

Case Study:

Research Challenges in Cross-cultural International Business Management: The Issue of Cultural Construct Equivalency

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Abstract

As business becomes more global in nature, management researchers are increasingly interested in conducting cross-cultural research. Although cross-cultural management research has provided us with an understanding of management practice in various cultures, the nature of the research presents researchers with numerous challenges. One such challenge is the issue of cultural construct equivalency. Cultural construct equivalency concerns the validity of measures across cultures. Oftentimes, construct equivalency is assumed to exist in the measures used. This paper presents initial research data from the EWORLD Project, an international entrepreneurship research project. The data are used to demonstrate the construct equivalency problem and to show that methods commonly employed by researchers do not necessarily solve the problem.

Keywords: International business, Cross-cultural research, Entrepreneurship.

Introduction

Cross-cultural management research presents numerous challenges and difficulties. One of these challenges is the issue of cultural construct equivalency. Constructs are mental categories or models that represent phenomenon and help us explain the things that we experience. Constructs are psychological in nature and individuals develop constructs, schemas and schema prototypes for all objects, entities and issues of which they are cognizant. The management and organizational sciences are complete with constructs of interest to researchers that represent or help explain behavior in work organizations. International management research has often focused on cultural constructs such as those identified by Hofstede^{7,8} and later used by House, Hanges, Javidan, Dorfman and Gupta⁹. Hofstede^{7,8} identified the cultural constructs of individualism, power distance, risk tolerance, masculinity and long-term orientation that have been used as a model to examine cultures. House et al⁹ have used these constructs and others to investigate the construct of leadership in a cross-cultural context. Other constructs of interest to international management researchers include

employee perceptions and attitudes toward various personnel selection tests and staffing activities^{11,16,17}. There has also been an interest in examining various entrepreneurial constructs as management researchers become more interested in researching international entrepreneurship^{6,13,18}.

While research involving constructs is common in international business research, at issue is whether these constructs of interest are universal or equivalent in nature across cultures. Central to this issue is the issue of the construct validity of the measures employed. If the nature of a construct changes across cultures, then it is questionable as to whether a measure of that construct developed in one culture is a construct valid measure of the same construct in a different culture. This is the issue of cultural construct equivalency. Cultural construct equivalency exists when individuals in one cultural understand a research item in exactly the same manner as individuals in another culture¹². Management researchers conducting international cross-cultural research often assume construct equivalency¹. The assumption is that theories, constructs and even research methodologies are "etic" in nature, being universally applicable. This ignores the "emic" nature of many research constructs, that many constructs may be specific or unique to a local culture and understood differently in that culture due to differing cultural dynamics.

Conceptual and Functional Construct Equivalence: Two basic dimensions of construct equivalence have been identified⁴. Conceptual equivalence exists when constructs have similarity of meaning and structure across cultures and individuals in those cultures group and categorize information in similar ways. Douglas and Craig⁴ use a bicycle to illustrate these forms of equivalency. The construct of a bicycle likely has conceptual equivalency across cultures. In most cultures, individuals are likely to conceptualize the structure of a bicycle similarly and will distinguish and categorize it separately from other structures with wheels, such as a tricycle or motorcycle. However, the cross-cultural conceptual equivalency of constructs more psychological in nature, such as leadership, is more questionable. House et al⁹ have provided support for the lack of conceptual equivalency of the leadership construct across cultures. People in different cultures have very different ideas of what leadership is.

The bicycle illustration provided by Douglas and Craig⁴ is a good example of how a construct can lack functional equivalency across cultures. In the United States, a bicycle is used recreationally. In China, however, the bicycle is still used by many as a major source of transportation. The bicycle has a different function or purpose in the two cultures. Therefore, although Americans and Chinese may share similar conceptual structures of a bicycle, the bicycle is likely understood differently in the two cultures due to its different functions. International management researchers must address the issues of conceptual and functional construct equivalency when measuring constructs cross-culturally. They need to provide evidence that the constructs are similar or identical across cultures, because construct equivalency is necessary for the construct validity of measures when identical measures are used in the different cultures. If the constructs differ either conceptually or functionally, it is highly unlikely that the same measure will be a construct valid measure of the construct in each culture. Therefore, results obtained in such a cross-cultural study is suspect without evidence that construct equivalency exists.

