market (Quesenbery, 2001, Agarwal and Venkatesh, 2002; Gray and Salzman, 1998). From this perspective, this research developed a site previously designed with usability principles developed by Nielsen, and relating them to indices of Hofstede's cultural values.

3. HYPOTHESIS AND METHODOLOGY

It has been designed a site focused on sales of music and records online, particularly from independent labels. This market is composed mostly for collectors distributed in various parts of the world who do not have the opportunity to visit different versions of the site.

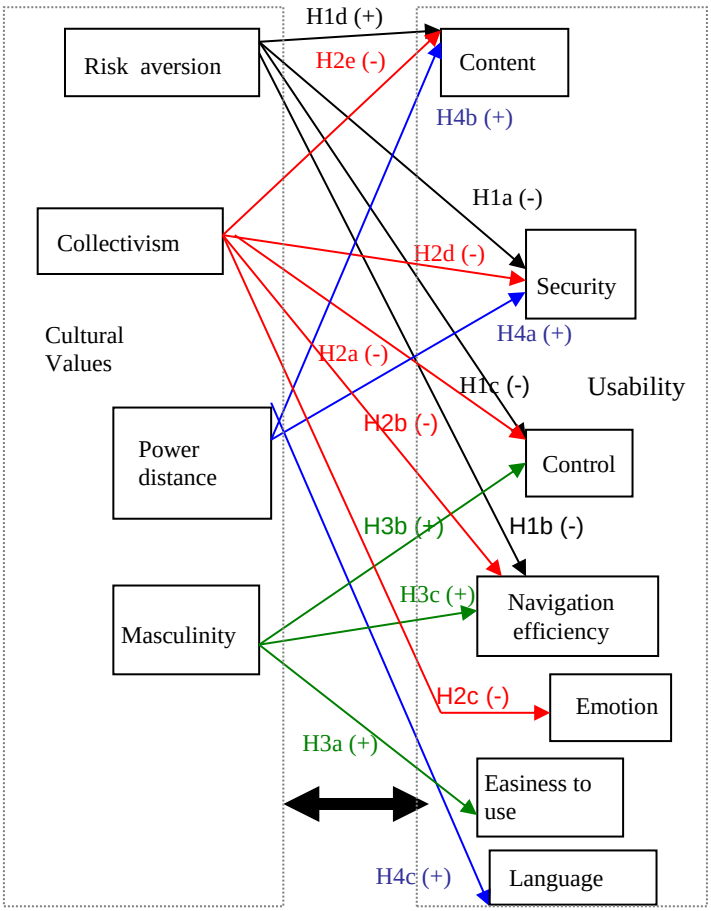
The usability criteria by Nielsen (2002) is the basis to design the site, since the academic researched about this issue - usability applied to Web sites - always begin from those principles. Relating usability criteria to the values of Hofstede, the following hypothesis are listed in table 1:

Table 1 formulated hypothesis

Hofstede´s values	Relationship of usability	Hypotheses	Element of usability
Risk aversion	H1a: (-)	The higher the risk aversion's index from a country, the lower the perception of Web site security.	Security
	H1b: (-)	The higher the risk aversion index, the lower the perception of navigation easiness of the site.	Navigation Efficiency
	H1c: (-)	The higher the risk aversion index, the lower the perception of control on the site.	Control
	H1d: (+)	The higher the risk aversion index, the greater the importance of the site content	Content
Collectivism	H2a: (+)	The higher the index of collectivism, the lower the perception of control on the site.	Control
	H2b: (-)	The higher the index of collectivism, the lower the perception of freedom of navigation on the site.	Navigation Efficiency
	H2c: (-)	The higher the index of collectivism, the lower the interest in the site.	Emotion
	H2d: (-)	The higher the degree of collectivism, the lower the perception of a site as safe.	Security
	H2e: (-)	The lower the index of collectivism, the greater the importance of the site content.	Content
Masculinity	H3a: (+)	The higher the masculinity index, the greater the importance in the performance of the site and its products (easiness of use.)	Easiness of use
	H3b: (+)	The higher the masculinity index, the greater the importance of taking control of the Web site.	Control
	H3c: (+)	The higher the masculinity index, the greater the importance of the navigation easiness of the Web site.	Navigation Efficiency
Power distance	H4a: (+)	The higher the power distance, the greater the perceived need for security features on a site.	Security
	H4b: (+)	The higher the power distance index, the greater the importance in the site content.	Content
	H4c: (+)	The higher the power distance index, the greater the importance in the language used on the site.	Language

Figure 1: shows the model with the relationships between Hofstede's cultural values and Usability items:

Figure 1. Proposed full model with all the assumptions listed.



The effects on the usability dimensions are restricted to site navigation tasks such as selecting an item, obtaining personal data and selecting a product from a music sales company. The dimensions of culture and usability are shown in Table 2 and Table 3.

