QUANTI-QUALITATIVE INSTRUMENTS TO STUDY THE DECISION-MAKING PROCESS [1]
ISRC Working Paper 020298, February 1998

Henrique Freitas
Visiting Researcher at ISRC, University of Baltimore (USA)
Associate Professor, GESID - PPGA - Escola de Administração da UFRGS and CNPq Researcher (Brazil)
Docteur "nouveau régime" – Université Pierre Mendès France (Grenoble, France)
hf@ea.ufrgs.br

Amarolinda C. Zanela and Marie A. Macadar
M. Sc. Students, GESID - PPGA - Escola de Administração da UFRGS (Brazil)
mammoron@adm.ufrgs.br - maro@adm.ufrgs.br

Jean Moscarola
Director of Ecole de Commerce, Ventes, Economie et Gestion, Université of Savoie, Annecy (France),
Doctor in Management (Université de Paris), Author of Sphinx's software
moscarola@univ-savoie.fr

João Luiz Becker
Professor, GESID - PPGA - Escola de Administração da UFRGS and CNPq Researcher (Brazil)
Ph.D. UCLA (Los Angeles, USA)
jlbecker@adm.ufrgs.br

Milton Jenkins
Professor and Director of ISRC, Information Systems Research Center, University of Baltimore (USA)
Ph.D. on Management Information Systems, University of Minnesota (USA)
mjenkins@ubmail.ubalt.edu

Abstract
This paper describes the process of designing a survey to conduct exploratory, cross-cultural study in different countries, the purpose of the survey is to collect data on managers perceptions of the decision-making process. We describe how we developed each one of the instruments to be used for data-collection, by survey, especially caring about national culture and the different levels of management decision experiences of the individuals. The result is a combination of several instruments that must be completed by the participants. Some of them are objectives; others are subjective; some are quantitative, others are qualitative; some are abstracts, others are concretes. This should enable any researcher or professional in information systems or decision support, or human resources, among others to employ the instruments as they are, or even adapt them and create a database. The database may be useful to evaluate the decision-making process, or to identify decision-maker profiles.

Keywords
Decision-making process - National culture - Research instruments - Content Analysis - Qualitative Research

QUANTI-QUALITATIVE INSTRUMENTS TO STUDY THE DECISION-MAKING PROCESS

1. Introduction

Political, social, and economic changes are occurring all over the globe and are having great impact on the way we live. Political alliances never before imagined are being formed; the Internet is bringing people in closer communication with one another; and economic blocks are being formed (Thurow, 1996). Finally, change is underway, and it is seemingly irreversible, moving toward globalization. Even though technological tools are available, there is a lack of knowledge concerning the human behavior with respect to debate, negotiation, and decision. In cooperation, as well as in conflict, people normally discuss. They should negotiate with potential allies, and even with potential or declared opponents. How will they react in this discussion? What will their reaction be to our proposition? And, in this regard, how can we improve it? These are subjects that come to the decision-maker in the course of day-to-day operations, in all kinds of organizations.

In the context of globalization, knowing more about "how" people make decisions is today fundamentally important to competition, for interaction, understanding and cooperation among individuals, groups, organizations, nations, etc. In this article, we describe activities accomplished in the context of a research project on the decision-making process in different countries, Brazil, France, and the United States. The central subjects are the influence of national culture and the influence of the level of decision makers experience or managerial background. Our interest is in the individuals' awareness of decision-making, as well as in identifying the presence or absence of a specific model of the decision-making process, in each region of each country, and in each country in the study. The authors' primary concern in this paper is the first phase of the project, corresponding to the **conception and validation of the data collection instruments**. A secondary concern is developing subjects to which we may apply the instruments.

In Section 2, we reflect on the decision-making process. In Section 3, we consider concepts of decision, national culture, and experience level of decision makers. The research method is described in the Section 4; and in Section 5, the emphasis is on our design of each one of the instruments used to collect data, and on the data collection process. In Section 6, we describe how we tested validity and reliability of the instruments. In Section 7, we describe the validation of the sequence in which the instruments should be applied. Some details regarding the versions of the instruments in other languages are in Section 8, and we present conclusions, limitations, and directions for future research in Section 9.

2. The decision-making process

The decision-making process has great interest among scholars who want to understand better increasingly complex organizations. The following facts are indicative of complex organizations.

a. The globalization of markets, the formation of economic blocks, and the consequent increase in competition. "... Today, the atmosphere of business is characterized by a tendency toward global competition, involving competitors anywhere in the world" (Alter, 1996, p15). Having a minimum knowledge of potential trading partners and competitors is then imperative.

b. Finding information relevant to a topic of investigation remains a challenge, even though more and more data and information are more and more accessible (Jarroson, 1994).

c. *Joint-ventures,* binational and multinational companies are becoming more and more common. Direct foreign investments are on the rise. Global trade brings about the need for intercultural cooperation.

d. Time has become a critical success factor. More and more, people need to make decisions in a short period of time; that is, the decision-maker needs to assess complex situations quickly and anticipate consequences of his decisions (Alter, 1996). There are decision technology systems to aid the decision-maker to act within constraints.

In the context of global trade, arises the need to understand better the decision-making process, as well as the behavioral and cultural factors. Graham, Mintu and Rodgers (1994) affirm that negotiators have already recognized the necessity to consider the cultural differences, not only in the negotiation process, but also in the decision-making process, because the people of different countries demonstrate different behavior patterns and personal characteristics that should be respected. These authors discuss some studies blaming the lack of information and interpretation of cultural idiosyncrasies for the failure of American companies. In the same way, Ein-Dor, Segev, and Orgad (1993) verified a dearth of literature on the effects of national culture in decisions involving information systems. According to Anastassopoulos et al (1991, p. 388) "the influence of the national culture on the practicality of decisions is exercised, not only in a direct way through the representations linked to the individuals (...) but also through other general political components of the organization with whom the decision-maker interacts."

There is, then, a necessity to compile the profile of the decision-makers in the organizations and, to compare the national cultures of different countries, considering the multiple facets of the decision process. Some subjects could make a contribution to progress in this area. For example, how does the decision-maker view the decision-making process? How is the decision-maker's reasoning developed at this time? What does he really think and value when making a decision?

The application of this type of study is easy to visualize at the moment. For example, when people from two companies from two different countries begin a negotiation, the negotiator who possesses this kind of knowledge will be favored by virtue of understanding the other negotiator's reasoning, giving him or her certain advantage in this interaction, or at least facilitating the negotiation (Freitas, Macadar, and Moscarola, 1996). Negotiation furthers international cooperation. Research of this nature can provide benefits that may generate greater knowledge, and consequently, greater understanding among people from different countries. All who work in an international environment, in various disciplines, may be enriched with the product of this kind of study.

3. The Decision-Making Process, National Culture, and Managerial Background

In order to study the association among the decision-making process, national culture, and decision experience or managerial background, it is important to review the relevant literature.

3.1 The Decision-Making Process

One of the main notions on the decision-making process was formalized by Herbert Simon (1947, 1997), who received the Nobel Prize in Economics in 1978 for the theory of "bounded rationality", which considers that the decision-maker does not seek the best decision, but is satisfied with a decision that approaches some criteria. Simon described the phases of the decision-making process as following:

- The **intelligence** phase, also called the investigation phase. During this phase, data are processed to give information to the decision-maker that enables identification of the problems and opportunities.

- The **design** phase, also called the conception phase. During the design phase, possible courses of action are created and developed and these alternatives are evaluated.

- The **choice** phase, where one of the alternatives is selected.

- *Feedback*, any of the phases or steps are reevaluated and either the course of action is repeated, or a new course of action may be pursued.

Other authors deal with the decison-making process, such as March and Olsen (1976), Mintzberg, Raisinghani and Théorêt (1976), Davis and Olson (1987) and Elster (1990). However, we used Simon's (1947) model as a reference to design the **first research question of the project:** in all groups to be addressed (regardless of their National Culture or their background), is it possible to identify (even implicitly) common factors, steps, guidelines or insights concerning the way people perceive the decision making process, specially if we take the SIMON's 'limited rationality' model of decision making as reference?

