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GSS AND SOCIAL PSYCHOLOGY: A QUALITATIVE EXPERIENCE

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Abstract

Although there has been much research examining decision making in different disciplines, using research methodologies as laboratory studies, observation or interviews, still many authors refer to the decision making process as the ‘black box’. One way of dealing with the concept of black box has been suggested to be the use of decision makers’ individual characteristics and use these as the dependent variables in decision making research. It has also been suggested to assume that the decision maker has a cognitive base based on their values and beliefs and standards which would be referred to in collecting and processing of information required during the decision making process (Markoczy, 1997). This study explored the cultural values referred to by the decision-making groups in computer supported environment. Groups from Australia and Malaysia participated in a series of Group Support Systems (GSS) supported experiments using an unstructured task. Qualitative analysis of their comments showed that there were differences between groups from the two national cultures in the values they referred to in decision making process (as suggested by different authors in Social Psychology) and further differences between the groups when they moved from ordinary groupwork to computer supported groupwork. In addition these differences were not alike for the groups from the two nations. The study used GSS as a vehicle to apply the findings of cultural studies to decision making environments.

Keywords: Qualitative IS research, national culture, GSS

Cultural Values and Decision Making

Some organisation research (eg, Wiersema & Bird, 1993) list national background as an individual characteristic that captures beliefs. In addition there are some cross-cultural psychological studies which have shown that national culture can shape individual’s values and beliefs (eg, Weeks, Pedersen, & Brislin, 1982). Differences between the two national cultures are expected not only to influence the manner in which their members seek out information that they need to perform their organisational tasks (eg, Pineda, Whitehead, 1997) but also in their decision making process (Yates & Lee, 1996).

One of the reasons for the decision making research to be difficult has been claimed by Yates and Lee (1996) to be demonstrated in the phrase ‘favourable outcome’. What is considered to be as favourable by one national culture would not be necessarily considered as such for another culture. Plous (1993) claimed that what any decision-maker ‘sees’ as significant can differ markedly from what another regards as significant. It is not only the end result, the decision outcome, which can be perceived differently by different people, even the representation of the problem to be decided is different for different decision makers. Yates and Lee (1996) define a ‘representation’ as the decision-maker’s personal characterisation of the given situation. It specifies what is taken into account by the decision-maker, and what is ignored. Representations are based on values, which differ in important ways (Schwartz, 1992). For example, there are cultures where ‘tradition’ and honouring parents and elders are much more important values than ‘pleasure’ or an ‘exciting life’. Values work as filters for processing the information received and also shape what Triandis (1994) called the ‘glasses through which we see the world’ or what Plous (1993) called ‘frame of mind’, against which different alternatives are judged.

In different attempts at defining decision making, authors have suggested different lists of decision making processes (e.g., Boulding, 1975; Janis and Mann, 1977). All these processes including ‘representation’ and evaluation of different alternatives
are readily influenced by innumerable conditions, including the abstract concept ‘culture’ (Plous, 1993; Yates and Lee, 1996). The process of receiving and interpreting information involves perception. A review of psychological studies of perception shows that the modern view of perception brings out the active role that a person plays in perception. Communication theories suggest that perception be influenced by a number of psychological factors, including cultural values. The tendency for people’s perception to be influenced by values and attitudes is known as selective perception (Plous, 1993). Cultural authors agree with the concept of selective perception. Triandis (1994) believes that culture influences the way humans select, interpret, process, and use information. Communication and cultural studies have included values and cultural expectations of the decision-makers as determining factors of selective perception.

**Group Support Systems (GSS)**

It has been suggested that technologies such as Group Support Systems (GSS) are not so interesting in their own right as they are a new opportunity for studying old questions about the role of technology in organisations (DeSanctis, 1993). One of these research questions, would be the question of differences in group decision making across different national cultures. Cultural studies of supported group work enables us to match the style of decision making with the right type of GSS or suggest different types of GSS for different types of task in each culture, as well as providing the required knowledge to predict the final decision in a supported environment.

