Cross-cultural study on decision making of German and Indian university students

(Interkulturelle Unterschiede im Entscheidungsverhalten deutscher und indischer Studierender)

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Eidesstattliche Erklärung

Hiermit erkläre ich, dass ich die vorliegende Arbeit selbstständig verfasst und keine anderen als die angegebenen Hilfsmittel verwendet habe.

Chemnitz, 01.04.2010

Arun Tipandjan

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Contents

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A cross-cultural study on decision making of German and Indian university students: An introduction.

A clinical thermometer has universal applicability regardless of who constructed it, and regardless of where, when, and how it is used. Body temperatures are invariant across cultures. But unlike medical instruments, the instruments used to measure psychological functions are extremely sensitive to cultural nuances. Thereby, decision making is not an exception because people's decisions are highly influenced by the culture that surrounds them on all sides. Differences in culture have been shown to have a strong impact on choice behavior and decision making (Stewart, 1985). However, most of the instruments used to analyze cross-cultural decision making were established in Western cultures. Even decision making models and theories were based on Western cultures. Cole (1996) criticized these models and pointed out the failure to consider cultural variability in psychological processes, which makes it 'impossible to know whether such processes are universal or specific to particular cultural circumstances' (p. 2).

Specifically, the overriding methodological issues in cross-cultural research are equivalence in variable identification, operational definitions, instrument design, sample selection, sample treatment, and analysis. For example, using instruments established in one culture (Western) to compare participants from another culture (Eastern) may result in incomparable and in-equivalent results called *cultural biases*. In cross-cultural research, biases can arise with respect to the constructs used, the methods applied and the items contained in the respective questionnaires. In the earlier attempts, researchers tried to utilize different approaches to overcome such biases. Some researchers tried to eliminate construct biases as well as method and item biases separately. To create a comprehensive method to minimize biases in cross-cultural decision making is a long standing issue and a challenge for cross-cultural comparison research.

Exploring cross-cultural similarities and differences in a less biased way is the aim of the current research, introduced in the following. Minimizing biases in cross-cultural studies on decision making should proceed in a sequential way. I used a new approach termed 'etic-emic-etic' to compliment the 'etic-emic' approach of Triandis (1976), in order to compare

overt behavior between students of India and Germany in a culturally neutral way (etic), and then to identify the underlying cultural values that drive overt behavioral differences (emic). Using those underlying cultural values, I tried to compare these two cultures in a culture neutral way (etic). This process will be pursued within the following three studies. It is important to note that the only existing study comparing German and Indian students with respect to decision making is conducted by Güss (2002), and that this study is prone to measurement problems, due to unfamiliarity of the Indians with the computer simulation used for comparing both cultures. The open questions, I tried to answer, are, how to compare the decision making process of German and Indian students in a less biased way, and what are the differences between and the similarities of these two cultures regarding decision making.

The three papers: A short preview

Paper 1: The aim of the first study was to find out what are the important decisions in the lives of German and Indian university students. The first step in the bias analysis in cross-cultural comparison starts with construct biases. To minimize biases arising due to construct in-equivalence, I made an attempt to identify the important decisions in a culture neutral way: I used an open ended questionnaire to identify the decision situations concerning the past and the future.

A qualitative analysis of the data revealed that there are both common as well as different decision situations of German and Indian students. The most important decision situations – common ones for both cultures as well as different ones – will be used for further qualitative analysis. A methodological approach for comparing cultures, I termed 'etic-emic-etic', was put forward using qualitative methods.

Paper 2: A comprehensive list of common and different decision making situations in the lives of German and Indian students was constructed based on the results of the first study. By means of a qualitative analysis, important decision making areas were determined to analyze the factors underlying the decisions in those areas. I used semi structured interviews in order to collect information in five major areas of decision making: subject of study, choice of job, life partner selection, live partner break up, and buying decisions. In addition, factors influencing decision making processes of German and Indian students were identified using cognitive structures derived from another qualitative analysis.

Paper 3: By means of the studies of Paper 1 and Paper 2, areas of decision making of German and Indian students, as well as the factors underlying the respective decision making processes were identified. The evidence provided by these studies is the basis for the questions addressed in Paper 3. The aim of the third study was to compare representative samples of German and Indian students. In order to do so, I developed a questionnaire based on the results of Paper 1 and Paper 2. This questionnaire was used along with the usual instruments for examining cross-cultural decision making. In addition to an item-wise comparison of German and Indian students' decision making, an Exploratory Factor Analysis was carried out to identify common and different factors, as well as to explain the culture specific and neutral decision processes.

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2

Paper 1: What are the important decisions in one's life? - Differences between German and Indian university students

The following paper was written together with Peter Sedlmeier, Thomas Schafer (Chemnitz University of Technology, Department of Psychology) and Suresh Sundaram of Annamalai University, India. It will be submitted for publication to a peer reviewed psychology journal. The paper is presented here in its original form ready for submission, so that some repetitions of the introduction above in the paper were inevitable.

What are the important decisions in one's life?

People have to make decisions every day. Students, in particular, are at a stage of their lives where usually many decisions about family and career have to be made. Hereby, it can be expected that culture norms and the value of the social system they belong to provide them with some guidelines and hence have a strong impact on the way decisions are arrived at. In fact, some societies are considered to be more individualistic and others more collectivistic, which is also an important factor that might have an impact on decision making. People from individualistic cultures tend to value personal goals over group goals, personal concerns over group concerns and personal rights and needs over collective responsibilities and obligations (Gudykunst, Gao, Schmidt, & Nishida, 1992). And people from a collectivistic culture value group membership as a central aspect of identity, sacrifice for the common well and maintain harmonious relationship with others (Oyserman, Coon, & Kemmelmeier, 2002).

There has been considerable cross cultural research directed towards understanding how individuals make decisions, using a combined *etic–emic* (culture neutral and culture specific) approach (Triandis, Malpass, & Davidson, 1972, 1973; as cited in Jaccard & Wan, 1986), and particularly comparing students of different cultures to look for cross cultural differences. Comparing students is advantageous, because the majority of students across cultures share certain common characteristics like motivation towards study, personal goals, education, age, enthusiasm and sincerity and intercultural differences, if they exist, can be identified much more easily with such a homogeneous group.

Cross-cultural psychology is said to be the study of similarities and differences in individual psychological functioning in various cultural and ethnocultural groups; of the relationships between psychological variables and social-cultural, ecological and biological variables; and of ongoing changes in these variables (Berry, Poortinga, Segall, & Dasen, 2007). When studying cultural influence on behaviour, researchers may approach cultural variables and the design of research from three different angles. The first two, *indigenous and cultural approaches,* focus on the "emics" or things unique to a culture and aim to study the local context and meaning of constructs without imposing a priori definitions of the constructs (Tanaka-Matsumi, 2001). Researchers who follow these approaches reject claims that psychological theories should be universal (Kim, 2001).

The third approach is the *cross cultural approach* which focuses on the "etics" or factors common across cultures (Brislin, Lonner, & Thorndike, 1973). For cross cultural psychologists to conduct research comparing different cultures, Berry (1969) suggested to use a set of 'derived etic' generalisations. To arrive at such generalisations, the participants of both cultures should be observed in their natural environment, to know more about their culture specific traditions, before the studies are executed. This ensures the researcher to design a study from a more emic viewpoint, and these results can be utilised for comparing cultures.

However, cross cultural comparisons between West and East have often been carried out with tools that were established in only one part of the world – the Western one. Egisdottir, Gerstein, & Cinarbas (2008) advocated that one should not assume that an instrument developed in one culture is appropriate to be used and will yield valid findings in another culture. In particular, according to Triandis (2000), emic techniques are needed if the cultures of interest are very different.

The main aim of the present study is to lay the ground for a more balanced examination of intercultural differences in university students' decision making. For that, the first step is to find out what decision making situations are relevant in both cultures. These are areas that are equally relevant to respondents in both cultures, and areas that are more important in one culture than in another or even are only of relevance in one of the cultures. If areas that are important are examined in one but not so much in the other culture, one might give undue importance to those areas and overlook some other important ones in the other culture. Areas that are relevant in only one culture might give hint at where to look for strong cultural differences. And the results of this study might be used to later examine the areas found, in greater detail.

However, it is a challenging task to carry out a cross-cultural comparison between countries which are culturally far apart. Triandis (2000) stated that the less the 'cultural distance' between groups is being compared the less room there is for bias. Van de Vijver and Poortinga (1997) stated that when the cultural distance between two groups is smaller, the size of bias effects will decrease, but at how small a cultural distance the effects become negligible is yet to be defined. In most of the cases the cultural distance is discerned based on the Human Development Index (HDI; United Nations, 2008) published yearly by the United Nations

Development Programme to assess well being and child welfare (human development). We have selected two countries, one from western and one from eastern world-Germany and India which are culturally far apart. In HDI Germany is ranked 23 and India is ranked 132. This tells us how different these two countries are and so it is highly interesting and mandatory to look for appropriate common measures for comparison and elimination of possible bias. To address these issues one should first understand the possible origin of bias and previous methods.

Types of bias, sources and elimination methods

As mentioned earlier, most of the research instruments to explain cross cultural differences of students' decision making were developed in Western countries, according to the Western culture and norms. Stewart (1985) has argued that when theories of decision making derived from Western individualist societies are applied cross-culturally, cultural differences are likely to occur and affect the universality and predictability of these models (imposed etics). Van de Vijver (2001) stated that bias negatively influences equivalence of observations (test scores) across cultural groups. The typical sources of bias are the constructs, methods and items used.

