UNDERSTANDING IS EDUCATION QUALITY IN DEVELOPING COUNTRIES: ROLE OF ACCULTURATION

Research-in-Progress

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Abstract

Many developing countries (DCs) have limited IS human resources. Hence, their university-level IS classes are often taught by foreign faculty. Despite this arrangement, poor quality of IS education in DCs is a continuing problem. Research indicates cultural differences as an important reason for this problem. Foreign faculty imposing western-curriculum and teaching practices without adapting to the requirements of native students and native students inability/unwillingness to make the necessary adjustments leads to poor course quality. Therefore, we argue that cultural adaptation of foreign faculty and native students will improve IS course quality. Drawing from the acculturation literature that deals with cultural adaptations we develop a model of acculturation specific to teaching of IS courses by foreign faculty in DCs. In doing so, relevant factors from the IS education literature that influence faculty and students' adaptation are synthesized. This paper extends acculturation theory and discusses relevant implications for IS education in DCs.

Keywords: IS education quality, developing countries, acculturation, culture
Introduction

Developing countries often rely on foreign sources for technology and knowledge to meet their Information Systems (IS) education needs. Often the IS classrooms of developing countries are manned by faculty from more developed countries (Lynch and Szorenyi 2005). Therefore, it is pertinent to examine the impact of cultural adaptation of foreign faculty and native students on IS course quality.

This research develops a framework for understanding the impact of cultural differences and adaptations on IS education quality in developing countries. Specifically it examines the impact of student and faculty related acculturation factors on IS course quality in developing countries. In doing so, it draws from the acculturation literature that examines how members of differing cultural groups coexist, interact and adapt. Acculturation studies related to education have predominately focused on the challenges that arise when a foreign student joins a classroom dominated by students from a different culture. This research addresses two major gaps in the literature: (i) it examines situations where foreign faculty are teaching native students and (ii) it specifically explores teaching of a foreign and potentially culturally undervalued subject, i.e. IS.

The proposed framework provides a lens to examine the cultural issues in foreigners imparting IS education in developing countries. The current research contributes to theory building by developing a modified view of acculturation. This answers Walsham et al’s (2007) call for increased use of critical theory to explain IS phenomena in developing countries and a more general call for increased research on IS in developing countries (Heeks 2002). To date, the acculturation literature focuses on the cultural issues affecting groups as they are integrated into a new culture. This research will instead focus on the effects of integrating a foreign subject (faculty) into the native culture (students in developing countries). This research also recommends theoretically grounded strategies to overcome the identified problems. Furthermore, the existing shortage of skilled human resources for IT staffs in developing countries (Dada 2006; Molla and Licker 2006) should dissipate as the developing countries' education systems begin to produce well-trained IS graduates.

The rest of the paper is organized as follows. First, the literature pertaining to problems in imparting IS education in developing countries is discussed. This is followed by a review of the theories of acculturation. Second, an extended model of acculturation that captures the unique characteristics of the context of this study, i.e., foreign faculty imparting IS education in developing countries is developed. Third, the proposed methodology for constructing and evaluating the survey instrument is presented along with an outline of the proposed data collection and analysis process. Finally, implications for research and practice are discussed along with areas of future research and limitations.

