The role of the individualism-collectivism dimension in distance learning environments: An empirical study

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Abstract

With increasing reliance on outsourcing, cross-cultural teams, distributed knowledge workers, and other international collaborations distance learning (DL) has become a key agent of strategic competitive advantage and organisational renewal. This study stresses the importance of culture to DL success. To effectively use DL, we must understand the role culture plays in conceptualizing, inventing, and adapting this technology. We focused on Hofstede’s individualism-collectivism dimension and asked whether it impacts perceived Satisfaction and Learning Climate, known measures of DL effectiveness. We find that collectivistic groups enjoy more than individualistic groups the Learning Climate of a DL environment yet are not as Satisfied as individualistic groups with the overall results. We contend that this is because the open-endedness of asynchronous communication gives collectivistic groups simultaneously a sense of connectedness to their peers and a sense of disconnectedness from the instructor. Organizations will increase the benefits of DL by providing choices that embrace cultural differences.

1. Introduction

Information Technologies in general and DL technologies in particular are transforming the way people collaborate across functional silos and organizations. In this emerging environment, organizations need to become aware of the impact cultural differences can have. Cultural differences can impact collaborative efforts (e.g. [1, 2]).

Consider the Iridium satellite telecommunications project costing $5 billion and involving 26 countries. In August 1999 defaulting on $1.5 billion in loans Iridium filed for Chapter 11 bankruptcy making it one of the 20 largest bankruptcies in US history [3]. Cultural differences may have played an important role in its demise. According to Anbari et al. [1], the Chief Executive Officer of Iridium set up a chart with red, green and yellow cars to illustrate which partners were on schedule, which were lagging, and which were far behind. Several partners who had been tagged with red cars refused to talk to him after the meeting [1]. Face Negotiation Theory states that people in collectivistic cultures are often concerned about receiving negative evaluations [2]. Thus, cultural failures, as exemplified by the Iridium case, may impede group cohesion and, ultimately, project success.

This study examines DL through the cultural perspective of Geert Hofstede, who describes culture as the collective programming of the human mind that distinguishes the members of one human group from those of another [4]. In particular, we focused on Hofstede’s construct of individualism-collectivism. According to Hofstede, individualism pertains to societies in which everyone is expected to look after himself or herself and his or her immediate family; and collectivism pertains to societies in which people are integrated into strong, cohesive in-groups, which throughout people’s lifetime continue to protect individuals in exchange for unquestioning loyalty. For example, the United States is a highly individualistic country, while most Asian countries are collectivistic.

Generally, people from collectivistic cultures naturally prefer to work in groups, value collaboration, and use subtle ways to communicate disapproval. Discussing a person’s performance or abilities openly with him or her may be felt as an unacceptable loss of face. People from individualistic cultures prefer to work independently, are more openly competitive and concerned with personal achievement, and use direct ways to communicate disapproval [1].

The purpose of this paper is to investigate if and how individualism-collectivism affects the DL environment. The terms ‘distance education’, ‘distance learning’, and ‘e-learning’ have been applied interchangeably by many different researchers to a great variety of programs, providers, audiences, and media [5, 6, 7]. However, in this study we used these terms interchangeably. Thus, for the purpose of this research the term distance learning entails all technologies that separate the teacher and the students in time and/or space.
This research focuses on asynchronous DL, which separates participants not only in space but in time as well. Asynchronous DL is less expensive, more flexible, and popular than synchronous DL; and in many instances asynchronous DL may be the preferred choice.

2. Literature review

2.1 Cultural theory of Geert Hofstede

Among many competing theories of culture (e.g. [4, 8, 9, 10, 11, 12, 13]), we focus on Hofstede’s cultural theory [4] because his framework is amenable to and well established in IT research.

Hofstede [4] defined culture as “the collective programming of the mind that distinguishes the members of one group or category of people from others.” His cultural framework identified the following five dimensions of culture: (1) PDI, “power distance,” which is related to the different solutions that have emerged over time to the basic problem of human inequality; (2) UAI, “uncertainty avoidance,” which is related to the level of stress in a given society is willing to tolerate in the face of an unknown future; (3) IND, “individualism vs. collectivism,” which is related to the integration of individuals into primary groups; (4) MAS, “masculinity vs. femininity,” which is related to the division of emotional roles between men and women; and (5) LTO, “long-term orientation vs. short-term orientation,” which is related to the choice of focus for people’s ongoing efforts: the future or the present [4]. See Table 1.

