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The Impact of Collectivism on the Deaf Effect in IT Projects

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ABSTRACT

Project management is still a problematic area in the IS field. One source of concern is that of project escalation, a continued commitment of resources to a failing course of action. One explanation for escalation is the deaf effect response to bad news reporting which is when a decision maker does not hear, ignores, or discounts a report of bad news. This research extends existing prior work by adding the effects of societal collectivism to the existing model proposed by Cuellar, Keil and Johnson (2006; 2007). It also explores the use of the GLOBE cultural values frame in IS research and the Ford, Connelly, Meister (2003) approach to using the cultural values frameworks in a research setting. This research develops hypotheses regarding the effect of societal collectivism on the deaf effect. The expanded model and associated hypotheses will be tested using matching laboratory experiments conducted in the U.S., Germany, China, South Africa and Saudi Arabia.

Keywords

Deaf Effect, Project Escalation, Collectivism, GLOBE framework

INTRODUCTION

Despite half a century of experience, Information Systems (IS) project management is still an area that is fraught with problems. IS projects often fail to deliver the benefits expected at the time they were approved. They are also well known for budget over-runs and schedule slippage. In some cases, mismanagement of software projects means that they escalate out of control, continuing to absorb valuable resources without ever delivering benefits to the organizations that undertake them (Keil 1995). A survey sponsored by the Information Systems Audit and Control Association (ISACA) found that 30–40% of all software projects undergo some degree of project escalation (Keil et al. 1997).

This escalation of commitment (a continued commitment of resources to a failing course of action) is a well-known phenomena in software project management and considerable work has been done to gain a better understanding of why executives continue to commit resources in the face of negative signals about the status of projects (Keil et al. 2001; Smith et al. 2001). While many explanations have been explored, recent work has focused on the communication failures that occur within organizations and how these may contribute to the escalation of commitment. A small, but growing number of studies have examined the “mum effect” (Keil et al. 1999; Keil et al. 2001), or the reluctance to report bad news. Comparatively less attention has been placed on understanding the so-called “deaf effect” which is the notion that executives’ refusal to hear bad news might also promote escalation (Keil et al. 1999; Keil et al. 2001). For reasons that are not well understood, executives may either consciously or unconsciously not hear, ignore, or reject the bad news even when those who report to them are bold enough to transmit the message. Understanding the factors that influence the deaf effect may shed new light on project escalation, especially those cases that involve continued pursuit of a failing course of action in spite of clear warnings issued by whistle blowers.

To date, there has been little research on the deaf effect. Keil & Robey (2001) provided anecdotal evidence that the deaf effect occurs in IS projects. Cuellar, Keil & Johnson (2006; 2007) empirically tested a variance model of the response to bad news reporting. Based on laboratory experiments, Cuellar et al. found that the perceived relevance of the bad news reporter’s message was associated with the decision to change the previous course of action at a statistically significant level. They also found that high credibility of the bad news reporters, and to a lesser extent their role prescription, was positively associated with the relevance of the message. Role prescription, whether the reporting of bad news was considered to be part of the bad news reporter’s job, was found to enhance the credibility of the reporter and to increase the relevance of the message of bad

news to the decision maker. Additionally, Cuellar et al. found that the risk propensity of the decision maker and a perception of low project risk were positively associated with the decision to continue a previously chosen course of action. Gender was found to increase the propensity to accept risk while lowering the perception of risk. These relationships are illustrated in figure 1.

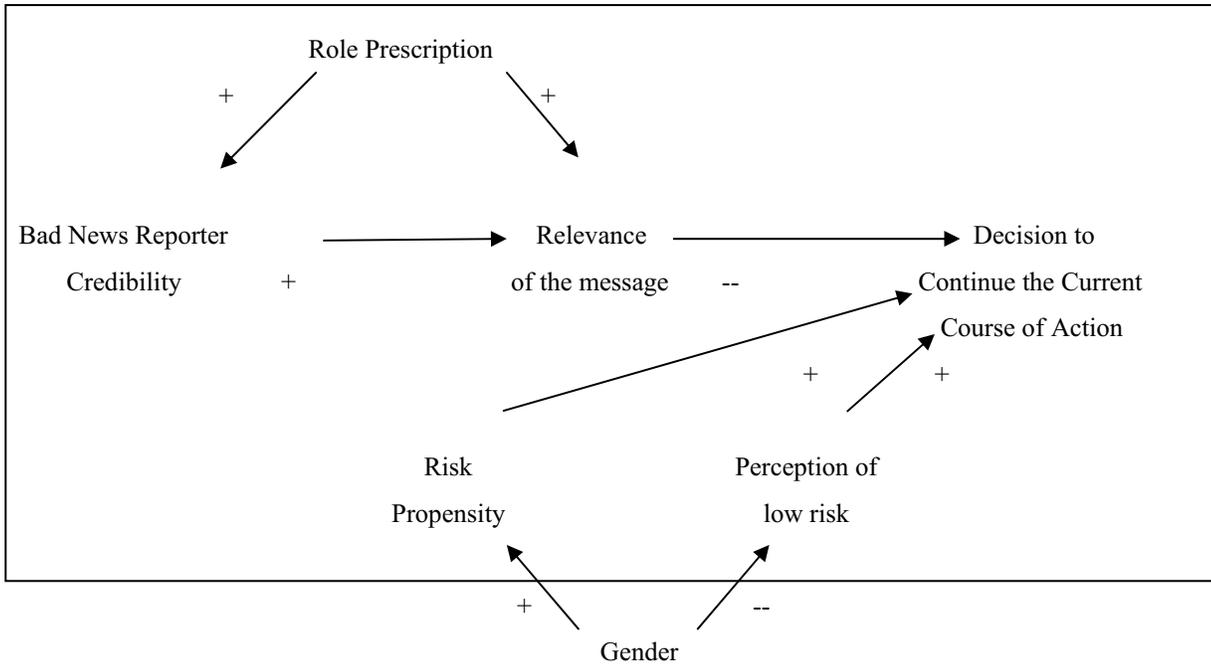


Figure 1: Research Model from Cuellar, Keil and Johnson (2007)

