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# An exploratory investigation of critical success factors in wireless field force automation projects

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# AN INVESTIGATION OF HOW CULTURE IMPACTS GLOBAL WORK: UNPACKING THE LAYERS OF CULTURE

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## Abstract

*One manifestation of today's globalization is a new type of work environment where employees who are living in different parts of the world regularly engage in collaborative activity. Because these workers are socialized in different cultural environments, an important research issue is how to understand workers behaviors and effectively manage in this global workplace were workers communicate on a daily basis but do not meet each other and may not even know the life styles of their team members. Based on an ethnographic analysis of GLOBALIS, a multinational firm in the financial sector with IT solution centers in the US, Ireland and India, this paper presents a conceptual model of how culture was impacting the behaviors of global teams at GLOBALIS. In this model the behaviors of globally team members is primarily governed by corporate norms, project requirements and workplace culture. National culture, which has been identified in cross-cultural research as a key factor in global work, is just one of many demographic variables like age, education, professional standards, inter-relationships among sites, etc. that impact workplace culture. Thus, this paper reinforces the current multi-faceted view of culture as a set of forces that impact values and behaviors and it also clarifies some of the clouded opinions on whether or how national culture differences impact today's globally distributed work.*

*Keywords: Global Work, National Culture, Corporate Culture, Project Culture, Professional Culture, Workplace Culture, Time, Offshore Outsourcing, Ethnographic Case Study, Survey Research.*

# 1 INTRODUCTION

One manifestation of globalization is the movement of multinational firms across their countries' geographic boundaries in order to access qualified labor pools, tap into hubs of talent, reduce costs through wage differentials, and achieve proximity to customers, thereby becoming truly global in their operations. This movement is changing the way in which work is performed. In this new form of work organization, employees routinely work with team members who reside in other nations. This new way of working is made feasible by advances in information and communication technologies (ICTs). ICTs enable workers to interact, communicate and coordinate their work across great distances, such as is found in virtual global software development teams.

While ICTs are a *necessary* condition for such work, it is by no means *sufficient* by itself. While human determination, commitment and innovation have yielded success, *distance* has shown to contribute complexity to the communication, coordination and control processes in global software development (Herbsleb et al. 2000). Because workers live in different countries and thereby are socialized in different national cultures, investigation of the role of culture in global IT work is an important research topic (Borchers 2003, Chand et al. 2007, Cramton & Webber 2005, Galliers 2003, Galliers 2008, Krishna et al. 2004, Symons & Stenzel 2007; Walsham 2002). Notwithstanding, there are many views on the role of national culture in global IT work that vary from 'culture does not matter' to 'the success of global projects requires a keen understanding and management of cultural differences' (Carmel & Tjia 2005).

Even though culture is a frequently used term, there is no commonly agreed upon definition regarding specifically what it means (Straub et al. 2002). In daily usage the word culture is associated with observable things such as food, language, literature, music, art, etc. that characterize a community or a group. At the country level we quickly get into trouble with this 'observable things' view of culture. For example, is it appropriate to say that India a country with 15 major languages in use, conflicting religions and many races has a uniform national culture? Sir John Strachey who had spent many years as a member of the Governor-General Council in India observed that "Scotland is more like Spain than Bengal is like the Punjab (Guha 2007). This observable diversity does not mean that India does not have a unifying essence. This example of India just points out that the observable things view is insufficient to fully capture the concept of national culture.

Edward T. Hall (1959,1981), a pioneer in the field of cross-culture studies, conceptualizes culture as a means of communication through "silent languages." He identified five silent languages of cross-cultural difference, namely the use of time, physical space between people, attitude toward material goods, friendship and bonding, and forms of agreement. His thesis is that one can use these silent languages to highlight the cultural differences among groups, communities and countries. For example, on how societies used time Hall observed that Americans think of time as linear and discrete, are monochronic and tend to do one thing at a time, adhere to schedules, believe that meeting deadlines and keeping appointments is important, and they consider keeping someone waiting to be a sign of disrespect. On agreements, Hall observed that Americans do not rely on communication that is deeply embedded in cultural context and therefore they tend to negotiate contracts that are explicit, complete, and literal.

Geert Hofstede, a Dutch academic widely known for his pioneering research on culture, surveyed 116,000 employees of IBM, a large multinational company, spread across fifty countries and three regions and two points in time (Hofstede 1980, 2001). The questionnaire items measured work-related values. Factor analysis of the responses grouped the questions into four categories that he titled as Individualism-Collectivism, Power Distance, Uncertainty Avoidance and Masculinity-Femininity.

Later he added a fifth dimension of culture<sup>1</sup>. When he grouped the responses by countries for each of these dimensions and mapped the responses to an index value between 0 and 100, the country indexes revealed differences between countries along these dimensions.

Hofstede built his theory of culture (Hofstede 1980) based on this study. His key finding was that country-based differences persisted among the responses of the IBM workforce despite the 'strong' corporate norms of IBM. To explain this finding Hofstede defined culture as "the collective programming of the mind that distinguishes the members of one category of people from another" and this collective programming of the mind occurs through the socialization processes. This definition frames culture as a set of norms and values that people are socialized into, while growing up, by their family, neighborhood and the schools.

Schein's (1985) sees culture represented as the layers of an onion. The *outer* layer is what people generally associate with culture, namely the observable things related to behaviors such as arriving late to events, maintaining leisure time completely separate from work time, the inability to say no, etc., and artifacts such as language, food, literature, etc. The *middle* layer refers to the norms and values which a community holds. The norms define how to act and what is considered right or wrong, and values tell what is considered good or bad. The *core* represents the underlying assumptions. According to Schein, to understand the root causes underlying behavior or values, the underlying assumptions have to be surfaced.

Grounding their analysis on social identity theory, Gallivan and Srite (2005) argue that culture should be viewed as a *richly layered set of forces* that go beyond national culture dimensions and corporate culture norms in shaping individuals' beliefs and actions.

Divergent conceptions of time, based on national cultural differences, are frequently cited as a fundamental barrier to collaborative work (Hall 1959, Hall 1983, Cushner & Brislin 1996, Olson & Olson 2003). Perhaps one reason why time is so often cited is because divergent adherences to schedules and deadlines are so readily observable, and thus reportable. Also, in the business and IT world, time is a crucial variable in defining whether a project is successful and/or on time. In terms of cultural differences as to how time is perceived, the more distant a culture is seen to be geographically and normatively, the greater the expected difference. This means that in teams that are globally dispersed, time is assumed to be a critical problem in developing collaboration.

This paper explores the role of culture in global work by investigating the use and attitude towards time by the employees of GLOBALIS that were distributed across multiple sites in the US, Ireland and India. Our study is exploratory in the sense that the examination of the IT unit of one multinational firm cannot stand for the national cultures of US, Ireland or India. Further, the results we derived based on an empirical analysis of IT workers cannot automatically be generalized to other occupational groups. Thus, what the inductive analysis of this study provides is a nuanced understanding of the sub-cultures and factors that affect workers' behaviors in global work.

In the next section we describe the research site, the data sources and our research methodology. After this we present our ethnographic and survey data that is used later to construct and synthesize the conundrum of culture layers into a new model of how these different layers of cultures impact global work. The paper ends with a discussion of the implications of this model and the future research that are needed to place this model on a sounder footing.