Construct bias: Construct bias occurs when the construct examined is not identical across cultural groups. Embretson (1983) coined the related term *Construct underrepresentation* to refer to an insufficient sampling of all relevant domains in an instrument. The main reasons for this type of bias are different coverage of the construct across cultures (i.e., not all relevant behavioural domains are sampled), an incomplete overlap of how the construct is defined across cultures, and a difference in the appropriateness of item content between two language versions of an instrument. In general, construct bias is likely to appear when test authors from various societies use definitions of the concept under study that do not fully overlap (van de Vijver & Leung, 1997; van de Vijver & Poortinga, 1997). Differential appropriateness of item content can also cause construct bias. Assuming that a stress coping questionnaire has a subscale to measure avoidance with items such as 'when I feel low, I go to a temple to meditate,' these types of activities differ across cultures. Items about going to a temple, yoga centre or meditation hall may be adequate in Eastern studies but will be inadequate in groups where these activities are less common.

To avoid construct bias, one can use a pre-existing measure and researchers should consider collecting emic items to be included in the instrument when studying an etic construct (e.g., Oh & Neville, 2004). Another way is when emic scales are available in the cultures of interest to assess an etic construct and cross-cultural comparison is sought, the convergence approach should be considered where all the instruments are translated and applied to both culture groups. Then, items and scales shared across cultures are used for cross-cultural comparisons, whereas non shared items provide information about the unique aspect of the construct in each culture (e.g., van de Vijver, 1998).

Method bias: Method bias can stem from characteristics of the instrument or from its administration (van de Vijver & Poortinga, 1997). Sample incomparability, instrument characteristics, tester and interviewer effect, method (mode) of administration and also all sources of bias that stem from aspects are described in the method section of empirical papers. Common source of this bias are differential response styles across cultures (e.g., Johnson, Kulesa, Cho, & Shavitt, 2005). A good illustration of such a bias can be found in the results of Serpell's (1979) study that administrated a pattern-copying task to children in the United Kingdom and Zambia. The childrens' copying skills were assessed using two methods: pencil-drawing and iron-wire modelling, a pastime that is popular among Zambian boys. The British children scored higher than the Zambian children on the drawing task while the Zambian children scored higher on the wire modelling task. However, variations in familiarity with the type of stimuli or scale across cultures, communication problems between investigators and participants, differences in physical conditions under which the instrument is administered across cultures were also sources of this kind. To avoid potential method bias, an integration of quantitative and qualitative methods should be considered, especially when one type of method may be more appropriate and relevant to a particular culture. A convergence of results from both methods enhances the validity of the findings.

Item bias: Item bias refers to the measurement at the item level: bias can result from poor translation or poor item formulation (e.g., complex wording) or from the fact that item content may not be equally relevant or appropriate for the cultural groups being compared (van de Vijver & Poortinga, 1997). An item is considered biased if persons from different cultures having the same standing on the underlying characteristic (trait or state) measured yield different average item scores on the instrument. Many techniques have been developed to analyse item bias, a typical example is the Mantel-Haenszel procedure, proposed by Holland

and Thayer (1988, see Van de Vijver, 1998). To understand in depth about bias in cross-cultural comparison, we must first look into different approaches in cross-cultural research.

Early approaches in cross-cultural comparison

In general, cross-cultural comparison has been carried out with three approaches. In the *application* approach, a literal translation of the questionnaires developed in one culture is used for research in another and item content is not changed to a new cultural context. Secondly, instruments are adapted for use in different cultural context in the *adaptation* approach. This means that at least some items are replaced or changed (in wording or contents) to enhance their appropriateness in the new culture. The third approach is that of *assembling:* the original instrument is assumed to be inadequate in the new context, and a new instrument is developed to be more adequate in the new cultural context (van de Vijver & Leung, 1997). But each of the approaches has its own practical difficulties which may lead to biased findings. Assembling instruments involves more money and time if the cultures compared consist of larger groups; one has to find out culture specific issues in both the cultures since emic techniques are often needed if the cultures of interest are very different (Triandis, 2000). Here direct comparison of cultures can be difficult because of two or more measures of the construct may not be equivalent at the measurement level. The application method and to some degree adaptation strategy focuses on capturing the etics, or the qualities of concepts common across cultures. Yet researchers have criticised it. Berry (1989), for instance, labelled this practice 'imposed etics' claiming that by using the etic approach, researchers fail to capture the culturally specific aspects of the construct and may erroneously assume the construct exists and functions similarly across cultures. Making simple corrections according to the country where it is used will not solve the problem; instead one requires an unbiased measure to carry out the research. Comparing cultures using the questionnaire developed in one culture by back translation would carry the particular cultural flare from where it was developed and it would not be applicable to other cultures. Hence one must pay attention to both the construction of the tool and the application of it. However, to understand in depth about decision making among different cultures, we must analyse previous studies and instruments which are already existing comparing cultures on decision making.

Western instruments for decision making research

The number of instruments developed in eastern countries like Japan, China, or India is very small. Most of the instruments to measure decision making were developed in the western world and some of the instruments used mostly by cross cultural researchers standing as an alternative in comparing cultural differences are the following:

i) the Melbourne Decision Making Questionnaire (Mann, Burnett, Radford, & Ford, 1997) revealed that it will be necessary to devise and test new items and format them to achieve an instrument that is broadly suitable for administration to diverse samples across cultures. This scale was derived from Flinders DMQ by back translation, using confirmatory factor analysis with six country samples. Used only motivational factor in decision making.

ii) the Kirton Adaption-Innovation Inventory (Kirton, 1976) used back-translation for comparing cultures.

iii) Decision Behaviour Questionnaire (Radford, Mann, Ohta & Nakane, 1991) were not clear about the method how they have obtained the items they used in their questionnaire comparing Australian and Japanese students.

The only available study comparing Indian and German students was by Güss (2002), who used computer simulations (also called microworlds) for comparing both Indian and German students. It is still an open question, whether this method was free from method and response bias and whether both culture groups were aware of the simulation methods. We cannot assure that these instruments will yield valid findings, due to possible cultural bias when comparing different cultures. Therefore, we propose an approach that tries to minimise bias while comparing cultures (India and Germany) by employing qualitative research methods. The main reason for using qualitative methods is that they are more suitable to explore the emic issues in each culture.

Need for qualitative methods comparing cultures

Creswell (1998) stated that qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting. However, instruments which are developed in one culture, when applying to another culture force the participants to the

construct of the items placed in it; moreover these types of approaches will narrow the research and cannot give a clear picture of what the participants have in their mind. Instead one can use open ended questionnaires to look for maximum responses with out forcing them. The reason for using such open ended questionnaires is to allow respondents to provide more information, including feelings, attitudes and understanding of the subject. This allows researchers to have better access to the respondents' true thoughts and feelings on any issue. Greenfield (1997) argued that open-ended responses enable researchers to study the social construction both inter-culturally and cross-culturally.

Rationale of present study

Many methods have been proposed by cross-cultural researchers to overcome the shortcoming of integrated methods to minimise bias in cross-cultural comparison. Some of them were a combined etic-emic strategy of Brislin and colleagues (Brislin, 1976, 1983; Brislin et al., 1973: in Egisdottir, Gerstein, & Cinarbas 2008), Triandis (1976) etic-emic method, and the 'convergence approach' of van de Vijver (Egisdottir, Gerstein, & Cinarbas 2008). However, a common method to look for communalities and differences is needed to compare cultures in a bias free way to overcome construct, method and item bias. As a first step, in this study we have made attempts to overcome the construct bias arising from cross cultural comparison. For van de Vijver and Poortinga (1997), a study of the adequacy of an instrument in a cross-cultural context should always start from a bias analysis at the construct level. As suggested by them, this study was conducted keeping method and items in controlled condition (same method in both cultures, i.e., India and Germany and open ended questionnaires). Thereby we tried to identify the culture specific areas (emic) for the etic construct (decision making) and to use these (emically defined etic constructs) as starting points for identifying the communalities and differences between different cultures. The results might then also be used for further cross-cultural comparison in later studies.

Method

Participants

In India, data were collected from 42 students of psychology and liberal arts in a college in Pondicherry and in Annamalai University, Chidambaram, aged 19-23, 10 male and 32 female.

In Germany, data were collected from 22 psychology students of Chemnitz University of Technology, aged 19-24, 10 male and 12 female. They were recruited on the basis of their willingness to participate in this study.

Procedure

Open ended questionnaires were provided to the participants to capture themes about past and future decision making situations like situations in which they had to make important decisions in the past and situations in which they will have to make important decisions in the future. For the German sample the material was given in German and for Indian sample it was given in English (the language of instruction in the respective institutions). The questionnaires were marked with two columns each for past and future, where participants were free to write anything about the situations. They could give as many important decisions as they wanted, each as a headword or sentence. In both countries questionnaires were administered in class room settings to eliminate bias due to differences in physical testing conditions.

