Culture and E-Commerce; A Case Study for Cyprus

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Abstract

This is a study of culture in relation to e-commerce behaviour using Hofstede’s theory on cultural dimensions and country clusters. The main objective of the current project is to provide a longitudinal view of how national culture affecting the use of e-commerce has changed over a six year period (2005-2011) by replicating a 2005 study and comparing the results. Findings suggest that there have been some changes towards individualism while at the same time there is an increase in the uncertainty avoidance of e-commerce users in Cyprus.

Keywords: Culture; E-Commerce; Hofstede

1.0 Introduction

The increase in the internet usage overall and the increase in the e-commerce activity world-wide continues. For smaller nations, such as Cyprus, the penetration of e-commerce in the island’s population may be smaller but it follows the same increasing trend as everywhere else. According to Eurostat [1], the statistical office of the European Union which provides the latest statistical data of countries across Europe, Internet use by individuals in Cyprus between 2005 and 2011 changed from 33 to 58%. It is worth noting that only 4% of the Cyprus population had some e-commerce activity in 2005. This number changed to 16% in 2011.

Globalization of Internet usage, reported by the Internet World Stats service [2] which shows a growth in the world Internet usage of 528.1% between the years 2000-2011, has definitely changed the way corporations operate and conduct business. For enterprises in Cyprus the level of Internet access is currently at 91% of all enterprises. As for the percentage of Cyprus enterprises selling via the Internet and/or other networks, this is reported at 8% in 2011 and purchasing via the Internet and/or other networks 26%.
Given the rapid penetration of the Internet in the population around the world, as well as the increase in the e-commerce activity, one must question what kind of influence these had on culture. The main objective of this work is to study culture in relation to e-commerce behaviour using Hofstede’s theory on cultural dimensions and country clusters [3]. The study builds up as a case study for Cyprus. A broader study which included Cyprus was done in 2005 [4]. Data from the 2005 study will therefore be compared to the current survey results of 2011 to see how cultural characteristics might have changed over this six year period.

2.0 Literature Review

Literature investigating e-commerce acceptance can be divided into two broad classes. The first one deals directly with factors affecting attitudes towards technology and thus, behavioural intention concerning usage (adoption model). The second one addresses factors dealing with trust (trust model) pointing out that lack of trust is one major impediment of e-commerce adoption, which prevents consumers from shopping online [5, 6, 7, 8].

Summarizing the issues pointed out by the various researchers, e-commerce adoption is primarily affected by two major factors: trust and IT development. Trust builds up on market-, soft- and hard issues. Soft issues can be defined as the people-specific characteristics relating to trust and hard issues as the technology-specific characteristics affecting trust. These are shown in Kyriakoullis’ model below [4].

![Figure 1. E-commerce adoption model [4].](image)

2.1 Culture and the Cultural Diversity

Culture can be defined as a shared set of values that influence societal perceptions, attitudes, preferences, and responses [9]. Put differently, culture is a “collective programming of the mind which distinguishes the members of one human group from another” [9 p. 302].

While there has been a lot of work done in the area of identifying cultural factors [8, 10], the model that is most often cited and accepted, is the typology of culture developed by Hofstede (1980) [9]. In his research Hofstede identified four dimensions, which can be used to differentiate nations according to their cultures. A fifth dimension was added in 1991 based on research by Michael Bond [11, 3]. This study examines issues relating to the following two dimensions of Hofstede being:
• **Individualism versus collectivism (IDV):** In individualistic societies people take care only of their own selves. In collective societies people feel as though they belong to a strong group and always try to protect it.

• **Uncertainty avoidance (UAI):** The level to which people in different cultures feel vulnerable in risky situations.

A number of studies have investigated the effects of culture on people and how culture influences their intention to buy or not to buy on-line [12, 13, 14, 11, 15].