Literature Review

Though there are many reasons cited for why IS implementations fail in developing countries, a preponderance of the literature cites a lack of skilled human IT resources as a common cause (Adams and Wood 1999; Backus 2001; Basu 2004; Pradhan 2002). Due to limited human IT resources, IT departments of firms in developing countries often find it difficult to maintain adequate technical staff (Chen et al 2006; Khan et al 2010) and are limited in their ability to outsource support (Chen et al, 2006). Development of human capital (Khan et al 2010; Ndou 2004) through better education (Krishna and Walsham 2005; Ndou 2004) along with an increase in governmental educational programs (Khan et al 2010) are called for in the literature. The literature indicates that limited IT education in developing countries is a contributor to the lack of skilled IT resources (Dada 2006; Molla and Licker 2005; Ndou 2004). Also, an overall lack of relevant professional training and substandard teaching quality (Kundi and ¹ This research adopts the definitions for developed, developing, and underdeveloped countries by a combination of purchasing power parity and capita as described by Yoon and Chae (2009): developed countries (Purchasing Power Parity / Capita > $20,000 US), developing countries (Purchasing Power Parity / Capita > $10,000 US), and underdeveloped countries (Purchasing Power Parity / Capita < $10,000 US).
Shah 2009) are frequently cited problems relating to IS education in developing countries (Basu, 2004; Pick and Azari 2007). Research points to both IT-specific and cultural reasons for the lack of quality education (Dadzie 2007; Ein-Dor et al 1997).

Unfortunately, there is no systematic, theoretical exploration in the IS literature to explain the cultural issues faced by students in IS classes taught by foreign educators in developing countries. However, the role of culture in education and other contexts has been examined in depth outside of the IS literature. Psychologists, such as John W. Berry, have researched the effects of culture through the process of acculturation. Studies have demonstrated a positive association between acculturation and educational success (Miller and Kerlow-Myers 2009). The current research draws from Berry’s psychological model of acculturation (Berry and Sam 1980) to develop an extended model of acculturation that is appropriate to examine the effect of cultural adaptation by foreign faculty and native students on IS education quality in developing countries.

Though culture has been examined in the context of education, it is important to examine it specifically in the context of IS education due to the following reasons:

1. Since IS is a relatively new department/area of knowledge, there is limited human resource with relevant IS knowledge base in developing countries. This often results in hiring foreign faculty and implementing foreign curriculums.

2. Cultures in developing countries do not always recognize or appreciate the benefits offered by IS and therefore IS is often not considered a critical or important field worth studying.

3. Until developing countries are able to produce educated IS professionals, reliance on foreign workers will continue.

In the next two subsections, we document the problems pertaining to IS education in developing countries and the relevant literature on acculturation.

**IS Education in Developing Countries**

Advances and uses of IS are growing more rapidly than IS education in developing countries (Lee 2001). Shakya and Rauniar (2002) note many improvements in IS education in Nepal, including the opening of new universities and the ability to offer a wider range of IS courses. The low cost and availability of secondary and tertiary IS education in Israel, New Zealand, and Singapore is recognized by Ein-Dor et al (1997) as part of the successes of IS in those countries. While growth in education in developing countries is improving, there is still a gap in secondary and tertiary education which is where core IS topics are covered (Lee 2001). Ward concludes in his research that universities in Nepal are far from accreditation due to the lack of research being conducted within the schools (2010).

Issues affecting IS education in developing countries are primarily found embedded in research as an explanation of the problems encountered with IS use in developing countries (see Adam and Wood 1999; Backus 2001; Basu 2004; Dada 2006; Ein-Dor et al 1997; Krishna and Walsham 2005; Lowell and Findlay 2001; Molla and Licker 2005; Sarala 2010). Issues include a lack of qualified faculty (Lowell and Findlay 2001), an overall lack of infrastructure (Shakya and Rauniar 2002), and differences in methods of learning (Ward 2010). Few studies have focused on the specific issue of IS education (see Lynch and Szorenyi 2005; Shakya and Rauniar 2002; Ward 2010).