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<sup>1</sup> In subsequent work with Chinese scholars, Hofstede added a fifth dimension called short-term v. long-term orientation

## 2 RESEARCH SITE, RESEARCH METHODOLOGY AND DATA GATHERING

Over the last twenty-five years GLOBALIS, a Fortune-500 firm in the US, has successfully launched and operated multiple IT software and systems services facilities, called solution centers or sites from now on in the paper. Today, GLOBALIS has solution centers in multiple cities in the US, in Ireland and in India. Although GLOBALIS has considerable experience in establishing solution centers and is well aware of industry's best practices for dealing with issues and problems of geographic dispersion: distance, time zone differences, cultural differences, loss of communication richness, etc., it is facing difficulty in unifying these sites into a cohesive community. The data used in this paper was collected over a span of three years.

We interviewed forty employees of GLOBALIS that included six senior management personnel, six project managers and twenty-eight workers associated with the four projects. These interviews occurred in both individual and group format and most of the interviews happened in person. Each interview lasted approximately one hour in length. These interviews were semi-structured and conversational in nature, and they covered a range of topics related to GLOBALIS' global delivery systems.

We made repeated visits to the onshore and offshore sites associated with the project. During these visits, we also observed the nature of the work associated with the project, especially meetings and other situations where people from the various sites interact with one another. The Ireland sites were visited in 2003 for one week, and again in 2006 for another week. The India sites were visited over ten days in 2006. During the course of the project, the sites in the New England area were visited intermittently in order to attend meetings, conduct interviews, and deliver reports.

We observed eight engagement managers monthly video-conference meetings over a period of ten months, first six at the US site, seventh at one of the Ireland sites and the eighth at one of the two sites in India. We monitored two team meetings conducted via conference calls between the team leader in the US and testers in India. We also surveyed the workers associated with the four projects we tracked. The team members on these four projects were distributed across the New England sites, Dallas, Texas, Galway, Ireland and Bangalore, India. In addition, we made six management presentations of our findings at the headquarters site in US, in Dublin and in Gurgaon, and received valuable feedback.

Unlike intercultural communication research, which imposes a cultural framework on the interactions, and assumes that the source of problematic interactions is cultural, we were interested in "what more" (Garfinkel 1996) could be accounted for outside of the corpus of literature and research methodologies associated with the study of globally distributed work teams. Thus, we were *not* looking for the impact of national culture on virtual team collaboration per se. We were not assuming that the work process was problematic. Rather, we were interested in what emerged from the project, rather than trying to confirm previous studies or testing existing theory. In this way, we were following a workplace studies approach abstaining from broad a priori application of theoretical concepts and opting instead for a detailed analysis of in-situ social order (Suchman 1987, Orr 1996, Luff et al 2000).

Our analysis is based on the following four data gathering situations: engagement-managers monthly video conferences, cross-cultural training course, survey of attitude and use of time and our visits of the sites in Ireland, India and the US.

### 2.1 Monthly Video Conference Meetings

When we started our study, GLOBALIS had just made a decision to establish a new solution center in Bangalore and was engaged in defining and implementing a new global delivery process (GDP). We attended six monthly engagement managers meetings at the headquarters (HQ) of GLOBALIS in the New England region in the US. They were two hours meetings that started at 8 AM eastern standard

time. The management teams at Dallas, Dublin and Gurgaon were connected to these meetings via a video interface. The Dublin and Gurgaon sites were always on the meeting agenda, but their role was relegated to making presentations on the status of their projects, resources and issues. When we observed the same meeting from the Dublin and Gurgaon sites, we noticed that the Dublin and Gurgaon participants would put their audio part on mute, in effect cutting them off from the dialog taking place at the HQ site. Twice these monthly video conferences started late because the video equipment at the HQ site mal functioned.

When we probed why the Dublin and Gurgaon sites mute their systems, we found that whenever anyone at the remote sites speaks, the camera focuses on that person and the face of the speaker appears on the television screen in the meeting room at the HQ site. This would happen with slightest utterance of a sound such as someone sneezing. To avoid disturbing the conversation, the Dublin and Gurgaon sites would mute the audio portion of their systems.

We observed that every video conference meeting was “run” by a manager at the HQ site, meaning time was kept from HQ, the meeting began from HQ, the agenda was followed or altered from HQ, etc. Questions asked from the distributed sites tended to be clarification questions, while the questions from HQ were accountability questions, (why something was not done, project delays, employee allocations, etc.). We never observed accountability questions raised by people at the distributed sites. Thus, accountability was a uni-directional practice originating from HQ.

In addition, all meetings were scheduled to start at 8 AM eastern standard time in the US. This meant that it was 1:00pm in Ireland, 7:00pm in India, 7:00am in Texas and 6:00am in Utah. Thus, people in New England were beginning their workday with a meeting, while workers in Ireland were having their day interrupted and people in Texas, Utah and India had to work outside their normal work hours. This is an indication of who has to adjust to whom. But more significantly, the people at the headquarters behaved as the decision makers and the people at the remote site behaved as vendors, suggesting an unequal relationship among the sites.

We also observed that the people at the two Indian sites did not understand at least 40% of the discussion taking place among the participants in the meeting room at the HQ site. This was partially because of the quality of the audio signal and partially because they did not understand the accent and were not fully cognizant to the implications of the issues being discussed. Furthermore, the participants in the HQ meeting room often used humor and jokes to convey their positions or even displeasure, and most of this humor did not carry over because most Indian were not familiar with the common American expressions.

In summary, our video-conference observations suggested a hierarchical relationship among the sites and the expression and usage of the English language in the US made it hard for the Indian participants to understand the video conference conversation.

## 2.2 Cross-Cultural Training

GLOBALIS contracted with a consulting company to train their employees on how to do business with India. This training was a one day program where managers were exposed to generalized traits and characteristics of Indian culture while developing an awareness of their own culture. We attended this training program and found that like most cross-cultural training programs, the focus of this training was on exposing the American workers to those cultural traits of Indians that were different from Americans such as American society is very individualistic and Indian society is group-oriented; Americans are egalitarian and Indians are very hierarchical; Americans view time as linear whereas time in India is cyclic and event driven; American are monochromic, that is, they prefer to work on one task at a time, and Indians are polychromic and they often engage in multitasking; etc. No equivalent training was given to US managers on doing business in Ireland. More significantly, the Irish managers were never given any training on doing business in India. On the other hand, when we interviewed the Indian workers, we found out that they were given a short 3 hours program on working with US. Unfortunately, the people we interviewed could not remember much about that

training except that they were told not to use “but” in their email communications with US workers and managers.

When we asked the workers whether national culture differences impact their work, the response was always “they did not see national culture playing any significant role.” However, when we walked into the cafeteria for lunch at a New England site we noticed that all the workers from India who were in the States for a training program were sitting on one table whereas their American counterparts were distributed on other tables away from their Indian visitors. The exception was one Indian woman trainee who was sitting with other American women workers. When we asked the male Indian workers why they did not socially mix with their American colleague at lunch time, their response was that they did not know enough about the American pop culture to engage in informal chit chat. When we asked the Indian female worker who was sitting with other American women what they talked about, she said that since she was getting married soon, the conversation dwelt on weddings in India and in the US and how the bride dresses, etc.

Although workers in the US, Ireland and India told us that their work suffers from many communication problems but none of these workers attributed any of those problems to culture differences. However, the managers felt that cultural differences were really impacting behaviors. We present three stories, one by Scott, who was a project manager at one of the New England sites, the second by Seamus, a project manager at one of the Dublin site in Ireland and the third by the site manager, Alka, in India.

