

A CRYSTAL BALL: USING PROTOTYPING TO CLARIFY BUYER-SUPPLIER RELATIONSHIP CONCEPTS IN EMERGING MARKETS

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ABSTRACT

Emerging markets are crucial to develop the business of major international companies. Nevertheless, cross-cultural barriers and plentiful pitfalls on the way have complicated matters for foreign managers who wish to develop their business in such markets. In emerging markets, companies can greatly benefit from buyer-supplier relationship concepts like *guanxi*, which is well-established in China, or *jeito*, which is common in Brazil. Once foreign managers understand the mechanisms behind these concepts, they can create competitive advantages. The problem is that there is no common agreement on how these concepts work, or on their specific uses. We apply the prototype method to improve academic agreement on these concepts. The purpose of this paper is thus to illustrate the use of prototyping as a means to achieve a better understanding of buyer-supplier relationship concepts in emerging markets.

INTRODUCTION

Emerging markets are characterized by rapid economic growth combined with the liberalization and adoption of free-market principles (e.g. Hoskisson et al., 2000). The institutional context in emerging markets differs from the relatively stable political, social, and economic environments in developed markets (e.g. Luo, 2004, Peng et al., 2008). Emerging markets are dynamic and institutional voids make the decision making processes of governmental and other relevant institutions, such as business associations or courts, less transparent (Hoskisson et al., 2000). The same applies to buyer-supplier relationships. Owing to the high levels of saturation in developed markets, Western companies have little choice but to enter emerging markets (Kuklinski et al., 2012). Companies are forced to invest great effort and resources in order to benefit from these markets' growth. Yet, Western companies that enter emerging markets often first fail (Lu and Reve, 2011).

Culture-specific buyer-supplier relationship concepts are often used in emerging markets. Concepts, such as *xingyong* (Leung et al., 2005, Kiong and Kee, 1998) and *guanxi* (Kiong and Kee, 1998, Katarzyna and Chunyan, 2011, Luo and Yeh, 2012) in China; *jeito* in Brazil (Rosenn, 1971, McCarthy et al., 2012), and *blat* in Russia (Puffer et al., 2010, McCarthy et al., 2012) are examples of culture-specific variables that Western managers need to understand in order to develop relationships in emerging markets. As Kuklinski et al. (2012) posit, these concepts might work as an institutional bypass to support business development and may be of great importance in buyer-supplier relationships.

Within the buyer-supplier relationship context, the value adding process functions on a network level. Supplier integration and integrated business processes between supply chain members are generally necessary to increase firms' performance and success (Stevens, 1989, Lockstrom et al., 2011). Further, to achieve a competitive advantage, firms are required to understand culture-specific concepts that promote integration into and collaboration in buyer-supplier relationships in emerging markets, for example, in China (Chen et al., 2011). It is necessary to understand, or even internalize, these concepts before they can be used.

Through the prototype method, researchers can improve the understanding of fuzzy concepts such as *guanxi*, *jeito*, and *blat*. The main benefit of the prototype method is that it comprises several studies that build on one another to seek out the exact meaning and the conjunct dimensions of the researched concept (Fehr and Russell, 1984). It offers cultural outsiders an insider's perspective on the topic. This methodology combines emic and etic views.

THE CONTEXT OF EMERGING MARKETS

As mentioned before, concepts like *guanxi*, *blat*, or *jeito* constitute buyer-supplier relationships. Based on Fehr's use of the prototype method in interpersonal relationships, there appears to be great potential to research these mentioned concepts by means of the this methodology. The mentioned concepts' mechanisms are hard to delimit. *Guanxi*, for example, has been researched for decades (Lu and Reve, 2011, Luo and Yeh, 2012, Provis, 2008, Vanhonacker, 2004, Zhu and M., 2007) and no agreement on how it works.

Fehr (2009) observed that there was no consensus on the definition of compassionate love and applied this method to fill the research gap regarding culture-specific variables. However, this method has not found its way to Supply Chain Management research and particularly research on buyer-supplier relationships in emerging markets.