5

3.2 National Culture

There are several definitions of culture in the literature. Krober and Kluckhohn (apud Deshpande and Webster, 1989, p. 5) identified 164 definitions of culture, analyzed in full detail, arriving at a consensus that culture "is a product; it is historical; it includes ideas, models and values; it is selective; it is learned; it is based on symbols and it is an abstraction of behavior and of consequences of behavior." One of the authors most often quoted in this field is Geert Hofstede. He conducted research over a long period of time surrounding IBM's branch offices, in 64 countries, concerning the different values in **national cultures**. He defined culture as "the collective programming of the mind which distinguishes the members of one group of people from those of another" (Hofstede, 1991, p. 4). Further, he wrote, "although each person belongs at the same time to a number of different groups and individuals' categories, the people unavoidably carry several levels of mental programming themselves, corresponding to different layers of culture" (Hofstede, 1991, p. 10).

Six layers of culture have been identified:

- a **national** layer, coinciding with a country (or countries through which the person migrated during his life);
- a layer of **regional affiliation with ethnic groups, linguistics, and religion**, as well as the national ethnic, linguistic, and religious groups;
- a **gender** level, coinciding with having been born male or female;
- a **generation** level, that separates the grandparents from the parents and the parents from the children;
- a **social class** level, associated with education and occupation or profession;
- an **organizational** or **corporate** level, for those who are employees, according to the way the employees have been socialized by their work in the organization.

When analyzing cultural differences, these layers of culture need to be considered, especially the national layer. Hofstede (1991, p. 12) points out: "the nationality, just as illustration in a passport, it should be used with prudence in a study on cultural differences. However, this is often the only usable approach to classification." The author also defines what he calls **dimensions of national culture:** "A cultural dimension is an aspect of a culture that is measurable in relation to others cultures" (Hofstede, 1991, p.14).

In an article of 1994, Hofstede describes, in a brief way, the dimensions that emerged from his research (Table 1):

Table 1. The dimensions of National Culture According to Hofstede

CULTURAL DIMENSION	DEFINITION
Individualism vs. Collectivism	Individualism is the degree to which the people in a country prefer to act as individuals instead of as members of groups. The opposite of the individualism is collectivism.
Masculinity vs. Femininity	Masculinity is the degree to which characteristics such as assertiveness, performance, success, and competition, are associated with men and characteristics such as quality of life, maintenance of good personal relationships, solidarity, and care for the weak ones are associated with the women.
Power Distance	Power distance is the degree to which inequality among the people of the population of a country considered to be normal: from relatively equal (small power distance) to extremely unequal (large power distance).
Uncertainty Avoidance	It is the degree to which people in a country prefer structured over unstructered situations. Structured situations are those in which there are clear rules on how to behave. These rules may be written down, but they can also been unwritten and imposed by tradition.
Orientation for Long-term vs. Short-term	Orientation for the long-term: presence of values guided by the future; such as, preservation and perseverance. Orientation for the short-term: presence of values guided by the past and for the present, with respect to tradition and fulfillment of social obligations.

Source: Hofstede (1994, p. 5-6)

Other authors have also been working with the theme of **culture** in a deeper way: Triandis (1982), Erez and Earley (1993), Baligh (1994), among others. The work of these authors was also considered in our research design. Based on this study, the **second research question of the project** was conceived to be: Does the variation of the origin of the national culture influences the perception regarding decision-making?

3.3 Decision Experience

Different aspects of decision experience have been treated in the literature. According to Kirschenbaum (1992, p. 344), "there is a large body of research documenting differences between beginners and specialists." Usually, these comparisons take into consideration the experience in terms of years of performance in a certain function, age, and level of education. However, it resides in arriving at a definition, an indicator of what is called **decision experience or managerial background** remains to be defined. Kirschenbaum (1992) conducted a study on the influence of experience in strategies for decision-making. He considered *experience level* as being "related with the ability to integrate important information and to take competent decisions" (Kirschenbaum, 1992, p. 344).

Prietula and Simon (1989, p. 120) studied the subject of the experts, and they argue: "expertise, however, involves much more than knowing a myriad of facts. Expertise is based on a deep knowledge of the problems that continually arise on a particular job. It is accumulated over years of experience ...". Driver, Brousseau and Hunsaker (1990), on the book <u>The Dynamic Decision-Maker</u>, defined five decision styles named some demographic factors that influence a person's decision style; such as, age, gender, and education level, among others. "In many companies, management level can be formally defined by how many decisions you make. The *scope* of yours decisions -- the range of people and events affected by your decisions -- is a particularly important measure of your position in management" (Driver, Brousseau and Hunsaker, 1990, p. 2).

Based on a literature review, we compiled a set of variables that indicate the level of decision experience, managerial or individual. These variables with their descriptions are shown in Table 2.

Table 2. Variables of Decision Experience According to Different Authors

DECISION EXPERIENCE VARIABLES	DESCRIPTION	REFERENCE
Age	Age of the decision-maker	Driver, Brousseau and Hunsaker, 1990; Hofstede, 1991
Working time	Years of activity as formal worker	Prietula and Simon, 1989
Managerial experience	Years of activity as manager or executive	Prietula and Simon, 1989
Hierarchical level of the decision-maker	Corresponding to the level of the decisions making: strategic, tactical, or operational	Kirschenbaum, 1992; Hofstede, 1991
Employees under responsibility	Number of employees under the responsibility of the decision-maker	Driver, Brousseau and Hunsaker, 1990
People's selection or employment decision	The decision-maker accomplish or not the task of selecting people to work on his team	The task of selecting people involves a considerable decision-making exercise.
Educational level	Formal education level of the decision-maker: Bachelor's or Master's degree, etc.	Kirschenbaum, 1992; Driver, Brousseau and Hunsaker, 1990; Hofstede, 1991
Living time in other countries or regions	Existence in different cultures, different visions of the world	Driver, Brousseau and Hunsaker, 1990
Languages	Fluency in a language other than the decision-maker's mother tongue	Hofstede, 1991

Based on these references, we raise the **third research question of the project**: is the effect of cultural differentiation further enhanced by individual background as represented by situations of responsibility in decision and others?

4. Research Project: Looking for Decision-Makers' Profile in Different Cultures and Experience Levels

The three main research questions of this investigation share the following **general objective:** to identify individuals' awareness of the decision-making process in different countries or regions, testing whether variables such as the national culture and the decision experience level influence the decision-maker perception; also testing the occurrence of the decision model according to Simon (1947), pointing out eventual discrepancies, setting up a reference frame useful for public or private negotiators and for the researchers in the field.

This study will be done through a researchers' network from different countries. The sample chosen for application of this research will be composed of Master's and doctoral students, as well as managers and executives who act in organizations from executive MBA courses, virtually all of whom major in management. The minimum number in each application group will be 70 people in each country. We are also seeking to appliy the instruments in corporate environments. The target countries for the application of the research are Brazil, France, and the United States of America. Future applications on other countries and on other continents are of equal interest to the team. Two phases of the project are illustrated in the Figure 1. Depending on the results of the first two phases, future research may be based on this application.

In Section 4.1, as well as in the following sections, we will specifically deal with the **FIRST PHASE** of the research project, concerning the design and validation of the data collection instruments and the definition of the best sequence in which to administer them to the managers.