Scott was managing a team of US and Irish workers working on a critical project. Late in the project life cycle new team members from India were added to the project as additional resources to keep the project on schedule. Scott observed that the new team members from India were not as responsive and prompt as the original team members. After attending the cross-cultural training Scott realized that because time in Indian culture is elastic, the Indian team members may not fully grasp the project’s sensitivity to deadlines and schedules. To remedy this situation, he said he micro managed the Indian team but could not improve the behavior.

Seamus was the manager of a team which consisted of Irish analysts, architects and integrators and Indian software engineers and testers. The project involved upgrading of an existing system for an old valued customer, and the Irish team members had extensive knowledge of the problem domain and the current system. Seamus asked the Indian team to start coding from a set of incomplete specifications. The Indian team refused. Seamus was very frustrated and he complained to us that the Indian workers are too process-based and they don’t understand the relationship culture of GLOBALIS. This is an example of a communication conflict that has been framed in terms of professional cultures.

During our conversation with the site manager, Alka, in Gurgaon, India we inquired whether she had more information on the content of the three hours of cross-cultural training provided to the Indian workers. She did not know the details and she asked us to tell her what we have heard from our interviews. We told her that people do not remember the details except that they were being trained to communicate more directly. We suggested that because Hall (1981) had identified US to be a low-context culture, the training course may be focusing on teaching how to engage in direct and detailed communications. Alka mentioned that one source of communication difficulty is that ‘we Indians have difficulty saying No’ and that often leads to ambiguity and misunderstanding. We asked her to provide us an example. She tried to explain this in the following manner. When my counterpart in the US tells me that Alka I have given my word to the customer that the new system will go live on October 1, are you sure you can meet this deadline? Alka feels that even when she knows that it will be hard to meet the deadline, she cannot just say no and instead her response will be “Jack, you know it is hard to predict all that can happen when you are doing software development, especially when the technology we are using is new. But you know us, we are committed and will do our utmost to make the deadline.”

### 2.3 Attitude and Use of Time Survey

Using a well-tested time-at-work questionnaire (Schriber & Gutek 1987) which is shown in Table 1, we surveyed the GLOBALIS employees who were engaged in the four projects we tracked. Respondents indicated their level of agreement on a five point Likert scale (Likert 1932) with each of the twenty-five statements based on their perceptions of what was most typical within their organization.

Temporal Dimensions	What are we assessing?	Questions (® - Scores are reversed)
Schedule & Deadlines	Importance of meeting deadlines and staying on schedule	<ol style="list-style-type: none"> <li>1. People here feel that deadlines don't really matter ®</li> <li>2. Staying on schedule is important here</li> <li>3. It is important to meet our deadlines</li> <li>4. We don't pay much attention to schedules ®</li> <li>5. No one gets upset when you miss a deadline ®</li> <li>6. All our work is tightly scheduled</li> <li>7. It is important to be "on time" for everything</li> <li>8. People do most of their work under deadlines</li> <li>9. People do things when they are ready, not on a schedule ®</li> </ol>
Punctuality	Importance of arriving for work on time	<ol style="list-style-type: none"> <li>1. People get upset when you are late for work</li> <li>2. People don't care what time you arrive for work®</li> <li>3. No one cares if you are late returning from a meal break ®</li> <li>4. If people arrive an hour late for work, they will feel "rushed" all day</li> </ol>
Time Boundaries	How far works interferes with personal time?	<ol style="list-style-type: none"> <li>1. People usually expect to take their work home with them</li> <li>2. People expect to leave at the end of the day without worrying about their work</li> <li>3. People rarely get work-related calls during "off" hours (like nights and weekends) ®</li> <li>4. When people go on vacation, they are expected to tell their boss how to reach them</li> </ol>
Awareness of time use	To what extent time use is planned?	<ol style="list-style-type: none"> <li>1. Most people don't think about how they use their time</li> <li>2. People worry about using their time well ®</li> <li>3. People here plan their time carefully ®</li> <li>4. People expect you to know how long it will take you to do something ®</li> </ol>

*Table 1-Time-at-Work Questionnaire*

Figure 1 on the next page shows the mean values for each of the four temporal constructs which are aggregated for the whole company and by each country. On the schedule and deadline dimension the mean values for US, Ireland and India are 4.11, 4.26 and 4.13. This indicates that, irrespective of the differences in the national cultures, GLOBALIS workers in the US, Ireland, and India all proclaim the same orientation to schedules and deadlines. Similarly, the mean values on punctuality for the US, Ireland and India are almost identical, thus indicating that punctuality at GLOBALIS is also valued with the same uniformity across the global sites in these three countries.

The work time/non-work time boundary construct is a measure that attempts to assess how far work interferes with personal life. A mean value of 2.87 on the time boundaries dimension being less than 3.0 suggests that GLOBALIS workers perceive a good work/life balance at their work place. The mean value for both the US and India is 3.08, while the mean value for Ireland is 2.71. This indicates that work/life balance is perceived to be slightly better by Irish workers in comparison to those at the US and Indian sites.

The awareness of time use construct measures the extent to which workers plan and manage their use of time. A mean value of 2.38 suggests that the work environment of GLOBALIS is such that workers cannot always plan and control their use of work time. The mean values of 2.20, 2.39 and 2.45 for workers in the US, Ireland and India respectively would indicate that, irrespective of location, workers believe they have difficulty in planning and controlling their work time.

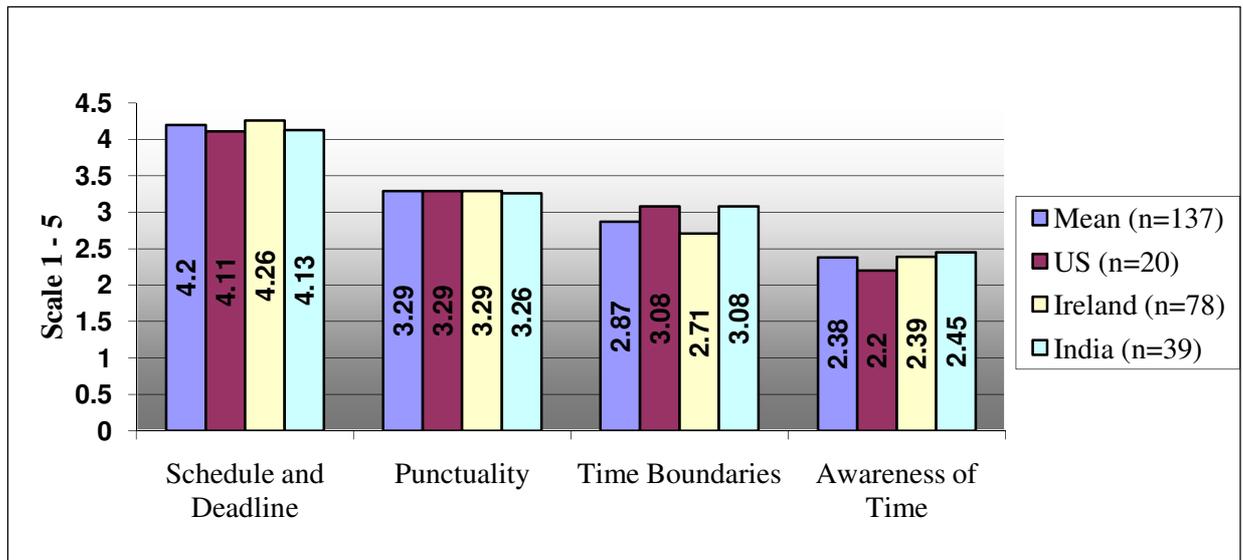


Figure 1- Temporal Dimensions by Nationality

In summary, schedule and deadlines are uniformly valued and taken very seriously by GLOBALIS workers across geographic boundaries, punctuality is valued equally across these globally distributed worksites, and Irish workers report a stronger work/life balance than US and India workers. It should be mentioned that we had stratified the responses on project type, age, and job-level, and that data will be presented later when we will synthesize these diverse findings into a unified culture model.