Results

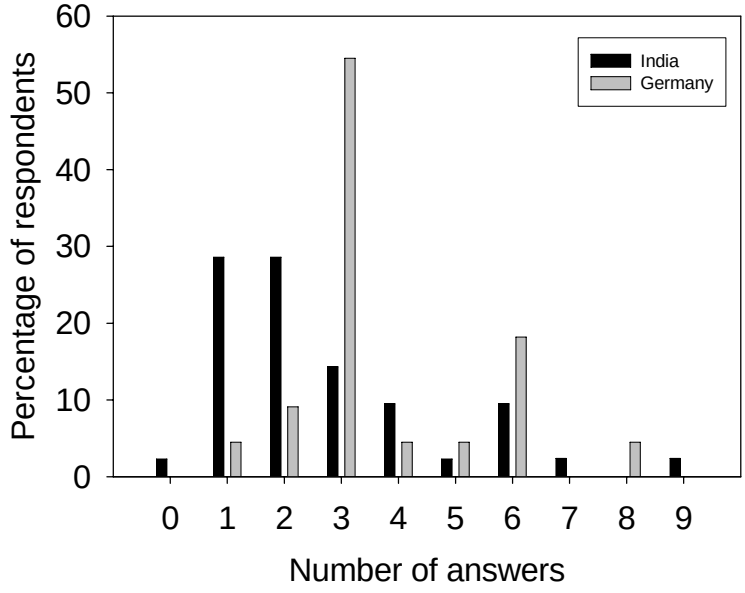
Qualitative content analysis was used to analyse the data. Qualitative content analysis has been defined as "an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytic rules and step by step models, without rash quantification" (Mayring, 2000). This analysis uses "themes" as the meaningful units rather than physical linguistic units. The themes can be expressed in single words, phrases, sentences, paragraphs, or entire documents. When using themes as coding units, the researcher is primarily looking for the expression of an idea (Minichiello, Aroni, Timewell, & Alexender, 1990). Thus codes will be assigned to a chunk of message of any size as far as this chunk represents a theme or issue of interest to the researcher.

Frequencies for total number of decisions

Frequencies for total number of decisions were counted followed by the development of categories for important decisions. Frequencies were calculated based on the number of answers given by each participant for past and future decision situations to explain how important those decisions are to them and find out the difference in the number of decision

situations. In order to analyze the complete picture of total number of responses, to look for the general pattern of decision making, and to know how well the respondents were aware of and have came across different decision situations, relative frequencies were computed. The relative frequencies—expressed as percentages—for the numbers of past and future decisions listed both by Indian and German students are shown in Figure 1. The reason for asking for past and future decision situations is to differentiate between two cognitive processes, (i) the processes of representing experience so that the past activities of the individual can be retrieved and (ii) to employ this past experience in the present for future decision making (Stewart, 1985).

Past decisions



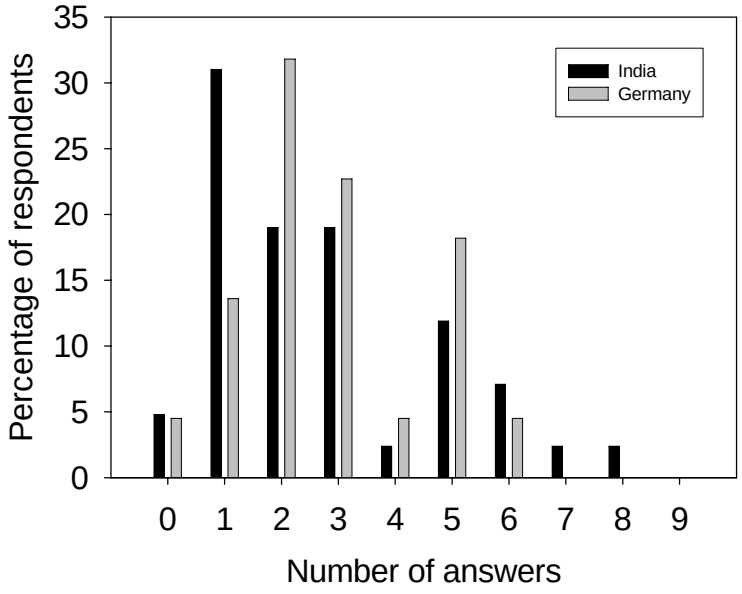


Figure 1.

Percentages for the number of answers German and Indian students gave for past and future decisions. Germans $N = 22$, Indians $N = 42$.

For the past and future decision situations the Indians and Germans showed a positively skewed and bimodal distribution. As can be seen in Figure 1, the distribution of frequency for past decisions was not equal for German and Indian students (Chi-square: 35.9; $p < .01$ df = 9). But there was no difference in the distribution of frequencies for future decision (Chi-square: 6.6; $p = .58$ df = 8). The distribution of number of decisions shows a strong difference between these two groups of students. German students emphasised more on the selection of schools when compared to Indian students. Consequently, German students had already come across a decision about life partner and it was not the case with Indian students. In the same way the information available for selecting a course or a job was more for Germans when compared to Indian students. The results also suggest that German students have been more involved in past decisions than Indian students. This can be attributed to independent and interdependent attitude during decision making process; normally Indian students depend on their parents and others for decision making.

Categories of important decisions

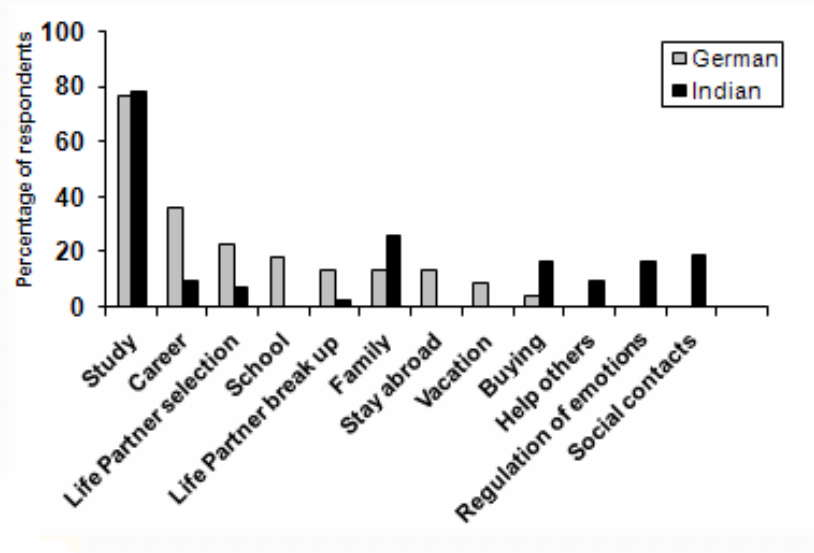
According to the answers obtained from the respondents, themes were developed using coding. The aim was to develop categories which subsumed common themes. This was carried out whenever themes or verbal meaning match with the particular decision category by employing rank order test. For example, to the category '*career*' we included the following themes: to study Bachelor or Master, choice of employment, change of employment, to quit job, which city to work, and income. In order to maintain consistency in coding, four raters (two Germans and two Indians) independently decided which themes should be combined under one category. All four raters worked independently on both Germany and Indian answers for coding. If there was a discrepancy it was solved by discussion among the raters. The exhaustive list of categories and themes are shown in Table 1.

Table 1.
Themes and categories derived from the participants' answers

Category	***Themes***
Studies	Subject of study, city, which university to study, to stay in hostel or at home, which practical training to undergo, part time job
Career	Study Bachelor or Master, choice of employment, change of employment, to quit job, which city to work and income related issues.
Life partner selection	Choice of partner, live together
School	Gymnasium (type of school in Germany) or other school, graduation, course.
Life partner break up	Problem with the life partner which leads to break away.
Stay abroad	Staying abroad for study, job or with the family.
Family	Having children, issues related to relatives, staying away from

	family, problems such as divorce of parents, marriages.
Vacation	Travelling to other cities and countries for vacation, how to spend vacation.
Buying	Buying things
Helping others	Joining social welfare organizations like Red Cross, national servicing schemes, to serve poor and diseased people.
Regulation of emotion	To reduce fear, control anger, improve self esteem, being honest, respecting others.
Social contacts	Issues related to friends, social status.

Past decisions



Future decisions

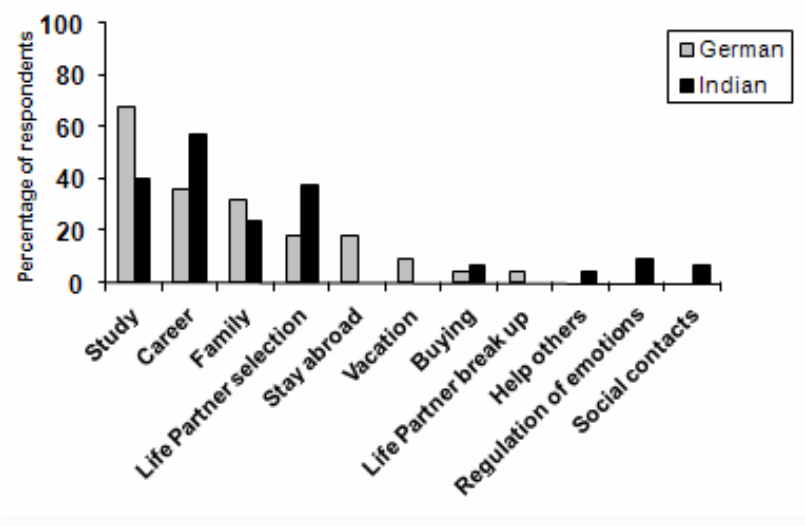


Figure 2.

Percentages for the number of answers that fell in the categories, given by German and Indian students for past and future decisions. Germans $N = 22$, Indians $N = 42$.