Table 2. Description of the dimensions of culture

DIMENSION	ITEM	DESCRIPTION
Risk aversion RISK	RISK1	Safety is an important concern in my life
	RISK2	Life is so uncertain that I must be in constantly alert to not be in disadvantaged
	RISK3	It is important to consider different points of view when I take personal and social decisions
Collectivism / Individualism COLECTIVISM	INDIVIDU1	I like to share little things with my neighbors
	INDIVIDU2	Being an unique person is important to me
	INDIVIDU3	The decisions achieved in group are better than those achieved individually
	INDIVIDU4	Usually I sacrifice my own interest for the benefit of my group
	INDIVIDU5	I prefer to rely on others
	INDIVIDU6	It is important for me to be useful for others

DIMENSION	ITEM	DESCRIPTION
Power distance POWER	POWER1	My manager is a person like any other
	POWER2	Managers are always inaccessible and distant
	POWER3	The way to change society is to make everyone equally powerful
	POWER4	Other people are a threat to my power of one and I cannot trust them
Masculinity/ Femininity MASCULIN	MASCUL1	Having a career is more important for men than for women
	MASCUL2	Men usually solve problems with logical analysis, women generally are more visceral
	MASCUL3	Solving difficult problems usually require a strong and active approach, which is typical of men
	MASCUL4	There are some jobs that a man can always do better than a woman

Table 3. Description of Usability's dimensions

Dimension	Item	Description
Security SECUR	SECUR1	The site is secure
	SECUR2	I trust in the site
	SECUR3	I relied more on the site as it has social networking (myspace, twitter, facebook)
Navigation Efficiency	EFICIENCY	The site is simple to navigate
Control CONTROL	CONTROL1	It is easy to do what I want to do
	CONTROL2	The performance of the site was excellent
Content CONTENT	CONTENT1	The site provides good information about products
	CONTENT2	The image quality is great
	CONTENT3	The site produces purchase wishes
	CONTENT4	I identify with the images of the site
Emotion EMOCION	EMOCION1	The site is interesting
	EMOCION2	The site is fun
Easiness of use	EASY	Obtaining information is easy
Language	LENGUAGE	I identify with the language used on the site

The model for information gathering, searching and browsing is based on the proposal of the Georgia Tech Graphic Center of Usability (Fang and Holsapple, 2007), that suggests that in a Web site should be raised a series of instructions for participants to explore it, and then execute tasks such as seeking information or a particular object.

It should be emphasized that the whole design is Mexican and an expert in English language but with a Mexican background was the responsible to make the language corrections. The online design and implementation was carried out by a Mexican company with experience in designing and managing Web sites at a governmental level, applying usability engineering in the design. The intention is that users cannot determine the origin of the portal; in order to verify whether there are differences in the assessment of the page according to the nationality of the participants in the study. Using a portal designed in English will also help to find whether the application of usability elements in site design effectively reduces the cultural impact of it.

3.1 Sample characteristics

For the sample, college students from Mexico, USA and Spain were selected discretionally and by convenience. The reasons to haven chosen these countries are two: 1) they represent a wide difference between their range for risk avoidance, power distance, and individualism / collectivism, being the dimension of masculinity / femininity which has a narrower range of disparity between the participants from those countries; and 2) language, having the largest number of English speakers (USA), the most populous Spanish speaking country (Mexico) and the country of origin of the Spanish language (Spain). Additionally, there are other reasons:

- Mexico is a natural neighbor of the U.S. and the cultural influence in this country is evident through the verbal communication of Mexicans.
- Spain plays an important role in the Spanish language, since it is the country of origin of this language and its inhabitants are more familiar with British English than with the one from the U.S.

Data collection was performed during the period from April to June 2010, and due to technical reasons, the survey had to be answered in one session; therefore it could not be interrupted. In order to obtain the test results and all statistical models SPSS version 18 and AMOS 18 were used.

Swearingen, (2009) recommend at least 200 visitors to obtain a reasonable sample size, consideration that has also been taken into account as they were 206 surveys for Spain and Mexico respectively, and 190 for U.S. The difference between men and women in the sample is very small (50.2% and 49.8% respectively, with a total of 302 men vs. 300 women). By country, the sex distribution is for 103 men and 103 women in Mexico (50% and 50%), while for Spain the relationship between men and women was 90 men (43.7%) and 116 women (56.3 %). In the U.S. sample, the gender ratio is 109 men (57.4%) and 81 women (42.6%). Most participants were concentrated between 18 to 25 years (60.9%), being the youth the majority in the subsample of Mexico.

Spanish is the mother tongue for 71.3% of participants (429), while English is for 16.3% (98) of the total. The quality of English was reported as excellent for most participants in the U.S., while Mexican and Spanish are between good and sufficient (Figure 6.3). Spain and the U.S. were the countries with a greater number of participants who speak a third language.

4. COVARIANCE STRUCTURE MODEL (CSM). EXPLORATORY FACTOR ANALYSIS

To preliminarily assess the unidimensionality of the latent concept, we performed an exploratory factor analysis. The extraction procedure has been the Principal Component Analysis (PCA) for the dimensions of cultural values and usability.

Regarding the results of the usability dimensions, the measure of sampling adequacy Kaiser-Meyer-Olkin (KMO) has a value of 0.873, higher than the acceptable value of 0.7, while the Bartlett's sphericity test has a p-value inferior than the significance level (0.05) to reject the null hypothesis that the correlation matrix is an identity one; therefore it is concluded that the factor is adequate.

Concerning the test for the variables of culture, the measure of sampling adequacy Kaiser-Meyer-Olkin (KMO) has a value of 0.720, higher than the acceptable value of 0.7 and the Barlett´s sphericity test has a p-value lower than the limit of level of significance (0.05) to reject the null hypothesis that the correlation matrix is an identity matrix, so we conclude that the factorial is satisfactory.