A study by De Angeli and Kyriakoullis [16] found that the slow adoption of electronic commerce in Cyprus may be due to the collectivist nature of the Greek culture. There is no social pressure for e-commerce use since the majority of people do not use the Internet to buy online. Thus, the minority of people who use it cannot influence the majority who do not. The study also indicates that Greek Cypriots are more anxious when buying online due to a higher uncertainty avoidance culture.

### 2.1.1 The Greek Culture

The cultural typology developed by Hofstede [9, 3] involved a big study of individuals living in 50 different countries among which Greece; Cyprus was unfortunately not included. Given that Greek Cypriots have common history, language, culture, religion and other characteristics with Greeks, we assume that about the same scores may apply for Greek Cypriots too. This assumption has already been applied in at least two earlier studies: one by Vincent and Vassiliades [17] and the other by De Angeli and Kyriakoullis [16]. The latter will be the study referenced for the longitudinal comparison made in this project.

![Figure 2. Results of Hofstede’s study for the Greek Culture [3]](image)

With scores ranging from 1 for the lowest to 120 for the highest, Hofstede concluded that Greece shows low individualism ratings (IDV) (35) and high uncertainty avoidance ratings (UAI) (112) (Figure 2). At a score of 35 in IDV, Greece is a collectivist culture, “we” defined. It can be described as a country in which people are integrated into the strong, cohesive in-group being the extended family, trustworthy and long lasting business relationships, etc. At 112 UAI Greece has the highest score on Uncertainty Avoidance compared to other countries measured, which means that as a nation Greeks are not at all comfortable in ambiguous situations which may create anxiety and stress. In Greece, bureaucracy, laws and rules are very important to make the world a safer place to live in.
A more general conclusion that Hofstede made was that, if more than half of a country’s population is practicing Greek Orthodox or Catholic religion then the country has high uncertainty avoidance. This is particularly important for Cyprus since most Greek Cypriots are practicing the Greek Orthodox religion (78%, [18]).

Vincent and Vassiliades [17] found that people in Greece are unwilling to take risks and are highly concerned about their safety. Helmreich and Merritt [19] in their study describe Cyprus as a country with high uncertainty avoidance level and low individualism level. Their study examined the role of culture in aviation. Thus, both of these studies provide further support to Hofstede’s earlier findings.

3.0 A Case Study for Cyprus

Cyprus is an island located in the eastern Mediterranean Sea and has always been considered to be the south-eastern boundary of Europe. The Republic of Cyprus is a full EU Member State since 2004. The majority of the citizens, around 80% numbering 804,435 citizens (2011 statistic) [1], are Greeks.

Cyprus has a good telecommunications infrastructure and technology should not be considered an obstacle for any e-commerce activity. It should be noted, though, that the monopoly in the telecommunications’ infrastructure in Cyprus which was a fact until 2003, had a direct impact on prices and on the adoption of the Internet in general.

3.1 E-Commerce in Cyprus

Eurostat, the statistical office of the European Union provides us with the following important statistics. Internet use by individuals in Cyprus between 2005 and 2011 changed from 33 to 58%. Only 4% of the Cyprus population had some e-commerce activity in 2005. This number changed to 16% in 2011. The level of Internet access in Cyprus is currently at 91% of all enterprises. Cyprus enterprises selling via the Internet and/or other networks are the 8% of all enterprises and those purchasing via the Internet and/or other networks are 26%.

3.2 The Objectives of this Study

The objectives of this research are to:

- Validate Hofstede’s cultural dimensions of Individualism vs. collectivism and Uncertainty avoidance for Cyprus.
- Determine if the culture of people is an essential aspect for the growth of e-commerce.
- Compare the results obtained in 2011 with those in 2005.

To accomplish the study objectives the following hypotheses were formulated:

- H1. E-commerce Experience: Greek-Cypriots will be more familiar with shopping online and will have more experience in online transactions in contrast to year 2005.
- H2. Cultural Background: The phenomenon of globalisation may have an impact on the Greek culture and therefore scores obtained from a previous
study in 2005 based on Hofstede’s cultural dimensions of collectivism and uncertainty avoidance might have changed.