Table 1. Five dimensions of culture

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Distance - PDI</td>
<td>The extent to which the less powerful members expect and accept that power is distributed unequally.</td>
</tr>
<tr>
<td>Uncertainty Avoidance - UAI</td>
<td>The extent to which the members feel threatened by ambiguous or unknown situations.</td>
</tr>
<tr>
<td>Individualism vs. Collectivism - IDV</td>
<td>Individualism pertains to societies in which everyone is expected to look after himself or herself and his or her immediate family. Collectivism pertains to societies in which people are integrated into strong, cohesive groups, which throughout people’s lifetime continue to protect individuals in exchange for unquestioning loyalty.</td>
</tr>
<tr>
<td>Masculinity vs. Femininity - MAS</td>
<td>A society is masculine when gender roles are clearly distinct: men are suppose to be assertive, tough, whereas women are suppose to be more modest, tender. A society is called feminine.</td>
</tr>
</tbody>
</table>

These dimensions are not entirely independent. In particular, PDI and IDV appear to be correlated [4, 13] (see Figure 1).

Figure 1. PDI and IDV axis

The Hofstede’s cultural dimensions in general, and the PDI construct in particular, are value-based as opposed to practice-based. Values, according to Hofstede and Hofstede [13] are formed early in life and not easily changed. Figure 2 shows the distinction between values and practices.
Hofstede’s framework has been applied by many researchers in the areas of IT-enabled and virtual teams [14, 2], Internet use [15, 16], Information Systems (IS) developers values [17], Web design [18, 19], mobile phone interface [20], technology acceptance [21, 22], technology-mediated and online learning [23, 24], Group Support Systems [25], ethics [26], education [27], and other areas.

Next, we examine dependent variables: satisfaction, and learning climate.

2.2. Satisfaction and learning climate

The most commonly used indicators of DL effectiveness include student grades [28, 29], satisfaction [30, 31], learning climate [31], self-reported learning and skill development [32], interaction with students and with instructors [33, 30], class participation [30] learner control [34], intentions to use DL in the future [35], improved technology self-efficacy and improved attitudes toward DL technology [36], among other possible factors. Most often it is preferable to use student grades. As independent observers, student grades were not available to us; and accordingly, we used satisfaction and learning climate as indicators of DL effectiveness.

Satisfaction is one of the most commonly used indicators of learning effectiveness. Many factors, such as flexibility of DL and learner control, tend to increase satisfaction, while difficulty in interaction tends to decrease satisfaction [30]. Contrary, other researchers argue that learners may feel frustrated because they may not be able to receive effective and timely advice from instructors [31]. According to Maki et al. [37] the students in the traditional learning environment have higher levels of satisfaction with learning experience than in technology-mediated environment [31].

In addition, Chou and Liu [31] found that the emotional learning climate is also an important indicator of the learning effectiveness. Learning climate is an important component of collaborative, constructivism, and sociocultural learning models [31]. These are three of several competing learning models; yet the collaborative model seems to be ideally suited for the emerging networked environment. Learning climate fits well with the collaborative learning theory because the collaborative learning models views learning as a social process that occurs more effectively through cooperative interpersonal interactions [31]. On this basis, we chose to include learning climate among our dependent variables measuring DL effectiveness. In our study we chose to use items validated by Arbaugh [30] and Chou and Liu [31] to measure satisfaction and learning climate respectively. Next we review Hofstede’s cultural theory and explain why we focused on his individualism-collectivism dimension.

3. Hypothesis formulation

The dimension of individualism, as opposed to collectivism, describes the relationship between the individual and the collectivity that prevails in a given society [4]. Some animals, such as wolves, are gregarious; others, such as tigers, are solitary [4]. The human species should be classified with the gregarious animals, but different human societies show gregariousness to different degrees [4]. According to Hofstede, the relationship between the individual and the collectivity in human society is not only a matter of ways of living together; it is intimately linked with societal norms. It therefore affects both people’s mental programming and the structure and functioning of many institutions, including educational [4].

Hofstede insists that the purpose of education is perceived differently by individualistic and collectivistic societies. In the collectivistic society, in-group versus out-group distinctions learned in the family sphere continues at school [4]. In collectivistic societies people often are more concerned with group’s well-being, rather than with individual’s well-being, and view themselves as a part of a wider social network.