It has been noted that cultural forces influence many aspects of organizational leadership including such areas as behaviors expected of leaders in particular situations (Hofstede 2001; House et al. 2004). The Cuellar et al. (2007) study was conducted with U.S. undergraduate students at a university in the southeastern part of the country. In terms of cultural values, people in the U.S. are believed to be among the most individualistic people in the world (Hofstede 2001). In other societies that are less individualistic, the effects of the independent variables on the decision to continue or discontinue a course of action might be different. The collectivist identification of self with the group might influence the decision maker to view bad news reporters and their report differently than in more individualistic cultures. Similarly, an unwillingness to decide against the consensus of their work group may cause decision makers to defer to the group consensus although they might hold an alternative opinion. Therefore, studying the effect of societal individualism-collectivism may shed additional light on how the deaf effect occurs. In this study, therefore, we focus on the effects of individualism-collectivism on the occurrence of the deaf effect. The research question is therefore:

What is the effect of societal individualism-collectivism on the occurrence of the deaf effect?

THEORETICAL FOUNDATIONS

Model of Cultural Value Formation

Kolb (1984) argues that human learning is experience based. Concrete experience leads to comparison to existing mental models of the world for explanation of the event. Novel experience leads to revision of existing concepts and modification of behavior to take this new experience into consideration. In terms of culture, Straub, Loch, Evaristo, Karahanna, & Srite (2002) have suggested that:

... an individual's values are influenced and modified by membership in other professional, organizational, ethnic, religious, and various other social groups, each of which has its own specialized culture and value set. Thus, individuals vary greatly in the degree in which they espouse, if at all, values dictated by a single cultural group, such as their national culture. (p.18)

Thus a decision maker's values develop in response to many different influences including such areas as national, organizational, religious, ethnic and other values. All these influence the decision maker to various degrees and affect his/her values as shown in Figure 2. The individual's cognitive processes take as inputs the influences from society, the organization(s) of which the individual is a part, their religion, their ethnicity, and process these inputs to create their values which they use in decision making.

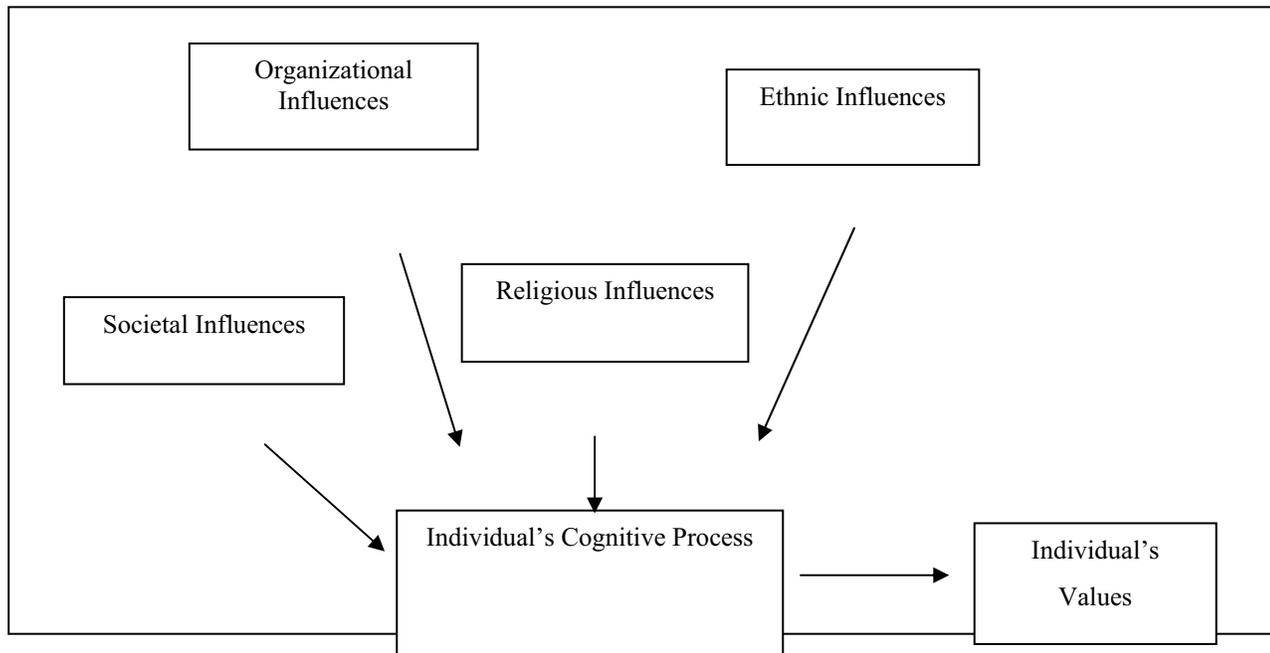


Figure 2: Influences upon an Individual's Value Formation (based on Straub, Loch, Evaristo, Karahanna, & Srite (2002) and Kolb (1984))

Studies have shown that the societal influences loom large in the formation of the other influences and on the creation of individual values. For example, House, Hanges, Javidan, Dorfman, & Gupta (2004) cited 'a wealth of literature' that shows that organizational values reflect a "variety of the aspects of the societies in which they exist" (p. 76). Similarly, Smith (1992) suggests that even when similar organizational structures are used, different national cultures give them substantially different meanings. Also, Earley and Gibson (1998) found that congruence between national culture and organization culture lead to job satisfaction and cooperative behavior. Additionally, the level of individualism-collectivism and leadership style is related to organization effectiveness. These examples seem to suggest that societal values may be the most important determinants of the values used in a decision-making context. In this study, therefore, we focus on the effects of the societal values on decision-making.

