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THE ROLE OF CULTURE IN COPING WITH UNCERTAINTY

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ABSTRACT

This paper builds on prior cross-cultural research to explore the role of national culture in providing mechanisms to cope with uncertainty. The concept of uncertainty is critical to organization and management theories, and has been central in explaining the relationship between organizations and their environment. The cross-cultural literature suggests that people perceive and deal with uncertainty differently across cultures. This paper extends this literature by empirically testing the role of culture in providing managers with mechanisms to cope with uncertainty in Brazil and the United States. Results suggest that beliefs about control over the environment and rule orientation influence the choice of coping mechanisms employed across countries. Implications for theory and practice are discussed.

Key words: uncertainty, coping with uncertainty, uncertainty avoidance, national culture, content analysis, cross-cultural management]

INTRODUCTION

Consider the following two text excerpts extracted from leading business magazines in Brazil and the United States. They both describe notable businesspersons and their businesses in the retail sector.

Excerpt from Brazilian magazine Exame (January 22, 2003):

On the morning of November 14 of last year, the 67 years-old businessman Arthur Sendas, owner of the largest supermarket chain of Rio de Janeiro and 5th largest in the country, repeated one of his preferred rituals: inaugurating a new store. As he usually does in these occasions, he walked through the new store carrying an image of St. Judas, followed by a priest and a small escort. The silent procession walked through all the sections of the supermarket (sprinkling it with holy water) until arriving at the final destination: the management office. There, the image of St. Judas will be displayed, as in all others 83 stores of the group.

... Taking the firm public was a painful decision to the family, considering their strong emotional link to the company. Sendas gave a demonstration of this attachment publicly during the inauguration of the store in Cabo Frio. After hearing the presentation of the employees' chorus, singing "Friend" by Robert Carlos, Sendas made a moving speech remembering his father, the Portuguese immigrant Manoel Sendas. He was the one that, 78 years ago, opened a warehouse in São João de Meriti, Rio de Janeiro -- the seed for the current Sendas group." This music makes me remember my father, who was really a good fellow", said Sendas. He took over the business in 1951, when he was 16, when Manoel suffered a car accident. Nine years later, Arthur opened the first Casas Sendas, and from there on pursued the leading position in Rio de Janeiro.

(Exame, January 22, 2003 "Nada sera como antes". Translated by the author)

Excerpt from American magazine Forbes (September 30, 2002):

Selling everything for 99 cents made Dave Gold a fortune. David Gold and Eric Schiffer glide through the Los Angeles restaurant Tamayo, bestowing gratuities on the maitre d', a busboy and a waitress. But it's not dollars they're doling out; it's vouchers for one free item at any one of their 99 Cents Only stores dotting the Southwest. "If they use the coupon, they'll probably buy \$ 8 or \$ 9 worth of stuff, so it's worth it," says chain founder and Chief Executive Gold as company President Schiffer scans the room. ... Gold drummed up publicity for the store by blanketing the neighborhood with flyers offering televisions for 99 cents, a promotion that created lines around the block. The family then took turns calling local television stations asking what all the commotion was. The ploy drew film crews from each local station, including a fledging CNN bureau, all of which ran stories on the evening news. The TV coverage led to a front-page newspaper story the next day. Gold bought 13 black-and-white TVs for \$ 150 apiece for the first-come, first-served promotion. He still continues the practice... "Rich people love bargains. That's how they got rich," he says. That's how he got rich, too.

(Forbes, September 30th, 2002. "The Forbes 400")

Both magazines, Exame and Forbes, are widely read in their respective countries. Their purpose is to inform businesspeople about events and news that influence businesses. They also provide managers with models for good and bad management practice. On the surface, both magazines carry out this task the same way. They describe successful businesspeople and their businesses, and provide information on latest laws, technologies, and economic changes.

However, a closer look at these magazines reveals some important differences. Take for instance, the two excerpts presented above. They both describe successful businesspeople opening or expanding their businesses, inherently uncertain business activities. However, they stress different aspects. For instance, the Brazilian article highlights the personal side of the executive, talking about his emotions and beliefs, while the American magazine highlights the executive's entrepreneurial spirit and business savvy. They both attempt to grab the readers' attention by describing a ritual performed by the executive. However, while the Brazilian magazine describes a religious ritual, the American magazine describes a marketing ritual.

These differences are no small matter. They mirror a cultural belief about what is important, good, and desirable. In an increasingly global business environment, these differences present important challenges to managers. As economic barriers are reduced, cultural differences are likely to become more salient and present managers with new challenges and opportunities (House, 2004). Therefore, understanding how culture influences management is critical.

Indeed, cultural influences on management theories have been studied extensively. For instance, a significant body of literature on the effect of culture on work motivation and job attitudes has emerged in the last decade (Steers and Sanchez-Runde, 2001; Steers, Mowday, and Shapiro, 2004). Also, significant work on the influence of culture on leadership behavior has been undertaken (House, Hanges, Javidan, Dorfman & Gupta, 2004). As several authors have recognized, the current reality of business suggests a need for additional cross-cultural research questioning the universality of key concepts in management theory and extending management knowledge (e.g. Child, 1981; Kohn, 1987; Boyacigiller & Adler, 1991; Triandis, 1994; Earley and Singh, 1995). This research builds on this literature and explores the role of culture in providing managers and organizations with mechanisms to deal with uncertainty in Brazil and the U.S.

The Role of Uncertainty

The term uncertainty has been defined in several ways. It is the inability to assign probabilities as to the likelihood of future events (Duncan, 1972, Pennings, 1981; Pennings & Tripathi, 1978; Pfeffer & Salancick, 1978); the lack of information about cause-effect relationships (Duncan, 1972; Lawrence & Lorsch, 1967); the inability to predict accurately what the outcomes of a decision might be (Downey & Slocum, 1975; Duncan, 1972; Hickson, Hinings, Lee, Schneck & Pennings, 1971; Schmidt & Cummings, 1976). Or, as Milliken (1987) summarizes, uncertainty is the individual's perceived inability to predict something accurately. Individuals experience uncertainty because they perceive themselves to be lacking enough information or because they feel unable to discriminate between relevant data and irrelevant data (Gifford, Bobbitt & Slocum, 1979).