Figure 2 shows the percentages of Indian and German students who gave answers in the above defined categories. As can be seen, in the past , matters of subject of study, career, life partner selection, life partner break up, buying and family were common to both groups of participants, but decisions related to *social contacts*, *regulation of emotions*, *help others* were present only with Indian students and *school*, *stay abroad*, and *vacation* were present only with German students. In the future, matters of subject of study, career, life partner selection, buying and family were common to both the participants, but decision related to *social contacts*, *regulation of emotions*, *help others* were present only with Indian students and *stay abroad*, *life partner break up*, and *vacation* were present only with German students. From the results we can infer that there are some common and some different situations in student's lives in the two cultures, due to culture specific practice of both Indians and Germans. This will be discussed below

Discussion

To set a basis for bias-reduced comparisons of different cultures we used an etic-emic-etic approach using qualitative research methods. 'Etic-emic-etic' approach means to start with an etic concept (decision making) found in both cultures, to identify culture specific constructs (emic) in both cultures, and finally compare them to look for communalities and differences in a culture neutral way (etic), to look for the decision making of Indian and German students.

We administered open ended questionnaires to collect students' relevant decision making situations in the past and in the future. On analyzing the percentages for the number of answers (Figure 1), on average German students have given more answers than the Indian counter part, indicating that German students were given opportunity to make individual decisions from early age of their life, which motivated them to learn about information gathering. Also culture specific issues like life partner selection during schooling and while studying in college were common in Germany. These issues usually become relevant in India only after getting a job. This shows that the general decision making capacity is higher for Germans when compared to Indian students, as one can infer from the frequency distribution and significance in chi square test. This might be due to the cultural orientation of both groups: persons with individualistic values view themselves as relatively independent and responsible for their decisions but persons with collectivist values see themselves as a part of a group and are more sensitive to how their decisions are integrated in the social context. The difference can be attributed to the way they are brought up. It is obvious that Germans tend to give respect to the individuals' feelings and opinions from a very young age. In contrary, in India, even adults are expected to get suggestions from elders in many of their decisions (Sinha, & Tripathi, 1994). However, these points should be cross checked during later analysis.

There were some common and some different decision making situations perceived by both groups of students. The most common situations were *subject of study*, *career*, and *life partner selection*, *life partner break up*, *buying*, and *family* in both the past and the future decisions. But, life partner break up was not present with Indians in the future. As discussed earlier, one should include common situations which are relevant in both cultures for comparison. They may have a similar psychological meaning in both cultures. But situations like *social contacts*, *help others*, *regulations of emotions* were present only in the Indian

students' past and future decisions category. And *stay abroad*, *vacation*, in both past and future, *school,* for the past were present only with the German students. Situations present only with Indian students show a strong preference for people or society oriented issues where they have to make decisions in respect to developing social contacts, helping others by joining social welfare organizations and regulation of emotions to go smooth with the people around them and also for self development. These areas were not given importance by German students, instead their decisions were about staying abroad, for attending a semester, completing a practical training or choosing a part time job. The presence of staying abroad only with German students is due to the non-restriction of Europeans to travel to most of the countries. When discussing about vacation, it is not common in Indian context to go for a compulsory vacation once or twice a year, but this seems to be mandatory for westerners and involve in decisions, as, for instance, about the place for vacation well in advance. The difference in regard to decisions about schooling might be due to different school systems observed in the two countries: in Germany there are several ways to prepare for the school final exam. This is due to the different possibilities available in the German schooling system (see Dustmann, 2004), and schooling is compulsory and begins at the age of six in Germany, whereas in the Indian context, schooling is not compulsory. So, it can be expected that German students give more importance to this school decision. German students have to decide for the Gymnasium or other type of schools at the age of 10, whereas in India, normally 10 years of high schooling and 2 years of higher secondary are required to get into college or university. It can be seen from these differences that German students have to make decisions about school from their early age after passing elementary schooling to select different subjects and a profession for their future. Whereas non availability of such type of structure in schooling system for Indians makes them to wait till their 10th class for deciding the particular study or profession. Such decision situations which are present with one group and not present with the other shows the potential difference between the cultures. We should give relative focus to the decision situations which are relevant in one culture and not relevant to another culture in order to identify the culture specific issues, because it is a primary concern of comparative research to distinguish between culturally specific and universal behaviour.

The most important decision situations are comparable for both countries and can be considered as common grounds for doing cross-cultural research on decision making which is equilibrated regarding the importance of the situations. For example, future research may go

into detail in decision making research by qualitative analyses (interviews) regarding these major decision areas.

Apart from these comparable decision making situations, the results also confirm cultural stereotypes regarding certain categories that are important in only one country. To include the categories which are present in one culture and absent in another culture, we need to do more intensive survey involving a greater number of student participants from both countries to look for additional information. Though studies comparing different cultures on study- and career-related issues were done previously, measuring respondents with an instrument that is equally sensitive to both cultures is still a task ahead of cross cultural researchers. Our results indicate what the really important areas are, and where one should look at more precisely in future studies. One can construct a common instrument or extend the research by doing qualitative analysis using these important decisions for item formulation. However, due importance should be given to decisions which are relevant to one culture and not relevant to another while constructing the questionnaire for cross-cultural analysis to look for strong differences between cultures. The advantage would be to have a bias-free instrument.

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3

Paper 2: Structure of real life decision making process comparison between Germany and India.

The following paper was written together with Peter Sedlmeier, Thomas Schafer (Chemnitz University of Technology, Department of Psychology) and Suresh Sundaram of Annamalai University, India. It will be submitted for publication to a peer reviewed psychology journal. The paper is presented here in its original form ready for submission, so that some repetitions of the introduction above in the paper were inevitable.

Structure of real life decision making process

Bias in cross-cultural research has been a long standing problem (Poortinga & van de Vijver, 1987). Many methods to eliminate bias arising from cross cultural comparison were discussed by social scientists, but the usual way they have handled the problem was to identify bias *after* the data collection process. Whenever an instrument is used with a view to compare the results across cultures, it is essential that these results are equivalent and a means to check on this is provided by bias analysis. Instead of doing analysis to overcome bias after data collection process, one could prevent biases before hand by appropriate tool construction, designing, and administration. Especially when dealing with decision making in different cultures, most of the researchers have used instruments established in one culture and searched for differences in another culture. The results of those studies raised methodological questions like test equivalence and bias effect. Although decision making takes place in all cultures (Jaccard & Wan, 1986), the respective processes or operations and their evaluation and frequency differ from society to society (Pelletier & Garfield, 1976). Unfortunately, cognitive theories on decision making consider culture very rarely, so the study of the impact of culture on decision making is a relatively new and unexplored field (Güss, 2002).

Weber and Hsee (2000) suggested that cross-cultural research can be conducted at two different levels. At the first level one examines differences in overt behavior between members of different cultures and at the second level underlying cultural values that drive overt behavioral differences are to be identified. Taking this into consideration, in a recent study, we developed a common approach for research on cross-cultural decision making. We examined the overt behavior using open ended questionnaires to identify common constructs for the concept of decision making with Indian and German students, that resulted as a first step in minimizing construct bias during cross-cultural comparison and in identifying common and different decision making areas in both cultures (Tipandjan, Schäfer, Sundaram, & Sedlmeier, in prep). As a second step, areas that have been judged important in both cultures are used to look for communalities and differences in decision making, using qualitative methods. Additionally, one should also look for decision making areas, which are present in one culture and not in another—to escape from the risk of making type II error in cross-cultural comparison, ignoring genuine cross-cultural differences (Fontaine, 2008).

Our previous findings (Tipandjan et al., in prep) suggest that the respective major areas are important but do not explain the decision processes and do not reveal anything about the underlying factors that influenced the decisions in those areas. Therefore, the main aim of the present study was to carry out in-depth analysis of the major decision making areas descended from the earlier study. Secondly, to identify the factors underlying the major decision areas in both the cultures and to understand how the factors guide the decision making processes in Indian and German cultures, again using qualitative methods.

There are several indications that Germans and Indian might differ in the way they arrived at their decision. For instance, Boehnke, Frindge, Reddy, and Singhal (1993) suggested that Germans perceive their culture as achievement-oriented and not at all stimulations-oriented. In contrast, Indians perceive their culture as strongly tradition-oriented whereas power-orientation is not at all attributed to the Indian culture (Boehnke et al., 1993). The metaanalysis by Oyserman, Coon, and Kemmelmeier (2002) shows that the values on cultural dimensions used to compare cultures differ widely between Germany and India. 'Cultural distance' is defined as a comparison measure between countries based on how they are culturally near or apart (Triandis, 2000). In most of the cases the cultural distance is discerned based on the Human Development Index (HDI; United Nations, 2008) published yearly by the United Nations Development Programme to assess well being and child welfare (human development). In HDI, Germany is ranked 23 and India is ranked 132 and this tells us how different these two countries are, which also made the comparison promising. So, the purpose of the study is to utilize major areas on decision making established in the previous study (Tipandjan et al., in prep) to look for concrete answers from the students, using semi-structured interviews to identify the factors underlying major areas on decision making using Grounded Theory.

Bias in cross-cultural research - an overview

Bias limits the comparability or equivalence of observations (test scores) across cultural groups and threatens the validity of cross-cultural comparison (van de Vijver & Poortinga, 1997). Van de Vijver and Tanzer (2004) stated that there are numerous non-trait related aspects that can affect scores on any kind of psychological measurement. For instance when comparing two or more cultures using questionnaires, unintended and unwanted findings occur, which are called 'cultural bias' and they lead to 'inequivalence' or 'incomparability' of scores. The typical sources of bias are the constructs, methods and items used. *Construct bias* occurs when the construct examined is not identical across cultural groups. In general,

construct bias is likely to appear when test authors from various societies use definitions of the concept under study that do not fully overlap (van de Vijver & Leung, 1997; van de Vijver & Poortinga, 1997). *Method bias* can stem from characteristics of the instrument or from its administration (van de Vijver & Poortinga, 1997). Sample incomparability, instrument characteristics, tester and interviewer effect, method (mode) of administration and also all sources of bias that stem from aspects described in the method section of empirical papers are all sources of method bias. *Item bias* refers to the measurement at the item level: bias can result from poor translation or poor item formulation (e.g., complex wording) or from the fact that item content may not be equally relevant or appropriate for the cultural groups being compared (van de Vijver & Poortinga, 1997). An item is considered biased if persons from different cultures having the same standing on the underlying characteristic (trait or state) but, the measurements yield different average item scores on the instrument.