GSS are a blend of technical and social facilities and they are believed to influence the social behaviour of a group and to improve group performance (Watson, Ho & Raman, 1994). Group Support Systems have attracted attention from researchers and practitioners as potentially improving organisational effectiveness through their abilities to reduce communication barriers, increase productivity, and facilitate decision making activities (Williams & Wilson, 1997; Watson, Ho & Raman, 1994). The role of GSS in the commercial environment has been addressed by different authors, (see Briggs, Nunamaker, Jr., & Sprague, Jr, 1998; Vogel et al, 1990), and there are some examples of successful implementations of such systems in firms (see Beauchair, 1989; Dennis et al, 1990). Numerous laboratory and field studies (Pinsonneault and Kramer, 1989; Valacich et al, 1991; Vogel et al, 1990) suggest how GSS can facilitate group interactions and improve group performance.

In a study by Fjermestad and Hiltz (1997) 163 studies in the area of Group Support Systems were examined. From these studies which start from 1986 and earlier till 1996, only three studies have addressed culture as a variable. Two of these studies addressed the use of GSS in Singapore (Watson et al, 1994) as compared to the use of these technologies in US and the other one has compared the use of GSS in Mexico (Mejias et al, 1996) as compared to the use of these technologies in US. Both studies are examining the degree of consensus and number of original comments. Both studies used idea-generation tasks. The first two studies suggested that there were more consensus among the member of groups. The questions in these studies were focused towards some hypotheses based on Hofstede’s findings (Hofstede, 1991). For example considering the findings of Hofstede that the Chinese were collectivist, would they have a better consensus compared to the US participants or more. In the other study Mexican participants were similarly compared to the US participants. In addition there have been studies on the impact of social forces on supported meetings (Watson et al., 1994) and the impact of GSS on status differences in group decision making (Tan, Kwok-Kee Wei & Watson, 1999). After more than a decade research in the area of GSS and collaborative technology many studies have indicated changes in group performance with the use of GSS. Especially evident changes are: change in the number of comments issued during groupwork sessions and the time to reach consensus on a final decision. However there is considerably less evidence of any impact of GSS upon social behaviour.

**The Present Study**

The main research method used in different GSS research is counting the number of comments and the time it has taken the group to reach decision. This method has also been used in the few studies addressing the impact of technology on culture (eg Watson, et al, 1994; Tan et al, 1995). The quantitative method of counting the number of comments and the time taken to reach consensus is useful for showing that the members of some cultures reach consensus much faster than other cultures (as has been found by Watson et al, 1994). By counting the number of the comments and the time taken to reach consensus, the reference value system of the participants would not necessarily be revealed. The main attempt of the present study is to examine the similarities and differences between the values referred to in unsupported meetings as compared to the values being referred to in supported meetings by groups from two national cultures. Acknowledging the fact that there are different values and previous experiences and attitudes involved in the selective perception process, the present study has focused on cultural values. This study examines in a laboratory setting the cultural values at work during supported and unsupported group work sessions for groups from Australia and Malaysia. It thereby addresses an aspect of social behaviour.
The focus of the study is on the cultural values referred to by participants from each of the two nationalities in their groupwork sessions. Groups of the two national cultures participating in this study only worked with one task. Half of these groups worked with this task in supported and the other half worked with this task in unsupported mode. In each session, the participants were asked to read through the task, select an option, and then give their initial decision with detailed reasons as to why they decided to select this particular option. The requirement of giving enough reasons to make their selected alternative acceptable would encourage the participants to respond to each other’s comments. Group members would make their final choice based on a majority vote. Their comments were then subjected to a content analysis based on a series of codes. These codes were based on the findings of the first part of the study a cultural survey. In group sessions the researcher acted as a technographer as well as providing any help required by the participants. The Group Support Systems used in these sessions was the word version of GroupSystemV. While the main goal of the study was to examine the interaction between culture and technology on decision-making groups, the aims of the study represented as a hierarchy would be: (1) To detect a set of cultural values used in decision making process by groups from Australia and Malaysia. Also to check for similarities and differences between the sets of cultural values referred to by groups from the two national cultures. (2) To check for the impact of technology on sets of cultural values used in decision making by groups of the two national cultures. The research involved groups of participants from two national cultures, which although both are located in Asia-Pacific region, one can be considered a representative of the ‘Western’ culture and the other one a representative of the ‘East’. In order to relate the main themes resulting from the content analysis to the cultural values it was necessary to review some of the previous cultural studies and their suggested cultural factors (dimensions).