RESEARCH PROJECT PHASES

PHASE 1 - Design

Defining: Subject, Motivation, Objectives, Questions

Ascertain the best sequence of applying the instruments

Designing method & data collection instruments

Validating the data collection instruments

PHASE 1 - Results
- CONSISTENT **SURVEY** RESEARCH PROJECT
- CONCEIVED & VALIDATED LITERATURE-BASED DATA COLLECTION INSTRUMENTS
- WELL DEFINED & VALIDATED SEQUENCE OF APPLYING THE INSTRUMENTS

Collecting data
Brazil - France - USA

A quanti-qualitative data analysis protocol

Data Analysis & Results

PHASE 2 - Application

RESEARCH RESULTS
- Decision-makers profiles different countries
- Cross-cultural decision database
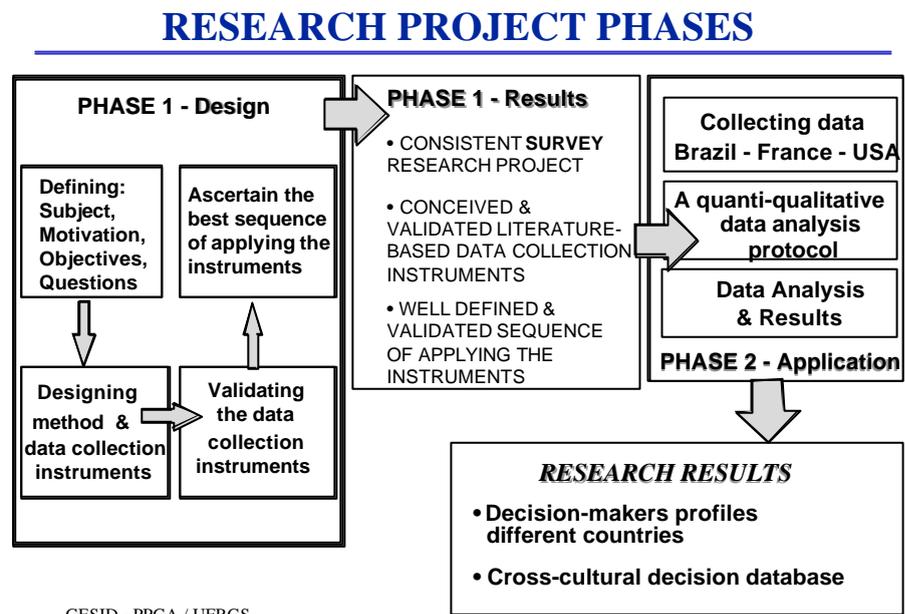
GESID - PPGA / UFRGS

Figure 1. The Activities of Each Phase of the Research Project

4.1 The Design and Validation of the Data Collection Instruments

The data collection instruments link what the researcher wants to know with the reality into which they is inserted; that is, the research instruments are used "to read the reality". The problems that occur in the validation of research are due to the difficulty of measuring the reality, because many times it is nonobservable and incommensurable (Hoppen, Lapointe and Moreau, 1996). Sampieri, Collado and Lucio (1991, p. 242) consider that "an appropriate instrument is the one which registers observable data that truly represent the variables that the researcher has in mind".

Straub (1989) verified, through research published in specialized journals, that insufficient attention is given to validating instruments used in information systems research. One of the most frequent mistakes is employing instruments used in previous research validating them in the new context. It is the reliability and validity of instruments that allows the generalization of the results obtained and consequently the application of the same methodology to different samples. The first phase of this research project is the validation of data collection instruments and the definition of its sequence of application to prevent possible contamination from eah other.

Seeking to provide instruments for the study of decision-making, especially considering aspects such as national culture and years of decision experience, we established the following general and specific objectives for the first phase of the research. The **general objective** is to measure whether national culture and years of decision experience influence the decision-making process. To do this, it was necessary to develop and to validate a set of data collection instruments that, through a specific methodology of application, makes it possible to study and to understand such questions.

The **specific objectives** were: (1) Based on the literature and the experience of the group involved, to design a set of data collection instruments that makes it possible to conduct the investigation; (2) to validate the content of the set of data collection instruments; (3) to develop and to validate an application methodology of the instruments in such a way as to obtain similar results at different sites where they are applied with special emphasis on the sequence in which applications are applied.

5. The Design Process of the Quanti-Qualitative Data Collection Instruments

The construction of data collection instruments takes several steps, and they may be found in the literature for the construction of research instruments (Evrard, Pras and Roux, 1993). However, there is a consensus that it is perhaps best expressed as a process: "the composition of a data collection instruments is a cyclical and interactive process" (Mattar, 1994, p.235). There is no doubt that the first step must be to make a list of subjects based on the literature, if possible using instruments and scales that have been already tested and validated. The adaptation of questions that have been used already to study the same variables, is another way to construct a questionnaire. Even when validated questionnaires are adapted, it is necessary to execute a new validation test (Straub, 1989).

Considering these observations, first we reviewed the literature on the theme we wanted to investigate, looking for similar research that supplied questions for the construction of the data collection instruments. This way, an initial list was compiled, which was submitted to a committee of judges [2]; that is, a work team especially formed to evaluate the survey instruments. This team met eight times for about two hours each time. The group deliberated and analyzed each question in the set of instrument. After several change usually by consensus of the group, the group produced a first draft, which contained a few unsolved questions. An *expert* in statistics applied to the social sciences, was consulted. His familiarity with this kind of research was an asset. He suggested alternatives and improvements and gave a positive evaluation about the final version of the instrument.

Through an intense literature review and deliberation among the researchers involved in the project, it was concluded that different data collection instruments would make the research conclusions more robust. The incremental improvement in the quality of the data collected through a mix of research methods is justified by Brewer and Hunter (apud Hoppen, Lapointe and Moreau, 1996, p.3): "the multiple methods approach focuses the beginning of the convergence (triangulation), proceeding so that the results of a similar research study, by using different subjects, will produce similar, or even identical results." Pinsonneault and Kraemer (1993, p. 14) share that concern, agreeing that the quality of the data collected will be increased due to the convergence (triangulation): "using multiple methods allows us to have more complete data on the phenomenon of interest and a broader and richer understanding."

---

[2] As suggested in the literature, a "judges committee" was constituted. It was formed by members of the research team of GESID-PPGA/EA/UFRGS and the Professor Jean Moscarola, from Université of Savoie, Annecy, France. The Brazilian team was composed by two full professors (Henrique Freitas, who lived 4 years in France and 1 year in the USA, and João L. Becker, who lived 4 years in the USA) and one second-year doctoral student and two master's students. All of the team members were familiar with the theme of this study and with the research in general.

A set of five different data collection instruments was established: (1) word association instrument, (2) phrase composition instrument, (3) a case, (4) a cultural-decision awareness scale, and (5) a socio-demographic. The instruments are described as follows.

Instrument 1 Words Association . This instrument is an adaptation of the denominated projection methods (Mattar, 1994) analyzed by Selltiz et al (1965). A variation of the technique of words association (included in the list of the verbal techniques) was used by Murray and Morgan (apud Selltiz et al, 1965). They denominated a "technique of idea association", requesting to the individual who answered on subjects such as *communism* or *religion*, to supply the most expressive adjective he could find. The instrument presented here can be considered a variation of this technique. The objective of this instrument is to evoke from the respondent adjectives, nouns, and verbs related with the subject of <u>decision-making</u>, and finally, to create a personal definition of decision. For that reason, a stimulus-response situation was created, just as Selltiz et al (1965) suggested: the respondent is invited to imagine himself in a manager's situation who sells products related to decision-making. This manager is setting up his booth at a showcase, and he must post words on the walls. These words ought to express his ideas about decision-making (the "product" that he is selling). Finally, the respondent is requested to create a "slogan" with his definition of decision-making;. This slogan will be mounted on a panel board to be placed in his booth.

Purpose of This Instrument. Through the abstraction of the decision-making process, it intends to obtain the respondent's perception of the decision-making process, having then elements to infer the application (or not) of Simon's model (1947) by the respondents. Toward that end, content analysis and lexical analysis [3] will be used in the data analysis phase.

Advantages and Disadvantages of the Instrument. According to Selltiz et al (1965, p. 336), one advantage of using this kind of method is the fact that the power "to supply wider information than a questionnaire, or even than an open-question interview." However, the same authors present some weaknesses related to this validity test: "... in most technical projects, the rules for the data transformation in evaluation scales are not specified in detail (...) at least in its current form, the tests sacrifice the precision and the effectiveness in the interest of the accuracy and depth." To overcome such weaknesse, others instruments were designed to enhance the validity, in order to complement the variables studied. Straub (1989) also advises the use of multiple evaluation methods for the construction of the questionnaire; that is, to present some questions in several different ways to test the respondent's consistency. In this way, the instruments complement each other, as well as the elements of each instrument complement each other.

---

[3] To this purpose, read Grawitz (1993); Bardin (1996); Lebart and Salem (1994); Moscarola (1995, 1994a, 1994b, 1993, 1991); Gavard-Perret and Moscarola (1995); Freitas, Cunha and Moscarola (1996).