- H2a. Anxiety Reduction: Greek-Cypriot participants will be anxious about Internet shopping. People in high uncertainty avoidance countries tend to worry more and as a consequence they attach more importance to trust attributes such as brand, security icons and graphical design than people in low uncertainty avoidance countries.

- H2b. Social Influence: Greek-Cypriot participants will be more influenced by other people’s recommendations. People in collectivistic countries are strongly influenced by their society and as a consequence, recommendations by friends or other customers will be more important than for people in individualistic countries.

3.3 Methodology

This project is based on Hofstede’s cultural typology and focuses on two of its dimensions only, being Individualism versus collectivism (IDV) and Uncertainty avoidance (UAI). The data instrument used comprised a simple online questionnaire.

Part A of the questionnaire covered issues such as culture, trust, website interface, security and brand reputation. Participants were asked to indicate how important or not important each of a number of statements was to them using a 7-point Likert scale.

Part B focused on culture. According to Hofstede [30], people living in countries with high uncertainty avoidance levels are more stressed because of the stronger rules in organizations, which they have to follow. As a result, people are looking for a stable job, which will make them feel more secure. With regards to collectivism, Hofstede [20] reports that in collectivist countries students prefer to avoid conflicts with their fellow students. Participants used a 5-point Likert scale to respond to these questions.

Part C of the questionnaire presented the participants with a number of e-commerce scenarios. Finally, Part D gathered basic demographic information from participants such as information about their age, gender, country of residence and profession.

After pilot testing and the necessary adjustment, the questionnaire was posted online using the Survey Monkey service. It was advertised to university students and staff and other individuals in various organizations. The questionnaire was available on the Web for one month, from the 25th of November to the 25th of December 2011. Responses were automatically entered into the database and stored in a spreadsheet file.

3.4 Data Analysis

The 2005 Study Sample

In 2005 responses were obtained from 595 participants, including 261 people from the UK, 115 from Cyprus and 59 from Greece. The 251 remaining respondents
were from different countries and were discarded from the analyses. The analysis of the VSM 94 scores highlighted very similar profiles for the Greek and Creek Cypriots participants. Hence, they were merged in the same sample.

The 2011 Study Sample
In 2011, responses were obtained from 137 participants out of which 118 (91.5%) were from Cyprus. For a profile of the respondents check Table 1 below.

<table>
<thead>
<tr>
<th>Respondents’ Profile</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender:</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>37%</td>
</tr>
<tr>
<td>Female</td>
<td>59%</td>
</tr>
<tr>
<td>Not Available</td>
<td>4%</td>
</tr>
<tr>
<td>Age:</td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>24.0%</td>
</tr>
<tr>
<td>26-30</td>
<td>38.0%</td>
</tr>
<tr>
<td>31-35</td>
<td>26.4%</td>
</tr>
<tr>
<td>36-40</td>
<td>5.4%</td>
</tr>
<tr>
<td>Above 40</td>
<td>6.2%</td>
</tr>
<tr>
<td>Occupation:</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>17.1%</td>
</tr>
<tr>
<td>Employed</td>
<td>79.8%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

Table 1. Respondents’ profile.

3.4.1 Culture
Culture (Part B of the survey) was analyzed based on Hofstede’s model (VSM 94) [21]. Descriptive statistics were used to find the mean score of each question and eventually uncertainty avoidance and individualism level.

The descriptive statistics calculated appear in Table 2 below. In this, the first column is the Hofstede value that is being measured, the second column (N) shows the number of valid responses for each question, the next two columns show the minimum and maximum value obtained based on a 5-point Likert scale and the last two columns show the mean score and the standard deviation for each question respectively. It is noted that missing values were ignored in the calculations.