From a statistical standpoint, we followed the considerations of Jarvis et al. (2003), and we have concluded that our case does not meet any of the four conditions to consider constructs as formative. The conditions are listed:

1. Low correlations between latent constructs.
2. Insufficient sample size.
3. There is no indication of multicollinearity (the inflation factor of variance IVF is inferior than 10).
4. There is no normality.

Thus we can conclude that our constructs and indicators are reflective.

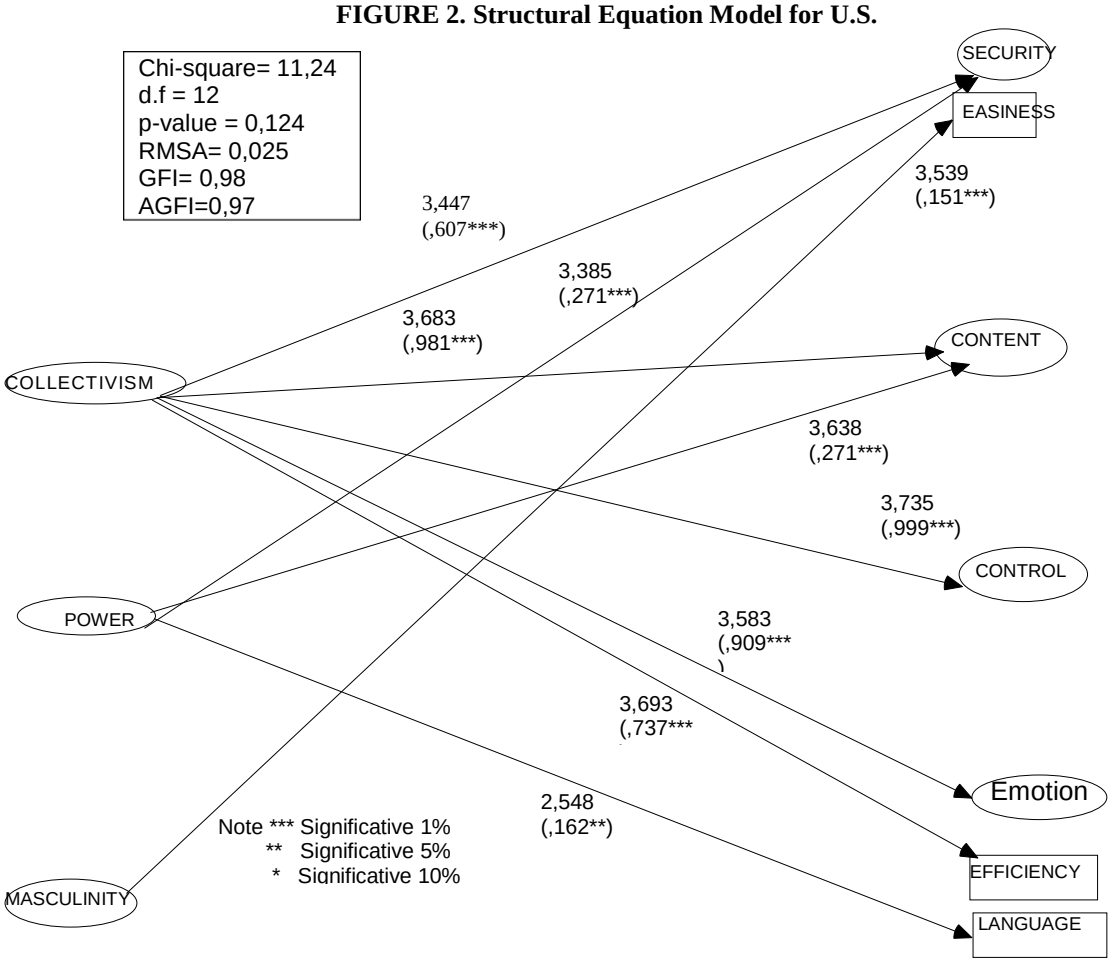
Each proposed model consists of latent variables and observable variables. The latent variables are those that cannot be observed directly, so they are inferred by the mathematical model, in this case, through the structural equations. In the figures, these latent variables are represented in the form of ovoid.

Regarding observable variables, they can be observed and measured directly. In the figures, they are represented by rectangles. All the observables variables have a metric scale (interval or ratio). In this case, to apply structural equation modeling, we use the maximum likelihood estimation, since, as it was shown previously, the assumption of normality is satisfied.

4.1 Model applied to the USA

The U.S. model (Figure 2) consists of seven latent variables: all of them are constructs of culture, where "risk aversion" is the only variable missing within the dimensions of Hofstede. To complete the seven latent variables, there are four variables of usability, security, content control, and emotion. For the U.S., there are also three observable variables on usability, navigation efficiency, easiness of use and language.

FIGURE 2. Structural Equation Model for U.S.



It is noted that the U.S. index of collectivism influences in to the four variables of usability (security (λ = 3.447), content (λ = 3.683), control (λ = 3.735) and emotion (λ = 3.583)), being control the variable with more importance, followed by content. In addition, collectivism also influences an observable variable (navigation efficiency (λ = 3.693)). The significant level of al them is 1%. Collectivism dimension is therefore an important factor in explaining the perception differences of a Web site. The power distance dimension influences three usability variables, two latent and one observable. Security (λ = 3.385) and content (λ = 3.638) also influences language (λ = 2.548).