Emic and Etic Uses of Tests in Research: The construct equivalency problem often arises when measures validated and used in an emic context are used to measure the same construct in another cultural context. An emic approach to test development is one in which a measure is developed and validated to measure a construct in a specific culture. The measure is culture specific, based on data obtained from individuals in the one culture only. Then, this measure is used in an etic fashion. Etic refers to totality, or a research approach in which measures are used universally as if they were culture-free. The measure is used to measure the same construct in another culture. Researchers often assume construct equivalency and, therefore, the construct validity of the measure across cultures. Scales developed and validated by management researchers in the United States are often used in this etic fashion, although they are developed emically. Measures of leadership, commitment and job fit are examples of measures developed emically in the United States and then used in an etic manner. When measures are developed emically and then applied etically, the construct validity of the measure cross-culturally is suspect.

Oftentimes, the attempts to show evidence of construct equivalency in research go no further than the translation and back-translation of research tools into the languages of the participants involved. For example, researchers may create an English version of a questionnaire for use to measure certain constructs. They may translate that questionnaire into Chinese to use to collect data in China. Then, the questionnaire will likely be back-translated from Chinese into English and the two English versions compared. If the translations are the same, construct equivalency is assumed and the researchers assume that they are using identical measures across the different cultures. However, translation and back-translation do not guarantee either

conceptual or functional construct equivalency and questionnaires used in cross-cultural research that have only been subjected to this process will often lack construct equivalency and validity⁵. The result is a "pseudo etic" approach in which the questionnaire is wrongly assumed to be measuring the same thing across cultures. Cross-cultural comparisons made and conclusions drawn from data obtained from the questionnaire will likely lack validity and be meaningless. In this study, issues of semantics and changes in the construct of interest across cultures contributed to the construct equivalency issue. Translation and back-translation itself was not sufficient to resolve these issues. Researchers must take additional steps beyond the simple translation and back-translation of questionnaires to establish the construct validity of a measure cross-culturally.

Evidence from the EWORLD Project: The EWORLD Project, an international entrepreneurship research project being conducted in approximately 40 countries takes an implicit/attribution theory approach to the study of comparative cross-cultural entrepreneurship. It is argued that cultural factors^{8,9} affect the perceptions and attributions made of entrepreneurs in a specific country and contribute to the development of implicit cultural entrepreneurial prototypes across countries. Different entrepreneurial prototypes will exist in countries based upon specific cultural factors and dynamics. It is important for entrepreneurs in a given culture to match the prototype of the successful entrepreneur for that culture.

The theories that guide the advancement of the EWORLD theoretical framework are an assimilation of implicit leadership theory¹⁰ and the value-belief theory of culture^{7,19}. Additionally, the model relies heavily on the work of House et al⁹ in the theoretical model used in the GLOBE project. Implicit leadership theory purports that individuals have implicit beliefs, convictions and assumptions concerning attributes and behaviours that differentiate leaders from subordinates and effective leaders from non-effective ones. The beliefs and assumptions are called the implicit leadership theory. The EWORLD research applies this same concept to the entrepreneurship area. In essence, it is proposed that individuals have implicit beliefs about entrepreneurs as well. That is, entrepreneurial qualities are attributed to individuals and hence, those same individuals are accepted as successful entrepreneurs. These qualities or implicit entrepreneurship theories (IET) influence the actions and effectiveness of entrepreneurs.

The goal of the EWORLD Project is to identify the implicit cultural entrepreneurial prototypes that exist in different cultures. More specifically, the research aims to identify the content and structure of cultural perceptions of the entrepreneur, or the psychology of entrepreneurship in different cultures. This is a conceptual construct equivalency issue. Entrepreneurship is to some degree an attribution based on the degree to which the individual fits/matches the cultural

entrepreneurial prototype. It is the implicit cultural entrepreneurial prototype that is the construct of interest in this research and that is used here to demonstrate the construct equivalency problem and challenges faced by international researchers. Data are presented from the Czech Republic, France and China to demonstrate the construct equivalency issue in this paper.

Methodology

Participants: Participants completed a 115 item questionnaire developed to assess their perceptions of the entrepreneur in their respective country culture. Sample sizes for each country were small at this point and the analyses conducted and results reported here are preliminary and exploratory. Participants were entrepreneurs or employees of entrepreneurs in entrepreneurial firms. In France, students in entrepreneurship degree programs were also included in the sample. The sample sizes in the Czech Republic, China and France were N = 36, 100 and 63 respectively.