#### 2.4 Visits to GLOBALIS Sites in India, Ireland and US

Because these observations are varied we have identified each with a label.

##### 2.4.1 Observation 1- Punctuality

When we visited the sites in India, we experienced punctuality and an awareness of time. For instance, while the cross-cultural training on India observed that Indian culture has an “elastic” view of time, meetings in India always started promptly at the assigned time, unless of course we were the ones who were running late. In other words, there was no moment at which we were significantly delayed because of a lack of time sensitivity. We had the same experience at all the other sites of GLOBALIS.

##### 2.4.2 Observation 2- Age & Tenure

During our ten day visit to the GLOBALIS sites in India, we were immediately struck by how young the GLOBALIS employees in India were. We discovered that the average age of the Indian employees was in the mid-twenties and roughly 90% of the employees had less than 2 years of experience with the firm. These Indian workers had to interface with US employees who are typically 10 to 15 years older than them and who have over 10 years of experience with the systems, application and the firm. We even came across American GLOBALIS employees who had worked on the same project over the span of their career in the organization.

##### 2.4.3 Observation 3- Chit-chat

At the two Indian sites it was readily apparent that the workers engaged in a lot more chit-chat than what we saw at any of the sites we visited in the US. Even while working people talked over the booths, and the chit-chat was often embedded with work talk where someone would ask a questions and receive an answer from someone else. We estimated that if the work time / social time divide in the US is 80% to 20 %, work time/ social time divide in India is closer to 60% and 40%.

#### 2.4.4 *Observation 4-Attrition*

GLOBALIS has been successful in recruiting experienced IT staff in India, with most having started their careers with an Indian IT firm (such as InfoSys, TCS, Satyam, Wipro, etc.) with many moving to a US IT firm (e.g., IBM, Microsoft, Oracle, Motorola, Hewlett-Packard, etc.) in India as their second IT job. They were attracted to GLOBALIS in order to gain domain knowledge of financial systems and technologies. These people came to GLOBALIS expecting to work directly with the clients. In addition, we were told that the expectation in the IT market place is such that a new employee expects to move to project leadership position in two years, and if s/he is not sent to the US for training or system implementation within two years of joining the firm, then his or her career is perceived to be in a crisis. A lack in any of these expectations often leads to the worker to leave for career aspirations and opportunity with another firm, making attrition is a real issue.

#### 2.4.5 *Observation 5- SLAs*

A manager in US told us that he gets complaints from his staff about the poor quality of work done in India but when he talks to the manager in India he is presented with the service level agreement data that shows the Indian site is meeting the agreed SLAs. We saw an example of this dichotomy during our India visit. We observed how a customer support staff in Bangalore handled a customer call from a US customer. The support staff had real difficulty understanding the name of the customer and took at least 10 minutes to find the record of the customer. We could anticipate the customer was getting frustrated but the support staff continued repeating the script. Then suddenly the phone went dead and the support staff entered this as a satisfactory closed call. It is possible the customer was frustrated and may have decided to call back again hoping to catch another support staff, but our support person closed the call, indicating that the customer query was resolved.

### **3 UNPACKING CULTURE**

Our time-at-work survey of GLOBALIS workers found that the attitudes towards punctuality and deadlines and schedules were uniform across US, Ireland and India. This finding is not aligned with the common perceptions of the attitude of Indians towards time. For example, observing the Indians who live in the US, Acharya (2008) states “Although many Indian Americans have achieved considerable professional success ... one thing we do not seem to learn is the concept of time. Except for activities related to one’s profession – where one has to be on time or lose a job – there is absolutely no regard for appointed time in other non-professional or social activities. We seem to think that all activities start on Indian Standard Time, and not on announced time.”

Acharya recognizes the casual attitude to punctuality in Indian culture, but he also points out that in the workplace this attitude changes. Within the cultural frame our time-and-work survey finding is consistent with Laurent’s (1986) argument that adherence to corporate norms can modify behaviors that may be embedded in national culture. Our attitude-toward-time survey suggests that any study of how culture impacts worker behaviors in global virtual work must include the analysis of corporate culture.

We surveyed the same 137 employees to assess GLOBALIS’ culture, using the instrument developed by Sarros et al (2002). It profiles corporate culture across seven dimensions: Competitiveness; Emphasis on Reward; Innovation; Performance Orientation; Social Responsibility; Stability and Supportiveness. As shown in Table 2, all seven dimensions received a mean score above 3.0, indicating that GLOBALIS employees report placing importance to all seven dimensions. The mean values for the US, Ireland and India individually are also greater than 3.0, and no significant statistical difference was observed in five of these seven culture dimensions. We can therefore conclude that GLOBALIS’ corporate values are uniform across its work sites.

Dimensions	Items	Mean	US n=20	Ireland n=78	India n=39
Performance Orientation	1. High expectation for performance 2. Enthusiasm for the job 3. Being results oriented 4. Being highly organized	3.9	3.96	3.96	3.76
Competitiveness	1. Achievement orientation 2. Emphasis on quality 3. Being distinctive	3.81	4.01	3.79	3.74
Social Responsibility	1. Being reflective 2. Being socially responsible 3. Having a clear guiding philosophy 4. Having a good reputation	3.76	3.43	3.82	3.8
Stability	1. Security of employment 2. Low conflict 3. Being calm	3.71	3.27	3.79	3.79
Supportiveness	1. Being team oriented 2. Sharing information freely 3. Being people oriented 4. Collaboration	3.57	3.33	3.6	3.62
Emphasis on Reward	1. Fairness 2. Opportunity for professional growth 3. High pay for performance 4. Praise for performance	3.55	3.06	3.62	3.37
Innovation	1. Quick to take advantage of opportunities 2. Risk taking 3. Taking individual responsibility	3.47	3.75	3.38	3.51

*Table 2-Culture Profile Summary*

The diffusion of GLOBALIS' corporate culture across sites could be a reason why GLOBALIS employees indicated in our survey uniform valuing of the temporal dimensions of time across countries. This would suggest that GLOBALIS' corporate norms are modifying the temporal attitudes that are embedded in national cultures. However, as observed by Scott and described earlier in the data gathering section that the actual behavior of the Indian software engineers who were added late to a project he was managing does not match the self-reported finding of the change in attitude toward temporal dimensions.

Furthermore, our chit-chat observation (observation) is indicating that the work time / social time divide behaviors at GLOBALIS sites are aligned to the observed national culture differences (Manrai and Manrai 1995). In addition, our interview data is showing (a) a high-context / low context communications styles exist at GLOBALIS and (b) differences in the professional cultures between the Ireland (more customer-oriented) and India (more process-oriented) sites.

Thus, an important research question is: how to reconcile these conflicting observations and findings associated with the study of workers behaviors in global work. Prior research (Huang et al. 2003, Straub et al. 2002, Myers & Tam 2002; Gallivan & Srite 2005) have recognized this conundrum as layers of cultures that impact behavior in global work and they have warned against using national

culture as a sole operationalization of culture to explain global workplace behavior. This paper will next unify this culture layers conundrum.