Regarding to gender ratio, it only influences the observable variable "easiness of use"(λ = 3.539). No relationships were found that would indicate the influence of risk aversion in the perception of the site.

Table 4 shows the significant p-values for the model and the relations between, represented by *** for 1%. Significant values for 5 and 10% are illustrated with their numbers. In the table only are pointed up the values of the reflex variables, written in italics:

Table 4. Results of structural equations for the U.S.

Relation between variables			Estimates	Correlation coefficients	P	Estimate
INDIVIDU1	<---	COLLECTIVISM	1,000			,055
POWER1	<---	POWER	1,000			,398
POWER3	<---	POWER	,688	3,444	***	,252
MASCUL1	<---	MASCULIN	1,000			,631
MASCUL2	<---	MASCULIN	,942	6,808	***	,631
MASCUL3	<---	MASCULIN	,914	7,143	***	,843
MASCUL4	<---	MASCULIN	,644	4,723	***	,389
SEGUR1	<---	SECURITY	1,000			,810
SEGUR2	<---	SECURITY	1,172	11,595	***	,896
CONTENT1	<---	CONTENT	1,000			,682
CONTENT2	<---	CONTENT	,852	9,328	***	,720
CONTENT3	<---	CONTENT	,574	4,453	***	,341
CONTENIDO4	<---	CONTENT	,838	6,188	***	,506
CONTROL1	<---	CONTROL	1,000			,732
CONTROL2	<---	CONTROL	,948	9,721	***	,693
SEGUR3	<---	SECURITY	,485	2,992	,003	,249
EMOTION1	<---	EMOTION	1,000			,705
EMOTION2	<---	EMOTION	,813	7,317	***	,580

In summary, the set of formulated assumptions and their confirmations are presented, in table 5, followed by the results shown by the research.

TABLE 5. Verification of the formulated hypothesis for the U.S.

Constructs/ Variables	HIP.	Verification
Collectivism	H2a: (-)	Yes, the sign changes because individualism was measure
	H2b: (-)	Yes, the sign changes because individualism was measure
	H2c: (-)	Yes, the sign changes because individualism was measure
	H2d: (-)	Yes, the sign changes because individualism was measure
	H2e: (-)	YES
Masculinity	H3a: (+)	YES
Power distance	H4a: (+)	YES
	H4b: (+)	YES
	H4c: (+)	YES

No relationships were found between control, and efficiency of navigation and masculinity / femininity. Also, it should be noted that the assumptions for risk aversion could not be verified, since this construct does not appear in the model originated from the structural equations.

4.2 Model applied to Spain

The model for Spain (Fig. 3) consists of ten variables. Unlike the U.S., in this case there are presented the four Hofstede cultural dimensions that form the constructs of culture, just except that the variable power is linked to a single indicator.

Masculinity only has impact on the efficiency of navigation, but with a negative sign (λ = -2.347) in an approach contrary to the expectations. Collectivism also influence this variable (λ = 2.044), which is also reflected in emotion (λ = 2.052), control (λ = 2.052), content (λ = 2.947) and security (λ = 2.028). Of these, the greatest influence of this construct is produced on emotion. The variable of perceived risk emerges, which is reflected in the content (λ = 3.100). In addition, power distance, measured only by the indicator "Security is a major issue in my life" influences the language positively (λ = 3.818), however the content (λ = -1.654) is influenced negatively. From all perceived cultural factors, is content the variable that has a greater weight in collectivism. As for the estimates and significance of each of the observable variables that have shaped the various latent constructs, they are all significant at 1% and 5%.