Uncertainty is a critical concept in several organization and management theories (Sutcliffe & Zaheer, 1998; Weitz & Shenhav, 2000). For example, researchers have long examined the influence of uncertainty in organizational behavior (March & Simon, 1958), organizational decision-making (Cyert & March, 1963), organization structure (Pfeffer & Salancik, 1978, Burns & Stalker, 1961), and environmental scanning (Daft, Sormunen & Parks, 1988; Boyd & Fulk, 1996). In summary, the concept of uncertainty is central to explaining the relationship between organizations and their environment (Dill, 1958; Duncan, 1972; Lawrence & Lorsch, 1967; Thompson, 1967; Milliken, 1987).

Several researchers have argued that uncertainty is a perceptual phenomenon rather than an objective property of organizational environments (Child, 1972; Downey & Slocum, 1975; Starbuck, 1976).

Consistent with this view, several culture theorists (Hofstede, 1980, 2001; House et al., 2004) suggest that cultures perceive and deal with uncertainty differently. Considering the prominence of the concept of uncertainty to management theory and practice, understanding cultural influences in how managers and organizations perceive and cope with uncertainty is critical. The purpose of this study is to build on prior cross-cultural research to explore the role of culture in providing managers with mechanisms to cope with uncertainty.

Influences of Culture on Perceptions of Uncertainty

Understanding cultural differences has been an important area of study. At present, there are several models available to examine the role of culture in management practice. These models focus on different aspects of societal beliefs, norms, or values (Kluckhohn and Strodtbeck, 1961; Hofstede, 1980, 2001, Hall, 1959, 1981, 1990, Trompenaars, 1993; Schwartz, 1994; House et al., 2004). Two cultural models, the one proposed by Hofstede (1980, 2001) and the one proposed by House and colleagues (2004), propose a cultural dimension – uncertainty avoidance – that deals with how cultures vary in their perceptions of uncertainty. These dimensions will be reviewed below.

Hofstede's Uncertainty Avoidance

Hofstede builds on Cyert and March's (1963) early notion of uncertainty avoidance and suggests that cultures vary in the extent to which they tolerate uncertainty. Cyert and March (1963) suggest that uncertainty is a feature of organizational decision making and that organizations seek to avoid uncertainty by using decision rules that stress the short-term, and by arranging a negotiated environment in which there is less need to forecast the future. Organizations negotiate the environment by creating plans, standard operational procedures, industry traditions, and uncertainty absorbing contracts on the environment. In summary, Cyert and March suggest "organizations achieve a reasonably manageable decision situation by avoiding planning where plans depend on predictions of uncertain future events and by emphasizing planning where the plans can be made self-confirming through some control device (167)." Rather than treating the environment as exogenous and to be predicted, organizations seek ways to make it controllable.

Hofstede (2001) expands this notion and suggests that cultures also seek to reduce uncertainty, employing culturally specific mechanisms. His dimension, however, focuses on the extent to which people are comfortable with uncertainty or try to avoid it.

In cultures low on uncertainty avoidance, people are generally comfortable with ambiguity and do not feel a need for structure and clarity. In cultures high on uncertainty avoidance, people feel a stronger need for certainty, clarity, and predictability. They do not tolerate uncertainty well and are frequently anxious and stressed. Table 1 describes the societal norms relating to uncertainty avoidance according to Hofstede (2001: 161):

In his IBM study, Hofstede (1980) operationalized uncertainty avoidance using three constructs: rule orientation, employment stability, and stress. Rule orientation suggests that individuals would rather follow rules than face the uncertainty of deciding for themselves. Employment stability reflects the will to avoid the uncertainty of a new situation (job). Finally, stress, suggesting that individuals intolerant for ambiguity are more likely to feel stressed.

Hofstede's uncertainty avoidance cultural dimensions have been widely criticized (House et al., 2004). Among the criticisms, two issues are particularly relevant, neutrality and interpretation (d'Iribarne, 1997). Neutrality refers to the fact that while two cultures may have the same level of uncertainty avoidance they may have different ways to cope with it according to their culture (Schneider & De Meyer, 1991). Interpretation refers to the fact that other cultural variables may be confounding the answers. For example, in French culture the letter of the law is taken less seriously than in America culture, which may cause the French to take for granted the qualifiers in the question "rules should not be broken – even when the employee thinks it is in the company's best interest" while the Americans would not (d'Iribarne, 1997). In addition, as Hofstede himself recognizes (2001), the scope of his measures was restricted by the data available, which was originally collected for a different purpose.

GLOBE's Uncertainty Avoidance

The GLOBE project reconceptualized uncertainty avoidance building on Hofstede's earlier work. The GLOBE team conceptualizes uncertainty avoidance as "the extent to which members of collectives seek orderliness, consistency, structure, formalized procedures, and laws to cover situations in their daily lives." (De Luque and Javidan, 2004: 603).

The GLOBE's conceptualization of uncertainty avoidance is a refinement of Hofstede's. It moves away from the notion of tolerance for uncertainty and focuses on one mechanism to deal with uncertainty – the use of rules and structure.

The different conceptualization of uncertainty avoidance in these research projects makes country ratings difficult to compare. Indeed, Globe's country indexes for uncertainty avoidance correlate negatively with Hofstede's (DeLuque & Javidan, 2004).

However, cultures may use different mechanisms to cope with uncertainty (d'Iribarne, 1997; Schneider & De Meyer, 1991; Hofstede, 2001). While both researchers recognize that there are significant variations in how cultures cope with uncertainty, they focused on the use of rules. Other coping mechanisms to deal with uncertainty have not been tested.

Mechanisms for Coping with Uncertainty

Even though Hofstede's uncertainty avoidance dimension focus on tolerance for uncertainty, in his theory Hofstede (2001) recognizes that societies develop methods of coping with uncertainty, and that these methods are part of a cultural heritage. He distinguishes three main mechanisms by which cultures deal with uncertainty: technology, law, and religion.