Procedure: A questionnaire was developed to measure perceptions of the entrepreneur (entrepreneurial prototypes) in the countries participating in the EWORLD Project. A standard classical test theory approach was followed in the questionnaire development process^{2,3,14,15}. The process began with conducting entrepreneurial literature reviews and focus groups in numerous EWORLD participating countries. Focus groups literature reviews were conducted to identify perceptions of the characteristics, traits and behaviours of entrepreneurs in the different countries as reported by focus group participants. This provided initial information and insight into the content of the implicit entrepreneurial prototypes in the different cultures. A list of 115 entrepreneurial characteristics, traits, and behaviours obtained from the focus groups and literature reviews served as items for a questionnaire used to obtain a larger amount of quantitative data to examine the entrepreneurial prototype. Each of the 115 characteristics, traits and behaviours were placed on the questionnaire and participants in the various countries were asked to rate the characteristics and traits on a 1-7 scale regarding their importance for the entrepreneur to possess in their specific country. Following standard research protocol, the questionnaire was translated into the languages of the various countries and back-translated into English to create equivalent versions of the questionnaire in the different languages. The data from each country were then individually subjected to factor analysis to identify the factor structure of the entrepreneurial prototype for each country sample. Data are presented from the Czech Republic, France and China to demonstrate the construct equivalency issue here.

Results and Discussion

The use of the questionnaire cross-culturally presented several construct equivalency problems for the EWORLD Project. The first challenge occurred in the questionnaire development stage and demonstrated how translation and back translation will not necessarily resolve

construct equivalency problems. The first challenge was the issue of semantics. Identical words have different meanings across cultures. Although translation and back-translation may produce equivalent or identical translations of a questionnaire, individuals in different cultures may interpret the words on that questionnaire differently. In such cases, it is unlikely that the same construct is being measured by the questionnaire items.

An item from the EWORLD questionnaire demonstrates this problem. Item 106 (see Table 1) asks participants to rate the importance of masculine characteristics for the entrepreneur in their culture. Table 1 presents item 106 from both the English and French versions of the questionnaire. Although the items are supposed to be identical or equivalent translations in the two languages, the problem is created by the semantic meaning of the word "aggressive" in the item description. In the United States, the word "aggressive" can be used positively or negatively, depending on the context. In the questionnaire, it is intended as a positive trait, a masculine trait that may make it more likely that the entrepreneur will create and capitalize on market opportunities. In the item description, it is listed along with "competitiveness" and is likely to be perceived in the United States as a part of the competitive spirit and therefore, positive. In France, however, the word "aggressive" has a negative connotation. According to the EWORLD French collaborators, the word "aggressive" in France means to be hostile and mean, and French participants are likely to interpret the word in this way. This is a very different meaning than the spirit of competition that the item was originally intended to measure in the English version. Therefore, although identical translations of the questionnaire were created, this in no way guaranteed that identical constructs were being measured, as some words on the questionnaire convey different meanings across cultures.

Table 1
EWORLD Project Questionnaire Item

<u>Item 106 on English questionnaire</u> 106. _____ Masculine characteristics	Shows competitiveness, aggressiveness and assertiveness
<u>Item 106 on French questionnaire</u> 106. _____ Caractéristiques masculines	Montre de la compétitivité, de l'agressivité et de l'assurance

As second construct equivalency issue is created due to the constructs themselves differing across various cultures. Both the content and structure of the implicit prototypes change. People across cultures have different perceptions and ideas about the nature of entrepreneurship and entrepreneurs. If the construct itself varies cross-culturally, then it is unlikely that an identical measure will be a construct valid measure of the construct in each setting. Initial quantitative

data from the EWORLD Project obtained in the Czech Republic, China and France, demonstrate how the implicit entrepreneurial prototype differs in these countries. For simplicity, only the first 10 items on the EWORLD questionnaire are used to demonstrate the problem (see tables 2 - 4 for the items).

Table 2
Czech Republic Factor Structure

	Factors			
	1	2	3	4
Positive	-.299	.083	.397*	-.312
Independent	.481*	.386	.171	-.216
Ruthless	-.505	.514*	.026	.503
Anticipatory	.345	.380	-.024	.646*
Risktaker	-.510	.547*	-.199	-.157
Trustworthy	.326	.440	-.348	-.575*
Loyal	.617*	.524	.010	.091
Autocratic	-.189	.005	.775*	-.002
Intelligent	.674*	-.421	.043	.180
Decisive	.266	.246	.682*	-.110

* indicates highest factor loading for each questionnaire item.

Table 3
Chinese Factor Structure

	Factors			
	1	2	3	4
Positive	.319	.406	-.490*	.301
Independent	.585*	.140	-.522	.229
Ruthless	-.489*	.406	-.330	-.333
Anticipatory	.475*	.445	.369	-.256
Risk taker	.047	.419	.566*	.176
Trustworthy	.444*	-.401	.247	.351
Loyal	.663*	-.316	.065	-.185
Autocratic	-.378	.635*	.166	.231
Intelligent	.497	.198	-.045	-.651*
Decisive	.568*	.501	.055	.172

* indicates highest factor loading for each questionnaire item.