Instrument 2 Phrase Composition. This instrument can be considered a variation of the Projection Method approached by Selltiz et al (1965). In this case, we adapted the technique which Sellitz denominated a "conclusion of phrase", and which we called "phrase composition ." The following question is presented to the respondent: "We would like you tell us, in few sentences, any decision that you have made. It can be a personal as well as a professional decision." The respondent is asked to reflect on the decision process based on his own life experience.

   Purpose of This Instrument. Through qualitative analyses, it will be possible, once again, to test whether Simon's decision process model has been applied. Will there be different decision-making processes, different logic, and decisions styles? This is the central subject to be explored using this instrument. Through this instrument, it will be verified if the respondent identifies problems and opportunities; and if there is coherence with the definition enunciated in the word association instrument, and with his report about decision-making, which was collected in the second instrument. For analysis of the data collected by these instruments, we used again content analysis and lexical analysis.

Instrument 3 A Case. The case is an instrument that places the participant in a decision-making scenario. The participant is asked to put himself in the place of the decision-maker. He is asked to make a decision in the context of the case, to offer suggestions or solutions and to state explicitly the steps that he used to arrive at the suggestion, solution, or decision.

   Purpose of The Case. The main objective of the case is to place the participant in a scenario and to see how he reacts. What does he value? How does he think? What variables influence him? If he identifies the steps he followed to arrive at his solution, these can be compared to those steps in Simon's decision process model. The results of the case will be added to information received from the other instruments and will give us a greater understanding of the research theme.

   Advantages of the Case. The case is one of the Projection Methods, since it reflects the opinion and the reaction of the participant putting himself in another person's place. This technique is justified by Selltiz et al (1965, p. 340) in the following way: "the supposition here is that the participant perhaps hesitates in expressing critical or unpopular opinions as being his own, even though he will place them on another person's lips." The analyses of the data collected using the case method will also lends itself to content analysis and lexical analysis.

Instrument 4 Cultural-Decision Awareness Scale . This instrument is composed of a questionnaire with 27 questions, containing implicit concepts of culture, decision process, and decision experience. The questions were extracted from a literature review. For each theme, and consequently for each one of the questions presented, there is a specific theoretical reference.

13

Purpose of This Instrument. The main themes explored were: the cultural variables, based on the five cultural dimensions of Hofstede (1991, Section 3.2); the personal values of the respondent (by an indirect but related question), questions related with decision process according to phases proposed by Simon (1947, Section 3.1), and questions connected with the respondent background.

During the process of developing the instrument, several modifications were made. Many questions were added and later deleted, combined and changed again, to produce the final instrument. The most important themes were sounded in more than one question, in the same way that different scales were used, seeking to capture as much as possible the conviction of the respondent. Three questions, each with a different nominal scale, are illustrated in Table 3.

Table 3. Some of the Questions Using the Cultural -Decision Awareness Scales

QUESTION	SCALE USED	VARIABLE	REFER-ENCES
After having made a decision you change your mind.	rarely... $\lfloor 1 \rfloor 2 \rfloor 3 \rfloor 4 \rfloor 5 \rfloor$ .. frequently	Decision process phases: existence of the review	Simon, 1947
The rules of a company should NOT be broken, even if the situation leads you to believe that breaking them would benefit the company.	I totally disagree... $\lfloor 1 \rfloor 2 \rfloor 3 \rfloor 4 \rfloor 5 \rfloor$ ...I totally agree	Cultural dimension of uncertainty avoidance	Hofstede, 1991
Usually your decisions are made....	Individually... $\lfloor 1 \rfloor 2 \rfloor 3 \rfloor 4 \rfloor 5 \rfloor$ ...collectively	Cultural dimension of individualism	Hostede, 1991

Each question had its design anchored, not only in the literature review, but also in the exchange of knowledge among the Brazilian (GESID-PPGA/Escola de Adm./UFRGS) and French (IUP-Univ. Savoie) research teams; knowing that the Brazilian researchers lved in France and in the USA. Different pilot applications were done in each country, with initial and shorter instruments, and the objectives that needed to accomplished were discussed. Two different sequences were tested, and a "judges committee" approved word by word, question by question, and scale by scale. Pros and cons were investigated and analyzed in order to detect the existence of any kind of bias, ambiguity, or even a tendency, having arrived at the extremity of testing and of modifying the question and the scale nine times. The questions and scales, words by frequency or by concordance, were evaluated as much as could be considered by the respondent as "politically correct" answer. Since three of the researchers of this process had lived for a long period in American and French cultures, they had already considered from the beginning aspects that could distort the understanding of the respondents from those countries, with regard to the scales or the questions.

Instrument 5 Socio-Demographic Scale. This instrument is composed of a questionnaire with 21 questions (age, gender, education, city, languages, working time or years of experience, etc.). The objective is to collect socio-demographic data pertinent to the decision-maker and to the organization with which he is involved. It is a questionnaire that presents closed and open-ended questions, which will aid in the understanding of the phenomenon studied. Also, through data crossing, manager profile (Freitas, 1993) and differences among these manager profiles in the different countries or regions will be identified or applied.

Purpose of This Instrument. One of the main objectives of tracing the decision-maker profiles is to evaluate the decision experience level. For this, especially in this instrument, there are questions related to this variable. Another important objective of this instrument is to explore data regarding the culture levels as defined by Hofstede (1991, Section 3.2). For each one of the layers, there is a subject, except for the layer corresponding to the social origin, because such subject is constraining and of difficult precision, and the layer corresponding to the workers' socialization, considered difficult to measure. Some of questions in this instrument are introduced in Table 4.

Table 4 .   Some of the Questions in the Socio-Demographic Scale Instrument

QUESTION	VARIABLE STUDIED	REFERENCE
Do you participate regularly in the activities of some religious group? 1. ( ) Yes. Which?_____ 2. ( ) No	Cultural level: belonging to a religious group	Hofstede, 1991
How long have you occupied a managerial position? Which position?_____	Decision Experience: managerial experience	Prietula and Simon, 1989 Driver, Brousseau and Hunsaker, 1990
How many employees do you have under your direct responsibility?_____people	Decision Experience	Driver, Brousseau and Hunsaker, 1990

In this same instrument there are, among several others, basic questions referring to the use of the Information Technology (personal computer use, Internet, etc.). We are testing whether the technology influences decision-making. The instruments and its objectives have been defined; it needs to be applied with rigor.

6. The Reliability and Validity of the Research Instrument

Several authors (Sampieri, 1991; Straub, 1989; Churchill, 1979; and others) observe that we do not have many reliables and validated instruments. Studies like Straub's (1989) and also like Zmud and Boynton's (1991) point out that we need to test the reliability and validity of our instruments before we conduct our study. Sampieri (1991, p.247) as well as Churchill (1979, p.65) report that a reliable instrument is not necessarily a valid instrument. In accordance with these recommendations, we have made more effort than we usually do to test the reliability and validity of our instruments for this "cross-cultural" study.

6.1 Validity

The first step was a pilot test with the research team members themselves. This task allowed us (1) to finish the content validation regarding each one of the instruments, and (2) to validate the sequence in which we should apply the instruments (Section 7). The content validation was performed during the pilot tests we conducted with MBA students, many of whom were managers taking courses in the evening. This face validity is based on common sense, which means that we verify the content of each question with respect to the target audience.

The content validation called for committee members with ability or knowledge in the field of research. The same committee who designed the questions, deliberated over the content of the question. Each time they deleted words or grouped words, a discussion ensued concerning vocabulary, format, etc. After that, two other full professors evaluated the instruments, one from France, another one from Brazil, who was an expert on statistics applied to social sciences, and with expertise in this precise field. The latter solved some of the problems that the committee pointed out. Both offered some suggestions and approved the instruments as a whole.

The pilot test can be considered an experience with the instruments toward a small sample of the target audience, so we can still be able to modify something before we collect data. Selltiz et al, (1965) suggest that we discuss with people after the pilot test, in order do have some more useful information to better finish this task. We did that each time we applied the questionnaires, while we decided on the best sequence of application, and the respondents gave us good and useful information, suggestions, etc. Each session we prepared a report concerning the responses and offered to the group, in different cities, in the South of Brazil, so each of the respondents was able to compare himself with the group.