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 Veracity</td>
<td>138</td>
<td>1.00</td>
<td>5.00</td>
<td>3.8365</td>
<td>.85195</td>
</tr>
<tr>
<td>04 Time</td>
<td>132</td>
<td>1.00</td>
<td>5.00</td>
<td>1.9227</td>
<td>1.01490</td>
</tr>
<tr>
<td>09 Work</td>
<td>131</td>
<td>1.00</td>
<td>5.00</td>
<td>1.9412</td>
<td>1.01579</td>
</tr>
<tr>
<td>Q10 Security</td>
<td>132</td>
<td>1.00</td>
<td>5.00</td>
<td>1.9284</td>
<td>1.01761</td>
</tr>
<tr>
<td>Q14 Variety</td>
<td>131</td>
<td>1.00</td>
<td>5.00</td>
<td>2.2672</td>
<td>1.13501</td>
</tr>
<tr>
<td>Q12 Conflicts</td>
<td>132</td>
<td>1.00</td>
<td>5.00</td>
<td>1.7424</td>
<td>0.94033</td>
</tr>
<tr>
<td>Q13 Competition</td>
<td>132</td>
<td>1.00</td>
<td>5.00</td>
<td>2.9033</td>
<td>1.13454</td>
</tr>
<tr>
<td>Q14 Rules</td>
<td>132</td>
<td>1.00</td>
<td>5.00</td>
<td>2.5152</td>
<td>1.10159</td>
</tr>
</tbody>
</table>

Table 2. Descriptive Statistics – Mean Scores for Cyprus (2011).

The mean scores were then entered on Hofstede’s index formula and the uncertainty avoidance and individualism level were calculated. Survey findings regarding the Greek Cypriot culture were indeed different from those obtained in
2005. As shown in Figure 3, it is obvious that the 2011 study revealed a higher individualism ranking as well as a higher uncertainty avoidance ranking.

![Figure 3](image.png)

The results support our hypotheses that Cyprus has a high level of uncertainty avoidance. It is also noticeable that there is an increase of the Individualism level for Greek culture. However, it is still lower than that in western cultures such as in the United Kingdom.

**Comparison to Hofstede’s Findings**

Figures 4 and 5 above present a graphical comparison between Hofstede’s earlier findings of 1991, the results of the survey by Kyriakoullis, 2005 [4] and the results of the present study, 2011. One can clearly see that Hofstede’s results are not re-confirmed. Nevertheless, the values obtained both by the 2005 and the 2011 studies still classify Cyprus, in comparison to other countries, as a collectivist country with a low level of individualism, and as having a high level of uncertainty avoidance.

**3.4.2 Other Findings**

**E-Commerce Experience**

E-commerce experience, measured by looking at the frequency of using the Internet for shopping, has increased with the increased access to the Internet (Figure 6). The majority of the respondents (48.1%) use the Internet a few times a year for shopping purposes.
E-commerce frequency-of-use values were clustered in 3 categories in order that they could be compared to the 2005 results (Figure 7):

- Never.
- Seldom (including “a few times a year” and “about once a month”).
- Often (including “2-3 times a month”, “several times a month”, “several times a week” and “daily”).

The majority of respondents in both studies declared that they seldom use the Internet to shop on-line. However, about one-third, (30.2%), of the current study respondents declared that they use the Internet to shop on-line often, while almost one-tenth, (10.9%), of the previous study, reported that they often use the Internet to shop online.

In examining how long the participants have used the Internet to shop on-line, the majority of Cypriot respondents of the current study have used the Internet more than 5 years to shop on-line (41.9%). In 2005, the majority of respondents had used the Internet from 1-5 years to shop on-line (58%).

Overall, the results proved hypothesis 1 regarding e-commerce experience of Greek-Cypriots as Cypriots are indeed more familiar with shopping online and have more experience in online transactions in contrast to year 2005.