Cultural Values Framework

Accepting the importance of societal values in influencing a decision maker's thought processes, we now consider what framework of cultural values should be used. The most prominent cultural values framework is that proposed by Hofstede (2001). Based on a factorial analysis of internal survey results of IBM employees in 50 countries conducted in the late 1960s and early 1970s, he derived four cultural values: Individualism, Power Distance, Uncertainty Avoidance, and Masculinity. Later, after additional research in Asian cultures, he added another dimension: Confucian Dynamism or Long-Term Orientation. The Hofstede measures have been extensively used with the IS literature including a study of IS project escalation (Keil et al., 2000) and a study of the mum effect (Tan et al. 2003). However, the Hofstede measures have been criticized as lacking construct validity and other psychometric properties (Spector et al. 2001), and as US/European or IBM centric. They have also been criticized as atheoretical (House et al. 2004). Also, the items used in the Hofstede measures mix organizational and societal values with values of the individual and the collective cultures. Therefore, these measures do not meet the requirements of this study.

Recently, the Global Leadership and Organizational Behavior Effectiveness Research Program (GLOBE) collaboration (House et al. 2004) has proposed a framework of nine cultural values that overcomes most of the criticisms of the Hofstede

framework. Based on a conceptual model, which reflects an integration of implicit leadership theory, value-belief theory of culture, implicit motivation theory and structural contingency theory of organizational form, these values and their measurement items were selected by an international team and tested in 62 different countries with middle managers in multiple countries within three different industries. These measures were subjected to a rigorous statistical validation processes. We believe that these measures represent a significant improvement over the Hofstede measures and so propose to use them in this study to measure cultural attributes.

In terms of suitability for this study, GLOBE provides four different instruments that measure the constructs at two different levels, societal and organizational and at the practices (as-is) and values (should-be). The societal measures ask respondents to rate the society in which they live as to the various cultural values. Similarly, the organizational scale requests them to evaluate their organization. The practices scale, of which there is one for the society and one for the organization, ask respondents to rate a set of practices relating to the surrounding society or organization as it exists now. The values scale, which also exists in a form for the society and one for the organization, requests the respondents to assess what the practices 'should be' which gives a view of societal values. In this study, we will use the societal practices scales to measure culture, as we are interested in assessing practices (as-is) at the societal level. In this scale the respondents are not providing their own values, but acting as individual raters to provide their perception of the society's practices. This measures precisely what is needed in this study.

Applying the GLOBE Measures to the Deaf Effect.

The nine factors proposed by Globe (House et al. 2004) for measuring culture include Institutional Collectivism, In-Group Collectivism, power distance, uncertainty avoidance, assertiveness, gender egalitarianism, performance orientation, future orientation, human orientation. In this research, we focus on the individualism-collectivism dimension (ICD) because we believe it to be the most appropriate dimension for explaining potential cross-cultural differences in the deaf effect. Following Zhang, Lowry, Zhou and Fu (2007), we believe that the ICD of culture is an appropriate choice because:

1. It allows us to develop a parsimonious model. Attempting to include all nine cultural factors as independent variables would be too unwieldy. Thus, researchers normally consider only one or two dimensions.
2. ICD is the most commonly used dimension in cross-cultural research and has been shown to be a significant cultural factor in a wide variety of studies.
3. Given the context of our study, it is logical to assume that ICD will affect how much credence is afforded to a bad news reporter who is not on the project team when his/her report runs counter to the project team's consensus.
4. Given the nature of the experiment and the treatments used in this study, it is unlikely that differences in gender egalitarianism, assertiveness, and humane orientation, and other cultural factors would have a significant effect.

The GLOBE framework divides individualism-collectivism into two constructs: Institutional Collectivism and In-Group Collectivism. These are two separate and uncorrelated constructs within the GLOBE framework. Institutional Collectivism is associated with what Triandis referred to as "horizontal collectivism" (Triandis 1995). Horizontal collectivism is characterized by a performance orientation in which the goal is accomplished in a collective manner without the use of aggression or power dominance. It is common in the Confucian Asian culture and the Scandinavian cultures. In-Group Collectivism, on the other hand, is associated with the concept of "vertical collectivism" (Triandis 1995). In cultures with a high degree of vertical collectivism, close ties among family and clan are important, power distance is important, but predefined workplace rules are less important (Gelfand et al. 2004). In-Group Collectivism is not performance oriented, nor is it future oriented. This form of collectivism is commonly found in South America and Africa.

Institutional Collectivism.

According to the GLOBE consortium, Institutional Collectivism is defined as "the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action." (Javidan et al. 2004, p. 30). In collectivist cultures, individuals are group oriented. They tend to view themselves as part of a group and put group goals before their own. Duties and obligations are very important to them. Institutional Collectivism also tends to be associated with higher levels of uncertainty avoidance, which leads to a desire to use rules to resolve uncertainty in the environment. We would expect then that decision makers in an Institutional Collectivist culture would be encouraged to associate themselves with their work team and work on a team basis. They would, however also strive to follow workplace conventions. Based on this description, in terms of the deaf effect, we make the following hypotheses: since an Institutional Collectivist culture encourages decision makers to work with their teams and stand with them, we hypothesize that, absent

clear indications to the contrary, decision makers in Institutional Collectivist societies will tend to side with the opinions of their teams:

H1a: Where the surrounding culture is characterized by a high degree of Institutional Collectivism, decision makers will tend to side with the opinion of the team in terms of whether to continue or discontinue a course of action

Additionally, since this type of culture encourages the tendency to side with their teams, the decision maker would be less likely to perceive bad news reported from outside their team to be relevant.