### 3.1 The Concept of Workplace Culture

The co-location of workers at each work site generates a workplace culture which is simply a shared understanding of norms, practices and values. Because the workers are co-located, behaviors and norms are visible to each other and there is more opportunity to engage in informal chit-chat leading to behavioral knowledge sharing. Thus, proximity and visibility enables a form of cohesion among the workers at a site that we are calling as the workplace culture. We will analyze GLOBALIS' data further to shape and sharpen the workplace culture construct and demonstrate its role in analyzing behavior in global work.

#### 3.1.1 Analysis of Chit-chat observation

When we visited the Bangalore site we noticed workers in groups of two or three talking in the canteen at all hours during the work day. During our visit to the Gurgaon site, we observed continual small talk among the adjacent workers during work hours as well. This behavior was markedly different from that which we observed at the US sites: there, we rarely saw workers chit-chatting during work hours. While undoubtedly some level of small talk occurred, it did not appear to be at the level we observed in India. Furthermore, in the US, the people whom we interviewed came to meet us at the assigned time and their body language indicated that the interview should end at the allotted time. Seemingly, the workers at the US sites went straight back to their cubicle or office right after the interview. We also noticed workers at the US sites walking to the coffee machine, mostly during the morning hours, and always carrying their cup of coffee to their work place. In contrast, the workers in India, including American managers who were there on temporary assignment, did not seem to be in a hurry to return to their work after scheduled interviews.

These observations are consistent with what Brislin and Kim (2003) call the task and social time variance among cultures during the workday. Manrai and Manrai (1995) studied this phenomenon empirically and found that in big cities in the US, the task time/social time divide is 80:20, while in India, Nepal, Malaysia, and some Latin countries, it is often 50:50. We initially attributed this behavior to national culture differences. Later, at one of our visits to a New England site, we observed a set of Indian workers from the Gurgaon site (who were stationed there for three months in the US for training), behaving similarly to the US workers: they neither engaged in small talk while working nor chatted at the coffee machine at odd hours. This would indicate that, irrespective of their national culture, people readily adapt to the norms and behaviors of the workplace. This led us to further examine the concept and role of workplace culture.

Cramton and Webber (2005) report that the local contexts across which global virtual teams operate are important and they impact communication and coordination across sites. These studies remind us that greater emphasis needs to be placed on studying how culture and communication manifest themselves in *specific contexts*. Examples of local context in global work are: travel to and from the worksite, accessibility to the communications infrastructure, local holidays, language proficiency and accents, and cultural differences. Our task time / social time divide observation has identified the existence of a workplace culture that impacts workers' behaviors, irrespective of their national culture orientations.

#### 3.1.2 Analysis of Age and Experience observation

One US GLOBALIS manager told us that, "When I'm asked a question in a meeting, my modus operandi is to generate a conversation by asking the group what they think about the issue before giving an answer." When this manager used this approach with his Indian subordinates in Bangalore, "no one spoke up." Apparently, according to him, "this is common Indian worker behavior that US managers and workers encounter." At the cross-cultural training course we attended, the US

employees reported that Indian workers “are meek and do not push back”. Other stereotype traits pointed out in this course were: “Indians can’t say ‘no’”, and “Indians have a laid-back attitude toward time”. In summary, both the US managers and workers at GLOBALIS have observed and/or encountered many of these behavior patterns in their interactions with Indian workers.

During our ten day visit to the GLOBALIS sites in India, we were able to investigate these issue directly. We observed that the average age of the employees in India is in the mid-twenties, with roughly 90% having less than two years’ experience with the firm. These Indian workers have to interface with US employees who are 10 to 15 years older and who typically have over ten years’ experience with the systems, applications, and the firm. It is not unusual to find American GLOBALIS employees who have worked on the same project throughout their career in the organization. The Indian workers at the Indian sites are not only young, but were recruited from technical IT firms and lacked the application domain knowledge in the finance sector. They behaved like typical new employees. Thus, many of the behaviors attributed to national culture traits may just as easily be attributed to age and experience. For example, as discussed earlier Scott observed that the new Indian workers added to his project were not as prompt and responsive as the original US and Irish workers. When we talked to these Indian workers we learned that GLOBALIS has many databases with a complex system of access rules and the Indian workers, being new to the project and lacking domain knowledge, were not given direct access to these data bases. As a consequence they had to discover who had access and then request them to access and transmit those files. This took time and gave the impression to Scott that these Indian workers were not prompt and responsive.

### 3.1.3 *Observation regarding Process versus Relationship Behavior*

In our data section we reported earlier that Seamus, a manager at an Ireland site, told us that when he asked the Indian software engineers to start coding from a very general set of requirements, they refused until the requirements were formally specified. Seamus complained that the Indians were being too process-oriented and they did not understand the customer orientation of GLOBALIS.

Because the software development industry in India is invested heavily in capability maturity certifications and people change jobs often, the IT work culture in India is predominantly process-focused. Since GLOBALIS’ recruiting strategy in India is to recruit only experienced people, its workers at the Indian sites arrive after having socialized in process-based, matured software organizations. Thus, GLOBALIS’ recruiting strategy in India and the professional software culture of the Indian IT industry is responsible for the process-focused software professional culture (Cougar et al. 1990) of GLOBALIS in India.

### 3.1.4 *Analysis of video-conferencing observations*

Our video conference observations brought out that GLOBLAIS sites are not all equal. The sites in the New England region are in the core and Ireland and India sites are clearly on the periphery in terms of decision making. This was underscored by all the project managers being stationed in the US. While some global teams are currently managed by personnel located in Ireland, India does not currently “own” any projects. Thus, the very organizational distribution of work, while speaking of integrated teams conveys the message of hierarchical stratification. This perspective was reinforced in the training sessions being taken by the Americans (who were being trained to *manage* relationships), and the Indians (who were being trained to *do the work*). The video-conference interactions brought out the Indian managers at the Indian sites of GLOBALIS, even though they worked for the same company, viewed their American counterparts as their clients or bosses. This was underlined by their previous work experience. Since the vendor model dominates the Indian IT landscape, it is not surprising to see this perspective being adopted by GLOBALIS’ Indian employees. Thus, the Indian workers were struggling to see themselves as team members, a struggle that was enhanced by the age and experience differential between the Indian and US offices. One could say that the workplace culture of the Indian sites is vendor-oriented, and In a vendor-oriented culture, it is difficult to push

back or say 'no' directly, especially when being trained to provide a service. This may be a reason why the workers at the Indian sites use a high-context communications style.

Bringing these observations together, we see that certain cultural attributes are related more to the characteristics of the worksites than due to national or corporate culture. They substantiate the existence of *workplace* culture. The workplace cultures we observed at GLOBALIS can be summarized as follows:

- The work culture at the Indian sites of GLOBALIS is *process*-based
- GLOBALIS' work culture in Ireland is more *customer*-oriented
- Because GLOBALIS employees at the Indian sites view their US and Irish colleagues as clients, GLOBALIS' Indian sites culture is *vendor*-oriented
- Although the task time / social time divide at GLOBALIS match national culture traits, it is part of the workplace culture because of the unconscious adaptation of local practice by visitors from other sites.

As discussed above, age and experience, professional standards and certifications, and client/vendor orientation all combine to impact workplace culture.