Studies find that collectivistic cultures are more satisfied than individualistic cultures with implementation of GSS [38]. Haynsworthwaite and
Wellman [9] suggest that in groups with strong ties, a key characteristic of collectivist cultures, participants tend to supplement face-to-face communication with increased email-based communication. However, the comparative survey of Chung and Adams [39] found that respondents from Korea (collectivistic – Hofstede’s IDV=18) and US (individualistic – Hofstede’s IDV=91) had no significant differences in group decision making behaviors.

Studies also find that individualism positively affects IT diffusion and adoption. Van Everdingen and Waarts [40] found that individualism has a significant positive effect in the early stages of the ERP adoption.

Further, Hung and Nguyen [2] showed that individualism-collectivism, among other factors, impacts dynamics of global virtual teams.

Hermeking [15] showed that individualism levels are correlated with the Internet use. Hermeking [15] attributes this phenomenon to the egalitarian, democratic nature of the Internet, which appeals more to highly individualistic societies. In addition, Hermeking [15] highlighted that the Internet is an impersonal mean of communication. We agree with Hermeking [15] and contend that collectivistic groups will tend to prefer more private means of communication. DL is similar in many ways to the Internet, and in most cases DL technologies use the Internet as the primary medium of learning and communicating. Thus our initial prediction is that collectivistic groups will feel disconnected from the collectivity in a DL environment because they will find the DL environment less personal than traditional face-to-face instruction. In addition, collectivistic groups will be less satisfied with the DL and will enjoy learning climate less than individualistic groups. We state these, therefore, as our hypotheses:

**H1:** In a DL environment, individualistic groups will report higher satisfaction with the DL course than collectivistic groups.

**H2:** In a DL environment, individualistic groups will find learning climate of the DL course more enjoyable than collectivistic groups.

### 4. Methodology

We surveyed students from schools granting 2-year degrees, 4-year degrees, Master’s degrees, and PhDs. To collect the responses we emailed faculty members teaching courses listed as ‘distance learning’, ‘distance education’, ‘online’, or ‘web’ at the graduate and undergraduate levels, as well as non-credit DL courses in the US. We asked faculty members to distribute the survey link to their students. The web-based survey included a consent form. We did not approach faculty teaching courses listed as ‘hybrid’, ‘streaming video’, or ‘TV’. A total of 1617 usable questionnaires were collected. The data set included different geographical areas in the US and a variety of different college disciplines. Complete list of all participating schools is available from the authors upon request.

Independent variable was individualism-collectivism. Dependent variables included satisfaction and learning climate. To measure satisfaction, we used the following two items previously validated by Arbaugh [30]: (1) I was very satisfied with this course; and (2) I feel the quality of the course was largely unaffected by conducting it in distance learning mode. To measure learning climate, we used the following two items previously validated by Chou and Liu [31]: (1) The learning climate in the distance learning environment was enjoyable; and (2) The learning climate in the distance learning environment was boring. All dependent variables were measured on a 5-point Likert scale, where 1 = “strongly agree” and 5 = “strongly disagree.”

Independent variable was individualism-collectivism (IDV). To determine the values for IDV, participants were asked to identify their home country. They were not asked to identify their country of origin because we sought to identify the country to which they felt most akin. Arguably there are students who have lived most of their lives in the US and who feel that the US is their home country even when their country of origin is not the US. We counted these as US-responses. All surveyed courses were in the US, however those students that listed a non-US country as their home country were foreign students that identified culturally with their country of origin. Despite this cross-border movement of people [24], Hofstede’s dimension of IDV can be applied in this context because it is value-based, and thus not easily changed especially to when the respondents show a preference for their country of origin over their host country.

To quantify IDV we used values provided by Hofstede and Hofstede [13]. See Figure 1. Not all countries received a Hofstede score. Therefore, we only used responses that have the corresponding index values for IDV. All countries which scored above 50 on the IDV scale were classified by Hofstede as individualistic (high IDV), and all countries with scores below 50 were classified as collectivistic (low IDV) [13].

To select the sample we divided the complete data set into US and non-US responses. US responses are those responses that listed the US as their home country. Those that listed their country as something
other than the US were put in the second group (non-US). All students were enrolled in courses in the US, and perhaps for this reason, most listed the US as their home country. A total of 176 participants (10.88%) identified their home country being something other than the US. Not all of the 176 non-US responses were used because the Hofstede index values were not available for their home country. See Table 2.