H1b: Where the surrounding culture is characterized by a high degree of Institutional Collectivism, decision makers will tend to find the report of bad news by a reporter external to the work team to be less relevant than those in low Institutional Collectivist cultures.

Finally, we note that the Institutional Collectivist construct is highly correlated with uncertainty avoidance. This correlation indicates that in these cultures, they seek to regulate their activities through the establishment of rules rather than through adjustment at the time of decision. Thus, workplace conventions such as having an auditor review the project prior to implementation and the formal designation of certain persons to be those who review and report project status might moderate the effect of Institutional Collectivism to lower the relevance of the report of bad news. Therefore, given this effect, we can see that a decision maker influenced by Institutional Collectivism might take into consideration the role prescription of a bad news reporter; giving the reports of those who are role prescribed more relevance. Thus the effect of Institutional Collectivism decreasing relevance might be mitigated by the effects of role prescription. We therefore hypothesize that

H1c: Where the surrounding culture is characterized by a high degree of Institutional Collectivism, decision makers will tend to find the report of bad news by a reporter external to the work team to be more relevant if the reporter is role prescribed than if the reporter is not role prescribed to report bad news.

In terms of the research model, as shown in Figure 3, Institutional Collectivism operates to defeat the bad news reporter’s message. First, by the decision maker siding with the team, leading to a direct positive effect to continue the current course of action (H1) assuming that that is the consensus of the team. Second, Institutional Collectivism directly reduces the relevance of the bad news reporter’s message to the decision maker regardless of their credibility or role prescription (H2). Finally, due to their desire to follow workplace conventions, role prescription moderates the effect of Institutional Collectivism on perceived relevance of the message such that the effect of Institutional Collectivism is reduced when bad news reporters are role prescribed to report bad news than when they are not role prescribed.

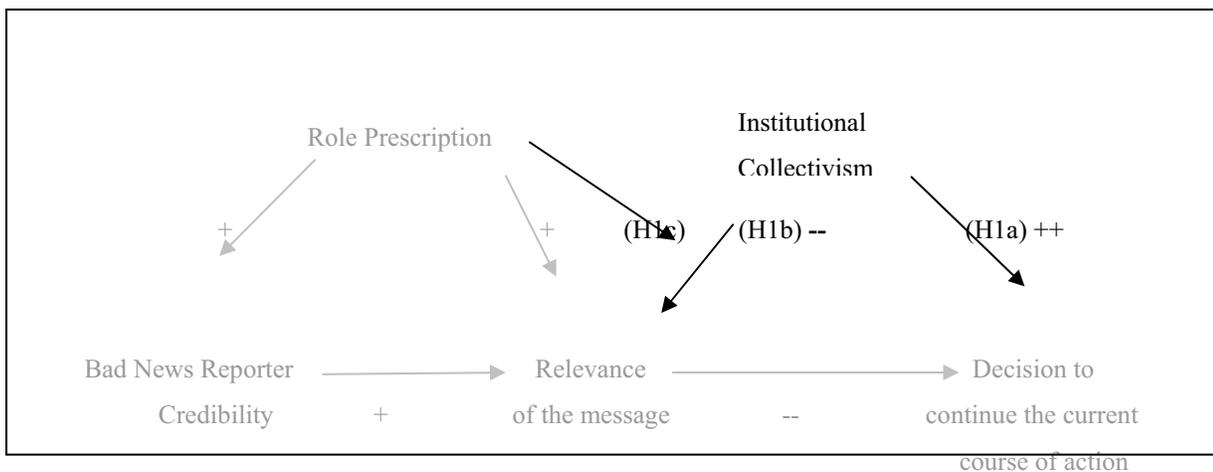


Figure 3: Effect of Institutional Collectivism

(Grayed out terms are from the original model of Cuellar, Keil and Johnson (2007))

In-Group Collectivism.

In-Group Collectivism is defined as “the degree to which individuals express pride, loyalty and cohesiveness in their organizations or families” (Javidan et al. 2004). In contrast with Institutional Collectivism, In-Group Collectivism, is associated with the concept of “vertical collectivism” (Triandis 1995). These collectivists are more interested in clan

groupings than institutions. There are close ties between the clan members and they are respectful of authority and have fewer rules than Institutional Collectivists (Gelfand et al. 2004). In-Group Collectivism is associated with higher power distance and humane orientation and inversely with future orientation and uncertainty avoidance (Gelfand et al. 2004). We therefore hypothesize that since In-Group Collectivists tend to follow the leaders of their clan:

H2a: Where the surrounding culture is characterized by a high degree of In-Group Collectivism, decision makers will tend to side with the opinion of the leadership in terms of whether to continue or discontinue a course of action

H2b: Where the surrounding culture is characterized by a high degree of In-Group Collectivism, decision makers will tend to find the bad news reporter's message less relevant when it conflicts with the opinion of the leadership in terms of whether to continue or discontinue a course of action

Additionally, since In-Group Collectivists tend to be more respectful of authority, we hypothesize that a bad news reporter who's job as designated by the leadership is to report bad news in projects would tend to have more credibility and relevance than one who is not role prescribed. Therefore:

H2c: Where the surrounding culture is characterized by a high degree of In-Group Collectivism, role prescription will moderate the effect of In-Group Collectivism on relevance. Role prescribed bad news reporters will have a higher credibility and relevance than those who are not role prescribed

In terms of the research model, we hypothesize that In-Group Collectivism will have a positive direct effect on the decision to continue the current course of action while have a negative effect on the relevance of the bad news reporter's message. The effect on relevance will be modified by the role prescription of the reporter as shown in Figure 4. Where the bad news reporter is role prescribed the effect of In-Group Collectivism on relevance will be weakened.