**Previous Cultural Studies**

Hofstede: The labels Hofstede (1980) selected for the four dimensions together with their interpretations are as follows: (1) **Power Distance**: Hofstede (1980) defines ‘Power Distance’ as ‘...the extent to which the less powerful members of institutions and organisations accept that power is distributed unequally’. Power distance refers to the extent to which unequal distribution of power in institutions and organisations is accepted by members of a society. (2) **Uncertainty Avoidance**: The extent to which members of a society feel threatened by uncertainty is called ‘Uncertainty Avoidance’ (Hofstede, 1980). (3) **Individualism/Collectivism**: Hofstede (1980) defines individualism as the relationship between the individual and the collectivity which prevails in a given society. (4) **Masculinity versus Femininity**: Hofstede (1980) states that the predominant socialisation pattern is for men to be more assertive and for women to be more nurturing. His review of the work goals indicated a near consistency on men scoring advancement and earnings as more important, and women scoring supervision, social aspects of the job, working conditions, working hours and ease of work as more important (Hofstede, 1980). Hofstede’s calculated scores of Masculinity/Femininity for only a small group of nations are available, and for this reason they are not included in Diagram 1.

Schwartz and Bilsky: Schwartz and his colleague suggested seven cultural factors based on a list of 45 values (Schwartz, 1992). For each of the samples, the mean importance rating of each of these values was computed. Instead of any statistical method a diagrammatic method called Smallest Space Analysis (SSA, suggested by Gauttman, 1968) was used to find the cultural factors and their related values. The seven factors suggested by Schwartz and Bilsky (1987) are Conservatism, Intellectual and Affective autonomy (Two Factors) Hierarchy, Mastery, Egalitarian commitment, and Harmony. The seven factors and their relative importance for participants of Australia and Malaysia in Schwartz et al. Study are represented in Diagram 2.

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**Diagram 1: 3 Cultural Factors Suggested by Hofstede (1980) for the Two Participating Nations**

**Diagram 2: Schwartz & Bilsky’s 7-Factor Model for Australia and Malaysia**

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In this diagram the ‘X’ axis shows the relative importance of each of the seven cultural factors and the ‘Y’ axis identifies each of the seven cultural factors.

A New Model

In an early part of this study a new 9-Factor model based on a value survey for the two national cultures involved was developed and tested. The nine cultural factors, which resulted, have some factors similar in name with those of Hofstede’s but they are different in terms of the values, which they represent. These nine factors are as follows:

1. The Religious Commitment Factor: This is the relation of an individual to any ideological system, in this case a religious system, and it admits of different dimensions or types of variation; the individual’s acceptance or rejection of the beliefs of the system (Orthodoxy), his or her orientation toward other persons with respect to his or her beliefs (Fanaticism), and the significance of their beliefs to their self-conception (Importance) are just some of these dimensions.

2. The Workplace Preferences Factor: The workplace variables were adopted from the Hofstede’s Hermes study and were actually a part of 14 work goal questions which were used by Hofstede to measure for the individualism/collectivism index. The response to these questions should show the degree of importance associated with each case by the participant.

3. The Locus of Control Factor: The variables in this factor are related to the tendency of the individual to be in control of his or her own life. The locus of control was first developed by Rotter (1966) and numerous versions of the original locus of control have been validated and used in different studies (although not used in cross-cultural studies).

4. The Fatalism Factor: The variables in this factor are all related to the degree that the individual believes that the good or bad in his or her life is predestined, and how much the individual believes that every occurrence in human existence comes to pass because it was fated to do so.

5. The Traditionalism Factor: The traditionalism values which are related to the fifth factor of the overall factor analysis are related to a kind of obedience, which although foreign to Western societies, is quite commonly expected in traditionalist societies. The traditionalism values are related to family (spouse, children and parents) and the work relations.