Technology: Technology includes all human artifacts and helps individuals defend against uncertainties caused by nature. Uncertainty-reducing technology takes the form of product warranties, insurance policies, advanced forecasting models and planning systems, as well as medical devices, security systems, military armament or capital goods, such as machinery and transport equipment (Hofstede, 2001; House et al., 2004).

Law: Law includes all forms of formal and informal rules used to guide behavior and defend individuals against uncertainties caused by the behavior of others. The legal system in a society also offers guidelines for managing the effects of breaking the law (Hofstede, 2001; House et al., 2004).

Religion: Religion refers to beliefs in the unknown, used to protect against undefendable uncertainties. Religion is all forms of rites and rituals that help individuals to live with uncertainty. Religion goes beyond the reliance on God and godlike forces and includes individuals above uncertainty, such as "management gurus" and experts (Hofstede, 2001).

Even though Hofstede recognizes that there are different mechanisms to cope with uncertainty and the choice of these mechanisms is embedded in a cultural heritage, these mechanisms were not tested. As suggested by Schneider and De Meyer (1991), the variation in uncertainty-coping mechanisms may be a more interesting way to distinguish cultures. In this study, I investigate whether cultures vary in the extent to which they use “technology”, “law”, and “religion” to cope with uncertainty.

The starting point for the following arguments is that there are several ways to deal with the same uncertainty. People may use “technology”, “law”, “religion”, or a combination of these coping mechanisms. For example, managers may cope with the uncertainties associated with opening a new business by using advanced technological systems, creating clear procedures and rules, or by relying on superstitious rituals to bring good luck. Managers in all cultures are likely to rely on these three mechanisms at some point, sometimes simultaneously. However, cultures vary in the extent to which they prefer one mechanism over the other. In other words, all cultures use “technology”, “law”, and “religion” to some extent, but the degree to which these mechanisms are used is likely to vary. I suggest that cultural values and beliefs are related with a preference for one coping mechanism over others. Specifically, I suggest that cultural beliefs about control over the environment and the importance of rules influence the salience of the mechanisms “law”, “technology”, and “religion”. The following section will outline some hypothesis about these relationships.

Technology as a Coping Mechanism

“Technology” as coping mechanism includes all human artifacts that can potentially defend individuals against uncertainties caused by nature (Hofstede, 2001). These artifacts may take the form of scientific developments such as engineering, drugs, medical devices and all sorts of machinery devised to decrease the impact of natural forces on humans such as aging, diseases, natural weather and other natural forces. “Technology” attempts to change the way things are by predicting the future and interfering in the natural course of events. It applies scientific knowledge to solve practical problems. “Technology” has increased life expectancy, decreased the impact of severe weather on humans, and promoted the discovery of new lands and planets (Hofstede, 2001; House et al., 2004).

I suggest that some cultures use “technology” to cope with uncertainty more intensely than others do. “Technology” as a coping mechanism is only efficient in reducing uncertainty if one believes that it is possible to defend against the uncertainties caused by nature, and that is possible and desirable to devise human artifacts that will change the natural course of life. In other words, developing technology assumes a belief of control over the environment.

The innovator must believe that the world is changeable and that it is possible to control the environment through self-assertion. The cross-cultural literature suggests that perceptions of control over the environment vary across cultures (Kluckhohn and Strodtbeck, 1961; Schwartz, 1994; Trompenaars, 1993; Trompenaars and Hampden-Turner, 1998). For the purpose of this study I follow Schwartz’ (1994) classification and definition of control over the environment, as summarized below.

According to Schwartz (1994), cultures vary in the extent to which they seek to master and change the natural and social world. Schwartz identified two types of culture: mastery and harmony. In mastery cultures, individuals value getting ahead through self-assertion and seek to change the natural and social world in order to advance personal or group interests. In harmony cultures, individuals accept the world as it is and try to preserve it rather than exploit it. In other words, harmony cultures value adapting to the environment. For the remainder of this paper I will refer to cultures that believe in controlling the external environment as “mastery cultures” and to cultures that believe in adapting to the environment as “harmony cultures”.

As suggested above, the use of “technology” as a coping mechanism assumes a belief of control over nature. Obviously, all cultures use some “technology”, even if rudimentary, to cope with the uncertainties of life. However, some cultures use more “technology” than others do. Societies that believe in changing the world are more likely to use technology to cope with uncertainty than cultures that believe in accepting the world as it is. Therefore, managers are more likely to rely on technological advancements and scientific innovations to reduce uncertainty in mastery cultures than in harmony cultures.

Mastery cultures support changing the natural world and modifying one’s surrounding to advance personal or group interests. Therefore developing technologies to change or defend against nature is likely to be supported and emphasized. Harmony cultures, on the other hand, support adapting to the environment, preserving and protecting it. Therefore, developing technologies to defend against uncertainties caused by nature is likely to be less important. Therefore, I expect that “technology” as coping mechanism will be more salient in mastery cultures than in harmony cultures. Formally speaking, I propose:

Hypothesis 1: Mastery cultures will be more likely to use “technology” as a mechanism to cope with uncertainty than harmony cultures.

Law as a Coping Mechanism

“Law” as a coping mechanism refers to formal and informal rules used to guide behavior and defend against uncertainties caused by the behavior of others. It also includes guidelines for dealing with those who break the law (Hofstede, 2001). “Law” as a way to cope with uncertainty is the mechanism that has received most attention in the cross-cultural literature. The GLOBE’s definition of uncertainty avoidance – “the extent to which members of collectives seek orderliness, consistency, structure, formalized procedures, and laws to cover situations in their daily lives” (DeLuque and Javidan, 2004: 603) - can be interpreted as the extent to which cultures use “law” to cope with uncertainty. Hofstede (1980) has also included a rule orientation element in his definition of uncertainty avoidance. Other researchers (Trompenaars, 1993; Trompenaars and Hampden-Turner, 1998; Hooker, 2003) have recognized that cultures vary in how they see the relative importance of rules and relationships, but have not linked it with uncertainty. I conciliate this dilemma by suggesting that cultures vary in how they perceive the role of rules and laws, which in turn affects how they deal with uncertainty. In the following section, I will review two cultural dimensions that refer to cultural beliefs about rules.