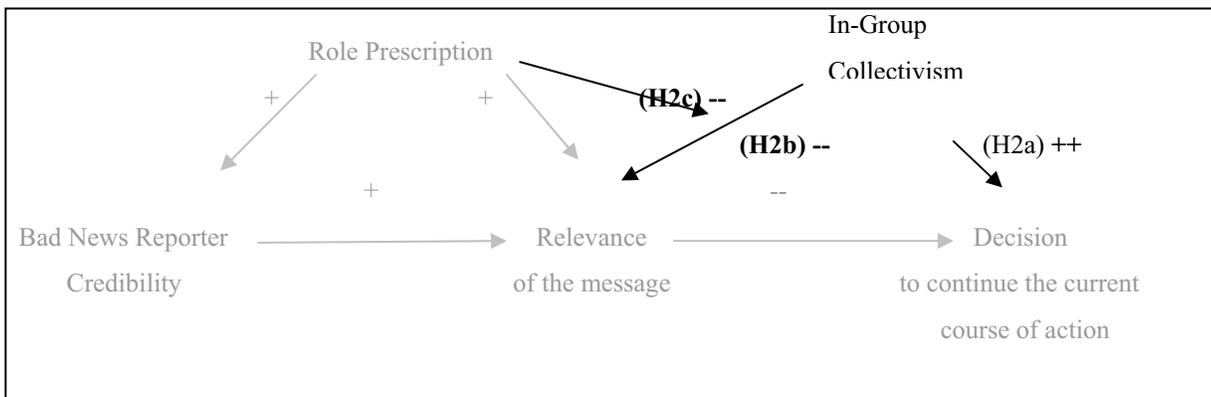


Figure 4: Effect of In-Group Collectivism

(Grayed out terms are from the original model of Cuellar, Keil and Johnson (2007))

RESEARCH METHODOLOGY

Overview

The hypotheses advanced above will be examined by use of a laboratory experiment executed in different cultures. Role prescription and bad news reporter credibility are manipulated independently. The 2x2 factorial design, scenarios and questionnaire developed in Cuellar, Keil and Johnson (2007) will be reused in this study. The questionnaire will be augmented by the addition of the GLOBE survey questions for capturing data related to Institutional Collectivism. In Germany, and China, the scenarios will be translated into German, and Chinese, respectively and then back translated by different individuals to ensure fidelity in translation.

Subjects

The subjects for this experiment will be undergraduate students in introductory classes within the business school or school of information sciences at major universities. While the use of student subjects is controversial, it has a significant history within IS and management research. It has been used in studies dealing with decision making tasks (Sitkin et al. 1995) and project management decisions (Harrison et al. 1993; Smith et al. 2001). Using students as surrogates for managers has been shown to be appropriate where studies focus on decision-making and do not require detailed domain knowledge. Remus (1986), for example, reported no differences in decision making between students and managers in the context of production

scheduling. Locke (1986, p.6) notes that “both college students and employees appear to respond similarly to goals, feedback, incentives, participation, and so forth, perhaps because the similarities among these subjects (such as in values) are more crucial than their differences.” Liyanarachchi and Milne (2005) have indicated that in situations in which only psychological processes are being tested and not attitudes and knowledge that would be developed through experience, students stand as good surrogates for experienced managers.

In order to insure variance in the cultural values that are of interest to us, we have selected countries from the GLOBE survey that reflect Institutional and In-Group Collectivism value scores that range from high to low. To make the determination of whether the geography was high or low on this value, we used the GLOBE computed “bands” for each cultural value. The GLOBE researchers rank ordered the scores for each variable and then grouped them by bands that reflect a range in which the differences between the scores are not statistically meaningful. The selected geographies and GLOBE cultural values results are found in Table 1.

Table 1: GLOBE values for the Selected Geographies and their Associated Bands (House et al. 2004)

Country	Institutional Collectivism		In-Group Collectivism	
	Value ¹	GLOBE Band ²	Value	GLOBE Band
United States	4.2	B	4.25	C
Germany	3.56	C	4.02	C
China	4.77	A	5.8	A
Saudi Arabia ³	4.49	B	5.8	A
South Africa-White	4.62	A	4.5	B
South Africa-Black	4.39	B	5.09	B
Average Value	4.25		5.13	
Bands		ABCD ⁴		ABC

¹ The scale for all variables in the GLOBE framework is 1 to 7. The range of values for Institutional Collectivism is from 3.25 to 5.22. For in-group Collectivism it is 3.53 to 6.36.

² Band A is the highest range of values. Band B is next highest and so on. Institutional Collectivism has 4 bands. In-group Collectivism has 3.

³ The GLOBE survey does not have values for Saudi Arabia. Those for Kuwait were substituted. In a regional analysis of cultural values Gupta, V., and Hanges, P. "Regional and Climate Clustering of Societal Cultures," in: *Culture, Leadership, and Organizations The GLOBE Study of 62 Societies*, R. House, P. Hanges, M. Javidan, P. Dorfman and V. Gupta (eds.), SAGE Publications, Thousand Oaks, CA, 2004, pp. 178-218., GLOBE grouped the Middle Eastern countries such as Kuwait and Qatar, Morocco, etc. together based on their common background in Islamic moral and legal code and the Arabic language and geographic features such as desert terrain. This was verified by using discriminant analysis (pp. 189-192). We believe on this basis that Kuwait or Qatar because of their geographic proximity and similar culture are good proxies for Saudi Arabia.

⁴ Greece is the only country in the “D” band at 3.25.

Thus the selected countries meet our requirements for manipulation of the collectivisms variables. They fall into both the higher and lower bands of Institutional Collectivism. Germany falls into the statistically lower middle portion of this range. The USA, Saudi Arabia and the black population of South Africa are in the upper middle portion and China and the white South African culture are in the highest range. In terms of In-Group Collectivism, China and Saudi Arabia have the highest levels, the South African cultures are in the middle range and the U.S. and Germany in are in the lowest band.