Figure 3.structural equation model for Spain

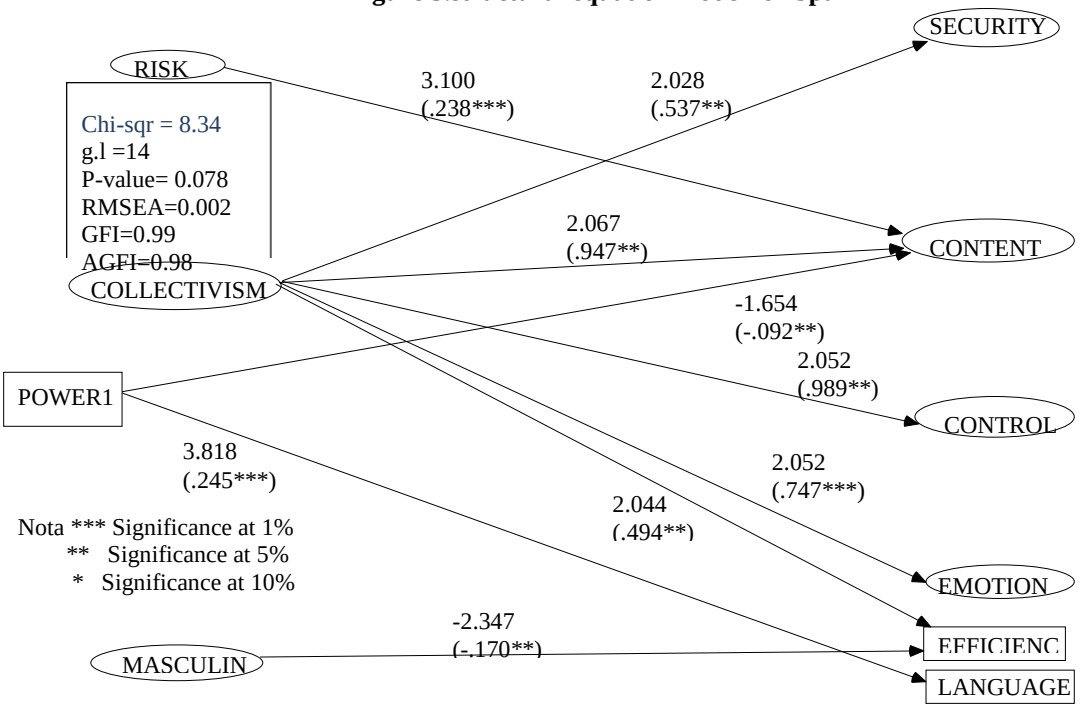


Table 6 shows that all the coefficients and their significance level influence the constructs of culture in Spain. These results indicate that the perception of a website is influenced by culture; as a consequence the differences between collective and individualistic societies are important factors to perceive a Web site. From all perceived cultural factors, is content the variable that has a greater weight in collectivism.

Table 4. Results of the structural equations for Spain

Relation among variables			Estimates	S.E.	Correlation coefficients	P	Estimates
RISK1	<---	RISK	1,000				,718
RISK2	<---	RISK	,858	,273	3,145	,002	,522
RISK3	<---	RISK	,557	,194	2,879	,004	,407

Relation among variables			Estimates	S.E.	Correlation coefficients	P	Estimates
INDIVID1	<---	COLLECTIVISM	1,000				,156
INDIVID2	<---	COLLECTIVISM	1,432	,817	1,753	,080	,221
MASCUL1	<---	MASCULIN	1,000				,649
MASCUL2	<---	MASCULIN	,853	,161	5,306	***	,622
MASCUL3	<---	MASCULIN	,662	,134	4,932	***	,479
MASCUL4	<---	MASCULIN	,989	,183	5,398	***	,555
SECUR1	<---	SECURITY	1,000				,812
SECUR2	<---	SECURITY	1,251	,133	9,400	***	,930
CONTENT1	<---	CONTENT	1,000				,777
CONTENT2	<---	CONTENT	1,127	,101	11,143	***	,763
CONTENT3	<---	CONTENT	,450	,122	3,675	***	,272
CONTENT4	<---	CONTENT	1,142	,143	8,010	***	,567
CONTROL1	<---	CONTROL	1,000				,577
CONTROL2	<---	CONTROL	1,255	,179	7,021	***	,662
SECUR3	<---	SECURITY	,452	,122	3,717	***	,272
EMOTION1	<---	EMOTION	1,000				,823
EMOTION2	<---	EMOTION	,602	,093	6,469	***	,527

In summary the set of formulated assumptions and their confirmation are presented, according to the results derived from the research carried out in Table 5.

Table 5. Verified hypothesis for Spain

Variables	HIP.	Verification
Risk Aversion	H1c: (-)	YES. With opposite sign
Collectivism	H2a: (-)	YES. The measured variable is individualism, in opposition to collectivism, the sign changes
	H2b: (-)	YES. The measured variable is individualism, in opposition to collectivism, the sign changes
	H2c: (-)	YES. The measured variable is individualism
	H2d: (-)	YES. The measured variable is individualism
	H2e: (-)	YES. The measured variable is individualism
Masculinity	H3c: (+)	YES. With opposite sign
Power Distance	H4b: (+)	YES. With opposite sign
	H4c: (+)	YES

As risk aversion, no relationships were found regarding safety and efficiency or easiness of use. The five hypotheses for collectivism are accepted; while for the dimension of masculinity / femininity only of them was accepted. In terms of power distance, the only hypothesis rejected was the one related to its influence on safety.