Cultural effects also play a significant role in emerging markets. Ferrin and Gillespie (2010), among others, posit that trust constitutes culture-specific dimensions, as well as dimensions that are consistent across cultures. The prototype method has manifold advantages over traditional methods and helps researchers define these context-specific dimensional differences and their importance for a given concept. With this in mind, we believe that this method may be applicable in chain management research to help scholars cope with concepts that have a strong influence on buyer-supplier relationships but cannot be used correctly because they have not been operationalized and conceptualized.

THE PROTOTYPE METHOD

In the 1970s, Eleanor Rosch developed a method to investigate natural language categories and the use of words as a category, for example, "birds." She stated that defining a category may require more than a specific set of criteria. She therefore suggested using the clearest examples or prototypes. For example, in the birds category, a penguin is a bad example and less prototypical as it may also belong to a different category (e.g. aquatic animals), or have similarities to the mammals category. On the other hand, a blackbird is a very good example and is very prototypically representative of the birds category as it has feathers, is able to fly, lays eggs, etc.

Following Eleanor Rosch's approach, social psychology researchers investigated concepts that had no clear definition or one on which scholars could agree. The methodology has been used to understand the categorization of concepts such as love (Aron and Westbay, 1996,

Fehr, 1988, Fehr and Russell, 1991, Fehr and Sprecher, 2009), commitment (Fehr, 1988, Fehr, 1999, Hassebrauck and Fehr, 2002), anger (Russell and Fehr, 1994), intimacy, and compassionate love (Fehr, 2004). The prototype methodology is thus a tool to help define fuzzy concepts. This method usually follows a sequence of 4-6 studies whose designs all differ. The first study is usually a feature-generating study, whereas the second study not only rates the features generated in the first study, but also assesses their relevance for the researched concept (see Figure 1 for an example).

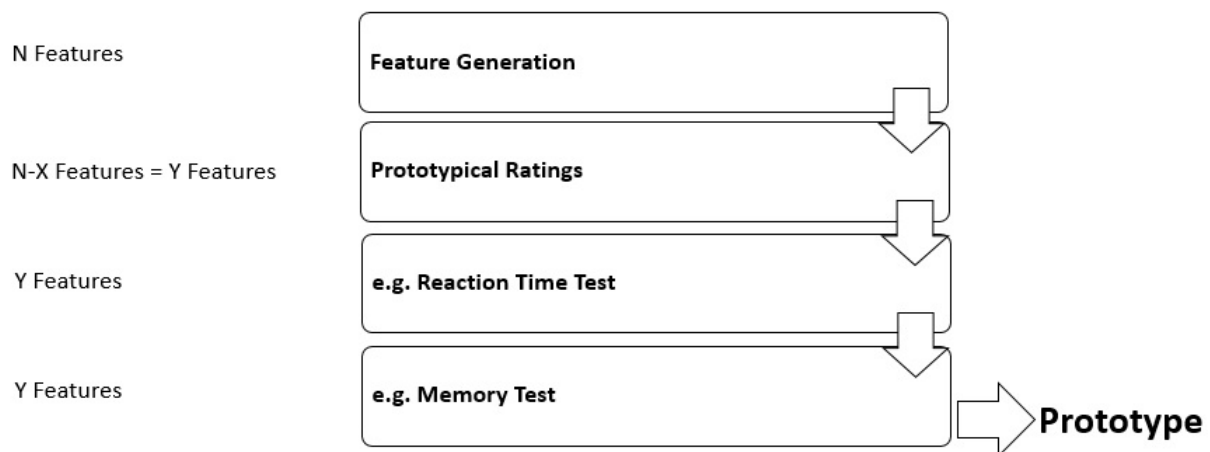


Figure 1. Prototype Structure Overview

From the second study onward, the designs differs greatly and, among others, comprise reaction time tests (Rosch, 1973), recognition tests (Fehr, 1988), violation tests (Fehr, 1988), substitutability tests (Fehr and Russell, 1991), and familiarity tests (Fehr and Russell, 1984). Figure 1 is an example of a prototype project. The features are generated in Study 1, narrowed down to the most prototypical ones in Study 2. The following studies test whether the features are truly prototypical. We discuss these studies in the section *A Critical View of Prototyping*.