EXPERIMENTAL METHODOLOGY

The study will be administered to the subjects as a voluntary activity in their classrooms. The various co-authors in the subject countries will administer the survey instrument. Students will be instructed to read the scenario presented to them and then answer the questions in the questionnaire.

Scenario

In order to independently manipulate role prescription and bad news reporter credibility, four different treatment scenarios were used as developed in Cuellar, Keil and Johnson (2007). Subjects are asked to assume the role of a project manager responsible for development of a new system for a bank and are informed that while they do not have the technical knowledge to evaluate the quality of the system themselves, they have learned that their team is a reliable source of information about the project status. The team reports that the project is ready for implementation. A bad news reporter from outside the team reviews the project and then reports to the project manager that the project is a “disaster waiting to happen” and must be completely retested. The organizational climate is described as one that values meeting deadlines above other considerations.

In the high credibility manipulation, the bad news reporter is described as trustworthy and has expertise; in the low credibility manipulation, the bad news reporter is described as untrustworthy and lacking expertise. In the high role prescription manipulation, the bad news reporter is described as an internal auditor whose job is to routinely audit IS projects and report on project readiness. In the low role prescription manipulation, the bad news reporter is described as another project leader whose job does not include routinely auditing projects and who volunteers, unasked, to review the project.

Constructs

Table 2 lists the constructs that we will be evaluating in this model and how they are measured in this study. All non-cultural value constructs are identical to those used in Cuellar, Keil and Johnson (2007). The cultural values constructs and measurements are taken from the GLOBE Form Beta (societal practices scale) (GLOBE 2006b).

Table 2: Construct Categorization and Measurement Methodology

Construct	Type	How Measured
Decision to Continue Current Course of Action	Dependent Variable	1 - 8 point semantic differential scale item.
Perceived Relevance of the Bad News Reporter’s Message	Endogenous Independent	4 - 7 point likert scale items
Credibility of the Bad News Reporter	Exogenous Independent	5 - 7 point likert scale items
Role Prescription of the Bad News Reporter	Exogenous Independent	1 - 7 point likert scale item
Institutional Collectivism of the Ambient Society	Exogenous Independent	2 - 7 point likert scale items 2 - 7 point semantic differential scale items
In-Group Collectivism of the Ambient Society	Exogenous Independent	4 - 7 point likert scale items

In addition to the studied cultural values constructs of Institutional Collectivism and In-Group Collectivism, the constructs of power distance, uncertainty avoidance, future orientation and performance orientation are entered as control variables on the decision to continue the current course of action.

Reflective/Formative Determination.

All of the scale items used in this analysis have been historically considered to be reflective constructs. Petter, Straub and Rai (2007) have drawn new attention to formative constructs, showing that misspecification of formative constructs may in some cases, cause type I or II errors to occur. Therefore in this analysis, we will first review the nature of the constructs as reflective or formative and then create the measurement model accordingly.

Petter, Straub and Rai’s (2007) Table 3 provides a set of decision rules for evaluation of the constructs. They describe four rules for evaluation of constructs to determine whether they are formative or reflexive. First, direction of causality or reflective measures, mirror the construct and therefore causality flows from the construct to the measure. For formative constructs, the causality is in the opposite direction. The items cause the creation of the construct. Second, measurement interchangeability asks whether the items are interchangeable with each other. For reflective measures, the items should be interchangeable with each other and elimination of one item does not affect the determination of the construct. For formative constructs on the other hand, the measures are not necessarily interchangeable as they cause formation of the construct, therefore they cannot be removed without damaging the measurement of the construct. Third, measure covariance asks whether the measures statistically co-vary with each other. In reflective constructs, the items must co-vary with each other. In formative constructs however since they measure different parts of the construct, the items will not necessarily co-vary with each other. In fact, some items might vary in opposite directions as they are countervailing forces on the construct. Finally, they ask whether the items have the same antecedents and consequences. Do the same causal factors motivate the answers to the items or are they different? Items for reflective constructs, since they reflect the same value, will have the same antecedents. Items for formative constructs will have different antecedents and consequences.

In the following table, we summarize the results of our assessment of the constructs. We did not include decision or role prescription in the table, as they are single measure constructs. In the previous usage of these measures, those studies all reported the constructs to have high item covariance (Cuellar et al. 2006; Hanges et al. 2004). Since we determined that the constructs are formative or mixed, we will establish formative construct processing within Partial Least Squares (PLS) by using the measure to construct connections instead of the Construct to Measure connections.

Table 3: Categorization of Constructs as Formative or Reflective

Construct	Direction of Causality	Measure interchangeability	Measure covariance	Nomological Net	Construct Type
Relevance	Mixed (three formative, one reflective)	Two are interchangeable, the rest not.	High	Different Antecedents	Mixed Formative / Reflective
Credibility	Mixed (three reflective, two formative)	Not interchangeable, measure different aspects of the construct	High	Different Antecedents	Multi-Dimensional Formative
Institutional Collectivism	Measure to Construct	Not interchangeable, measure different aspects of the construct	High	Different Antecedents	Formative
In-Group Collectivism	Measure to Construct	Not interchangeable, measure different aspects of the construct	High	Different Antecedents	Formative

Analysis Methodology

Surveys will be taken on paper and then analyzed using SPSS for descriptive statistics and manipulation checks. SmartPLS (Ringle et al. 2005) will be used to assess both the measurement model and the structural model.

We will follow Ford, Connelly and Meister (2003) in the handling of the cultural values. They make the following five points about how cultural variables should be handled:

- 1) Value variables should have a theoretic reason for being incorporated into the study.