6.2 Reliability

Reliability refers to **precision** and **consistency** of the instruments. We would like to have a reliable and valid instrument, capable of producing similar results when applyied repeatedly. Three methods normally used to measure reliability are parallel or alternative forms, the split-half technique, and test-retest. (1) **Parallel or alternative forms** means two or more equivalent versions of the instrument (with similar scales) are applied one after the other to the same sample, in a short period of time, and then the data are analysed and compared. (2) **The split-half technique** is the application of the same instrument in a shared sample, or two groups in the same moment and then the data are analysed and compared. (3) **Test-Retest** is a method in which the researcher applies the same instrument to the same sample, twice under the same conditions, in different moments. The correlation between this two sets of data is calculated.

We adopted the test-retest method for four reasons. First, the effort to generate another instrument was long and hard, and we could not be sure if the instruments were really "parallel". Second, the number of questions referring to the same variable was not sufficient to allow the "split-half" technique. Third, Goode and Hatt (1960, p.318) observe that test-retest is a good choice regarding the kind of scales we had. Fourth, the use of Cronbach's Alpha, one of the main methods to measure reliability, would be possible with only three of our constructs, since the others have only three or four variables each. Where it was possible, we employed both the test-retest and Cronbach's Alpha.

Of course, the test-retest was applied only to the decisional-cultural questions, and not to the other instruments, since they were already validated to the satisfaction of the members of the research team. Sampieri, Collado and Lucio (1991) suggest that if you validate an instrument in a satisfatory way, the precision is not as necessary as it otherwise would be. What follows is the verification of the reliability of the instrument concerning the scale questions in this study.

The test-retest was done in a group of 54 Brazilian people; all with certain professional or managerial experience, 25 to 30 years old, in their fourth or fifth year of undergraduate studies (in Brazil, undergraduate studies takes about five years). Since the questions have an ordinal scale, we calculated the Spearman correlation coefficient for each variable, individual by individual; and then we verified the mean of the responses in the "test" for each one of the constructs, and same thing to the "retest". Then, we calculated the Pearson correlation coefficient among the constructs from the test compared to the retest. In general, the results were positive; we obtained coefficients in an acceptable range for an exploratory study. However, not all variables had a reasonable coefficient, even though the regression was positive. The results are reported by Macadar (1998), in a M. Sc. Thesis.

7. The Validation of the Best Sequence in which to Apply the Instruments

One subject that must be observed, when a set of data collection instruments is used, is the contamination of one instrument by the other. Augras (1970, p.156) defines this problem: "The infection affect; that is, the influence of the preceding question on the following question, should be avoided as much as possible." Selltiz et al (1965, p. 662) also demonstrated concern with this undesirable effect, suggesting that the researcher raise the following question: "Is there probability that the answer for the question is influenced by the content of the previous questions? Do the previous questions create an atmosphere or expectation that can influence the answers for this question?"

With the application of a set of different research instruments, contamination becomes still more pertinent. At the conclusion of the design phase of the research instruments, the following step was a search for what could be the correct sequence for its application.
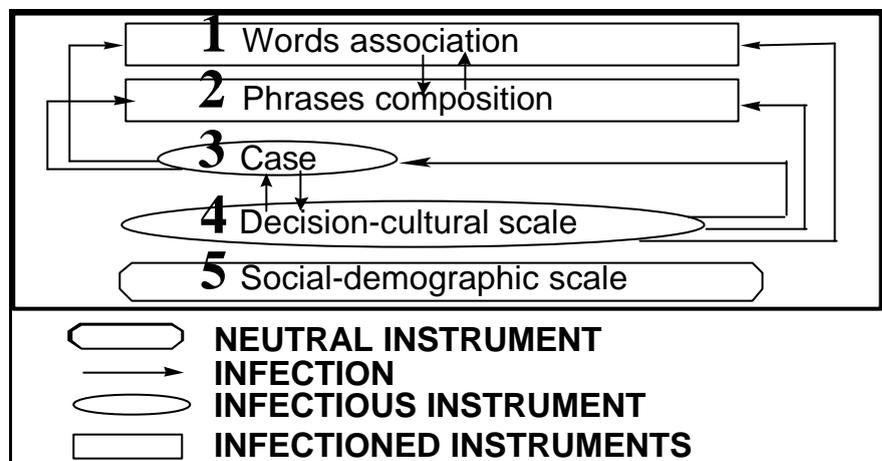

Figure 2. Research Instruments
and Contamination: A Supposed "Ideal Sequence"

Analyzing the instruments in a careful way, the project team tested the following hypotheses: (1) although an instrument eventually carries or receives some kind of "infection", the so-called infectious instruments tended more to infect the others than to suffer a infection, and (2) the so-called "infected" instruments were more likely to be contaminated than to contaminate another question. A supposed "ideal application sequence " was then designed. Figure 2 illustrates this sequence.

In Figure 2, it can be observed that the case 3 and the cultural-decision scale, instrument 4, were considered "infectious". This is due to the fact that, in them, there are words and concrete expressions about decisions that could directly influence the answers of word association, instrument 1, and phrase composition, instrument 2, where a spontaneous answer is expected, with words and expressions that come to the respondent when he reflects on the subject of **decisions**.

Therefore, instruments 1 and 2 should be applied a priori, before the "infectious" instruments to avoid contamination. Formerly, the social-demographic scale, Instrument 5, was considered a "neutral" element. It would not contaminate or be contaminated by the other instrument because personal data questions do not contain terms related to the decision concept. Perhaps, if some kind of contamination exists among Instruments 3 and 4, the socio-demographic scale, Instrument 5 could be used to reduce this infection.

It was considered that, among the pairs of instruments **1 with 2** and **3 with 4**, an eventual contamination could occur, but, at first, by mixing infected and infectious instruments less significant contamination could occur. However, it was decided that the sequence of those pairs (1-2 and 2-1, and separately 3-4 and 4-3) should be tested to validate the "ideal sequence". Starting with this analysis, we determined that the sequences in Figure 3 should be tested.

SEQUENCE 1 - 2	SEQUENCE 3 - 4	SEQUENCE 3 - 4 - 5
1 Words association	**3** Case	**3** Case
2 Phrases composition	**4** Decision-cultural scale	**4** Decision-cultural scale
		5 Social-demographic scale
SEQUENCE 2 - 1	SEQUENCE 4 - 3	SEQUENCE 3 - 5 - 4
2 Phrases composition	**4** Decision-cultural scale	**3** Case
1 Words association	**3** Case	**5** Social-demographic scale
		4 Decision-cultural scale

Figure 3. The Different Sequences in Which to Apply the Instruments

It is fitting to observe that in the **3-5-4** sequence, the socio-demographic scale, Instrument **5,** would be placed between instruments **3** and **4** being considered "infectious". Formerly, in the sequence **3-4-5**, the socio-demographic scale instrument would be used for ending the application session, by implying an easier task, in the respondent's view, would have completed already the instruments that demanded more concentration and abstraction. As these data are important for analyses and crossings, it is fitting to reinforce the responses by the respondent. Sphinx ® (1997) software was used for the analysis and sequence validation, where the pretest data were typed and analyzed. The testing process for the validation and sequences is described in the following Section (7.1).

7.1. Definition and Sequence Validation: Sequence testing 1-2 *Versus* 2-1

To define the correct application sequence of Instruments **1** and **2**, techniques of content analysis were used. According to Berelson (apud Freitas, Cunha and Moscarola, 1996, p. 3), "content analysis is a research method for the objective, systematic, and quantitative description of the obvious content of communications, having the objective to interpret them".