6. The Challenge and Adventure Factor: The variables in this factor, which is the sixth factor of the overall factor analysis, are more related to readiness to face challenge and adventure. Some of these variables were included in Hofstede’s measure of work goals in relation to individualism. The collection of variables on this factor seem to be related to the individual, not necessarily related to work place characteristics. The loading of the variables on this factor are more towards a belief by the individual in personal competence.

7. The Individualism Factor: The variables on this factor are related to individualism. Some of the variables are symbols of Competitive Individualism as defined by Triandis et al (1993). There are also variables on this factor related to what Triandis et al define as ‘Independence’ as part of individualism. Although the variables come from different sources, their collection into one single factor validates the significance of this factor.

8. The Value of Privacy Factor: The three variables in this factor are very much related to the individualism value for privacy and the variables are all positively related to the value of privacy factor. The value of privacy variables are related to the individual’s need for personal time and a personal set of friends in family life, and a valuing of the private opinion of the individual in the work place.

9. The Uncertainty Avoidance Factor: This factor is related to the different methods used by individuals to avoid uncertainty and to reduce the risk of the unforeseen. Three variables are related to sharing the risk with friends, one item is related to choosing a large corporation over smaller ones to avoid the risk of losing a job. The last item is related to planning as yet another way to avoid the uncertainty of the future.

The nine factors and their relative importance for participants from Australia and Malaysia are represented in Diagram 3. The ‘X’ axis shows the relative importance of each of the nine factors and ‘Y’ axis shows the nine cultural factors.
Content Analysis

Diagram 4: the Main Themes and the Codes for the Higher Education Task

Knowledge, learning, improving myself (1.1.1)
Enjoying the lifestyle ...(1.1.2)
Personal ambition...(1.1.2)
This was a rare opportunity, the pride of being the first...(1.1.4)

God (1.1.5.1)
Country (1.1.5.2)
Society (1.1.5.3)
Obligation to society (1.1.5.3.1)
High status for educated people (1.1.5.3.2)
Family (1.1.5.4)

Specific job in mind; accountant, manager...(1.2.1)
Job opportunities (1.2.2)
Return from work force...(1.2.3)
Nothing else to do...(1.2.4)

(1.1) Personal
(1.1.5) Duty
Motivation (1)
Task
Future (1.2)
(2) Encouragement

(2.1) myself
(2.2) close family
(2.3) relatives
(2.4) spouse
(2.5) friends
(2.6) teachers
(2.7) others

The inability of the methods used in previous GSS studies to address the impact of culture on decision making in supported or unsupported group decision making analysis was the reason for using a qualitative content analysis to address the issues of interest to the present study. As a result instead of counting the number of the comments or the measuring the time taken to reach consensus, the comments were used to find the main values referenced in the decision making process by participants. The findings of the cultural survey which was the first part of the present study was used to code the comments. This method is widely used in social sciences, group behaviour analysis and, recently, in cross-cultural studies (Fiske, 1993) and has proved to give the desired type of the results.

The data from the group decision-making sessions was closely examined to find any existing patterns in the data. This was to find the existing universal structure in the data, based on which the coding process could then be established. Once the structure of the content analysis was complete, the next step was to use QSR Nudist (qualitative analysis software) to help with the rest of the analysis. It should be noted that although QSR Nudist helps with the process of analysis, the main analysis, including detecting
the main themes in comments and finding the relation between these themes and the cultural values was completed before introducing the data into the software. Diagram 4 on the following page shows the tree diagram for the unstructured task used in this study.

The method of content analysis followed an approach suggested by Berg (1995) and Morse and Field (1995). The researcher reads the entire document and identifies several of what they called topics. These topics then become the main categories or category labels. The categories should be very broad at first to allow a large number of comments to be grouped into each category. The comments in each category are further examined in order to derive sub-categories. These categories and sub categories are then represented as a tree diagram (Diagram 4) and on the basis of this it is possible to write descriptive analysis about the categories and look for the relationships between the categories. The importance accorded to each of the cultural factors varied between national groups, and different modes of groupwork situation.