Lynch and Szorenyi (2005) conducted a qualitative study in Fiji in which they identified several cultural issues related to IS education including (i) lack of educational material in the students’ native language; (ii) teaching based on Western curriculum; (iii) teaching methods that ignore the cognitive styles of the local students; and (iv) handling students without prerequisite IS knowledge. Such issues can be better explained when examined through the lens of acculturation. Acculturation studies the interactions between persons of differing cultures and the changes caused by such interactions. Theories of acculturation provide a rich foundation for examining in depth the cultural issues impeding the success of IS education in developing countries.
Acculturation

Acculturation is defined as “comprehending those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups” (Redfield et al 1936, pp. 149). Despite being the most widely used definition of acculturation in psychology, disagreement with the use of this definition for the study of acculturation persists. Reasons for the disagreement include (i) ambiguity about the outcome referred to as “phenomena” (ii) the focus implicitly being on the study of the culture of the group (Chirkov 2009b) rather than the individual (Rudmin 2009). Consequently, there have been efforts to better define acculturation. For example, Simpson and Weiner (1989) propose the definition from the Oxford English Dictionary: “adoption and assimilation of an alien culture” (as cited by Rudmin 2009) while Chirkov defines individual acculturation as “a process that is executed by an agentic individual (it is not a process that happens to an individual) after meeting and entering a cultural community that is different from the cultural community where he or she was initially socialized” (emphasis in original, 2009a). Berry’s model of acculturation (Berry 1979, Berry and Sam 1980; Sam 2006), developed from his works dating back to 1969 (Berry 1969) focuses on both the group level and individual level of acculturation. Such a formulation is in line with the original conceptualization of acculturation according to Redfield et al (1936) (Berry and Sam 1980). This study adopts Redfield et al (1936)’s definition of acculturation and extends Berry’s model of acculturation to the context of IS education in developing countries. For a detailed explanation of the alignment between Berry (Berry and Sam 1980)’s model of acculturation and Redfield et al (1936)’s definition of acculturation and the limitations of other definitions of acculturation refer to Sam (2006).

Acculturation has been studied in different contexts such as health care (see Chun et al 2011; Lopez-Class et al 2011), emotions (see Beirens and Fontaine 2011; Perez Rivera and Dunsmore 2011), and job satisfaction (see Ea et al 2008; Naumann 1993) as well as with different subjects such as second generation immigrants (see Gans 1992; Portes and Zhou 1993), expatriates (see Atiyyah 1996; Mendenhall and Oddou 1985), and those affected by natural disaster (see Dudasik 2007; Prewitt Diaz 1999). Herskovits (1937, pp. 262) also noted the implications to acculturation caused by the introduction of new technologies, “problems of this order, as well as numerous others, can be studied most profitably where cultures are in a state of flux due to the shock of contact with new bodies of technology, belief, and traditional behavior.” However, the models of acculturation have not examined the effect of integrating a foreign subject (faculty) with a native group (students in developing countries). Therefore, this research is not only exploring acculturation in a new context but is also extending the acculturation theory.

Much of the modern study of acculturation in psychology has been based on the work of Berry (Berry 1979; Berry and Sam 1980). Berry’s acculturation model (Berry and Sam 1980) defines four types of acculturation strategies: integration, assimilation, separation, and marginalization. Integration is a blending of the native culture and the new culture. Assimilation is achieved when the native culture is replaced completely by the new culture. Separation occurs when the native culture is maintained and there is no association with the new culture. Marginalization describes the case when neither of the cultures is observed and there is a lack of interaction between the groups. The framework constructed by Berry looks at the effects of group level constructs on individual level variables and their effect on the individual’s adaptation. Group level constructs are society of origin, group acculturation, and the society of settlement. The individual level variables are factors existing prior to acculturation, psychological acculturation (behavioral shifts, acculturative stress, and psychopathology), and factors arising during acculturation. The adaptation constructs are psychological and sociocultural (Berry and Sam 1980).