Earlier cross-cultural comparisons on decision making between West and East have often been carried out with tools that were established in only one part of the world – the Western one (e.g., Ohbuchi, Fukushima, & Tedeschi, 1999; Mann, Radford, Burnett, Ford, Bond, Leung, Nakamura, Vaughan, & Yang, 1998; Güss, Strohschneider, & Holcour, 2000; Güss, 2002). Egisdottir, Gerstein, and Cinarbas (2008) advocated that one should not assume that an instrument developed in one culture is appropriate to be used and will yield valid findings in another culture. However, different types of bias and procedures to detect bias and methods to avoid them have been discussed by researchers (see van de Vijver, 2001; Egisdottir et al., 2008; Tipandjan et al., in prep). In order to overcome the bias arising from cross-cultural comparison, we have already utilized an approach to minimize construct bias and derived major areas to look for communalities and differences among Indian and German students (Tipandjan et al., in prep). In the above mentioned study, we ended up with common and different decision making situations like subject of study, job, and life partner selection and so on. As a follow up, we have selected five important areas: (1) Decision making areas which are important for both German and Indian students. (2) Areas which are very important for one country, either India or Germany and of little or of no importance for the other, to look for strong cultural differences. In this study we try to identify the factors underlying major areas to understand the decision making process qualitatively using a Grounded Theory approach. These underlying factors may contribute to formulate items for further research.

Need for qualitative and grounded theory approaches

Debates on methodology have taken place ever since psychology emerged as a distinguishable science (Berry, Poortinga, Segall, & Dasen, 2007). Cross-cultural psychology is particularly sensitive to this debate, because in cultural research, qualitative approaches dominate and in cultural comparative tradition, quantitative methods dominate. The reason behind this controversy seems to be that the leaders of these two approaches consider their own methodology superior to the other (Berry et al., 2007). According to Denzin and Lincoln (2000), the word qualitative implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity, or frequency. Qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry. Such researchers emphasize the value-laden nature of inquiry. They seek answers to questions that stress how social experience is created and given meaning. This qualitative tradition is one of the foundations of cross-cultural psychological research. The most important reason why we try to use qualitative research for cross-cultural decision making is that it gives preference for inductive, hypothesis-generating research rather than hypothesis testing (Glaser & Strauss, 1967). Since we try to identify the culture specific factor in German and Indian cultures on students' decision making, Grounded Theory would be a promising approach.

Grounded Theory was advocated in the early history of intercultural theorizing. It allows for the exploration of various theories in different fields and the emergence of new or deeper interpretations of intercultural experiences. Blackman (1983) had already considered that the Grounded Theory approach would contribute significantly to intercultural research in terms of theory. The semi structured interview is one among the common methods used in qualitative research. In semi-structured interviews, relevant topics are initially identified and the possible relationships between these topics become the basis for more specific questions, which do not need to be prepared in advance. Not all questions are designed before starting the interviews; instead, questions are developed based on the previously conducted interviews with the participants and also during the interview, allowing both the interviewer and the interviewee the flexibility to probe for details or discuss issues more thoroughly. Hence we decided to go with qualitative method using semi structured interviews to look for underlying parameters and processes in decision making by both German and Indian students.

Method

Participants

In India, interviews were conducted with 18 students studying psychology, arts subjects and nursing in a college in Pondicherry and in Annamalai University, Chidambaram, aged 19-23, 10 male and 8 female. In Germany, data were collected from 11 psychology students of Chemnitz University of Technology, aged 19-24, 5 male and 6 female. They were recruited on the basis of their willingness to participate in this study. Comparing students has got its own advantages; students are homogeneous groups sharing common motivation to personal life, job and so on. They are similar in age, education and enthusiasm. Particularly the chance of nuance factor is less. So the results can be due to differences in culture and not due to differences in different groups of students.

Procedure

Semi-structured interviews were used as a procedure to gather information, followed by transcribing and analyzing the data using Grounded Theory (Glaser, 1978). The semi-structured interviews were conducted after getting consent from the students and it lasted between 25 to 90 minutes each. Interviews were conducted with an open framework, which allowed for two-way communication. Participants were asked for detailed context about five important decision making areas descended from the previous study: *subject of study; decide for job, life partner break up, life partner selection, and buying decision* (Tipandjan et al., in prep). Two interviewers were included in our research team, one for India and one for Germany. Since, in India, the overall level of English knowledge amongst the students is quite good, it facilitated interviews in English. Whenever language difficulties occurred, the questions were repeated in the students' regional languages. To solve such issues, prior translation of all key words in regional languages were carried out. In Germany, the interviews were conducted in German. We developed a semi-structured interview guide based on the important decision areas. Since the interviewers were part of the research team, they were closely familiar with this guide and they were given instruction to use a personally suitable way of asking and sequencing the questions.

Semi-structured interview guide development

We developed the 'interview guide' in a step by step process. The early identification of major areas in the first study provided a conceptual framework about the five major areas where one should look for additional information. Preliminary sample interviews with both Indian and German students helped to develop a preliminary interview guide. From the data obtained from the sample interviews, followed by a discussion with the research team, we came up with a list of questions that should be covered in the interview. The team developed an initial list of questions and the questions were reviewed one-by-one and scrutinized for language, relevance and probing potential. The questions were designed orderly for each major decision making area. Interview guide serves as a checklist during the interview and ensures that basically the same information is obtained from all the participants to have consistency in both the countries. Additional questions were also included during the interview process. The interviews were conducted first in Germany and the same questions were asked to the Indian students based on the interview guide. A brief version of interview questions are included (appendix 1).

Participants were assured about the confidentiality and anonymity of the interview and were also asked for permission to tape record the conversation. A few background questions served as 'warm up' and to develop rapport between the interviewer and the interviewee. Participants were first asked about the general question about each major area. 'Please imagine – as real as possible – the situation in which you had to decide what subject to study. Try to go back to this situation and think of all your thoughts and considerations. The first general question is: How did you proceed in the decision for a subject to study?' At the end of the interviews, participants were asked, whether there was anything else they would like to tell. The interviewers also asked for permission to contact them later in case there happened to be additional questions. Two extracts, one from an interview with an Indian and one with a German student regarding subject of study (College) is presented below to demonstrate the consistency during the interview process. I - the interviewer and IS - Indian student (female), GS - German student (female).

I: Had there been any obstacles in your decision for subject of study? (College/University)

IS: yes, I had

I: Can you please specify the obstacles?

IS: low marks in school final exam and financial conditions. Since we are middle class family I was unable to pay huge amount of money to study medicine. I was forced to take the subject which I am studying now. It was by chance and I have developed interest in this subject now.

The next extract is from an interview conducted with a German student.

I: Had there been any obstacles in your decision for subject of study? (College/University)

GS: yes, a few

I: Can you please specify the obstacles?

GS: Circumstances at the place of study, importance of family bond (boy friend, since we are living together now), preservation of the regular life (boy friend and pet animal). I am forced to look for the one near to my residence.

While interviewing the Indian and German students, if they didn't come across such a situation in their life, they were instructed to imagine about the occurrence of such situations in the near future. In particular, the decision about life partner break up for Indian students is not a common decision and most of them have never thought about that (because they did not yet have life partners), compared to their German counter parts.

Analysis

After transcription of interview data, we followed the early steps of Grounded Theory (Glaser, 1978), started to summarize data, continued with first and second level coding, and ended up in deriving even more general themes. Coding consisted of two phases: an initial phase involving the line-by-line coding, to extract and summarize the meaning of that line. To categorize our data most accurately and completely, we continued with focused coding, followed by axial coding (Strauss & Corbin, 1990) to specify the dimensions of a category. Codes were then raised to conceptual categories for developing analytic frameworks. The categories explicate ideas, events, or processes in data and they may subsume common themes and patterns in several codes. For example, the category 'opportunities' when selecting a job includes codes like 'further study', 'research options', 'promotional chances', 'salary hike in future', 'housing', and 'scope for personal development'. Concurrently we carried out memoing; it is defined as the theorizing write-up of ideas about codes and their relationships. Memoing was carried out to tie up the different pieces of data into a recognizable cluster and to build a structure that comprises several categories and their relationship.

Cognitive structure for decision making

In addition to searching for categories, we looked for cognitive structures, which are characteristic connections between the factors, to explore the process of decision making in each decision situation. What would we logically predict as a consequence of social system; and does that consequences appear similar or different in both cultures?

Results and Discussion

We used five major areas as points of departure to form interview questions. When asked about general questions on major areas, it was inferred from the interviews that German students answered more spontaneously than Indian students. As a result, interviews lasted up to 90 minutes for German students and up to 40 minutes for Indian students.