Universalism and Particularism

The notion of universalism and particularism was initially proposed by Parsons and Shills (1951) and further elaborated by Trompenaars (1993, 1998). This dimension suggests that cultures vary in the extent to which they prefer that their members deal with others based on standard rules and laws rather than personal relationships. In cultures characterized by universalism, individuals stress universally applied laws and policies, while in cultures characterized by particularism individuals believe that rules and policies, while important, are only guidelines. For particularists, each situation must be considered on its own merits and must incorporate the unique elements of the situation and the personal relationships involved. In other words, there is no “correct” way of dealing with everyone.

Rule-based and Relationship-based

Hooker (2003: 147) suggests that cultures vary in how they enforce rules. He identifies two types of cultures: rule-based cultures and relationship-based cultures. In relationship-based societies, rules are enforced by individuals whereas in rule-based cultures, individuals tend to follow rules making enforcement less important.

In relationship-based cultures, behavior is regulated by other individuals, peers, superiors, governments, or enforcement agents. For example, in these cultures, it is common to see security guards in most business establishment and many homes. Their role is not to defend property, but play the role that conscience plays in rule-based societies. In rule-based societies people do things by the book, behaving in accordance with the rules. Rules are posted in public places and individuals follow those rules.

Hooker (2003) cautions, however, that the existence of rules does not classify a culture as rule-based or relationship-based. Relationship-based societies may have as many or more rules than rule-based societies. The difference is in the mechanism of governance. In rule-based cultures, the existence of a rule is sufficient to guide behavior, as individuals tend to follow them. In relationship-based societies, the rules are only valid if enforced. In this case, other individuals enforce the rules.

These two dimensions, universalism/particularism, and rule-based/relationship-based, are closely related. While universalism versus particularism refers to the importance of relationships in the application of laws and rule-based versus relationship-based refers to the importance of relationships to enforcing laws, both point to a difference in perception about the importance of laws. I will use the term “rule-oriented” to refer to Trompenaars’ universalists and Hooker’s rule-based cultures and the term “relationship-oriented” to refer to both Trompenaars’ particularists and Hooker’s relationship-based cultures. I suggest that in most cases, cultures that are universalist are also rule-based and cultures that are particularist are also relationship-based.

Laws and rules attempt to control the behavior of people, making it more predictable. Every culture relies, to some extent, on a set of rules or guidelines to control behavior. However, the cross-cultural literature reviewed above suggests that cultures vary in the extent to which following the rules is stressed and in the way in which the rules are enforced. The beliefs regarding the importance of rules and their enforcement are likely to influence the efficacy of law as an uncertainty coping mechanism.

Cultures that emphasize following universal rules, regardless of enforcement are more likely to believe that the existence of rules reduce uncertainties associated with the behavior of others. On the other hand, cultures that see rules as mere guidelines that require enforcement to be followed are less likely to see “law” as an efficient way to reduce the uncertainty because the rules alone are not enough to guide behavior. In other words, rule-oriented cultures regulate behavior by using rules, suggesting that the mechanism “law” is an efficient way to reduce uncertainties caused by the behavior of others. Relationship-oriented cultures, on the other hand, do not take the law literally and rely heavily on enforcement, decreasing the efficacy of “law” as a coping mechanism. Therefore, in rule-oriented cultures individuals are more likely to use “laws” to cope with uncertainty than in relationship-oriented cultures.

Hypothesis 2: Rule-oriented cultures are more likely to use “law” as a mechanism to cope with uncertainty than relationship-oriented cultures.

Religion as a Coping Mechanism

“Religion” as a coping mechanism refers to beliefs in superior powers capable of controlling destiny and defending against uncertainties (Hofstede, 2001). This power can be God, or other supernatural powers, but it can also be powerful individuals, thought to be above uncertainty. These individuals can be religious figures but can also be experts, gurus, or even government officials. Cultures that rely on “religion” to cope with uncertainty are likely to rely on supernatural powers, rites and rituals, and the opinion of powerful others. “Religion” as a coping mechanism suggests imputing the responsibility of the uncertain future to someone else, believed to be above uncertainty. This may be relying on a belief that the future belongs to God and that He will provide, on a belief that life takes its own course and that we cannot do anything about it, or even that the government or another powerful individual is in control of the situation and will take care of the future.

According to Hofstede (2001), “religion” is used to cope with “undefendable” uncertainties, i.e. uncertainties that cannot be effectively dealt with using “technology” or “law.” Therefore, individuals in all cultures are likely to rely on “religion” at some point, as some uncertainties may not be successfully reduced through “technology” or “law”.

However, considering that the same uncertainty may be dealt with using any of the three mechanisms – “technology”, “law”, and “religion” – religion is likely to be more salient in cultures that find technology and law less efficient. In other words, the more a culture emphasizes controlling the environment or the behavior of others, the less likely individuals in that culture will be to rely on “religion” as a coping mechanism. Therefore, religion is more likely to be preferred by cultures that simultaneously believe in harmony with the environment and are relationship oriented because neither technology nor law are seen as effective coping mechanisms.

Hypothesis 3: Cultures characterized by “harmony” and “relationship-orientation” are more likely to use “religion” as an uncertainty coping mechanism than cultures that are either characterized by “mastery” or “rule-orientation”.

Summary

As discussed above, I suggest that cultural beliefs about control over nature and importance of rules are likely to influence the choice of uncertainty coping mechanisms. Figure 1 summarizes the proposed relationships between culture and the use of coping mechanisms.