The effects of acculturation on education have been studied for years. George Spindler’s work (1955), which included the works of Brameld (1955) and Henry (1955), helped pave the way for the anthropological study of acculturation and education (McDermott 2008). Current research focuses on the psychological vice anthropological view of acculturation and education. Hurtado-Ortiz and Gauvain found a correlation between acculturation and college attendance in Mexican-American youths (2007). Mexican-American youths were also studied by Flores et al (2006) in which acculturation was linked to the setting of higher educational goals by the study subjects. Cano and Castillo (2010) found that marginalization in Latina college students increased their levels of stress. In their study, Miranda and Whelan (2006) found that (i) time in the US, (ii) age when migrated, and (iii) perceived prejudices all impacted whether or not foreign students passed ESL courses in secondary education.
Model of Acculturation and IS Education Quality in Developing Countries

In the current research, generic constructs of the acculturation theory are further developed to specifically explain the impact of differing cultural perceptions on IS education quality in developing countries. From the acculturation perspective, the current research focuses on the individual-level variables identified by Berry (Berry and Sam 1980) and not on the group-level variables. Specifically, the research explores factors existing prior to acculturation and factors arising during acculturation, the resulting adaptations by faculty and students and the impact of such adaptations on IS course quality.

Bidirectional acculturation factors are used to calculate acculturation indexes which are necessary for quantitative measures as opposed to using the four named strategies which could be used qualitatively.
Constructs

Course Quality

Course quality is defined as “good teaching, clear goals, appropriate workload, appropriate assessment and generic skills” (McInnis et al 2001, pp.3). This definition was developed for the measurement of “the quality of teaching and learning and the development of generic skills” as outlined in the Course Experience Questionnaire (McInnis et al 2001, pp. 2). This research argues that superior course quality is a result of efforts from both faculty and students. Therefore, faculty and students related acculturation factors need to be examined to understand how to improve course quality.

Adaptation

Adaptation refers to long-term changes to a person’s life based on acculturation (Berry 2006). Adaptation can be positive or negative (Berry 2006). In this research, adaptation refers to the favorable or unfavorable changes made by faculty and students as a result of mediating factors prior to acculturation as well as the mediating factors arising during acculturation. Vedder and Horenczyk (2006) show in their research that positive adaptation by both students and faculty results in better education.

H1: Student adaptation is positively related to course quality.
H2: Faculty adaptation is positively related to course quality.

Factors Existing Prior to Acculturation

Exposure to IS

Exposure to IS refers to the extent to which IS permeates individuals’ personal and professional lives. The higher the exposure, the higher the chances of students making favorable adaptations required for learning IS. Further, faculty’s perception about student’s exposure to IS will influence faculty’s adaptation.

H3: Student exposure to IS is positively related to student adaptation.
H4: Faculty’s perception of students’ exposure to IS is positively related to faculty adaptation.

IS Education

In this research, IS education refers to the degree and type of IS education that an individual has received in the past. According to Lynch and Szorenyi (2005) students entering tertiary education in Fiji were not prepared for the IS courses due to the education they had received at the primary and secondary levels. That is, lack of prior IS education influenced the students’ ability to adapt to the requirements of the IS curriculum. Further, we argue that faculty’s perception about students’ IS education background will influence the faculty’s ability to adapt. Therefore, this paper posits the following.

H5: Student IS education is positively related to student adaptation.
H6: Faculty’s perception of students’ IS education is positively related to faculty adaptation.

Cultural Perception of IS

Cultural perception of IS indicates the overall feeling within the culture as to the importance of IS. A lack of appreciation for the perceived benefits of IS limits the availability of IS resources to the public (Lynch and Szorenyi 2005). IS can also be seen culturally as a having a negative impact, as in Nepal where the ability to share information electronically would force a complete cultural shift in office operations and how employees gain favor and advance (Pradhan 2002). Therefore, this study argues that favorable cultural perceptions of IS will result in students having greater exposure to IS. Further, unfavorable cultural perceptions about IS such as IS jobs being a women’s job and overall lack of adequate IS jobs (Lynch and Szorenyi 2005) makes IS education less desirable. Therefore,

H7: Students’ cultural perception of IS is positively related to student IS exposure.
H₈: Students’ cultural perceptions of IS is positively related to student IS education. Also, faculty’s perception of the native country’s cultural perceptions about IS will influence their adaptation.