Finally, researchers obtain a list of characteristics (also called features) that are classified according to how representative or prototypical they are of a concept (Aron and Westbay, 1996, Hassebrauck, 1997, Hassebrauck and Fehr, 2002, Niedenthal et al., 2004, Horowitz and Turan, 2008, Le et al., 2008, Fehr and Sprecher, 2009, Rosch, 1973). As written above, the prototype method collects, rates (Study 1 and 2), and confirms (Study 2 onwards) a concept's features and thus identifies the structure and knowledge of the concept (Horowitz and Turan, 2008). This method ensures that only features that are significant for the concept are chosen, for example, for scale development (Lim, 2012).

Based on Fehr's (1996, 1988, 1999) use of the prototype method in interpersonal relationships, this methodology seems to have great potential for researching fuzzy concepts in buyer-supplier relationships.

In sum, the prototype method theoretically allows a generic view of context-specific concepts and their distinct dimensions.

MAJOR ADVANTAGE OF THE METHOD

Prior studies applying the prototype theory have had similar starting points in order to cope with fuzzy concepts with complicated and diverse definitions. Hassebrauck (1997) for example successfully researched relationship quality by means of prototype analysis. From a cross-cultural research perspective, Lim (2012), for example, researched negative work relationships and used a Chinese survey to test her Singaporean sample set. Niedenthal (2004) researched the French translation of "emotion" using a prototype analysis.

Since the prototype method collects and rates features that belong to a concept, it has a major advantage over traditional methods, for example, of scale development (Broughton, 1984). Broughton (1984) compared empirical scale construction, exploratory factor-analysis-based scale construction, rational scale construction, as well as internal-consistency-based scale construction. He clearly showed that developing a scale using the prototype as the source for its items is superior to other methods.

Moreover, The prototype methodology identifies the structure and knowledge of a concept (Horowitz and Turan, 2008). The etic perspective involves observing concepts or behaviors from a theoretically generic point of view and establishing a universally applicable truth (Harris, 1976). The emic perspective involves an insider's view of concepts and/or behavior that are influenced by cultural norms and values (Harris, 1976). Prototyping allows us to combine the etic and emic approaches when investigating buyer-supplier relationships in emerging markets. On the one hand, we capture a generally applicable base of all the features that have common, comparable concepts while obtaining an emic perspective and the culture-specific nuances of the prototype on the other.

Overall, we present a theoretically generic view of culture-specific concepts (etic) besides the distinct values and dimensions (emic). Thus, the methodology shows great potential for supply chain management in emerging markets.

A CRITICAL VIEW OF PROTOTYPING

Data Requirements

As mentioned above, prototyping consists of a series of studies that build on one another. This has two major disadvantages. First, the data requirement is very high, in terms of quality and quantity. Quality-wise, it is very important to have the right sample for the research question(s) from the first study onward. As mentioned, the first two studies are critical to generate the most prototypical features; we therefore have to ensure that the samples are context relevant. If the subsequent studies do not confirm the selected set of features, these studies were a waste of time. The data requirement is equally high in terms of quantity. Fehr's previous prototype projects, for example, had very varied sample sizes (Fehr, 1988, Fehr, 1999, Fehr, 2004, Fehr and Harasymchuk, 2005, Fehr and Russell, 1991, Fehr and Russell, 1984, Fehr and Sprecher, 2009). Nevertheless, we can conclude that at least 80-100 samples are needed for each study. Since new samples have to be used for each study and researchers have to monitor most of the abovementioned tests, it is evident that time constraints and obtaining the right quantity of the right samples are possible sources of problems. This might be one of the reasons why this method has not yet been applied in business research. Fehr mostly used convenience samples, which seems appropriate when discussing a prototype, such as emotion, in general (Fehr and Russell, 1984). In buyer-supplier relationships in China, for example, only those who really experience the use of *guanxi* in their daily business can define it. In this case, it makes no sense to survey a convenience sample.

Importance of Translated Content Accuracy

If different languages are involved in a prototype project, the translation's accuracy is crucial. Since several studies that Fehr used rely on language accuracy, translation appears to be a critical point. Fehr (1984) applies a substitutability test. She posits that if a feature is prototypical, the superior concept can easily replace it without making the sentence sound unnatural. For example, since anger is a feature of emotion, Fehr (1984) created a sentence containing the word emotion. The word emotion is then replaced with one of its features, for example, anger. The participants then have to rate how natural the sentence sounds with the replaced words. If translations are used, it is of crucial importance that they are accurate and

that translation discrepancies and misinterpretations are avoided during the translation process. To ensure translation accuracy, researchers often use the back translation method, which involves a bilingual researcher translating the words into the target language and another bilingual researcher translating them back into the original language. However, since this method is not foolproof, we suggest using additional methods as a backup. An example of an additional method is the “bilingual technique”: each translator takes a test in one of the languages. The tests’ results are then compared and checked for discrepancies (Brislin, 1980).