Subject of study

The categories extracted for "subject of study" and the respective percentages (rank ordered according to Indian students' answers) are presented in Table 1. It is important to note, higher percentages of Indian students answer is smaller to higher percentage of German students. This is due to the unequal sample size with Indian and German students and therefore, it is difficult to compare the percentages directly. In order to make it comparable, we set the highest percentage of Indian students' (61.11) to 100 percent and highest percentage of German students' (81.81) to 100 percent for calculating relative percentages. For example in the category *influence from people around* the percentages for Indian students were 55.55 (10 responses). The German students' percentage was 81.81 (9 responses), here we cannot say that Germans are much higher than Indians on influence from people around with reference to total percentages. So we computed relative percentages

Table 1.

Percentages of Indian and German students who mentioned the respective categories for subject of study. Percentages are rank ordered for Indian students.

Decision about subject of study	Indian	German
Information from book	5.55	54.54
Opportunities	11.11	54.54
Friends influence	16.66	9.09
Internet information	22.22	45.45
Financial crisis	27.77	45.45
Interesting	27.77	54.54
Self development	33.33	72.72
Parental influence	38.38	54.54
Influence from people around	55.55	81.81
To fulfill self ambition	61.11	9.09
Influence of school subject	61.11	45.45

When asked about the decision regarding subject of study, the participants focused their attention towards what had happened in their life and they looked backward about the process, when they availed help from their parents and friends around them. It can be seen from figure 1, the categories such as *internet information, financial considerations, interesting, self development, parental information,* and *influence from people around* were comparable for both students. Indian students prominently dominate the Germans in three main categories *friends' influence*, *to fulfill self ambition* and *influence of school subject*, indicating that Indian students' decision for selecting the subject of study was highly influenced by their friends. Indians are particular about their study being related to their personal aims and goals and select their subject based on the subject they have studied in the school. Contrary to this, for German students, the main influential categories were *information from book* and *opportunities*. German students collect information from books while selecting subject and also based on the opportunities the subject creates after the completion of their study.

Differences inferred from the category information from book might be due to the availability of resources like the 'Green book' (Informationionen zur Studien und Berufswahl), through which German students can avail information about different courses, which was not possible for Indian students. On the other hand, Indian students have to approach a career counselor for procuring information about subject of study. However, in India, the National Council of Education Research and Training (NCERT) has started working to give guidance and counseling in educational institutions very recently. The category *opportunities* show that German students select a subject based on the future outcomes, in relation to the employment prospects.

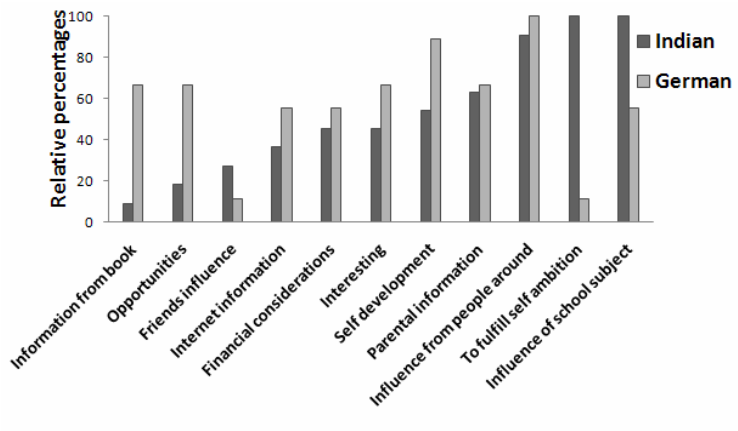


Figure 1.

Relative percentages for categories to decide for subject of study.

Figure 2 shows the structure that describes how Indian and German students ended up with the decision for their subject of study (College major). Arrows show the relation between factors and are coded using frequencies. Relations described by more than 50%, 30%, and 20% of the respondents are coded by broad, middle and narrow arrows, respectively.

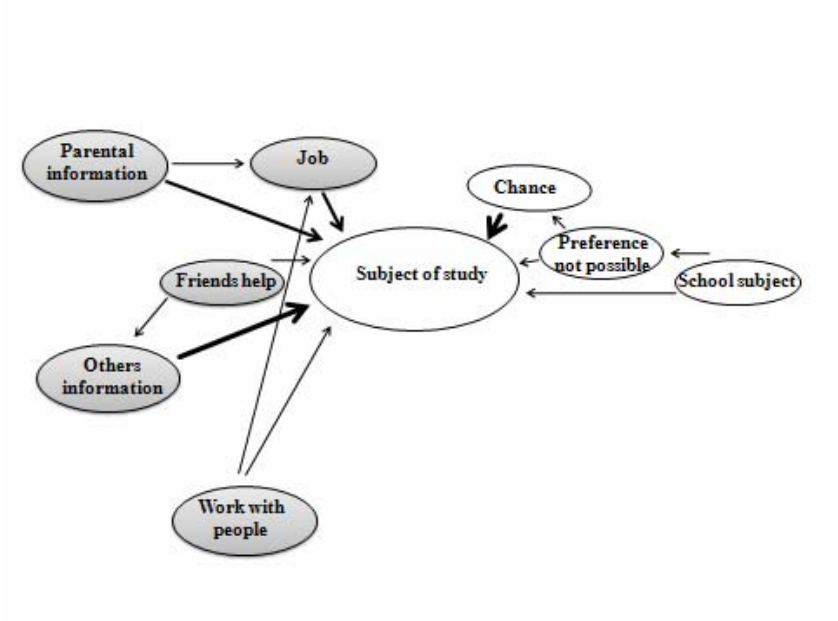
The shaded circles show the structures underlying the decision making process that are common in both countries and the un-shaded circles show the differences between Indians and Germans accordingly. The factors such as *job, parental information, friends help, others information,* and *work with people* were common to Indian and German students. The culture specific factors attached with Indian students were *chance*, *preference not possible*, and *school subject*. The above mentioned specific factors reflect that Indian students were held up with their subject of study by chance, when their preference was not fulfilled even though they are highly motivated to select their subject based on their school subject. The decision processes of German students were headed by various culture specific factors like *internet, interesting, book information, financial reasons, exam rules, partners influence, near to place of living* and *good salary*.

When comparing Indian and German students based on cognitive structures, major differences can be observed from the way they have decided for their subject of study. Indian students are forced to take up a subject by chance due to non fulfillment of their preference based on school subject. However, German students are well determined about their decision by tremendous information gathering process via internet and other sources. But they give more importance to decisions based on their life partner, due to living together practice in Germany and decide for subjects which are near to their place of living. This is strongly evident from the study by Spiess and Wrohlich (2008) and Krawietz and Heine (2006), where they found that German students prefer a university which is near to their place of living. This is unusual for Indian students when deciding for subject of study due to the non availability of higher educational institutions in rural areas, so they have to move to urban areas for their education. The factors underlying subject of study decision can be inferred from excerpts like the following with one Indian and one German student:

Indian Student: *I wanted to study medicine but I couldn't get due to poor marks in my school final exam and it was not possible for my family to put me in private medical colleges, which require more money. So by chance I got hooked up with this subject of study. My uncle influenced me a lot in joining this course and I slowly developed interest. Even this course is related to my school subjects like biology and has experiments. So it was not so difficult to make up my mind to join this course. Still it took 2 weeks for me to decide for this course after gathering information from the people around me; I hope that this course will give me a better future.*

German student: *I read the study guide (green book) to look for what I want, imagined myself in that place; had conversation with my friends and family and did internet research about the university, subject ranking and exam rules to look whether I can get through my exams and get a good job after my studies. It took me a long time to decide between alternatives, so I availed my friends' help and decided on the one I am studying now, because the other one was away from my place of living and requires more money and I have to stay with my life partner. I am basically interested in working with human so this matched with my aim. Was also the best choice concerning my present relationship, so I decided on this subject.*

India



Germany

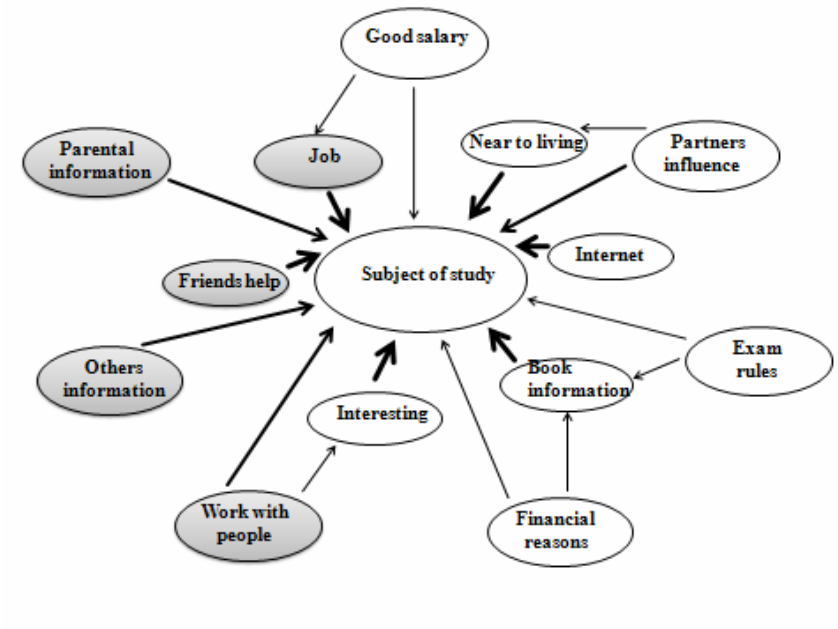


Figure 2.

Graphic representation shows relationship between factors influencing decision making to decide for subject of study. Factors with two arrows have a direct influence and act via another mediating factor.