Only application of Instruments 1 and 2 was made in a class of a specialized course. The first part of the group (18 people) answered the Instrument 1 and then Instrument 2. The other part of the group (16 people) answered first Instrument 2 and then Instrument 1. The size of the sample, in this kind of experiment was considered satisfactory in view of the fact that the objective was not the analysis of the data, but the verification of the influence of one instrument upon another. Each one of the application sequences **(1-2** and **2-1)** was analyzed in the following ways:

- **Qualitative Analysis of Instrument 2** (Phrases Composition). With the support of content analysis, this kind of analysis can be defined by the presence or absence of a given **characteristic** in textual data (George apud Freitas, Cunha and Moscarola, 1996). The characteristics investigated in Instrument **2** (remembering that *phrase composition* says respect to the report of a any decision-making by the respondent and a title given to this report) were the following: degree of **detail** and degree of **clarity** of the reports. An evaluation committee was formed for these subjects, and the committee judged them in the following way:

> **1) With regard to the degree of detail (argument) of the report:**
>   very detailed ⌊ 1 | 2 | 3 | 4 | 5 ⌋ slightly detailed
> **2) With regard to the degree of clarity of the report, logical structure:**
>   very clear ⌊ 1 | 2 | 3 | 4 | 5 ⌋ slightly clear

The evaluating committee was composed of three doctoral students of PPGA/UFRGS, who attributed a "grade" according to the scale above. We created two new variables: the **degree of detail** and **degree of clarity** of the self-report.

- **Order Comparison as to the Detail and Clarity of the Reports.** A two-way analysis using the chi-square test to investigate was made to see if a **relation** existed between those two variables and the different sequences of application of the instruments. Although the sample used was considered small for application of the chi-square test (16 cases in the sequence **2-1** and 18 cases in the sequence **1-2**) and not all the squares had a frequency equal or larger than 5, it was verified that, in the case of the degree of **detail** variable, there was a significant dependence with the application sequence (chi square = 7.3, df = 2, p = 97.3%), indicating that the answers were more detailed in sequence **1-2.**

As for the degree of **clarity** variable, it was verified that there was not any expressive dependence (chi square = 2.0, df = 3, p = 42.3%), even though the test of average difference (of the judgements) indicates slight advantage (of 0.07 in the clarity and of 0.44 in the degree detail) in favor of the sequence **1-2**.

- **Lexical (Quantitative) Analysis of the Answers to Instruments 1 and 2:** Starting with the text of the decision report (Instrument 2), the data were "cleaned", eliminating the "toolwords" (pronouns, prepositions, articles, etc.), leaving the lexicon of the answers (only the main words, full of meaning). Starting with this lexicon, an analysis was conducted to identify words used in Instrument **1** (verbs, nouns, adjectives) that were repeated in Instrument **2** (reports), that is, to verify the repetitious occurrence of words from Instrument 1 in Instrument 2 or from Instrument 2 in Instrument 1, according to the sequence of application. For this, the following repetition indicators were designed:

Individual index of repetitions =	Number of repeated words (instruments 1 and 2) / Total of words written in the report	**Index of repetitions in each sequence =**	**S index 1 / total of questionnaires**

The **individual index of repetitions** refers to the number of repeated words calculated in proportion to the total of words written in the report by each respondent. Already the **index of word repetitions in each sequence** represents, in fact, the global average of an application sequence; that is, the repetition indexes obtained are added for each one of the respondents and it is divided by the total number of questionnaires collected in each one of the application sequences to obtain an index for the **1-2** sequence and another one for **2-1** sequence.

The **individual index of repetitions** was crossed with the different application sequences to verify that there was no significant dependence (chi square = 1.9, gl = 2, p = 60.3%); that is, independently of the order, the occurrence of word repetitions was practically the same.

Nevertheless, concern with the **index of word repetitions in each sequence**, was yet to be verified, even though the general average of repetitions is of 0.04 for each one of the sequences, there is a slight indication that the 1-2 sequence shows a smaller repetition interval (minimum = 0.00 and maximum = 0.12, Std. Dev. = 0.03) than the 2-1 sequence (minimum = 0.00 and maximum = 0.19, Std. Dev. = 0.05).

- **Qualitative Analysis of the Content of the Answers in Instruments 1 and 2.** This analysis, seemingly subjective, revealed the evidence that allowed us to choose the sequence **1-2,** rather than sequence **2-1**. It was verified that, in sequence **2-1** (report and then words), three contamination events out of a total of 16 respondents occurred in that the words based clearly on the recently written report and not in words related to ideas about decision properly. Therefore, there was evidence of contamination of Instruments **1** by Instrument **2**. After a case by case analysis of the data collected in sequence **1-2**, any occurrence of this type of contamination was verified by the 18 respondents. Therefore, Instrument **1,** word association is followed by Instrument **2**, phrase composition.

7.2. Definition and Sequence Validation: Sequence Testing of 3-4 *Versus* 4-3

For determination of the most appropriate sequence among Instruments **3**, **4** and **5**, first, sequence **3-4 / 4-3** was tested**,** because the greatest interest was to verify if contamination occurred between Instruments **3** and **4**. Instrument **5** was considered "neutral". This testing proceeded in the following way. Only those two research instruments in a class of 34 students in a specialized course composed by 34 people, 15 of which answered Instrument **3** (a case) first and after that Instrument **4** (cultural-decision scale); and 19 people answered in the reverse order (Instrument **4** followed by Instrument **3**). Starting with this data, the following analyses were performed.

- **Qualitative Analysis of the Content of the Answers to Instrument 3 (a Case).** This analysis was identical to the ones performed on Instrument **2** (Phrase Composition). Again, the same evaluation committee (threee doctoral students) was used to evaluate the answers given to the Case as to the subjects: (a) with regard to the degree of detail (argument) of the Case, varying from 1 (very detailed) to 5 (slightly detailed), and (b) with regard to the degree of clarity of the logical structure of the case, varying from 1 (very clear) to 5 (slightly clear).

- **Sequence Comparison as to the Detail and Clarity of the Cases**. Starting with the evaluation of the committee, the variables, **degree of detail** and **degree of clarity** of the case, were created and crossed with the sequence application **3-4**, **4-3**. Following that a two-way analysis (chi-square) was made to discover a **relationship** between those two variables and the different sequences in which the instruments were applied. Although the sample used (15 cases in sequence **3-4** and 19 cases in sequence **4-3**) was considered small for application of the chi-square test, and not all of the squares had frequency equal or greater than 5, it was verified that, in the case of both variables (**degree of detail** and **degree of clarity** of the Case) the sequence

in which the instruments were applied was not significant (**degree of detail**: chi square = 1.7, gl = 2, p = 56.8%; **degree of clarity**: chi square = 4.2, gl = 2, p = 87.7%). However, considering only the average differences in the judgements, only a slight advantage is identified (0.24 in **clarity** and 0.48 in the **detail**) in favor of sequence **4-3**.

However, when analyzing these results, we found no statistically significant difference in the **clarity** and **detail** of the Case between the different sequences applied, in spite of the difference indicated by the averages.

- **Banality Index Analysis of the Answers in Instrument 3 (a Case).** Freitas, Cunha, and Moscarola (1996, p. 9) coined the term "banality index". "The banality, or triviality, is especially what guides the selective search for the most trivial phrases or for the most significant or original words from such and such a group or category." This index was calculated starting with the lexicon ("clean" text, without tool words):

  - Banality average of the answers to the case in sequence **3-4** = 26, 95
  - Banality of the answers to the case in sequence **4-3** = 27, 67

The answers in the Case when applied in sequence **3-4** can be considered just a little more original than the ones when the Case was applied in sequence **4-3**. The difference in the banality index is only 0.72; the average of the group being of 27.35; this aspect slightly favors sequence **3-4**.

- **Quantitative Analysis of the Answers Given to Instrument 4 (Cultural-Decision Scale).** The goal of this analysis was to discover if there were discrepancies as to the answers supplied for the several questions of Instrument **4** in one sequence or the other. In Table 5, the columns represent twelve questions randomly selected from a total of 27 questions in Instrument **4** (Questions 1, 3, 4, 6, 7, 9, 10, 11, 12, 13, 19 and 25). The rows represent the different application sequences. The values in the cells of Table 5 are calculated averages of the ratings from the Likert scale that range from 1 to 5.