H₉: Faculty’s perception of students’ cultural perception of IS is positively related to faculty’s adaptation.

**Factors Arising During Acculturation**

**Intercultural Sensitivity**

Intercultural Sensitivity (IcS) is the extent to which a person is aware of cultural differences (i.e., worldview) and the how those views are interpreted, and their subsequent responses and behavioral shifts (DeJaeghere and Cao 2009). This paper argues that an individual who is aware of the cultural differences is more likely to adapt to the requirements of the situation than one who is not aware of such differences. Therefore,

H₁₀: IcS of the student is positively related to student adaptation.

H₁₁: IcS of the faculty is positively related to faculty adaptation.

**Cultural Support**

Cultural Support is the availability of native personnel to assist foreign faculty in understanding and navigating the local culture. Marx and Moss (2011) indicate in their research that local cultural support helps with understanding the rationale behind what is acceptable and expected in other cultures and is import in being able to not judge as good or bad the actions of people in a different culture. Availability of such support is hypothesized to help faculty adapt to the requirements of the situation.

H₁₂: Cultural support is positively related to faculty adaptation.

**Appreciation of IS**

Appreciation of IS is the recognition by the student that IS is a vehicle to better employment opportunities and leads to a better quality of life. Therefore, this paper posits that students who have a higher appreciation of IS are more likely to adapt since such an adaptation will help them complete the course successfully and learn IS and hence become more employable. Therefore,

H₁₃: Appreciation of IS is positively related to student adaptation.

**Proposed Methodology**

The hypotheses will be tested using a survey instrument. The survey will be administered to the foreign faculty and students of universities in Sub-Saharan Africa. Hofstede (1980) identifies country clusters based on similar cultures and histories as well as cites a number of other researchers who have clustered countries (Cattell 1950; Russett 1968; Rummel 1972). More recently Gupta et al identified ten cultural clusters including a Sub-Saharan Africa cluster (2002). Focusing on a single cultural cluster eliminates cross-cultural implications (Hofstede 1991).

Hofstede identifies cultural bias as a danger when conducting cultural-based research; specifically, that researchers tend to evaluate what is important in their native culture and not what is important in the subject culture (1991). To avoid the pitfall identified in Hofstede’s warning, culturally-specific portions of the survey instrument will be developed with the assistance of native experts in the respective cultures. Course Quality and Adaptation (both Faculty and Student) are deemed culturally-specific and therefore subject to special cultural considerations as outlined below.

There is not a universally accepted method for evaluating course quality; however, common practice in the United States is to conduct student evaluations (Marsh, 1984; Simione et al 2008). Frey (1981), Hildebrand et al (1971), Marsh (1982), and Warrington (1973) developed student evaluation instruments that are currently used. Each instrument has been the subject of criticisms (see Marsh 1984 for list of reviews), but are considered acceptable within the United States. Additional criticism comes from outside
the United States where cultural differences impact the instruments’ validity (Al-Issa and Sulieman 2007; Bail and Mina 1981; Watkins 1994).

To mitigate the cultural concerns, the measure of course quality must be generated based on culturally-significant factors with Sub-Saharan Africa. To achieve this, a consolidated list of the measure stated above will be compiled and reviewed by a focus group from the subject culture. Using short-listing methodologies similar to that outlined by Wang (2010), a culturally-compliant set of measures will be created prior to distribution of the actual instrument.

Bosher (1998, pp. 3) conducted research to study “the relationships among acculturation, ethnicity, second language acquisition, self-esteem, and academic success” using a bidirectional instrument. By using bidirectional effects, Bosher was able to compute two acculturation scores for each subject using response means, an index value for the dominant culture, and an index value for the minority culture. Bosher then calculated an overall acculturation index by subtracting the minority index from the dominant index. These values were then used to determine an individual’s acculturation strategy (integration, assimilation, separation, or marginalization). This methodology is supported by Arends-Tóth and van de Vijver (2006). Bosher’s methodology serves as the model for this study. The overall acculturation index provides a quantitative measure that can be used in the PLS analysis of the model.