### 3.2 Towards a new model of culture in global organizations

Our investigations of attitude and use of time at GLOBALIS suggest that, to understand the role of culture in today's global work, the national culture construction of culture is insufficient. Rather, corporate and workplace cultures need to be incorporated into the mix. This is consistent with the findings of Perlow and Weeks (2002) and Huang et al. (2003). Perlow and Weeks noted that behaviors of software engineers doing the same type of work in the US and India reflect the combined influence of national, occupational, and organizational layers of culture in the two settings. Huang and colleagues noted different organizational subcultures at work in their study. We integrate these concepts and offer a new culture model of global work in multinational firms such as GLOBALIS, shown in Figure 2. Workplace culture is a key construct and, as argued above, it depends upon a variety of environmental factors, including age and experience of the workers, industry standards and certifications, and differing client/vendor relationship perceptions at different sites.

The addition of project culture in the model is based on our survey data. The responses were stratified on following variables.

- Nationality - US, Ireland, and India
- Project - Bank of America, FMD, PACE, and STARS
- Position -non-management, lower management, middle management, top management
- Age - 20-29, 30-39, 40-49, 50-59

Figure 3 presents the survey participants' rating based on the four projects. The variation in the mean values (4.59, 4.09 and 3.75) for the four projects in the schedule and deadline dimension in Figure 3 implies that meeting schedule and deadlines are not only uniformly valued across sites, the level of importance assigned to schedule and deadlines depends of on the nature of the project. This suggests that project characteristics impact workers behaviors.

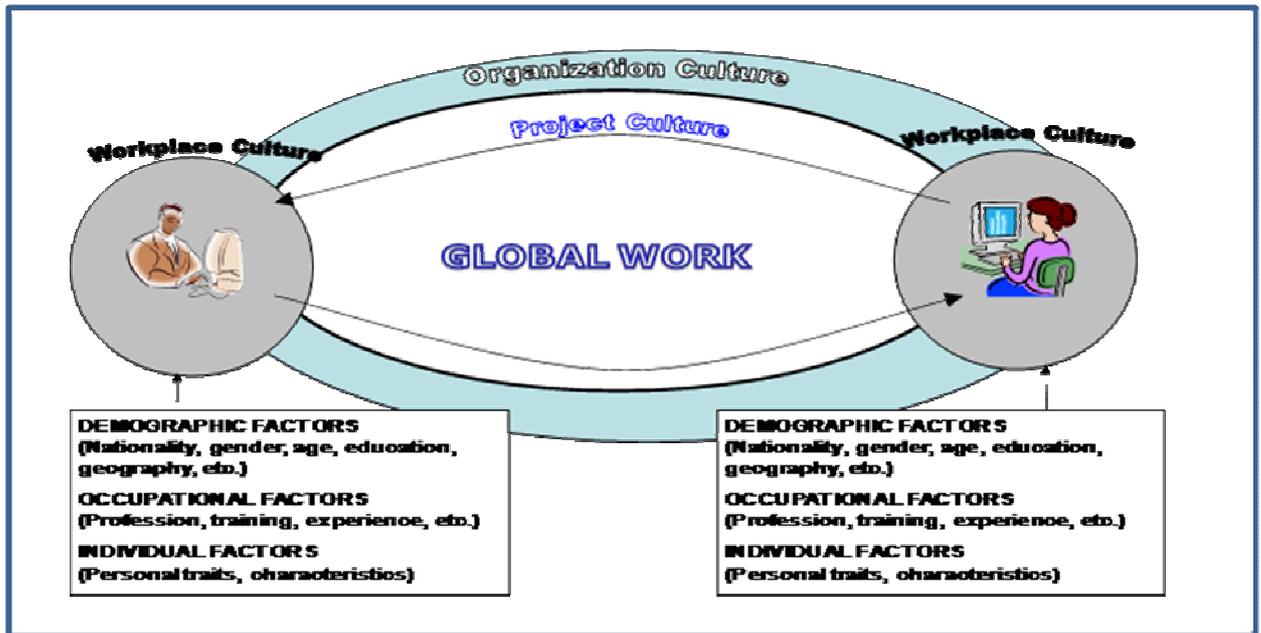


Figure 2- Culture Model for Global work

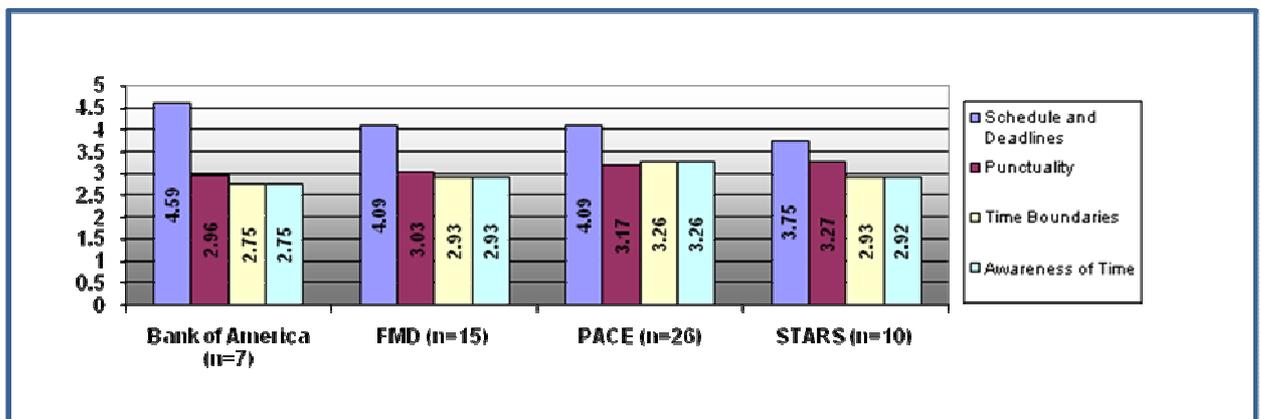


Figure 3- Survey Results by Projects

## 4 IMPLICATIONS AND DISCUSSION

Although culture investigations in global IT work have been an important area of research, the focus often has been on attributing behaviors to national culture differences (Ramingwong and Sajeev 2007, Symons and Stenzel 2007, Krishna et al. 2004, Borchers 2003, Walsham 2002, Heeks et al. 2001). We will review some of the findings of earlier research using the lens of our proposed culture model in global work.

Using Hofstede's dimensions of national culture, Ramingwong and Sajeev (2007) conclude that the risk of the 'mum effect' (or code of silence) is higher in Asia (higher power-distance, lower individualism-collectivism index and higher long-term orientation) than in the West. Our time-use investigations showed that people tend to comply with organizational norms and values, and therefore,

worker behavior would be driven by visible actions of the organization (such as the firing of a whistle blower) rather than workers' inherent proclivity to the mum effect. Similarly, since the client/vendor relationship impacts workplace behavior, the 'mum effect' will also be moderated by the culture of the workplace. In summary, our culture model of global work suggests that an analysis of the 'mum effect' must take into account the impacts of corporate and workplace cultures.

After a chance reading of Hofstede's (1980) book *Culture's Consequences*, Borchers (2003) began to see how Hofstede's culture dimensions were playing out in the behaviors among team members in the US, India and Japan. For instance, Borchers reasoned that the difference in behaviors between the US and Indian workers during a 'bug fixing' phase on a project was due to Indian culture having a lower value on Hofstede's individualism-collectiveness index in comparison to the US, and that this enabled the Indian developers to form close interpersonal bonds within the team.