Table 5. The Averages of the Answers to Some of the Questions in Instrument 4 (Cultural-Decision Scale)

Sequence of application	1	3	4	6	7	9	10	11	12	13	19	25
3-4	3,00	3,13	2,86	3,53	3,80	2,26	1,66	2,00	3,20	2,66	3,78	2,60
4-3	3,00	3,63	3,89	3,31	3,94	2,52	2,10	1,94	2,78	3,05	3,89	2,63
Whole	3,00	3,41	3,44	3,41	3,88	2,41	1,91	1,97	2,97	2,88	3,84	2,61

It can be verified that Question 4 presents the discrepancy among the answers. The subject is the following:

4. Usually your decisions are...

operational $\quad$ | 1 | 2 | 3 | 4 | 5 | $\quad$ tactical/strategic
(routine) $\qquad\qquad$ (with long-term impact)

Analyzing this question, the hierarchical position of the respondent can be observed; such variation in the answers does not generate a concern, given it is inherent to each individual's condition. The other answers did not present significant discrepancies, which allows us to conclude that very probably there will not be variation in the answers to Instrument 4 as a function of the application sequence.

Based on the data analyses, there is no evidence of significant contamination between Instruments **3** and **4**, in view of the fact that, in both sequence **3-4** and **4-3**, the responses are similar. On the one hand, the responses to the Case in the sequence **4-3** are a little more detailed, but, on other hand, these same answers are also slightly more trivial. The sequence could just as well be **4-3** as **3-4**. By consensus, the research team concluded that the application sequence **3-4** (Case followed by the Cultural-Decision Scale) is more appropriate. This decision was based mainly on the fact that, in the absence of categorical discrimination between the two sequences, the researchers consider that Instrument **4** contains data that potentially can infect the conclusion of the case, even though this has not been confirmed through the qualitative analysis of the data collected. Moreover, it could infect the responses to the scale questions.

Validation of Sequences 3-4-5 and 3-5-4. Since the existence of significant contamination between Instruments **3** and **4** was not proven, the option of placing Instrument **5** among them was discarded. In view of that, there is no need to use it as a neutral element for a possible contamination "blockade". Then the sequence **3-4-5** was selected tends for the simple fact that the use of the socio-demographic scale at the end of the application session can be used as an element of "relaxation" for the respondent, since they demand a low abstraction level and less concentration. In conclusion, the legitimacy of the initial and supposedly "ideal" sequence was proven. The definitive sequence of application, Instruments **1, 2, 3, 4, 5**, is presented in Figure 4.
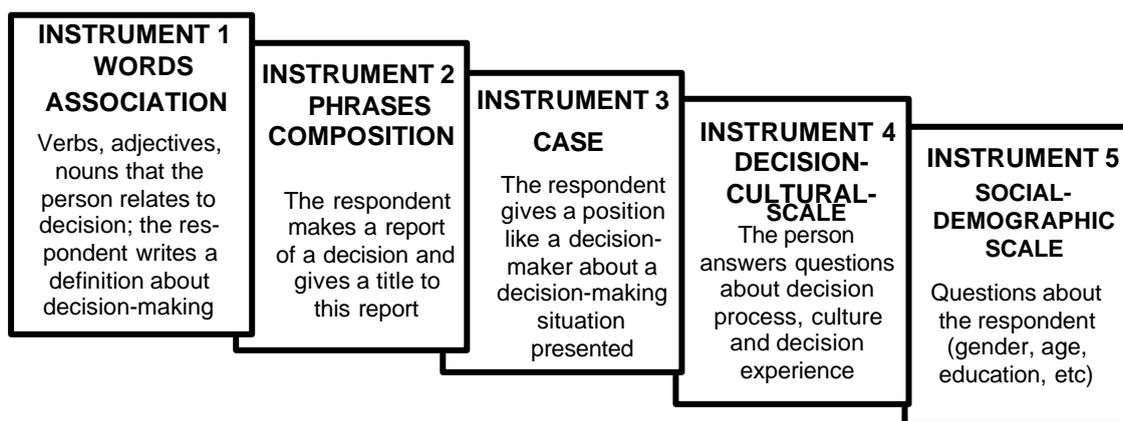

Figure 4. The Set of Data Collection Instruments

8. The Process of Translating the Instruments into Other Languages

Since the research project sought to apply the instruments to collect data in different countries, a procedure was established for translating the research instruments into other languages. Having reviewed the literature about *cross-cultural* research, it was verified that the translation of the instruments is a very important step for the success of the research and a condition for collection of good quality data. Werner and Campbell (apud Graham, Mintu and Rodgers, 1994, p. 81) argue that "the main objective of each translation is to produce the *cultural equivalent* of the instrument." Graham, Mintu and Rodgers (1994) warn of the danger of imperfections in the translations, arguing that it is practically impossible to get a version totally identical to the original. To decrease this bias, some authors (Ishman, 1996; Igbaria and Zviran, 1996; Graham, Mintu and Rodgers, 1994) propose the so-called *back translation*; that is, to write one version of the research instrument and soon after translate this version into the original language. Another option found in the literature is the preparation of more than one version of the instrument in the target language to compensate for possible deficiencies in the translation. Ideally, translators translate into their native language.

The procedure adopted for the design of the French and English versions of the research instruments was as follows:

1. First, two native translators from different countries were chosen: For the **French** version, two French translators from different regions, living in Brazil at least 5 years; for the **English** version, two translators, a native English and a native American. To each one of those translators designed his own version of the instrument in his native language, without knowledge of the other versions.

2. Starting with each one of the versions designed by the pair of translators, a native Brazilian with great knowledge of the other language analyzed the two versions and translated them into only one **French** version. Starting with the two finished versions, a member of the team, who lived in France for 4 years, translated them, with some adaptations, into the official **French** version. The same procedure was adopted with respect to the **English** version: another member of the team, who lived in the USA for four years, designed the last **English** version.

9. Conclusions

In Section 9.1, we present some conclusions drawn from investigation; in Section 9.2, the limitations and in Section 9.3, some ideas for future research.

9.1 From the Conception to the Set of Well-Linked Instrume nts

As a result of the activities in the first phase of the research project, a set of data collection instruments was validated that allows us to study the decision-making process. The main advantage of this instrument is without a doubt the great volume of data that can be captured due to the variety of instruments and questions conceived. The strong point is the *multi-method* approach, which will allow several crossings, enabling confirmation of the position taken by the respondent. It is a progression from the abstract to the concrete, from the qualitative to the quantitative, from the subjective to the objective. When the project is completed, we expect to have: (1) the construction of <u>decision-maker profiles</u> in different countries and regions of application; (2) the crossing of the characteristics of these profiles among the different cultures studied, evidencing the discrepancies and relating them to the research questions, decision-making process, culture, and decision experience; and (3) starting with the application of the instruments and analysis of the results, we hope to reduce the set of instruments and preserve only those questions which illumine the research theme, which would allow researchers and professionals to apply more robust and more concise instruments in order to identify the decision-maker profiles. Using the decision profile as a frame of reference in the different regions and countries studied can aid all who deal with negotiation and international cooperation, contributing to a greater understanding of decision-makers in different cultures. This knowledge will aid relationships and negotiations.

9.2 Limitations of the First Phase of the Global Research Project

One of the main limitations of the research, as Hofstede warns us in his article ("Management Scientists are Human", 1994, p. 8), "... also those writing about organizing are children of a culture..." In this same article, Hofstede exposes that, in his study, even having formed a research team composed of people from different national cultures, who worked on the design of data collection instruments, nevertheless there is no guarantee of elimination of cultural bias. One of the limitations is the fact that the instruments were designed by a team, the majority of whom shared the same cultural origin (even though most of the members had lived in other cultures). Owing to this, it is pointed out that, even having minimized the negative effects of the translation process of the instruments into other languages (French and English), it is fitting to highlight the risk of exposure to cultural bias. Future applications of the set of instruments in the countries that use these languages may indicate adjustments required this version now concluded.