Insert Figure 1 About Here

As figure 1 illustrates, it is assumed that each of these mechanisms alone is insufficient to deal with all uncertainties. Sometimes, the mechanism will fail to provide comfort and either other mechanisms will be used or stress will ensue. Hofstede (1980, 2001) suggests that cultures high on uncertainty avoidance display higher levels of stress, resulting from their inability to cope with uncertainty. However, Hofstede’s study did not investigate the role of technology and religion as coping mechanisms. As displayed in figure 1, I suggest that stress is not necessarily a property of cultures, but the result of an ineffective coping mechanism.

In summary, I have argued that individuals will try to cope with uncertainty employing mechanisms that are culturally accepted. Three main mechanisms were identified – “technology”, “law”, and “religion”.

Culture beliefs about control over the environment and the importance of rules were suggested to influence the preference for one mechanism over the other. Further research need to explore the relationship between uncertainty coping mechanisms and stress.

RESEARCH METHODS

Data Sources

To explore the variation in uncertainty coping mechanisms across cultures, I selected two industrial countries different in the cultural dimensions that influence how cultures perceive and deal with uncertainty. Brazil and U.S. vary in the cultural dimensions that are relevant to this study. The Brazilian culture is one characterized by harmony (Schwartz, 1994), that is Brazilians tend to believe that one should adapt to the environment rather than change it. The U.S. on the other hand, is characterized by mastery, that is, Americans tend to believe that the future is their own doing and that they should try to change the natural and the social world to advance their interests. Additionally, Brazil is particularist while the U.S. is universalist (Trompenaars & Hampden-Turner, 1998). Brazilians tend to believe that while rules are important they must be tempered with other considerations, such as the people involved and unique circumstances. Americans, on the other hand, tend to believe that rules should be equally applied to everyone and that fairness is achieved by making sure that personal relationships or individual circumstances do not take precedence over the law. In other words, Brazilians are relationship-oriented while Americans are rule-oriented.

The two countries offer a good starting point to explore the role of culture in coping with uncertainty because they are at the same time culturally diverse, but of similar size and resources. Obviously, the two countries also differ in their economic, legal, and institutional environments. As other scholars have recognized (Child, 1981; Peng, 2001), culture alone may not be enough to explain management practice. Cultural values and beliefs are embedded in an institutional framework that besides norms and values, also include laws and regulations. Further research needs to expand the study to other countries to better disentangle the role of culture and the role of institutions in how managers cope with uncertainty.

While few would disagree that it is desirable to study the relationship of culture to management practice, the reality is that studying culture involves added complexities and difficulties. For example, it is difficult to assure that samples in both countries are equivalent, because even if research subjects are in the same role (for example managers) they may enjoy different social status or access to resources.

It is also difficult to assure that research instruments are interpreted equivalently and that translations are properly done (Triandis, 1994).

As it is true for any other social science, the study of culture benefits from multiple data sources, as some findings may be a product of different reactions to the data collection method rather than different values or beliefs. Most cultural studies conducted in the management literature have relied on surveys of managers and organization employees to infer country-level variables (Hofstede, 1980; Trompenaars and Hampden-Tuner, 1998; House et al., 2004). In this research, I use an unobtrusive data collection method to study culture, complementing early studies with an alternative data source. I explore the role of culture in providing mechanisms to cope with uncertainty by analyzing the content of business magazines. Business magazines function as sensemaking tools in managers' efforts to understand their environments. They contain discourse that absorbs uncertainty by attributing meanings to past events, and proposing models for future action.

While business magazines are only one among several arenas where sensemaking occurs, they are a common source of information for the business elite of a country. As such, they offer a common reservoir of information and interpretations to their readership. It is well established in the literature that collecting information about the outside environment is the first step towards interpreting (Daft & Weick, 1984) and adapting (Hambrick, 1981) to the environment. While managers collect information using a multitude of information sources (Aguilar, 1967), the managerial cognition literature suggests that managers devote important attentional resources to keeping up with the industry's common body of knowledge (Hambrick, 1982; Porac, Thomas & Baden-Fuller, 1989). The common body of knowledge is the knowledge that is shared by the members of a strategic group or industry. It circulates through a common network of suppliers, agents, and customers (Porac et al., 1989) as well as specialized trade publication (Hoffman and Ocasio, 2001). The common body of knowledge provides decision-makers with a repertoire of issues and answers from which to construct action (Ocasio, 1997). In situations of uncertainty, managers rely on the common body of knowledge to understand the world and choose models for action. As uncertainty buffers, the content of the common body of knowledge gives a good indication of the salience of different coping mechanisms in each country.

At a country-level of analysis, the common body of business knowledge is reflected in the business press, including business magazines, business newspapers, and popular business books.

In this study I focus on business magazines as they are an important reservoir of information, widely read and, in contrast to newspapers, tend to focus on national level events rather than regional businesses.

While business magazines may actively push their editorial agenda and offer a biased interpretation of events, these biases are likely to mirror the interests and biases of their core readers (Hoffman & Ocasio, 2001). In the case of wide-circulation magazines, these biases are likely to reflect the worldview of the country's business elites. I extend the argument that trade journals reflect the culture and social structure prevailing within an industry (Hoffman & Ocasio, 2001; Molotch & Lester, 1975) to suggest that business magazines reflect the culture and social structure prevailing in a country. Business magazines serve as sensemaking arenas and offer managers models for coping with uncertainty that are coherent with the culture in which they are embedded.

In this study I am analyzing the two best selling magazines for each country. They were selected from the Ulrich's Periodical Directory, based on their description and circulation¹. The four magazines cover news and developments affecting the business world, such as business news, finance, economy, legal issues and political news. Their main readership is comprised by executives, managers, and business professionals in general. Focusing on the same issues and targeting the same audience, these two pairs of magazines offer a comparable window into the business culture of Brazil and the United States.

Data Analysis

I analyzed the content of these business magazines using computer-assisted content analysis. Content analysis is a widely accepted technique of quantitative research (Neuendorf, 2002) based on the quantitative, objective analysis of message characteristics. It is a research technique that allows replicable and valid inferences from data to their context (Krippendorff, 1980: 21). Content analysis is a proper method to study culture because language mirrors mental processes and reflect different cognitions and realities (Sapir, 1956; Berger & Luckmann, 1967, Chomsky, 1972; Kress & Hodge, 1979). Language and linguistic practices offer terms, forms, and metaphors with which a particular culture can assemble meaning (Potter, Edward, Gill & Wetherell, 1990; Gill, 2000).