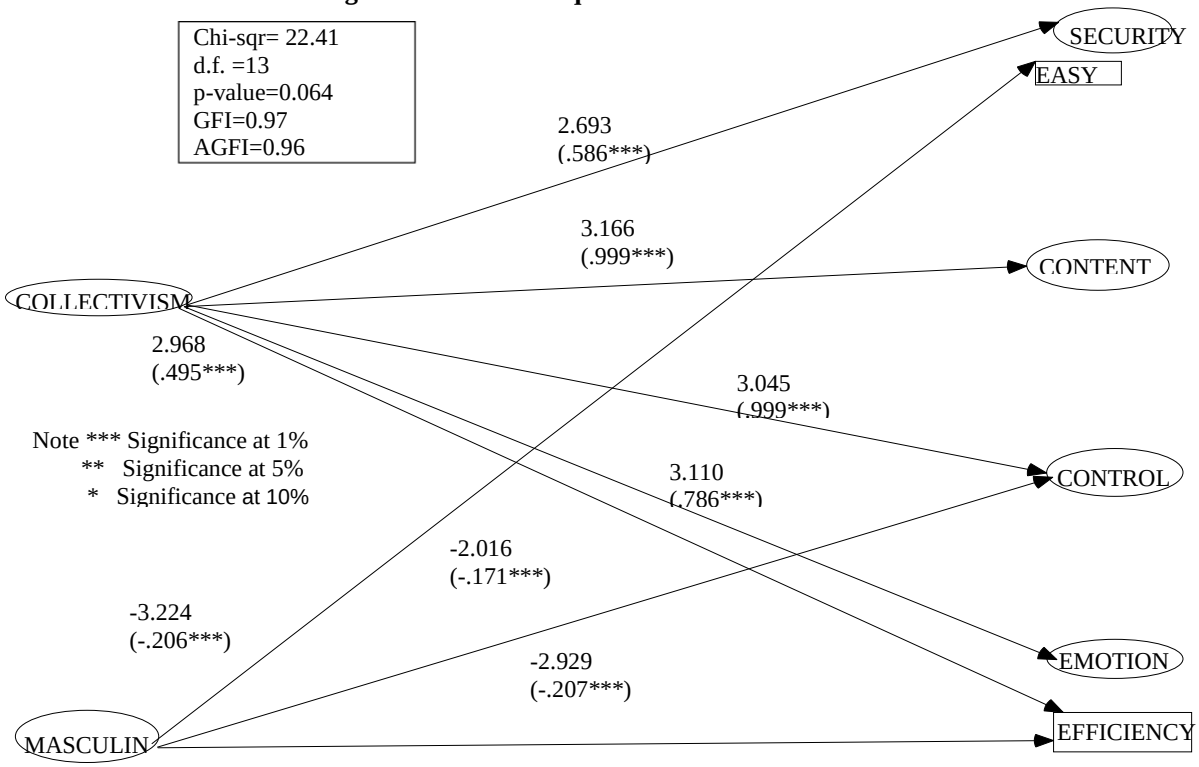
4.3 Model applied to Mexico

The model for Mexico only comprises two cultural variables: Sex ratio vs. femininity and collectivism. The two appear as latent variables and all enclose their reflex variables (Fig. 4). In terms of usability variables, four of them are exposed as latent variables and two as observable variables. The observable variables are efficiency

and easiness of use, which are influenced by the masculinity variable λ = λ = -2.929 and -3.224 respectively. It can be noticed that values have negative signs. Control (λ = -2.016), a latent variable, influences also masculinity.

The estimators for the collectivism variable are: efficiency of navigation, which is an observable variable with λ = -2.968. The other four appear as latent variables, being content the one with most significance (λ = 3.166), followed by excitement (λ = 3.110), control (λ = 3.045) and finally safety (λ = 2.693), all with positive signs.

Figure 4. Structural equation model for Mexico



The weight of the significant variables and their influence can be noticed in Table 6, marked in italics are each of the reflection variables.

Table 6. Results of structural equations for Mexico

Relation among variables			Estimates	Correlation coefficients	P	Estimates
INDIVIDU1	<---	COLLECTIVISM	1,000			,245
INDIVIDU2	<---	COLLECTIVISM	,869	2,400	,016	,252
INDIVIDU3	<---	COLLECTIVISM	,941	2,303	,021	,227
INDIVIDU4	<---	COLLECTIVISM	,823	2,273	,023	,225
INDIVIDU5	<---	COLLECTIVISM	,987	2,464	,014	,277
INDIVIDU6	<---	COLLECTIVISM	,885	2,740	,006	,275
MASCUL1	<---	MASCULIN	1,000			,710
MASCUL2	<---	MASCULIN	1,147	8,995	***	,779
MASCUL3	<---	MASCULIN	1,060	8,870	***	,764

Relation among variables			Estimates	Correlation coefficients	P	Estimates
MASCUL4	<---	MASCULIN	,764	6,532	***	,520
SEGUR1	<---	SECURITY	1,000			,806
SEGUR2	<---	SECURITY	1,056	8,635	***	,857
CONTENT1	<---	CONTENT	1,000			,575
CONTENT2	<---	CONTENT	,930	9,707	***	,530
CONTENT3	<---	CONTENT	,943	6,067	***	,453
CONTENT4	<---	CONTENT	,856	5,241	***	,376
CONTROL1	<---	CONTROL	1,000			,550
CONTROL2	<---	CONTROL	1,258	6,924	***	,636
SEGUR3	<---	SECURITY	,338	2,737	,006	,209
EMOTION1	<---	EMOTION	1,000			,758
EMOTION2	<---	EMOTION	,974	7,447	***	,696

Again, we can observe that collectivism is the cultural dimension that best represents cultural differences. In the table 7 we can see the assumptions that have been demonstrated for each cultural dimension with regard to the variables of usability.

Table 7. Verified hypotheses for Mexico

Variables	HIP.	Verification
Collectivism	H2a: (-)	YES. The measured variable is individualism
	H2b: (-)	YES. The measured variable is individualism
	H2c: (-)	YES. The measured variable is individualism
	H2d: (-)	YES. The measured variable is individualism
	H2e: (-)	YES. The measured variable is individualism
Masculinity	H3a: (+)	YES
	H3b: (+)	YES
	H3c: (+)	YES

5. DISCUSSION AND CONCLUSIONS

The dimension of collectivism has been consistent. This hypothesis is confirmed in its entirety to this cultural dimension, as a consequence the higher the degree of collectivism of a society, the lower the perceived safety of a site. As the site has been designed in English, but considering the collectivist culture (Mexico), issues related to security had to take into account to increase the control on the site, prioritizing the site content as well as limiting the freedom of navigation. These values are consistent with what has already been shown in other studies (Yano and Seo (2003), Zandapour and Harich (1996), Matsumoto et al., (1998) on these dimensions, which also explains the behavior and characteristics of many countries and are also key parts to deduce the origins of cultural differences that cause problems to achieve success of a website.