Selecting a job

As can be seen from figure 3 when deciding for a job, Indian and German students are sharing common categories such as *opportunity*, *influence of others*, *relevant to aims*, and *work with people.* Indian students significantly dominated the Germans in three categories, *related to study*, *security of job,* and *free decision*. Indian students decide for a job which is related to their subject or the course they have studied and a job which has high security. On the other hand German students dominated Indian students on categories like *variety job, place of living, work environment*, and *salary*. These specific categories imply that German students look for a job which has high variety and their decision was based on the salary they get. Moreover, Germans give due importance to the place of work and working environment in order to get a good working atmosphere.

Major difference between Indian and German students can be seen from the categories like *variety job* with out repetition, a unique characteristic of German students while selecting a job. German students were very specific about the place of work, with the expectation of high salary and working environment when compared to Indian counter parts. It can be understood from the differences on relative percentages among the categories, that German students were paying more attention when deciding for a job and this differences is attributed to the presence of vocational guidance services through 'Federal institution for work' (Bundesanstalt für Arbeit) and there is no such specific services available for Indian students in most of the cases.

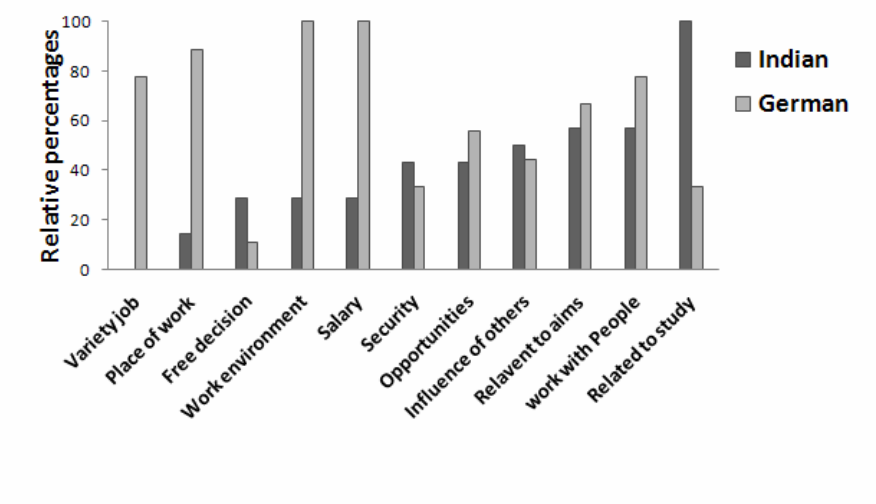


Figure 3.

Relative percentages for categories to decide for job.

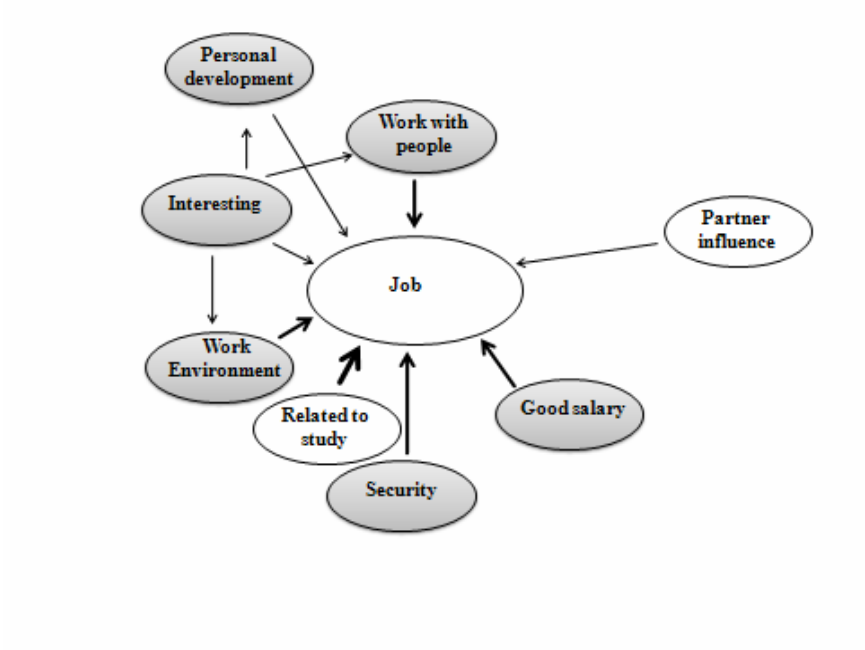
Figure 4 shows the structure that describes how Indian and German students end up with the decision about job. The factors common to both the students were *work with people*, *work environment*, *interesting, personal development, security*, and *good salary*. The culture specific factors for Indian students' to decide for a job were *related to study* (e.g., Arunlmani, Van Laar, & Easton, 2001) and *partners influence*. It is to understand that Indian students expect that their decisions may be influenced by their life partner (husband or wife after marriage).

German students' decision was based on various sequential factors and the factors were *near to place of living, variety job, long term benefits, previous job experience, working time, good co-workers*, and *satisfaction*. Germans decide for a job which has more variety. They look for opportunity to work with people based on their previous job experiences to fulfill long term benefits. Germans prefer to work near to their place of living (see Bargel, Ramm, & Multrus, 2008), and good working environment with flexible working time. Friendly co-workers are also important factors for German students to work with utmost satisfaction.

Interesting cultural differences can be seen from the structures of Indian and German students. Indian students' decision is based on the subject they studied during college or university and based on the influence of their life partner. German students on the other hand prefer a job

with variety and, a job located near to their place of living. Working time, good co-workers and a job with long term benefits are the factors responsible for German students' decisions. These differences between German and Indian students show that German students are good enough to analyze the alternatives and understand well in advance about the consequences of their decision.

India



Germany

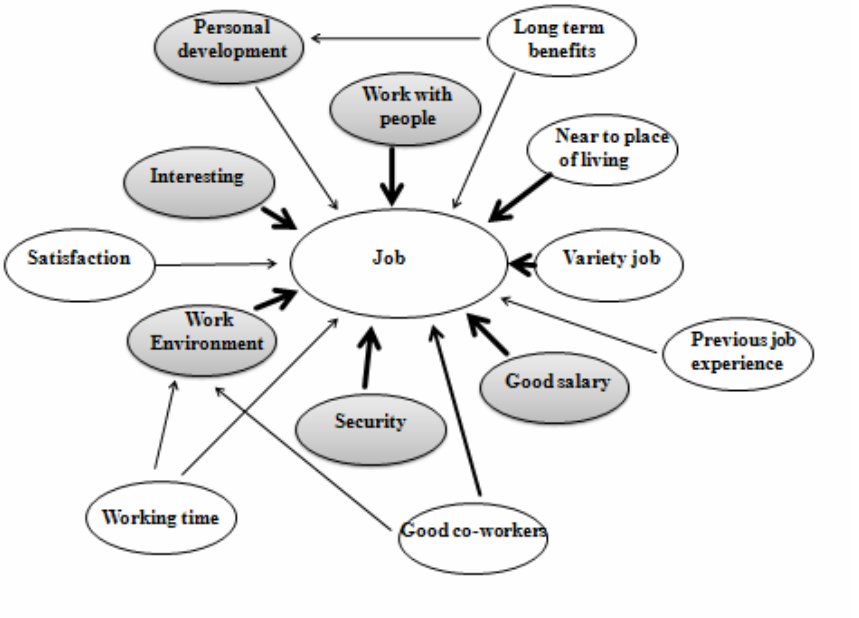


Figure 4.

Graphic representation shows relationship between factors influencing decision making to decide for job. Factors with two arrows show the direct influence and interaction with other factor.

life partner break up

Interview with both Indian and German students showed some fascinating and important cross-cultural differences between both the cultures. When asked whether they have or had a partner to both culture groups, among 18 Indian participants 4 have agreed that they had a love affair but not a live-in relationship with the loved ones. However, Germans' openly agreed that they had an average of more than 3 partners in their life so far, which was an interesting point for discussion. This can be due to cultural influence that India young adults live in a sexually conservative and repressive society (Sinha, 1984). Hindu religion stresses the importance of chastity and opposes premarital sex and emphasizes familial proximity and togetherness (Medora, Larson, Hortacsu, & Dave, 2002). In Germany, everyone has the right of selecting one's life partner and there is no opposition for premarital sex because the cultural tradition allows them to have a living together relationship.

Indian and German students' decision about life partner break up is shown in figure 5. In case of Indian students, it is instructed to imagine about the break up in the future or break up with love affaires in the past. Communalities between both the cultures when deciding for life partner break up can be observed from categories such as *adjustment problem*, and *parental influence*. Break up in the life of students happens due to the influence of their parents. However, suspicious attitude of partner has a remarkable role based on adjustment problem between partners in both India and Germany. Indian students significantly dominated Germans on *in-laws problems* category, attributed to the fact that break up with the life partner during the life of Indian students occurs, when there was a problem due to the in-laws. This reveals the culture specific issue of joint family system of India; normally girl stays with her in-laws after marriage. However, German students were dominating Indians in categories *extra marital relationship, living in different places,* and *friends influence*.

Difference between Indian and German students on relative percentages shows some cultural stereotype. In-laws problem of Indian students can be attributed to the culture specific issues.

Extra marital relationship is specific to Germans due to different place of living for job or for other reasons (e.g., Sonnenmoser, 2008). Their friends are helping them to identify the extra marital relationship of their partners in most cases. Further more; living in different places is a valid reason to explain the cultural difference between Germany and India, where wife always stays with the husband in Indian context.