¹ The Ulrich's Periodical Directory only covers one Brazilian magazine – Exame. Isto e Dinheiro was selected based on an internet search of several Brazilian business magazines due to its larger circulation.

The analysis of the use of language, or written text, provides a good window into the values, cognitions, and realities of the writer and readers of the text. In other words, texts are artifacts of culture.

Several management researchers have used content analysis of published material to study cognitive processes. For example, D'Aveni and MacMillan (1990) examined the pattern of attention of top managers in surviving and failing firms using a content analysis of letters to shareholders. Abrahamson and Park (1994) used a content analysis of presidents' letters contained in annual reports to study the process of concealment of negative outcomes. Kabanoff, Waldersee and Cohen (1995) used a content analysis of organizational documents to explore espoused values and change themes. Meindl, Ehrlich and Dukerich (1985) used a content-analysis of the Wall-Street journal to investigate the prominence of leaders and leadership. While most management studies using content analysis have focused on textual communication of managers, making inferences about their values, sentiments, intentions and ideologies, this method has been widely used in the social sciences to infer group or societal values through the content of communications (Morris, 1994, Neuendorf, 2002). For example, cross-culture researchers have used content analysis of children stories and fairy tales to make inferences about cultural values (Triandis, 1994).

In this study I assume business magazines act as uncertainty buffers and their content is used to reduce uncertainty. I further assume that the language the magazines use is a reflection of cultural values and beliefs. This research focused on two years of publications, from July 2002 to July 2004. A sample of 25% of the issues published during this period was content analyzed in its entirety, including all written text except advertisements. I employed a systematic random sampling procedure (Neuendorf, 2002) to select magazine issues, in which every 4th two-week period was included for analysis. The same weeks were included for analysis in all four magazines, reducing the effect of external events in the interpretation of the results. Using two-week periods allowed for a matching coverage period between weekly and biweekly magazines. In total, this research is based on a sample of 78 magazines issues, 39 issues per country.

Dependent Variables

The dependent variables are operationalized as the number of times words referring to “technology”, “law” and “religion” are used in the text. They were created through the following process: First, I used the software VBPro (Miller, 1995) to produce a list of all words appearing across all magazine issues. Two coders independently examined the list of words and selected every word that might represent any of the constructs of interest. I calculated intercoder reliability using Cohen’s (1960) kappa, which controls for chance assignments. The resulting kappa, 0.78, is acceptable for this type of analysis. Disagreements were resolved and a final list of words was assembled and submitted to a panel of experts for validation.

Second, I manually coded the text for disambiguation (Weber, 1985), i.e. to exclude words that were used with a different meaning than the one of interest in this research. One of the main challenges of computer-aided content analysis is that existing computer systems are not able to deal with homographs. Even though there are computer programs able to deal with word senses in English (Weber, 1985; Nauendorf, 2002) these advancements are not available in Portuguese. To overcome this limitation, I extracted from each magazine the paragraphs in which the words were used, using the software VBPro (Miller, 1995). I read each paragraph and verified that the tagged word was employed in the correct word sense. When the word was employed with a meaning different from the one of interest, I removed that instance from the dataset. For example, the word “bill” refers to “law” when it means a “statute in draft before it becomes law” (WordWeb 2.1, 2001). However, it does not refer to “law” when it means “money” or “a statement of money owed for goods or services” (WordWeb 2.1, 2001). Therefore the word “bill” was excluded from the final count in the sentence “customers must pay their *bills* before a cutoff date”. The word “bill” remained in the final count in the sentence “Business and accounting lobbyists had counted on killing the *bill* championed by Senate Banking Committee Chairman Paul Sarbanes.”

Finally, I recalculated word frequencies using the software VBPro in the clean text. The resulting frequency of each word per issue was used to calculate the dependent variables.

RESULTS

Table 1 reports the mean word frequencies by magazine for each of the dependent variables (column “Mean count”). It also reports the relative salience of the constructs, expressed as the mean percentage of total words dedicated to each coping mechanism – technology, law, and religion (column “%”). The “N” equal the number of issues analyzed for each magazine.

Insert Table 1 About Here

Table 2 reports the general results using the generalized estimation equation (GEE) approach (Dobson, 2002; Hardin & Hilbe, 2003). The GEE approach was developed to extend the GLM algorithm and accommodate the modeling of correlated data (Hardin & Hilbe, 2003). The results suggest there is a significant type effect ($p < .001$) and a significant type by country effect ($p < .01$). The type effect suggests that the frequencies of words vary significantly by type of mechanism. More interestingly, there is a significant interaction effect between type of coping mechanism and country. This interaction will be explored in Table 3.

The results displayed in Table 2 also suggest that there is no significant effect for magazine within country and type by magazine within country. Notice that magazines are nested within country because Business Week and Forbes are American magazines, while Exame and Isto e Dinheiro are Brazilian magazines. The results suggest that there is no significant difference between magazines within country. Also, the interaction of type of mechanism by magazine is not significant. These results reinforce the country effect, as it eliminates the alternative hypothesis that the findings were a product of editorial preferences rather than cultural preferences.

Insert Table 2 About Here

To explore why the interaction effect of type of mechanism by country is significant, as shown in Table 2, a contrast analysis is necessary. The contrast analysis compares subsets of means in order to identify where the significant difference is located.

Table 3 reports the contrast estimate results of type of mechanism by country. The results suggest that “technology” and “law” were more salient in the United States than in Brazil, supporting hypotheses 1 ($p < .001$) and 2 ($p < .001$). Religion was more salient in Brazil than in the U.S., supporting hypothesis 3 ($p < .05$). These results will be further explained below.