Table 2. Respondents’ home country

<table>
<thead>
<tr>
<th>Country</th>
<th>US</th>
<th>Non-US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total:</td>
<td>N = 1441</td>
<td>N = 157</td>
</tr>
<tr>
<td>Used for tests:</td>
<td>N = 116</td>
<td>N = 157</td>
</tr>
</tbody>
</table>

Because the data contained overwhelmingly high number of US responses, only every 12th record was used for hypotheses testing. By selecting this subset the US was not overrepresented. In contrast, because the complete data set contained comparably few non-US responses, all of these responses were used for hypotheses testing.

From these sets we formed two groups. The collectivistic group (IDV lower than 50) consisted of 140 responses. The individualistic group (IDV higher than 50) consisted of 133 responses, of which 116 were the US responses. The US has a high IDV score (91), thus, the individualistic group leans towards the highly individualistic end of the scale. See Table 3.

Table 3. Data grouping

<table>
<thead>
<tr>
<th>LOW IDV</th>
<th>Country</th>
<th>Count</th>
<th>HIGH IDV</th>
<th>Country</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>1</td>
<td>Australia</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>1</td>
<td>Canada</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>2</td>
<td>Great Britain</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>12</td>
<td>France</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colombia</td>
<td>1</td>
<td>Germany</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>1</td>
<td>Israel</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecuador</td>
<td>1</td>
<td>Italy</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>El Salvador</td>
<td>4</td>
<td>South Africa</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ghana - W. Africa</td>
<td>1</td>
<td>Spain</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>5</td>
<td>Switzerland</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>27</td>
<td>US</td>
<td>116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iran</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jamaica</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jordan</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya - E. Africa</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liberia - W. Africa</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria - W. Africa</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peru</td>
<td>5</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

We used t-tests one-tailed t-tests to test the hypotheses.

5. Results and discussion

T-tests show that the satisfaction mean value for the individualist group (1.981) was lower than for the collectivistic group (2.221). Since our Likert scale has 1="strongly agree" and 5="strongly disagree", this means that the first hypothesis was supported: in a DL environment the individualistic group reported higher satisfaction with the DL course than the collectivistic group (see Table 4).

T-tests show that the learning climate mean value for the individualist group (2.019) was lower than for the collectivistic group (2.094). Since our Likert scale has 1="strongly agree" and 5="strongly disagree", this means that the individualistic group enjoyed the learning climate slightly more than the collectivistic group; however, this difference was not statistically significant. Thus the second hypothesis was not supported: in a DL environment the individualistic group found the learning climate enjoyable, but not significantly more than the collectivistic group (see Table 4).

Table 4. Results

<table>
<thead>
<tr>
<th>H1: satisfaction</th>
<th>H2: learning climate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low IDV</td>
</tr>
<tr>
<td>Mean</td>
<td>2.221</td>
</tr>
<tr>
<td>Variance</td>
<td>0.656</td>
</tr>
<tr>
<td>N</td>
<td>140</td>
</tr>
<tr>
<td>df</td>
<td>264</td>
</tr>
<tr>
<td>T Stat</td>
<td>-2.307</td>
</tr>
<tr>
<td>P (T &lt;= t)*</td>
<td>0.011</td>
</tr>
<tr>
<td>t Critical*</td>
<td>1.651</td>
</tr>
<tr>
<td>Result</td>
<td>Supported</td>
</tr>
</tbody>
</table>
*Because the alternative hypotheses are one-directional, one-tailed t-tests were used

5.1. Individualism and learning satisfaction
Even though all groups showed high satisfaction with the DL environment, the test results indicated that students from individualistic cultures are more satisfied with the DL environment than those from collectivistic cultures. This is consistent with Hofstede’s analysis. Students from collectivistic cultures define themselves in terms of belonging to a certain group and have high dependency on that group. The DL environment possibly disrupts this feeling, which affects their satisfaction. Conversely, the high individualism group seemed to be more satisfied with the DL course because the independence of this environment fits well with their desire for more independence. This finding is also consistent with the research of Hermeking [15] who found a strong positive correlation between individualism and Internet use and Van Everdingen and Waarts [40] who established the positive effect of individualism in early stages of ERP adoption.

This finding is important to organizations that wish to use DL technologies with diverse groups. If group members include people from collectivistic cultures, efforts should be made to address the potential problem of group cohesion. However, if group members come exclusively from individualistic cultures, group cohesion will probably not be impacted by the distributed nature of the DL environment.