Instrument validation will be performed using the guidelines established by Straub (1989). Pretests will be conducted and validated via the methods outlined by Straub. The pretests must include faculty members that either are teaching, or have taught, in developing countries. A group of current students or former students from developing countries is also required. Ideally, the membership of the pretest group will represent the planned research culture. Technical validation of the constructs will follow both Straub’s methods as well as those of Sethi and King (1991) while technical validation of reliability will again follow Straub. To support validity, reuse of acculturation and education instruments will be used to the greatest extent possible. The instrument will then be pilot-tested for reliability and construct validity in accordance with Straub. The pilot test will also be conducted in each of the planned research culture to ensure that cultural-bias is controlled appropriately.

As the current research extends the existing acculturation theory while incorporating it into IS theory, partial least squares (PLS) is used to analyze the survey results. As Gefen et al (2000) note, PLS is appropriate in theory building as a precursor to more advanced structured equation modeling (SEM) techniques.

Implications, Areas of Future Research and Limitations

This study has important implications for research and practice. Prior research on the role of culture in IS education in developing countries has been predominantly atheoretical. This study provides a theoretical framework to examine and understand the role of cultural adaptation by faculty and students on IS education quality in developing countries. It extends the acculturation theory by adapting it to a context where a foreign individual is integrated with a native group. Also the theory has been detailed to specifically address the issues pertaining to IS education in developing countries. This leads to development of IS discipline-specific theory which can be further developed and tested by IS researchers. The proposed model can provide a better understanding of cultural issues pertaining to IS education in not only developing countries but in any context where there is first hand contact between differing cultural groups. Further, this study has integrated various cultural issues affecting the quality of IS education in developing countries using a grounded theory approach. Future research must further extend and test this theory to provide a more holistic understanding IS education quality in developing countries. Furthermore, this theory can be extended to other IS contexts such as outsourcing where cultural adaptation of vendors and clients (groups with first-hand contact) can determine the success of the outsourcing relationship.

The proposed model has potential implications for faculty, students, school administrators and policy makers in developing countries. It highlights the need for foreign faculty teaching in developing countries to recognize the (i) existence of cultural differences (ii) need for cultural adaptation and (iii) need for inculcating an appreciation for IS among the students. It also indicates the need for cultural sensitivity from students which can be developed via informal meetings with foreign faculty. School administrators
need to recognize the importance of cultural adaptations given their reliance on foreign faculty. They need to arrange for providing cultural support to foreign faculty and encourage cultural sensitivity. Policy makers in developing countries need to recognize that cultural perceptions about IS has an influence on the availability of IS to the people which in turn influences their exposure to IS. Research has shown the importance of IS exposure to the ultimate success of IS education.

The primary limitation of this study is generalizability of the instrument. As this study attempts to create a culturally relevant instrument in the researched culture, the instrument will have limited applicability in other cultures. However, this is essential to have a true understanding of the issues facing particular groups. The cross-sectional aspect of this study is a second limitation. The study looks specifically at course quality, and does not look at program quality or attempt to measure an increase in the availability of knowledgeable IS professionals or any improvements in the performance of IS staffs in developing countries. This research also acknowledges the existence of cultural differences within developing countries and hence the generalizability of the empirical findings. However, the broader framework presented in this research should be applicable across developing countries. Further research is required to address these areas.

Conclusion

This study is just a first step towards a theoretical understanding of the role of cultural adaption in improving IS education quality. Specifically, it explores the impact of student (native) and faculty (foreign) related acculturation factors on IS course quality in developing countries. This study calls upon several empirical investigations of the proposed theory in different cultural settings.

References


Chirkov, V. 2009a. “Critical psychology of acculturation: What do we study and how do we study it, when we investigate acculturation,” International Journal of Intercultural Relations (33), pp. 94-105.