In our study, we have shown how the value of Institutional Collectivism is theoretically projected to influence the deaf effect.

- 2) The dimensions of the framework should be used for the purposes for which they are intended.

The GLOBE framework was developed and operationalized at the societal and organizational level. It was not intended for use at the individual level and has not been validated for such use. Therefore, we will use the GLOBE measures as prescribed, aggregating the items to create average readings for Institutional Collectivism for each country subsample and then entering those values for each subject in that subsample. Thus each observation within a culture will have the same value for Institutional Collectivism. These variables will be used to measure the effect of the societal culture on the subject's decision processes.

- 3) Cultural values must be measured within the study

Ford et al. and other articles (2003; Martinsons et al. 2003; McCoy et al. 2005) indicate that there may have been shifts in the cultural values of some countries from those originally gathered by Hofstede or GLOBE. It is therefore inappropriate simply to use values from prior studies and assume that they apply to our sample. We therefore will measure the cultural values for our samples in the course of this study.

- 4) When selecting the sample for the study, an effort should be made to select populations expected to differ on the cultural variables under study.

As described above, we have selected geographies likely to have subject populations with societal values which will have high, low and moderate levels of Institutional and In-Group Collectivism.

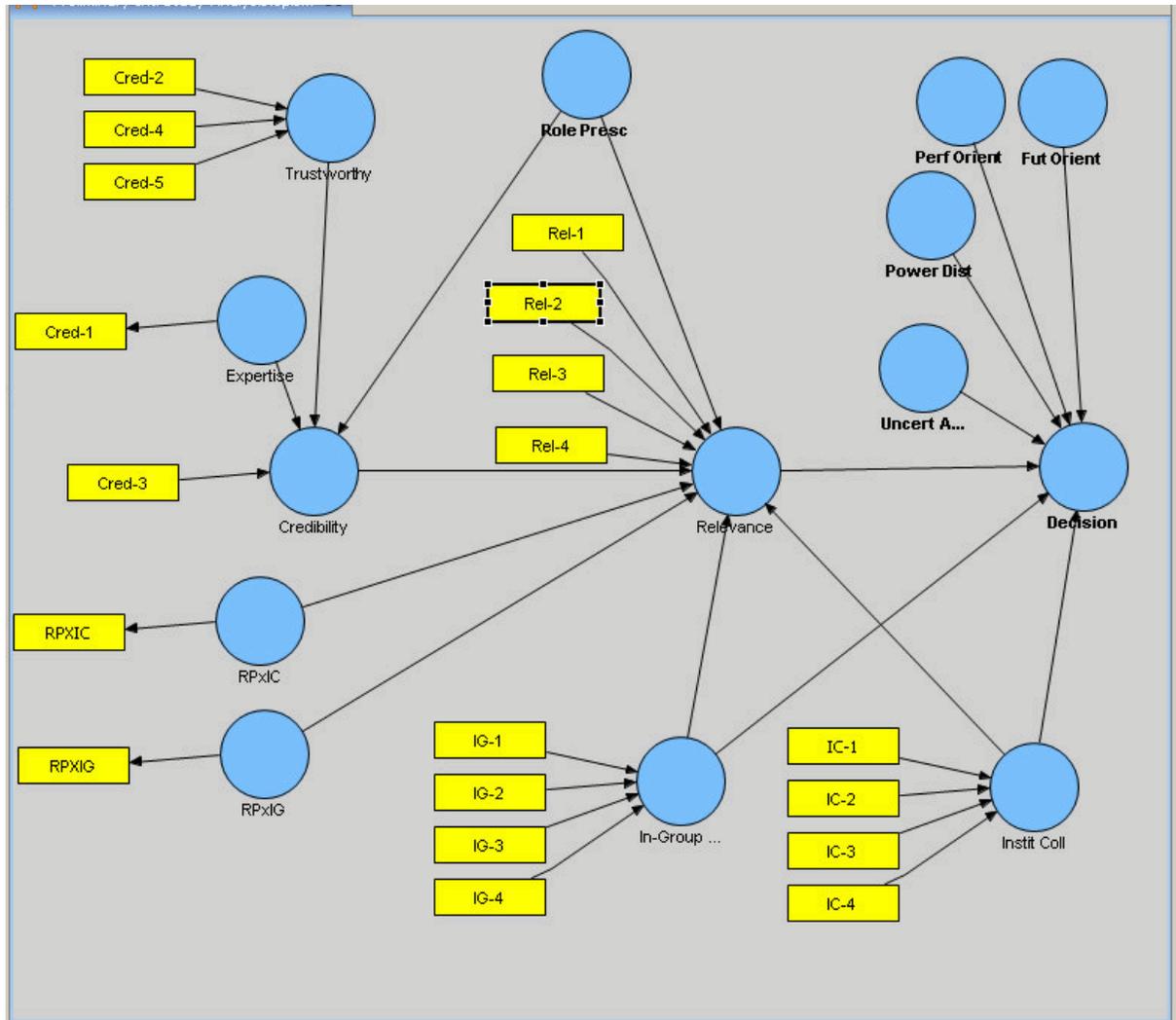
- 5) Use the cultural values measures as independent variables, moderating variables or control variables within the study.

Ford et al. (2003) argue that instead of collecting subject groups with differing cultural values for the purpose of comparing the results between groups, they should be measured and included in the structural model, if not as independent variables, at least as control variables. Therefore in this study, we will collect measurements on Institutional and In-Group Collectivism and include them in the structural model. Other cultural values will be entered into the model as control variables on the decision.

Use of PLS.