MAJOR PROTOTYPE STUDIES IN USE

Feature Generation

Following Fehr’s (1999) approach, one of our studies is a feature selection study and is usually used to kick off the prototype project. The purpose of this study is to elicit the features of a concept, for example *blat*, *guanxi* or *jeito* in buyer-supplier relationships. If there is a prototype for this concept, some features will be mentioned more often than others. It is believed that prototypical features will come more readily to mind and that the participants will therefore mention them first and more often. On the other hand, features that are less prototypical than others will not come to mind readily and will thus not be mentioned as often as ones that are central to the concept.

The participants (“n” usually 80-90 or more if saturation is not reached) will be mostly selected from convenience samples that will, of course, be context-specific samples in emerging markets.

Prototypical Ratings

According to Fehr (2009), if a concept has a prototype, some features should be regarded as more representative than others. If we assume that buyer-supplier relationship concepts have a prototype, we can assume that some of the features in Study 1 will be more representative. In order to determine which features are most central to the concept, the participants will be asked to rate the features’ relevance to the concept on a 6-point Likert scale ranging from 1 (not closely related to the concept) to 6 (very closely related to the concept).

Since the first study often delivers a large numbers of features, they have to be distributed randomly to ensure reliability. In line with Fehr (2009), it seems appropriate to consider the

standard deviation of the single items. If the prototype is confirmed, the central items (e.g. the ones with highest ratings) should have a comparably lower standard deviation. In addition, an alpha coefficient can be used to ensure the stability of the ratings (Fehr, 1988).

Reaction-Time Test

Rosch (1973) maintained that, in order to reliably identify how representative an example of a feature is of a higher level concept, it should not only be rated, but how long it took the participant to verify whether or not a feature belongs to a concept should also be considered (Rosch, 1973). Fehr et al. (1982) also considered reaction time an appropriate measure to verify prototypes. Thus, the purpose of Study 3 is to test the relationship between the higher order concept and its features by testing the participants' reaction time. The participants verify the prototype created in the first two studies – in this case “apple” – by validating a statement such as “apple is a kind of fruit” faster than one such as “rose hip is a kind of fruit.” This stage normally involves around $n=80$ participants (Fehr and Russell, 1991). The calculation of the results is in line with previous research (Aron and Westbay, 1996, Fehr, 1988, Fehr, 1999, Fehr, 2004, Fehr and Russell, 1984, Fehr and Sprecher, 2009, Hassebrauck, 1997) and should only be done for correct responses. In addition, a simple t-test is used to test the significance of the difference in reaction times between the central and peripheral features of trust.

Violation Test

In line with Fehr (1988), it can be assumed that a violation of the highly central features of a given concept will harm the superior concept more than a violation of its peripheral feature would. For example, if we trust someone who then violates one of the central features of trust, the level of trust within the relationship will be negatively impacted. However, if that person violates a peripheral feature, it might be regarded as forgivable.

As in Fehr (1988), an ANOVA should be used to compute the results. A statistically valid result will verify the prototype. In other words, we expect the violation of the central features of a given concept to have a stronger impact on the central concept than that of a less central feature.

CONCLUSION

The high data requirement and translation sensitivity of prototyping are the main reasons why it has not yet been applied in Supply Chain Management research. However, we posit that an appropriate combination of different studies might allow for a better understanding of supply chain relationships and its concepts. Prototyping is a flexible means by which researchers can compare concepts in different sets of studies that relate to the research project. Concepts' validity is further strengthened if several studies are used that relate to one another. Especially in emerging markets, where Western managers still misunderstand concepts like *guanxi*, *jeito*, and *blat*, prototyping is an effective means to ensure the reliability of results and provide new perspectives. Prototyping can be the researcher's crystal ball if its design is well thought through. We see great potential for prototyping in SCM research and therefore suggest a wider usage of this method, especially in emerging markets.

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