Masculinity has also proven to be a cultural dimension that appears in the three countries. Of the three nations analyzed, Mexico has the highest score concerning the measurement of masculinity, according to Hofstede. In Spain, the country that gets the lowest score of the three in this dimension, masculinity only has a negative influence on the variable efficiency. The U.S., which is between Mexico and Spain in relation to the masculinity

index only influences the variable easiness of use, as a result it has proven that the higher masculinity index, the more importance it has on the performance of the site and its products.

For the U.S., the three hypotheses regarding the cultural dimension of power distance are accepted, which have a positive influence on language, site content and perceived safety of the site. Spain also has that dimension that is influenced by content, but negatively. We must point out that this nation has a higher value in power distance than the U.S., the latter being more equitable concerning the relations between the structures of power. The other variable that influences power distance for Spain is the language, existing identification by the participants in the experiment. The site was designed in English and it was hoped that participants were not identify with the language, but apparently the fact that most college students are bilingual (Spain was the country with more participants that spoke a language in addition to the native) makes that this variable behaves the same as for the U.S.: the higher power distance, the more important the language of the site.

Mexico has no relations between power distance and risk aversion for its model. Most important, it is the country where less elements of culture have influence on design. For the other two cultures studied, there are more design elements influenced by a greater number of elements of culture, thus it is demonstrated that participants in this study have noted that the site was developed by a different culture, while Mexicans accepted the design in a better approach.

We conclude that a good site design which considers satisfactory information about the site or products, etc.., can help to reduce the risk perception (Zahir et al, 2002, Cunningham et al. 2005; Pollach, 2006). The issue of design influences the reduction of uncertainty in a site, when there is trust the navigation becomes more accessible. The usability-engineering design of a site helps to make it more efficient and reduce fears, although, this is not enough. Again it is emphasized that cultural differences should be considered (Quesenbery, 2001, Agarwal and Venkatesh, 2002, Gray and Salzman, 1998).

The models emerged from this study indicate that indeed, not only is necessary to make use of usability, but also take into account cultural considerations. In addition, it is demonstrated that a site cannot be universal since the cultural significance is such that, although the origin of the designer is not detected, the site has a slightly different appreciation by users of distinct nationalities. It is especially important to note that one of the cultural dimensions that have a superior role in cultural issues is the individualism / collectivism (Ferreira, 2002).

6. LIMITATIONS OF WORK AND FUTURE RESEARCH

The most important limitation of this work comes from its exploratory nature and foremost from the source of data collection. The survey was based on a sample of convenience that cannot be regarded as homogenous. Firstly, because although it has been distributed mainly among university students in Mexico, USA and Spain, other users have had access the Web and therefore have produced biases related to age or educational level, mainly. Therefore, in subsequent studies it will be considered conclusive this limitation by designing a sample that has the same amount for sociodemographic variables that may produce a higher bias in relation to the cultural dimensions or the principles of usability.

On the other hand, the size of the subsamples has not been uniform in size and gender. Only in Mexico it could be obtained a ratio of 50% of men and 50% women. The reason for having sub-samples of 206 participants from Mexico and Spain was established as a criterion that states having a number of subjects large enough to apply the statistical methods chosen. As in Mexico more participants took part of the study, the subsample was matched to be equal as the size of the subsample to Spain, which cases were selected at random. However, in the US it was unable to reach a greater number of 200 participants, not even an equivalent amount of men and women.

The participants are not necessarily music buyers and collectors of records, consequently the user characteristics of collectors are not reflected in the site preferences. For further studies, we believe mandatory to use samples that truly represent the people who visit such sites.

Another limitation corresponds to the time spent on the fieldwork, which was made in just three months. A questionnaire of one year could yield to interesting results. Also, to be taken into account in future studies which time dilates data collection regarding consumer information in electronic commerce and evolution of it between countries and technological advances that affects it, the information changes very quickly and hence it could be soon obsolete.

Besides the future lines already pointed out in regard to the limitations, another possibility is to make a real

survey in only one of these countries, with a sample that represents the whole population and not just the university segment. Given that the U.S. is a country where many people live from different national origins, also it could even be perform a segmentation in which the Hispanic market is compared with other segments. Even if research is conducted again in the three analyzed countries, results from the U.S. Hispanic segment could be compared with the market in Latin America and Spain.

Despite all these limitations, our study represents a starting point that corresponds to a clear contribution in the field of electronic commerce. Therefore, we intend to develop further research where more cultures become involved. These future studies will incorporate cultures that do not have a Western origin, including emerging markets like China and India. Other countries where Internet is already well established and developed but they belong to cultures other than the Western world can be also incorporated, such as Korea and Japan. In addition, Brazil also will be contemplated since it is an emerging country and Latin America, but also has a historical background and current development different from its Latin American neighbors.

REFERENCES

Aberg, J & Shahmehri, N. 2000. The Role of Human Web Assistants in E-Commerce: An Analysis and a Usability Study. *Internet Research: Electronic Networking Applications and Policy*. 10 (2), pp 114-125.