SmartPLS (Ringle et al. 2005) will be used to assess the measurement and the structural model. PLS is appropriate where the model is in a domain where theory is weak or non-existent (Petter et al. 2007). The constructs described above are modeled in the PLS model with modifications as described below. The structural / measurement model to be used to test the hypotheses is shown in Figure 5:

Figure 5: Proposed Structural /Measurement Model to be Tested



In using SmartPLS, the software only allows a construct to be created of all formative or all reflective constructs. Therefore, in constructing the PLS models, we represent the mixed reflective / formative constructs as formative. Thus in the credibility construct, while the Cred - 3 item reflects credibility, it is represented in the PLS model as formative. Similarly for Cred – 5 on the Trustworthy sub construct, and Rel – 4 on the relevance construct.

We will use the following process in analyzing the data received. We first examine the data to ensure that the measurements do not show evidence of cultural response bias and then assess the construct validity checking for both convergent and divergent validity as well as uni-dimensionality. Having verified a good measurement model, we compute the national culture values following a version of the GLOBE methodology modified for the formative nature of the constructs. Then we check to ensure that the desired manipulations did in fact occur and then compute the interaction terms and evaluate the structural model.

Cultural Response Bias.

Different cultures can exhibit method bias in how they respond to the survey instrument. To check for and remove any method bias from this source, received data from the different geographies will be checked for cultural response bias and corrected as described in Hanges (Hanges 2004). Each response item’s mean and standard deviation will be computed across all items. Then, item responses will be corrected by subtracting this average response from all of the actual item responses and dividing this by the standard deviation computed. Regression analysis will then used to rescore these corrected scores back to the original 7-point scales. Since there is only a single predictor, this results in an isomorphic transformation. Studentized residuals will be computed to determine outliers. A value greater than two will be considered as a potential outlier. When a potential outlier is identified, we will interview those responsible for data collection to investigate if

pervasive response bias has been received. Data will be retained in the sample unless there is an indication of pervasive response bias (Hanges 2004).

Construct Validity Checks.

While these constructs have been validated before in other studies, that was under the assumption that the constructs were reflective. Since in this study, we recognize that they are formative, we must do additional analysis to verify that they have construct validity. This is traditionally done for reflective constructs via exploratory factor analysis and Cronbach's Alpha. However it has been recently demonstrated that this may miss substantial non-common variance if the items are associated with more than one latent variable (Gefen 2003). Gefen recommends that a confirmatory factor analysis such as that done in LISREL. PLS performs such an analysis as well.

Since they are formative constructs, in addition to confirmatory factor analysis, we will also examine the item weightings to determine if all the items are significant in the formation of the constructs. Items that are found to be non-significant in the formation of the construct will be dropped unless they are needed to preserve content validity (Petter et al. 2007). We will also examine multi-collinearity between the items by using SPSS to calculate the VIF. Multi-collinearity is an issue with formative constructs. It suggests that multiple indicators are measuring the same aspect and thus overweighting the measurement of that part of the construct. If the VIF is greater than 3.3, this indicates a serious multi-collinearity situation. Options for dealing with multi-collinear items include removing the items if content validity is not violated; converting to a multi-dimensional construct; and collapsing correlated items into a composite index (Petter et al. 2007).

National Culture Value Computation.

The GLOBE prescribed method for computing the values of the cultural values structures is by calculating the mean value of all responses to the items associated with each construct (GLOBE 2006a). However, this procedure assumes that the items are reflective of the construct. We have suggested above that they are formative. Given that designation, the items are additive to form the construct and therefore we must determine how much weight to apply to the construct in order to correctly compute the latent construct value. To do this, we will compute the outer item weightings in PLS. We will then average the sum of the responses from a geography for each item and then multiply it by the weighting factor before adding the items together to create the latent construct value. These values will then be entered as the national values for each individual respondent from a culture.

Manipulation Checks.

Manipulation checks will be performed to verify that the manipulations of role prescription and credibility were effective. T-tests will be performed across the quadrants formed by the 2x2 manipulation of credibility and role prescription to ensure that a significant difference exists across the manipulations. We will also compute the collectivism cultural values for each culture and perform T-tests to ensure that they are statistically different to ensure that we have the appropriate cultural variability across the samples. We will also examine the variation of the decision variable across the quadrants to ensure that in at least one quadrant the deaf effect occurred (decision greater than four) while in other quadrants, the deaf effect did not occur (decision less than four).

Interaction Effects.

Since we hypothesize that role prescription will have a moderating influence on the effect of the collectivism variables on relevance, to evaluate this effect we will use the traditional methodology described by Baron and Kenny (1986) and Cohen, Cohen, West and Aiken (2003) in which the variables are centered and then multiplied to create the moderator variable.

Analysis of the Structural Model.

We will analyze the structural model in SmartPLS by performing both a PLS analysis and a Bootstrapping analysis. The PLS analysis will provide the R^2 values and the path coefficients. While previous studies (Cuellar et al. 2006; Cuellar et al. 2007) have found an r^2 value for the decision variable around 0.6 that was using reflective constructs. We will be looking for a value greater than 0.26 which indicates a high level of variance explained in the decision and relevance variables (Cohen et al. 2003). Additionally, we will examine look for significant path coefficients that will confirm the various hypotheses proposed in this study.

EXPECTED CONTRIBUTIONS

The contributions of this research will be to extend the deaf effect model to include the effects of Institutional Collectivism; to provide empirical evidence on how the GLOBE consortium framework of cultural values performs in an IS laboratory experiment environment; and to provide an empirical example of the use of the Ford et al. methodology for using cultural frameworks in empirical research.

CONCLUSION

At this point, data collection has been completed in all geographies but Saudi Arabia. Data from the USA, South Africa, China and Germany has been coded. We are now beginning to analyze the data.

At the time of presentation, we will be able to present the preliminary findings of our study. We will discuss how the cultural values of In-Group and Institutional Collectivism affect the occurrence of the deaf effect We will also report on how the GLOBE cultural values framework can be used in IS cross-cultural research.

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