9.3 Future Research: The Second Phase of the Research Project

Future research points to the next phase of the research project (phase 2), with the application of the instruments, generating an exploitable database for the study. The next challenge consists of the improvement of the data analysis protocol, especially using the open-ended questions (Instruments **1**, **2** and **3**). The analysis patterns should be established (in a formal way), respecting the language, the cultural, and social context of each country or region studied. Intense cooperation with the "partners" in each local area is essential. Phase 2 should deepen our understanding of decision process, culture, and decision experience. The construction of "scenarios" (cultural and socio-demographic data) about each region or country studied will be helpful in data analysis, conjecturing the cultural and social reality of each region, so that the differences found in the answers can be distinguished more clearly with respect to the questions.

References

Alter, S. **Information systems: a management perspective**. New York: Addison Wesley, 1996

Anastassopoulos et alii. **Strategor: stratégie, structure, décision, identité - politique générale d'enterprise**. Paris: InterEditions, 1991

Augras, M. **Opinião Pública: Teoria E Pesquisa** Rio De Janeiro: Ed. Vozes, 1970

Baligh, H. Components of Culture: Nature, Interconnections, and Relevance to the Decisions on the Organization Structure. **Management Science**, v. 40, n.1, Jan. 1994, p.14-27

Bardin, L. **L'analyse de contenu.** Paris: PUF, 8 ed., 1996

Churchill, Gilbert A. Jr, A Paradigm for Developing Better Measures of Marketing Constructs. **Journal of Marketing Research**, v.16, p.64-73, feb/1979.

Davis, G. B., and Olson, M. **Management information systems**. McGraw-Hill, 1987

Deshpande, R., and Webster, F. Organizational culture and marketing: defining the research agenda. **Journal of Marketing**, v. 53, Jan. 1989, p. 3-15

Driver, M. J., Brousseau, K. R., and Hunsaker, P. L. **The dynamic decision-maker: five decision styles for executive and business success**. New York: Harper & Row, 1990

Ein-Dor, P., Segev, E., and Orgad, M. The effect of national Culture on IS: Implications for International Information Systems. **Journal of Global Information Management**, v. 1, n.1, Winter 1993, p.33-44

Elster, J. **Salomonic Judgements: Studies in the limitations of rationality**. Cambridge University Press, 1990.

Erez, M., and Earley, P. C. **Culture, Self-Identity, and Work**. New York: Oxford Univ. Press, 1993

Evrard, Yves; Pras, Bernard; and Roux, Elyette. **Market Études et Recherches en Marketing: Fondements, Méthodes**. France: Nathan, 1993. 629p.

Freitas, H. **A informação como ferramenta gerencial**. Porto Alegre-Brazil: Ortiz ed., 1993

Freitas, H., Macadar, M.A., and Moscarola, J. Na busca de um método quanti-qualitativo para estudar a percepção do tomador de decisão. Angra dos Reis-Brazil: **Proceedings of 20° ENANPAD**, Administração da Informação, 23-25 Sept. 1996, p.253-276

Freitas, H., Cunha Jr., M., and Moscarola, J. Pelo resgate de alguns princípios da análise de conteúdo: aplicação prática qualitativa em marketing. Angra dos Reis-Brazil: **Proceedings of 20° ENANPAD**, Marketing, , 23-25 Sept. 1996, p.467-487.

Gavard-Perret, M. L., and Moscarola, J. De l'énoncé à l'énonciation: pour une relecture de l'analyse lexicale en marketing. Annecy-France: **Cahier du GEREG**, Université de Savoie, 1995. 34p.

Goode, William, and Hatt, Paul. **Métodos em Pesquisa Social**. São Paulo: Companhia Editora Nacional, 1960, 494p.

Graham, J., Mintu, A., and Rodgers, W. Explorations of Negotiation Behaviors in Ten Foreign Cultures Unsing a Model Developed in the United States. **Management Science**, v.40, n. 1, Jan. 1994, p.72-94

Grawitz, M. **Méthodes des sciences sociales**. Paris: Dalloz, 1993.

Hofstede, G. **Cultures and Organizations: software of the mind - Intercultural Cooperation and its Importance for Survival**. London: McGraw-Hill, 1991

Hofstede, G. Management Scientists are Human. **Management Science**, v. 40, n.1, Jan. 1994, p. 4-13

Hoppen, N., Lapointe, L., and Moreau, E. Um guia para avaliação de artigos de pesquisa em sistemas de informação, **Revista Eletrônica de administração**, n. 3, August 1996.

Igbaria, M., and Zviran, M. Comparison of end-user computing characteristics in the U.S, Israel and Taiwan. **Information & Management**., v. 30, 1996, p. 1-13

Ishman, M. Measuring information sucess at the individual level in cross-cultural environments. **Information Resources Management Journal**, v. 9, n. 4, Fall 1996, p. 16-28

Jarrosson, B. **Décider ou ne pas décider? Réflexion sur les processus de décision**. France: Maxima, 1994.

Kirschenbaum, S. Influence of experience on information-gathering strategies. **Journal of Applied Psychology**, v. 77, n. 3, 1992, p. 343-352

Lebart, L., and Salem, A. **Statistique Textuelle**. Paris: Dunod, 1994.

Macadar, M.A. Um método quanti-qualitativo para estudar a percepção do tomador de decisão. Porto Alegre/RS: PPGA, Escola de Adm. da UFRGS, **M. Sc. Thesis**, Management, April 1998.

March, J. G., and Olsen, J. P. **Ambiguity and Choice in Organizations**. Bergen: Universitetsforlaget, 1976

Mattar, F. **Pesquisa de Marketing: metodologia, planejamento, execução e análise**. São Paulo: Atlas, v.1, 1994.

Mintzberg, H., Raisinghani, D., and Théorêt, A. The structure of "unstructured" decision processes. **Administrative Science Quarterly**, v.21, n. 2, June 1976, p. 246-275

Moscarola, J. Analyse de contenu et analyse de donnés: solutions logiciels pour une intégration quali/quanti. Paris: **Actes JADT**, 1993.

Moscarola, J. Balladur, Chirac, Jospin, les mots d'une compagne : quelques exemples d'analyse lexicale avec le Sphinx. Annecy-France: **Cahier du GEREG**, Université de Savoie, 1995. 8 p.

Moscarola, J. **Enquêtes et analyses de données (avec le sphinx)**. Paris: Vuibert, 1991.

Moscarola, J. La communication politique vue par l'analyse lexicale. Annecy-France: **Cahier du GEREG**. Université de Savoie, 1994a, n. 32.

Moscarola, J. Les actes de langage: protocoles d'enquêtes et analyse des données textuelles. Paris: **Colloque Consensus Ex-Machina**, La Sorbonne, April 1994b

Pinsonneault, A., and Kraemer, K. L. Survey Reserch Methodology in Management Information Systems: an assessment. **Journal of Management Information Systems**, Fall 1993.

Prietula, M. J., and Simon, H. A. The experts in your midst. **Harvard Business Review**, Jan. 1989, p.120-124

Sampieri, R., Collado, C., and Lucio, P. **Metodología de la Investigación**. McGraw-Hill, 1991

Selltiz, C., Jahoda, M., Deutsch, M., and Cook, S. **Métodos de Pesquisa das Relações Sociais**. São Paulo: Ed. Herder, 1965

Simon, H. A. **Administrative behavior: a study of decision-making processes in administrative organization.** New York: MacMillan, 1947 (new edition, Free Press, 1997)

Sphinx Lexica (v. 2.0). **Sphinx User's Guide**. Annecy / France: Le Sphinx Développement, 1995, 1997, and Porto Alegre, Brazil, 1997 (e-mail: f&c_cons@portoweb.com.br - http://www.freitasecunha.com.br)

Straub, D. W. Validating instruments in MIS research. **MIS Quarterly**. June 1989, p. 147-169

Triandis, H. Dimensions of Cultural Variation as Parameters of Organizational Theories. **International Studies of Management and Organization**, v.12, 1982, p. 139-169

Zmud, R. and Boynton, A. Survey Measures and Instruments in MIS: Inventory and Appraisal, In: **Harvard Businees School Research Colloquium**, Kenneth Kraemer (editor), p.149-184, 1991.

Thurow, L.C. "Mapping the Economic Surface of the Earth", "Plate Four-A Global Economy," and "The Forces Remaking the Economic Surface of the Earth"... **The Future of Capitalism** N.York: William Morrow & Co., 1996.