Insert Table 3 About Here

Hypothesis 1 suggested that mastery cultures would be more likely to use technology as a coping mechanism than harmony cultures. In this analysis, the U.S. represented a mastery culture and Brazil represented a harmony culture (Schwartz, 1994). The results suggest that a significantly higher frequency of words were devoted to “technology” in American magazines than in Brazilian magazines ($p < .001$). For every “technology” word that appears in the American magazines, only 0.64 words are likely to appear in the Brazilian magazine. These results support hypothesis 1.

Hypothesis 2 suggested that rule-oriented cultures would be more likely to use “law” as a mechanism to cope with uncertainty than relationship-oriented cultures. In this test, the U.S. represents a rule-oriented culture and Brazil represents a relationship-oriented culture (Trompenaars, 1993). The results suggest that there was a significantly higher frequency of words devoted to “law” in the U.S. than in Brazil ($p < .001$). For each time a word about “law” appeared in the American magazines, 0.67 words appeared in the Brazilian magazines. This results support hypothesis 2.

Hypothesis 3 suggested that cultures characterized by harmony and relationship-orientation are more likely to use religion as a coping mechanism than cultures that are either mastery or rule-oriented. The empirical test classified Brazil as a harmony and relationship-oriented culture and the U.S. as a mastery and rule-oriented culture (Schwartz, 1994; Trompenaars, 1993). The results suggest that the salience of the concept “religion” was significantly higher in Brazil than in the U.S. ($p < .05$). Words related to “religion” were 1.58 times more likely to be seen in Brazilian than American magazines.

While this results support hypothesis 3, further investigation is needed. First, the mechanism “religion” was not used very frequently in the magazines, suggesting that religious issues may not be explicit in business magazines.

Second, the hypothesis suggests that cultures characterized by harmony and relationship-orientation will use more “religion” than cultures that are either rule-oriented or mastery.

However, the small sample of countries allowed testing only cultures that are both rule-oriented and mastery oriented. Further research needs to explore other combinations.

DISCUSSION AND CONCLUSION

This study’s fundamental premise is that business magazines act as uncertainty buffers and their content is used to reduce uncertainty. Additionally, it is assumed that the language used in the magazines is a reflection of cultural values and beliefs. Therefore, it is understood that the relative salience of coping mechanisms in the magazines’ text is an indication of a culturally based preference for uncertainty coping mechanisms.

The results of this study suggest that the role of culture in providing managers with mechanisms to deal with uncertainty is an important avenue of research. Content analyses of leading business magazines in the U.S. and Brazil uncovered significant variations in the salience of “technology”, “law”, and “religion”. The U.S., a mastery and rule oriented culture, emphasizes “technology” and “law” more than does Brazil. By contrast, Brazil, a harmony and relationship-oriented culture, emphasizes “religion” more than does the U.S. These findings suggest important theoretical and practical implications.

First, this study contributes to the management literature by suggesting that managers in different cultures deal with uncertainty using different mechanisms. Uncertainty has been a central concept in explaining the relationship between organizations and their environments (Milliken, 1987), often implying that the degree of perceived uncertainty influences action. For example, the environmental scanning literature suggests that managers scan the environment more frequently and use more personal sources when uncertainty is perceived to be higher (Daft, Sormunen & Parks, 1988; Boyd & Fulk, 1996). The understanding that managers across cultures may deal with uncertainty differently suggests that future research involving the influence of uncertainty on action need to account for cultural variations.

The findings of this study also have important implications for the cross-cultural literature. They suggest that national culture influences how individuals cope with uncertainty, raising questions about current definitions of uncertainty avoidance. This study suggests that future research needs to emphasize variations in coping mechanisms rather than levels of tolerance for uncertainty.

Practicing managers may also benefit from the results of this study. Considering that uncertainty is pervasive in managerial action, cultural variations in coping with uncertainty are likely to be found in many aspects of a manager's work. For example, expatriate managers dealing with local subordinates may have to help workers to cope with their uncertainties in a way that is different from what the manager is used to. Managers working in multicultural teams need to understand that their peers may be approaching the problem in a different way because of their views about uncertainty. Managers negotiating overseas need to keep in mind that managers in other cultures may deal with the uncertainties associated with the deal in a different manner. Managers' actions on environmental uncertainties may be misunderstood and even reprimanded by peers, subordinates, and superiors from other cultures.

LIMITATIONS AND FUTURE RESEARCH

While the results of this study have important practical and theoretical implications, the findings of this study are limited and should be taken as an indication that more research is needed. First, this study is limited to two countries. While Brazil and the U.S. are two culturally diverse countries, they are hardly representative of the cultures existent in the world. For instance, it is not clear what the role of religion is in cultures that are either mastery or rule-oriented, but not both. Also, considering the small sample of countries, it is difficult to judge if there are other extenuating variables that influence the choice of coping mechanisms that were not explored in this study. For example, it may be that variations in the economic, legal and political environment are likely to influence the availability of coping mechanisms. More research involving other countries would provide important insights into how the coping mechanisms and the cultural dimensions interact. For instance, cultures that combine rule-orientation and harmony orientation, or relationship-orientation and mastery orientation, would be worth integrating. I expect that their preferences for coping mechanisms would shed light into the dynamics of coping with uncertainty.

While there are clear advantages of using content analysis as a technique to study culture, the limitations of this method are clear as well. Systematic word count is a good way to capture manifest meaning, but it is not efficient in capturing latent meaning. "Religion", for instance, resulted in a rather low word count when compared with "law" and "technology". Considering that the data were extracted from business magazines, this finding is not surprising. Business magazines are not the appropriate forum to deal with religion. However, one would expect that religious values would be present in the text in a subtle way, which was

not captured in this study. Additional research using other methods and data sources is required. For instance, further research stressing the qualitative nature of the text – such as discourse analysis - would increase our understanding of the coping mechanisms and their use. This study focused mainly on manifest meaning, but it is possible the salience of some mechanisms were misunderstood or misapplied. A qualitative analysis of the text would help us understand the meaning of the words employed and better characterize the coping mechanisms. Also, other sources of data would be important to make sure the findings of this study are not restricted by the choice of communication channel. Expanding this study to other communication channels, such as newspapers, and other sources of data, such as interviews with managers, would provide important insights.