There are, of course, other potential causes for the behavior of the Indian team, which are not considered by Borchers, and do not necessarily relate to Hofstede's analysis. During our investigations of global work at GLOBALIS, we noticed that the Indian software developers working for multinational firms belonged to a narrow band of Indian culture. Most of them were educated in English-speaking high schools and grew up listening to Western popular music, popular literature and movies. It is this identity with Western pop culture and their youthfulness that can be seen to separate them from Indian society in general and to seed the kind of bonds of friendship that Borchers observed in the Indian software team members. This high degree of social solidarity, often cemented through shared social activities, may be what is fueling their collaborative work rather than simply belonging to "Indian culture."

Scholars on global work who have explored research-driven best practices for effective management of global software teams (Krishna et al. 2004, Walsham 2002) frame cultural barriers to global coordination on societies' distinct ways of working. As a result, they attribute observed behaviors in the work place to national culture differences alone. For example, British managers in an outsourcing relationship with a particular Indian software supplier noted that Indian programmers would not voice criticism in face-to-face meetings but would sometimes send their opinions in email messages after the meetings had disbanded. This behavior is attributed to Indian culture where 'deference to authority' is valued.

Again, there are alternative explanations that can be posited upon closer examination, utilizing different analytical lenses. For example, we observed that a number of the Indians we interviewed could not converse fluently in English. Borchers (2003) observed that because of certain Japanese workers' inability to communicate fluently in English, they preferred to communicate through emails. Thus, a possible reason for some of the Indian workers not voicing criticism in face-to-face interaction could be their inability to effectively converse in English. Furthermore, these Indian employees often had far less experience on the projects, had less time in the company, had little or no domain knowledge, and were interacting with American team members who had been involved in the project from the outset. All of these factors may well have contributed to a 'following' versus 'leading' approach to team interactions.

Heeks et al. (2001) offer an interesting example of cultural dissonance. Apparently project leakage in a UK firm Sierra, called UK-Sierra here, was typically 2 to 3 percent and in its wholly-owned offshore development center in India (India-Sierra), it was between 25 to 30 percent. Conflict arose between UK-Sierra and India-Sierra regarding definitions of leakage. At UK-Sierra, leakage was measured in terms of time spent versus time planned. They reported that "from the Indian staff's perspective, deadlines mattered but how much time was spent did not, and they felt UK values were insensitive to Indian conditions." Because the authors analyzed this issue based on their view that "players in this global game still retain cultural values rooted in a particular locale," (ibid., p. 59), Heeks and colleagues framed the conflict in terms of differences in cultural values between UK and India.

In our study of attitude towards time and its use at GLOBALIS sites in the US, Ireland and India, we saw no evidence to suggest that 'meeting deadlines' is a particularly Indian cultural value. Rather, it

was a *corporate* value of GLOBALIS with which the Indians complied. Also, we observed that local working conditions (such as lack of domain knowledge or of tacit knowledge) cause delays and interfere with the promptness of Indian workers. It is hard to say that the definition of leakage in UK-Sierra is based on certain British values, but it is clear that measures used in one corporate environment may not transfer across geographic boundaries, especially when they make workers look bad. Thus it may not be appropriate, certainly not in all cases, to attribute national culture differences to be the cause of dissonance.

Irrespective of their worksite location, GLOBALIS *workers* felt that national culture is not an overriding factor in distributed workplace collaboration. However, GLOBALIS *managers* in the US, Ireland and India all reported that national culture differences matter greatly. Besides the contradictory perceptions between workers and managers regarding the role of culture in global work, we also observed uneven management actions with respect to culture training at GLOBALIS. For example, GLOBALIS' management contracted with a consulting company to train their US employees on how to do business with India. This training consisted of a one-day program where managers were exposed to generalized traits and characteristics of Indian culture while developing an awareness of their own US culture. We attended this training program and found that, like most cross-cultural training programs, the focus was on exposing the American workers to those cultural traits of Indians that were said to be different from Americans. Attitude and use of time was one of the topics covered. It is perhaps instructive to note that the Irish and Indian managers were not given a similar cross-cultural training opportunity. Our interviews with the Indian workers indicated that some had been given a short, three hour introduction to working with US colleagues, but the people we interviewed could not remember much about this training other than they should not use the word "but" in their email communications with US workers and managers.

During our monitoring of global conference calls during our study we observed that any time someone joined a conference call five minutes or so late, they apologized. Since this appeared to be so irrespective of the location of the participant, we concluded that, in the culture of GLOBALIS, five minutes of tardiness for a conference call is considered significant and requires an apology. As an aside, when we took a class of American students to Bangalore, India, the five Indian industry speakers we had invited to speak to the students were all well over half an hour late for their lectures, yet none of them apologized to the class. Does this suggest that in *Indian* culture being tardy to a formal event by half an hour is not considered significantly late, but that Indians *in GLOBALIS* have been acculturated to the company culture? In any case, these observations tend to confirm Edward Hall's (1959) finding that punctuality is cultural at some level, and Laurent's (1986) argument that adherence to corporate norms may modify behaviors embedded in national culture.

The purpose of these examples has been to illustrate that the current conceptualization of cross-cultural analyses based on the traditional view arising from Hofstede, namely that workers in global work retain cultural values rooted in national culture, can result in inappropriate attributions (Osland & Bird 2000). Myers and Tan (2002) found wide usage of 'national culture' models by many IS researchers, resulting in narrow, simplified perspectives on the effects of national culture. Their review of the IS literature on national culture shows how the concept of national culture was taken for granted by many IS researchers. They criticized the conceptualization of national culture models proposed by Hofstede and other researchers. They proposed a research agenda inviting researchers to develop better lenses through which to move beyond simplistic treatments of national culture in order to investigate the dynamic and complex effects of cross-cultural diversity for the management of today's global organizations. This study has been an attempt to move the field in the direction proposed by Myers and Tan (2002) and Gallivan and Srite (2005). Our model of culture provides a more nuanced and refined framework to study the impact of cross-cultural differences on global work. Next we will discuss the research directions needed to place our model on a firmer foundation and the research approach needed to move the field forward.

First, most empirical studies in the IS and Software Engineering literatures on global work and global virtual teams have tended to focus almost entirely on national culture differences, primarily on two of

Hofstede's culture dimensions, namely Power Distance and Individualism/Collectivism. Trompenaars and Hampden-Turner (1997) proposed a set of seven culture dimensions and two among these are same as Hofstede's. More recently, Gupta and House (2004) proposed nine dimensions of culture which, unlike Hofstede's, are rooted in theory and they are: Performance Orientation; Assertiveness Orientation; Future Orientation; Human Orientation; Institutional Collectivism; Family Collectivism; Gender Egalitarianism; Power Distance, and Uncertainty Avoidance. These provide a more finely grained approach that is worthy of further consideration. Thus, we argue that there is a need to develop a richer understanding of how these culture dimensions affect global interactions and work.

Second, as argued by Huang and colleagues (2003), the role of corporate culture, and corporate subcultures, in global work requires much more serious consideration. Although there is extensive literature on corporate culture and adoption and use IT in organizations (Gallivan and Srite 2005), the learning from these studies have not been incorporated in the study of global virtual work.

Third, the construct of workplace culture is crucial for a more comprehensive understanding of the factors that impact global work, yet there is little research on this construct in the IS literature. Since our conceptualization of workplace culture is based on the study of just one multi-national firm, the contextual variables we have identified need to be validated in other settings.

Finally, one cannot just engage in traditional survey research alone to build theory (Galliers 1992); a pluralistic approach is required (Mingers 2001). We would further argue that, for the theory to be robust, it must be rooted in practice. Because global work is a relatively new phenomenon, an ethnographic study is needed to uncover the factors that may be affecting behaviors in global virtual work with the findings being used to develop hypotheses for theory testing.