5.2. Collectivism and learning climate

The tests showed that the individualistic group and the collectivistic group had statistically similar scores on the learning climate construct, contrary to what was expected under Hypothesis 2. Because DL is distributed suggests that collectivistic groups will feel disconnected using this means of communication and learning, and, as a result, may enjoy the learning climate less. Apparently this is not the case. In fact, even though the difference was not statistically significant, the collectivistic group had a higher mean for the learning climate construct, suggesting that collectivistic group enjoyed learning climate more.

The case study of Kim et al. [41] may help explain why Hypothesis 2 was not supported. Korean mobile phone users (IDV=18) were observed by Kim et al. [41] to chat with friends via short message service (SMS) for a couple of hours, keying-in all the messages that can be delivered within 10 minutes if they simply call their friends and talk on the phone. Nonetheless, the participants in Kim et al. [41] study insisted that the ‘nuance’ between SMS and telephone conversation is different, and that SMS gives more feeling of ‘connected and bound’. The implications of the case study by Kim et al. [41] indicate that collectivistic cultures may feel very comfortable with communication based entirely on typed message exchange and have less need for communication supplemented by voice or face-to-face interaction. Therefore, asynchronous DL environments may create an enjoyable learning climate for collectivistic groups.

This finding is important because it illustrates the complexity of cultural issues in DL environments. We used two different measures of DL effectiveness: satisfaction and learning climate. While the results show that the collectivistic group was less satisfied with the DL environment than the individualistic group, both groups equally enjoyed the learning climate. This finding shows that for the collectivistic group DL have both advantages and constraints. Understanding this complexity will benefit organizations by allowing them to design more culturally appropriate and effective learning environments.

6. Conclusion

This study revealed important benefits and limitations of asynchronous DL environments. Individualistic cultures showed statistically significant higher satisfaction with the DL environment because DL offered them independence and freedom, and the lack of proximity to the instructor was not a major constraint. Collectivistic groups which value close social ties appreciated the DL environment perhaps because the open-endedness of asynchronous communication gave them a sense of being ‘connected and bound’ [41].

This research contributes to the body of knowledge in the area of DL viewed from the cultural perspective in several ways. First, this research used individualism vs. collectivism instead of country-based or region-based constructs often used by previous researchers. As a result, this research looked at an empirically validated core value which affects users’ perceptions. Second, this research recognized that cultural diversity exists even within the US due to changes in demographics, and highlighted the need to consider this diversity in a DL environment. Third, this study used data from various geographical areas, different subjects, and both undergraduate and graduate levels; therefore, the results of this study can be generalized.

This research paper acknowledges several limitations. First of all, we did not control for possible intervening variables such as computer self-efficacy, gender, age, or geographic distribution among other possible variables.

Second, Hofstede’s variables are group-level constructs that may not be homogeneously distributed...
across the population, i.e., there is variation at the individual level within a given culture. Although we did follow Hofstede’s methodology and used individualism-collectivism as a group construct, our subgroups in some instances were small. Thus the results only apply in the aggregate and cannot be interpolated for specific cultures included in this study. Future studies need to account for these complexities.

Third, although Hofstede views cultural values as enduring and relatively stable over time, the index values we used may change over time. As Myers and Tan [42] point out, IS researchers should adopt a more dynamic view of culture. They suggest that culture needs to be studied at many different levels [42]. Thus, future research may need to extend the existing results to include the dynamic perspectives [42, 43].

Forth and last, culture is a complicate construct. It is important to remember that in any culture all dimensions work together to create a unique pattern of thinking and behaving, therefore, it is sometimes difficult to attribute specific behaviors to a single dimension. We chose to focus on Hofstede’s framework for simplicity but acknowledge the need for more complex studies.

This paper reveals new streams of future research. For example, a future research can study a culturally diverse group of students who will be given a choice between two environments. One possibility is online vs. face-to-face; another is synchronous vs. asynchronous. Given an opportunity to choose between the two environments, will national culture be a factor?

The relationship between the individualism-collectivism construct and DL technologies is complex and deserves more attention from researchers. This research paper identifies that although both groups appreciate the benefits of the DL environment, each sees different benefits and limitations. The DL medium gave the individualistic group a sense of freedom and independence; and the collectivistic group a sense of connectedness and of being bound. The ideal DL environment does both.

In a diverse environment people will come from both individualistic and collectivistic cultures. The western perspective, which tends to be individualistic, may inhibit coordination and cooperation. Organizations that provide choices will maximize their Learning Climate. Since the right Learning Climate fosters individual’s potential and collaborations, such organizations will be able to fully leverage their knowledge base.

10. References