This study focused on testing only the coping mechanisms identified in the literature - law, technology and religion (Hofstede, 2001; House et al., 2004). However, individuals may cope with uncertainty using other mechanisms that are also influenced by culture. Research focusing on uncovering another coping mechanisms and their relationship with culture are necessary. An exploratory qualitative approach may be needed for identifying possible alternative coping mechanisms not identified previously, considering the little theoretical guidance available.

The idea that some cultures may tolerate uncertainty better than others, as proposed by Hofstede (1980), was not tested. It is possible that variations in tolerance for uncertainty also influence the choice of coping mechanisms. Future research investigating tolerance for uncertainty and choice of coping mechanisms may be beneficial. Additionally, it is important to explore the relationship between uncertainty, coping mechanisms, and stress. I have proposed that stress is the result of a failed coping mechanism but this assertion has not been tested. Further research should expand this area.

I believe an important contribution of this study is to uncover deficiencies in the theoretical foundation of the cross-cultural field. While there are several models of culture, or several ways to characterize cultures, the divergences across models are an important obstacle to the advancement of the field. Researchers trying to incorporate culture in their studies find themselves in a “culture jungle”. The choice of which cultural model to use often ends up being a political or convenient one, as there is little agreement about which cultural dimensions matter most and how they should be defined. The dimension I studied here, uncertainty avoidance, is only one of several dimensions that needs to be further defined. While scholars agree that perceptions of uncertainty are influenced by culture, a closer look at the culture models reveals more divergences than convergences.

This study suggests that uncertainty avoidance is not a cultural dimension by itself, but an experience influenced by other more important cultural attributes. I focused on the influence of control over environment and rule orientation in providing managers with mechanisms to cope with uncertainty. However, other cultural dimensions are likely to influence how cultures perceive and deal with uncertainty as well. For instance, social organization, i.e. the degree to which individuals see themselves as autonomous or embedded in groups, may influence how collectives organize to cope with common uncertainties. Likewise, power distribution, or the way in which power, status, and authority in a society are distributed is likely to influence the degree to which individuals take responsibility for uncertain events. For instance, individuals in hierarchical cultures may rely on the guidance, opinion, or protection of superiors to deal with uncertainty. Finally, time orientation, the way individuals perceive time may influence the timing in which uncertainty is perceived and action is taken. This in turn may influence the coping mechanism that is available or is considered efficient. The influence of these dimensions on mechanisms to cope with uncertainty needs to be further investigated.

Finally, I suggest the dimension “uncertainty avoidance” is a good example for the problems existent in current cultural models. I argue that rather than looking for additional cultural dimensions and creating more comprehensive cultural models, it is time to start integrating and consolidating the existing ones. While cultures may be distinguished in many dimensions, only a few are critical and account for most of the variance. The focus of future research should be to identify those few basic dimensions that will help explain most organizational and managerial behavior. Further research need to focus on other dimensions to uncover the convergences and divergences across models, and to examine their meaningfulness as a way to distinguish cultures.

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FIGURE 1

Culture and Mechanisms to Cope with Uncertainty

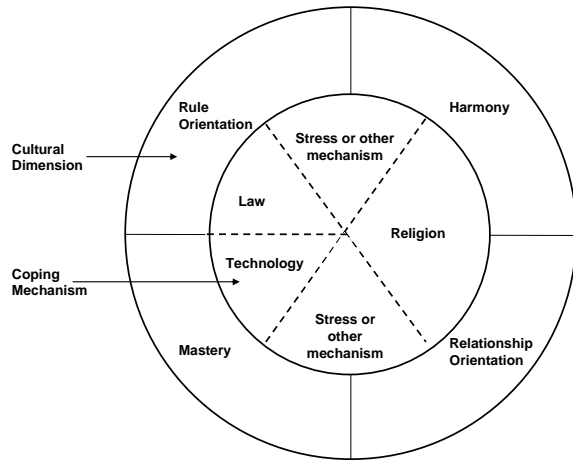


TABLE 1**Descriptive Statistics: Mean Word Frequencies and % of Total**

	Technology		Law		Religion		Mean Total Words
	Mean Count	%	Mean Count	%	Mean Count	%	
Forbes (N=13)	143.8	1.88%	185.5	2.42%	4.3	0.06%	7,654.8
Business Week (N=26)	182.5	2.56%	162.3	2.27%	3.2	0.04%	7,138.7
United States (N=39)	163.1	2.21%	173.9	2.35%	3.7	0.05%	7,396.8
Exame (N=13)	104.0	1.51%	114.5	1.66%	5.1	0.07%	6,908.2
Dinheiro (N=26)	69.9	1.20%	85.6	1.47%	5.0	0.09%	5,818.4
Brazil (N=39)	86.9	1.37%	100.0	1.57%	5.0	0.08%	6,363.3

TABLE 2**Score Statistics**

Source	DF	Chi-Square	p
Country	1	3.05	0.08
Type	2	61.44	<.001 ***
Type*Country	2	11.94	<.01 **
Magazine (Country)	2	0.42	0.81
Type * Magazine (Country)	4	5.33	0.25

TABLE 3**Type by Country Effect - Contrast Estimate Results**

Label	Estimate	Standard Error	Confidence Limits		Chi-Square	p
Tec: BR vs. U.S.	-0.44	0.09	-0.62	-0.26	21.95	<.001 ***
Exp (Tec: BR vs. U.S.)	0.64	0.06	0.53	0.77		
Law: BR vs. U.S.	-0.41	0.07	-0.55	-0.27	33.75	<.001 ***
Exp (Law: BR vs. U.S.)	0.67	0.05	0.58	0.76		
Rel: BR vs. U.S.	0.46	0.19	0.09	0.84	5.80	0.02 *
Exp (Rel: BR vs. U.S.)	1.58	0.30	1.09	2.31		