## References

- Acharya, H. (2008). Indian standard time = never on time. *India New England*, June 16-30,2008, p.17.
- Borchers, G. (2003). The software engineering impacts of cultural factors on multi-cultural software development teams. *IEEE Proceedings of the 25th International Conference on Software Engineering*, Portland, OR, 540-545.
- Brislin, R. W. and Kim, E. S. (2003). Cultural diversity in people's understanding and uses of time. *Applied Psychology: An International Review*, Vol. 52, No. 3, 363-382.
- Carmel, E and Tjia. (2005). *Offshoring Information Technology*. Cambridge University Press
- Chand, D., David, G. and Kumar, S. (2007). Does exposure to cross-cultural models lead to stereotyping or better management of IT work? In S. Manikutty (Ed.), *Intercultural Communication Competence: Learning, Teaching and Research in a Borderless World*, MacMillan: India, 274-286.
- Cramton, C. D. and Webber, S. S. (2005). Relationships among geographic dispersion, team processes, and effectiveness in software development work teams. *Journal of Business Research*, Vol. 58, 758-765.
- Cougar, J.D., Adelsberger, H., Borovits, I., Zviran, M. and Motiwalla, J. (1990). Commonalities in motivating environments for programmer/analysts in Austria, Israel, Singapore and the USA. *Information and Management*, 18, 41-46.
- Cushner, K. and Brislin, R. (1996). *Intercultural Interactions: A practical guide*. Thousand Oaks, CA: Sage.
- Galliers, R. D. (1992). Choosing Information Systems Research Approaches, in R D Galliers (ed.) *Information Systems Research: Issues, Methods and Practical Guidelines*, Oxford: Blackwell Scientific, 144-162.
- Galliers, R. D. (2003) Information systems in global organizations: Unpacking culture. In S. Krishna and S. Madon (eds.) *The Digital Challenge: Information Technology in the Development Context*, Aldershot: Ashgate, 90-99.

- Galliers, R. D. (2008). IT and globalization: knowledge creation and sharing across frontiers”, in S Dayal and M Murphy (eds.), *Global Babel. Questions of Discourse and Communication in a Time of Globalization*, Newcastle: Cambridge Scholars Publishing, 46-63.
- Gallivan, M. and Srite, M. (2005). Information technology and culture: Identifying fragmentary and holistic perspectives of culture. *Information and Organization*, 15, 295-338.
- Garfinkel, H. (1996). Ethnomethodology’s program. *Social Psychology Quarterly*, Vol. 59, No. 1, 5-21.
- Guha, R. (2007). *India after Gandhi: The history of the world’s largest democracy*, NY Harper-Collins.
- Gupta, V. and House, R. (2004). Understanding leadership in diverse cultures: Implications of project GLOBE for leading international ventures. In Tjosvold, D. & Leung, K (Eds.) *Leading in High Growth Asia: Managing Relationships for Teamwork and Change*, World Scientific Publishing: Singapore, 13-54.
- Hall, E. T. (1959). *The Silent Language*, Garden City, NY Doubleday.
- Hall, E. T. (1981). *Beyond Culture*, New York: Anchor Press/Doubleday.
- Heeks, R., Krishna S., Nicholson B. and Sahay S. (2001). Synching or sinking: Global software outsourcing relationship. *IEEE Software*, March/April, 54-60.
- Herbsleb, J., Mockus, A., Finholt, T. and Grinter, R. (2000). Distance, dependencies, and delay in a global collaboration. In Kellogg, W. and Whittaker, S. (Eds.) *Proceedings of the 2000 ACM Conference on Computer supported Cooperative Work*, New York: ACM Press, 319-328.
- Hofstede, G. (1980). *Culture’s Consequences: International Differences in Work Related Values*. London: Sage.
- Hofstede, G., (2001). *Culture’s consequences: Comparing values, behaviors, institutions, and organizations across nations* (2<sup>nd</sup> ed.) Thousand Oaks, CA: Sage.
- Huang, J., Newell, S., Galliers, R.D. and Pan, S.L. (2003) Dangerous liaisons? Component-based development and organizational subcultures. *IEEE Transactions on Engineering Management*, Vol. 50, No. 1, 89-99.
- Krishna, S., Sahay, S. and Walsham, G. (2004). Managing cross-cultural issues in global software outsourcing. *Communications of the ACM*, Vol. 47, No. 4, 62-66.
- Laurent, A. (1986). The cross-cultural puzzle of international human resource management. *Human Resource Management*, Vol. 25, No. 1, 91-102.
- Likert, R. (1932), "A Technique for the Measurement of Attitudes", *Archives of Psychology*, Vol. 140, 1-55.
- Luff, P. Hindmarsh, J. and Heath, C. (eds.) (2000) *Workplace Studies: Recovering Work Practice and Informing Systems Design*. Cambridge: Cambridge University Press.
- Manrai, L. and Manrai, A. (1995). Effects of cultural-context, gender, and acculturation on perception of work versus social leisure time usage. *Journal of Business Research*, Vol. 32, 115-128.
- Mingers, J. (2001). Combining IS Research Methods: Towards a Pluralist Methodology *Information Systems Research*, Vol. 12, No. 3, 240-259.
- Myers M.D. and Tan F.B (2002). Beyond models of national culture in information systems research. *Journal of Global Information Management*, Jan-Mar, 24-32.
- Olson, J. S. and Olson, G. M.(2003). Culture surprises in remote software development teams. *Distributed Development*, 1 (9), 52-59.
- Orr, J. (1996). *Talking about Machines: An Ethnography of a Modern Job*. Ithaca, NY: Cornell University Press.
- Osland, J.S. and Bird, A. (2000). Beyond sophisticated stereotyping: Cultural sensemaking in context. *Academy of Management Executive*, Vol. 14. No.1, 65-79.
- Ramingwong, S. and Sajeev, A. S. M. (2007). Offshore outsourcing: The risk of keeping mum. *Communications of the ACM*, Vol. 50, No. 8, 101-103.
- Sarros, J.C., Gray, J. and Densten, I.L. (2002). Leadership and its impact on organizational culture. *International Journal of Business Studies*, Vol. 10, No. 2, 1-25.
- Schriber J.B & Gutek B.A (1987). Some time dimensions of work: Measurement of an underlying aspect of organizational culture. *Journal of Applied Psychology*, Vol. 72, No. 4, 642-650.

- Schein, E.J. (1985). *Organizational Culture and Leadership*. Jossey-Bass, San Francisco: Jossey Bass.
- Straub, D.I Loch, K., Evaristo, R. Karahanna, E., and Srite, M. (2002). Towards theory-based measurement of culture. *J. of Global Information Management*, 10 (1), 19 pages.
- Suchman, L. A. (1987). *Plans and situated actions: The problem of human-machine communications*. Cambridge, UK: [Cambridge University Press](#).
- Symons, J. and Stenzel, C.(2007). Virtual borderless: an examination of culture in virtual teaming. *Journal of General Management*, Vol. 32, No. 3, 1-17.
- Trompenaars, F. and Hampden-Turner, C. (1997). *Riding the Waves of Culture: Understanding Cultural Diversity in Business*. 2nd edn. London: Nicholas Brealey.
- Walsham, G. (2002). Cross-cultural software production and use: A Structural analysis. *MIS Quarterly*, Vol. 26, No. 4, 359-380.