Adeoye, B; Wentling, R.M. 2007. The Relationship Between National Culture and the Usability of an E-Learning system. *International Journal on ELearning*; 6, 1; Academic Research Library. Pp 119

Agarwal, R; & Venkatesh, V. 2002. Assessing a Firm's Web Presence: A Heuristic Evaluation Procedure for the Measurement of Usability. *Information Systems Research*, 13 (2), pp 168 –186.

Barber W., & Badre, A. 1998. Culturability: the merging of culture and usability. *HFWeb '98*. [online] Available at <http://www.research.att.com/conf/hfWeb/> [Accessed September 21 2009]

Becker, S.A; & Mottay, F. 2001. A Global Perspective on Web Site Usability. *IEEE software*. 18 (1), pp 54-61.

Cunningham, P.J. (2002). Are cookies hazardous to your privacy? Information management journal, 36 (3), 52-54.

Falk, L., Sockel, H., Warren, H. 2007. A holistic view of internet marketing. *Competition Forum. Indiana*. 5 (1), pp 9-14.

Fang, X; & Holsapple, C. W. 2007. An empirical study of Web site navigation structures' impacts on Web site usability Source. *Decision Support Systems*. 43 (2), pp 476-491

Ferreira, R. 2002. *Culture and E-Commerce: Culture based preferences for interface information design.* Unpublished thesis, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Gibbs, J., Kraemer, K., Dedrick, J. 2003. Environment and Policy factors Shaping Global E-Commerce Diffusion: A Cross-Country Comparison. *The Information Society*. 19, pp 5-18.

Gray, W. D., & Salzman, M. C. 1998. Damaged merchandise? A review of experiments that compare usability evaluation methods. *Human-Computer Interaction*, 13, 3, pp203-261. [online] Available at <http://www.hfac.gmu.edu/~gray/pubs/papers/Gray&Salzman98_HCI.html > [Accesed June 7 1999]

Hofstede, G. (2010). Valores culturales por país. [online] <http://www.geert-hofstede.com> Retrieved September 2010

Jarvenpaa, S; Leiden, D. 1998. An information company in México: Extending the resourcebasedview of the firm to a developing country context. *Information systems research*, 9 (4), pp 342-61.

Jarvis, Ch., Mackenzie, S., Podsakoff, P. 2003. A critical review of construct indicators and measurement model misspecification in marketing and consumer research. Journal of Consumer Research, Vol. 30, 2, pp 199-218.

Kurosu, M., Kashimura, K. (2995). Apparent Usability vs. Inherent Usability Experimental

analysis on the determinants of the apparent usability. *Special Interest Group on Computer-Human Interaction* [online] Available at <http://www.sigchi.org/chi95/proceedings/shortppr/mk_bdy.htm> [Accessed February 12].

Marcus, A; & Gould, E.W. 2000. Crosscurrents-cultural dimensions and global user-interfaz design. *Interactions*,7 (4), pp 32-46.

Matsumoto, D., Takeuchi S., Andayani, S., Kouznetsova, N., Krupp, D. 1998. The Contribution of Individualism vs. Collectivism to Cross-national Differences in Display Rules, *Asian Journal of Social Psychology*, 1(2),pp 147-165.

Nantel, J., & Glaser, E. 2008. The impact of language and culture on perceived website usability.*Journal of Engineering and Technology Management*, 25 (1-2), pp 112-122.

Nielsen, J. 2002 Top Ten Guidelines for Homepage Usability. *Jakob Nielsen's Alertbox*, [online] Available at <http://www.useit.com/alertbox/20020512.html> [Accessed may 8 2002]

Palmer, J. 2002. Web site usability, design, and Performance Metrics. *Information Systems Research*, 13 (2), pp151 – 167.

Pollach, I., 2006. Privacy statements as a means of uncertainty reduction in WWW interactions. *Journal of organizational and end User computing*, 18 (1), pp 23-49.

Quesenbery, W. 2001. What Does Usability Mean: Looking Beyond "Ease of Use". [online] Available at <www.wqusability.com/articles/more-than-ease-of-use.html> [Accessed may 21 2003]

Sears, A. 2000. Introduction: Empirical Studies of WWW Usability. *International Journal of Human-Computer Interaction*, 12 (2), pp 167 – 171.

Shneiderman, B. 2008. Eight Golden Rules of Interface Design [online] Available at <http://faculty.washington.edu/jtenenbg/courses/360/f04/sessions/schneidermanGoldenRules.html> [Accessed July 7 2008]

Swearingen, C. 2004. Testing Your Way to Website Profits. *Discoveryarticles.Com* [online] Available at <http://www.discoveryarticles.com/articles/270914/1/Testing-Your-Way-to-Website-Profits/Page1.html> [Accessed October 3 2009]

Yano, M., Seo, Y. 2003. Conflicts among Net news participants and cultural background. *Internet Research: Electronic Networking Applications and Policy*, 13 (5), pp 386-399.

Zahir, S., Dobing, B., Hunter, M.G 2002. Cross cultural dimension of Internet portals. *Internet Research*, 12 (3), pp 210-220.

Zandpour, F., Harich, K. R. 1996. Think and feel country cluster: A new approach to international advertising standardization. *International Journal of Advertising*, 15, pp 325-344.

View publication stats