Pilot data from these countries were subjected to factor analysis to identify the factor structure of entrepreneurial perceptions in each country. Although each questionnaire was an exact translation of the original English version, tables 2 - 4 show very different factor structures and item factor loadings obtained for these countries. This indicates that although the same questionnaire language was used, the entrepreneurial construct has different content and structure across the different cultures and therefore the questionnaire items (characteristics and traits) correlate differently and load differently with each other on the factors. Therefore, it cannot be safely assumed that the same constructs are being measured across the two cultures and that construct equivalency exists. Both the Czech and Chinese factor structures include four factors. But as is seen in tables 2 and 3, the items load vary differently on these factors. The French factor structure is even more different. The items load

on only three factors. These different factor structures provide evidence that although identical language is being used, the implicit entrepreneurial prototype construct is different across cultures. It is unlikely that one questionnaire used etically will be valid for measuring the construct emically, or in a specific cultural context. Both the problem of semantics and of the changing nature of the construct of interest across cultures is a problem of conceptual construct equivalency. As can be seen, the translation and back-translation procedures commonly employed in cross-cultural research do not address and resolve problems such as these.

Table 4
French Factor Structure

	Factors		
	1	2	3
Positive	.803*	.060	-.118
Independent	.253	.641*	.291
Ruthless	-.358	.592*	.109
Anticipatory	.718*	-.166	.386
Risktaker	.485	.182	.530*
Trustworthy	.780*	.075	-.380
Loyal	.554	.202	-.658*
Autocratic	-.448	.668*	-.265
Intelligent	.755*	-.023	-.096
Decisive	.646*	.277	.217

* indicates highest factor loading for each questionnaire item.

There are implications of these results for research in international management. Research methodology must include much more than the mere translation and back-translation of questionnaires. Oftentimes, this is the extent of the steps taken to measure constructs cross-culturally. But as shown here, this alone does not address the construct equivalency problem. It is only a first step in the process. Translation processes at best represent a pseudo-etic approach and research that that employs nothing more than this to measure constructs cross-culturally will likely be based on measures that lack construct validity and cannot measure the equivalent constructs across cultural settings. Therefore, research results presented in such studies should be suspect.

International cross-cultural research must include both qualitative and quantitative methods and more complex analytical and statistical techniques to establish cultural construct equivalency. Emic approaches to cross-cultural construct measurement must be taken. Researchers must begin with qualitative methodology to gain an understanding of the nature of the construct of interest in each of the cultures in which research will be conducted. Qualitative methods can include ethnography, focus groups and an examination of cultural artifacts that will provide insight into the nature of the construct.

Quantitative methods such as confirmatory factor analysis and structural equation modeling must then be

employed to examine the nature and structure of the construct in each culture. These methods and statistical procedures will enable the researcher to identify the latent variables that underlie the manifest questionnaire items. If different factor structures indicate that the nature of the construct is different across cultures, then it is likely that different versions of a questionnaire will need to be developed to measure the same construct in each culture. The combined qualitative and quantitative approaches reflect an emic approach to scale development and construct measurement and increase the likelihood that a questionnaire will be developed that will be a construct valid measure of the construct of interest for each country included in the research.

A need for different questionnaire versions to measure entrepreneurial prototype perceptions in the Czech Republic and France is demonstrated here. If we wanted to develop a questionnaire to measure the degree of fit between an individual entrepreneur and the cultural entrepreneurial prototype in each country, then we would need a questionnaire that measured the four latent constructs (factors) found in the Czech data for use in the Czech Republic and a different questionnaire that measured just the three latent constructs (factors) found in the French data for use in France. The use of the same questionnaire to measure entrepreneurial prototype fit (an etic approach) would likely lead to either contamination of measurement in France or deficiency of measurement in the Czech Republic. Either measurement contamination or deficiency will decrease the construct validity of the measure.

The results presented here were obtained from very initial quantitative data collected as part of the EWORLD Project. Although a more detailed demonstration of the construct equivalency problem may have been presented with confirmatory factor and structural equations analyses, we believe that the demonstration of the problem with initial exploratory analyses and small sample sizes indicates the probable magnitude of the problem in cross-cultural studies. Future international management research must continue to investigate the construct equivalency problem and emic approaches.

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