Results

The importance accorded to each of the cultural factors varied between national groups, and different modes of groupwork situation. It was to be anticipated that not all the values relevant to all factors would be referred to by groups of the two national cultures in each mode of decision making situation. For the single task used in this study values relevant to 7 factors out of nine seemed to be important: Uncertainty Avoidance, Fatalism, Challenge and Adventure, Traditionalism, Locus of Control, Religious Commitment, and Collectivism. These seven were used by the groups for this single task but the extent of reference for each factor is different for different national groups and for different modes of groupwork.

Diagram 5 brings all four kinds of groupwork sessions: Australian unsupported, Australian supported, Malaysian unsupported and Malaysian supported together. The purpose of this diagram is to facilitate the comparison between the extent of the difference in the values referred to by decision making groups of the two different national cultures. It should be noted that X axis illustrates the relative frequency (percentage) with which the groups have referred to the values of a factor.

Conclusion

1. It was established that, facing the same decision-making problem in a similar decision-making environment (supported or unsupported), groups of the two different national cultures referred to different cultural. It was also discovered that, in the cases where the two sets of national groups made similar decisions, their selection was often based on different reasons.

2. A supported groupwork environment seemed to provide the groups from the two participating nationalities with an opportunity to make comments closer to the values they expressed in an initial value survey. Perhaps because of anonymity and they were thus less concerned about the social consequences of their statements.

3. Providing the two sets of national groups with the technology to support their groupwork changed their reasoning for the selection of any particular option. This happened when the participants referred to a different set of values or allocated different priorities to the same values the participants had selected in unsupported groupwork sessions.

4. The results also suggested that the extent of the difference in values referred to by groups from the two national cultures in moving from unsupported to supported groupwork modes was larger for the Malaysian groups than it was for the Australian groups.
Malaysian participants although collectivism and religious commitment encourage them to have a tendency towards group decision-making, the adherence to high traditionalism results in some limitations in group interactions. Malaysian participants are likely to be significantly limited by their social rules concerning group interactions. These limitations may include being obliged to agree with their seniors and refraining from expressing their opinion in group sessions. To be competitive with other nations in the present global market, the third world nations may need to have more open channels to be creative. They may need to find ways to encourage people with a lower organisational status to voice their opinion without knowingly disagreeing with those in senior positions. Keeping face is of utmost importance in a tight society. So there seems to be an identified need for the type of technological support for groupwork that not only facilitates the exchange of information (such as the simultaneous entry of comments in an electronic meeting system), but could also provide the participants with an opportunity to submit their comments anonymously. This way, participants could reject an idea suggested by a senior without any public damage to that senior’s social status.

While the findings of the comparison between the impact of technology on the groups from the two national cultures indicated that both national groups referred to different values or referred to the same values with different priorities from their unsupported groupwork sessions, the relative difference for the Malaysian groups was higher than the Australian groups. The overall result showed that the findings of the supported mode of groupwork for the Malaysian participants were very close to the findings of their value survey and seemed to be different from the findings of their unsupported groupwork. This could be interpreted to mean that the supported mode provided the opportunity for the participants to refer to their real reasons for selecting an option without fear of the social consequences. The findings of this study showed that GSS can changes the social behaviour of groups from different culture and this change seems to be more pronounced for a sample from tight societies than for a sample from loose societies. A tight society with high uncertainty avoidance and low internal locus of control demands a highly structured group decision making situation. This would in turn necessitate any group support technology to provide the decision making groups with access to an archive of past similar decision making situations, the alternative selected and preferably a mid-term outcome of that decision. In a loose society the tendency seems to be ‘to approach every decision making situation as a new challenge’, in a tight society there seems to be a need for a standard or model to compare any decision making situation against such model. This difficulty is more relevant to an unstructured decision making situation, which is of course frequent in today’s dynamic business world. The implications of this research for the development of collaborative technologies are based on the indication that ‘tight’ societies would find some features, such as anonymity, more useful than would ‘loose’ societies. This could mean that the hope of finding a generic type of GDSS to serve the groupwork of different nationalities, who have different cultural value frames at work in the decision-making process, cannot be realised unless appropriate modifications to the features of these systems, in response to this particular need, are possible.

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