Cultural Background - Anxiety Reduction
Following the anxiety reduction hypothesis it is expected that Hellenic people prefer buying from a well-known brand because of the high level of uncertainty avoidance in the society. In a question aiming to determine whether brand is important in the decision of people to shop on-line the current study’s mean was
5.64 to be compared to 5.67 in 2005. A slight decrease in the mean with no significant difference between the two studies was observed. In conclusion, brand is still very important for Greek-Cypriots.

A different question checked if security icons are important in the decision of people to shop from an e-commerce website. In the previous study of 2005 a mean score of 5.74 was obtained in contrast to 6.04 in the current study. Our anxiety reduction hypothesis is again supported and at the same time the result suggests that now people in Cyprus, having more experience of e-commerce, are also more aware of the significance of security icons in web pages.

Another point checked dealt with the appearance of the interface. It was hypothesized that due to the high uncertainty avoidance culture, an appealing interface is very important for Cypriots. Indeed, a new mean of 6.04 as compared to 5.28 in 2005 supported again the anxiety reduction hypothesis.

A different question aimed at determining how much people worry about online shopping. Following the anxiety reduction hypothesis it was expected that Cypriots worry more, due to the high uncertainty avoidance culture. Even though there was a decrease of the mean scores in this question, 4.18 in this study in contrast to 4.51 in the previous one the result still shows that Cypriots worry when they buy on-line.

All three trust attributes checked, being brand, security icons and graphical interface design, proved to be very important to Greek Cypriots. At the same time Cypriots confirm to worry when they buy online. Thus, the existence of a high uncertainty avoidance culture that is causing a high degree of anxiety in relation to e-commerce was overall confirmed.

**Cultural Background - Social Influence**

The previous study by De Angelis, Kyriakoullis [4, 16] following the social influence hypothesis, showed that Hellenic people, having a collectivistic culture, are strongly influenced by their friends in their decision to shop from an e-commerce website. The question investigating the same item in 2011 obtained a mean score of 5.16 to be contrasted to a mean of 4.12 obtained in 2005. The result suggests that Cypriots are strongly influenced by the peers and this trend increased in the six year time span.

A related question aimed at determining the role of customer recommendation (posted comments) in e-commerce websites. Following the social influence hypothesis, it was expected that due to the collectivistic culture, Greek Cypriot people would prefer reading comments posted by other customers. The result (mean 6.03) showed that Customer recommendation is still important for Cypriots and additionally now is even more important than in the previous study. The results demonstrate that an e-commerce website that allows customer recommendation is essential in collectivist cultures.

According to the above conclusions reached, hypothesis 2b on social influence of Greek-Cypriots is correct. Greek-Cypriots are more influenced by other people’s recommendations due to their collectivistic culture.
4.0 Conclusion

This study was initiated by assuming that cultural values affect e-commerce adoption and usage. In particular, it was assumed that specific cultural values, being uncertainty avoidance and the level of collectivism may prevent e-commerce adoption in Cyprus. Previous studies [3, 4, 16] showed that Cyprus has high uncertainty avoidance level thus, indicating that people may be less willing to take risk and is a collectivist country indicating that people give more importance to groups and peer pressure.

A large-scale survey study contacted in this study confirmed that Cyprus of 2011 is a country with high uncertainty avoidance, even higher than in 2005, and it remains a collectivist country though individualism is increasing. The hypothesis that cultural values may affect e-commerce adoption in Cyprus and more specifically expectations such as:

- high uncertainty avoidance increases the relative importance given to trust attributes such as brand, graphical design and third party seals,
- high collectivism level increases the relative importance given to other customer recommendation

were also confirmed through the survey findings.

Globalization of Internet usage was in general achieved. Globalization of e-commerce trading activities with little attention to country cultures may not prove to be equally suitable and successful. Cultural-aware design would be the way to go in order to positively affect e-commerce adoption in different countries.

5.0 References