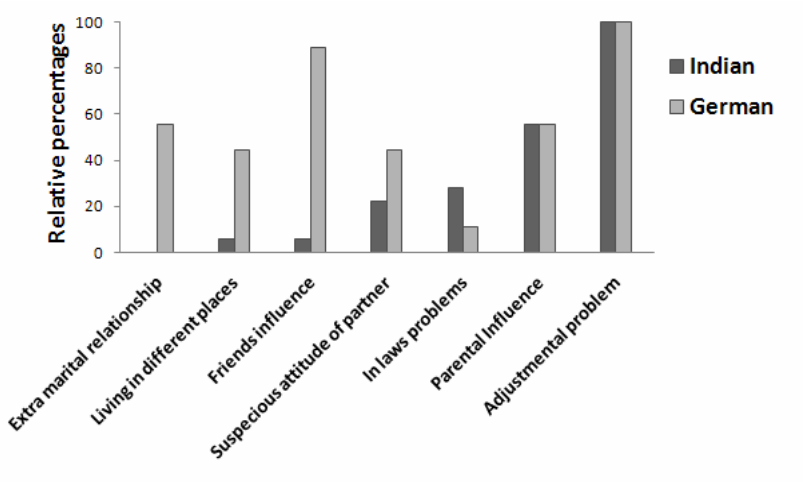


Figure 5.

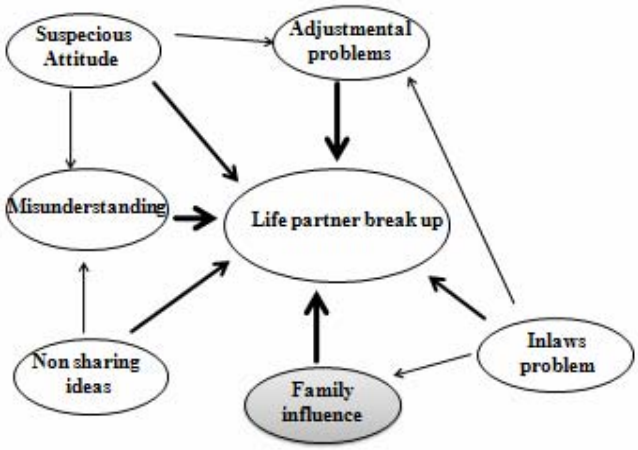
Relative percentages for categories to decide for life partner break up.

The structure of Indian and German students for life partner break up is shown in figure 6. It is inferred that *family influence* is the common factor for Indian and German students to have life partner break up. The culture specific factors with Indian students were *in-laws problem, adjustment problem, non sharing ideas, misunderstanding* and *suspicious attitude*. Indian students' life partner break up happens when there is a problem between the partner and in-law which gives rise to adjustment problem. Mostly, misunderstanding between partners develops due to the suspicious attitude of partner (Pothen, 1989) and non-sharing of ideas among them.

The factors like *different place of living, friends help*, and *partners' character* were specific to German students. In Germany break up with partner are due to partners' character, possibly friends who are helpful in evaluating partners character since husband and wife are living in different places for employment. Difference between the two culture groups on life partner break up can be seen as an interesting finding for this cross-cultural research. In-laws problem

is seen as main difference as a consequence of adjustment problems for Indian students. In Germany life partner break up is due to partner character and due to different place of living.

India



Germany

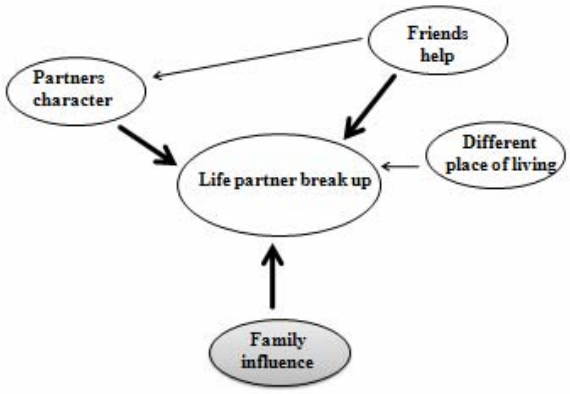


Figure 6.

Graphic representation shows relationship between factors influencing decision making to decide for life partner break up. Factors with two arrows show the direct influence and interaction with other factor.

Life partner selection

The categories and relative percentages of Indian and German students decision about life partner selection is shown in figure 7. The comparable common categories for both students were *friends help*, and *take care for me*. Indian students outstandingly dominate German students in categories like *parental influence*, *character*, *education*, *caste, job, family*, and *relatives influence*. Indian students' decision for partner is influenced by their parents and family members of the family. They decide based on numerous factors like education, job, and caste. On the other hand Germans dominated in the categories like *same place of living, appearance, and understanding*. Germans select their life partner based on appearance and understanding between them. Same place of living is an important criterion for German students during life partner selection process.

Differences can be noted with the categories which are specific in both countries. Categories like caste, job, family and parental influence with Indian students show the presence of various social hierarchies, based on caste system and socio-economic factors, which are not the reason for life partner selection with German students. For Germans *same place of living* and *appearance* clearly show the culture stereotypes. It can be understood from the results that decision making about life partner may not be same in India and Germany. The above mentioned results are inline to the earlier findings of Dion and Dion (1993) who found that in individualistic cultures, romantic love was considered a necessary component for marriage, whereas in collectivistic cultures family related or group-related characteristics of the potential mate were more important than romantic love.

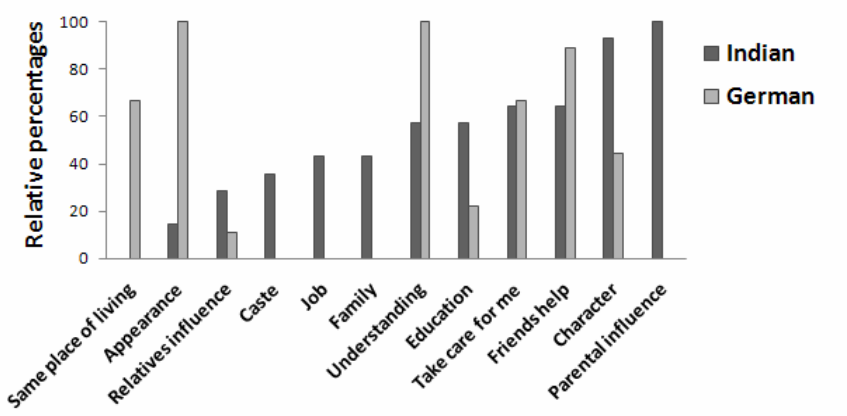


Figure 7.

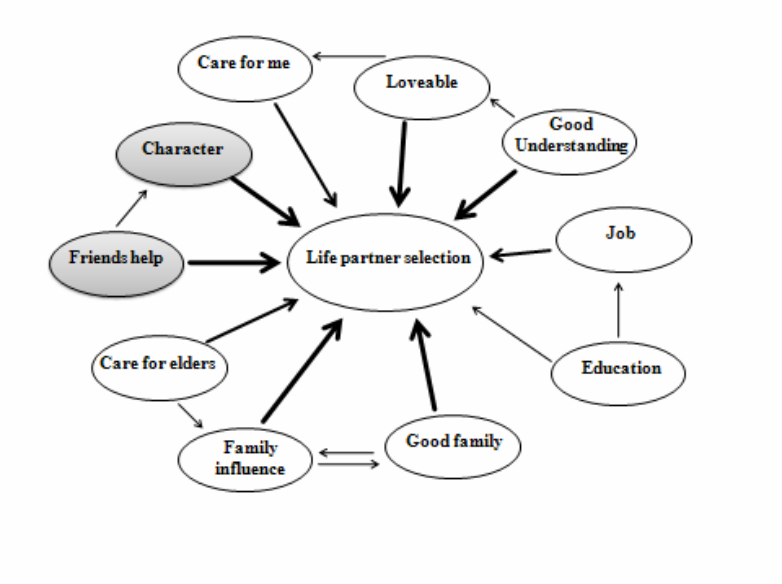
Relative percentages for categories to decide for life partner selection.

The structure for Indian and German students to decide for life partner selection is depicted in figure 8. Indian and German students' share common factors such as *character* and *friends help* while selecting life partner. When compared to other areas of decision making, Indian students have given more answers and processed more information to decide for life partner. Indian students' decision relied on many factors like *family influence*, *good family*, *care for elders*, *education*, *job, good understanding, lovable*, and *care for me*. Indians were more influenced by their family, because it is a practice of Indian society to know more about the family members and social status of partners' family. The factors like *job, education* and *good understanding* show that Indian students are looking for partners who fulfill their basic needs. These results support the early finding by Saraswathi and Pai (1997) who noted an increased participation of girls and boys in the partner selection process in contemporary India, in contrast to the earlier unquestioned acceptance of elders' choice. Normally family member used to enquire about the partners family with their close relatives and friends around them to know more about the character of the partner. This is due to the fact that partner selection is always ended up with marriage in India and it is a one time affair in the life of majority of Indians. However, divorce and remarriages can be possible in least case. Indian students prefer to a partner who is really lovable (affectionate), with understanding and who cares for them.

German students rely more on culture specific factors for instance *spend time*, *common interest, good looking, own feelings, honesty*, and *near to place of living*. Germans decide based on appearance and the time they spend together with the partner to know the common interest between them. They expect honesty from their life partner and decide based on own feelings. Nonetheless, German students were giving importance to the fact that their life partner should be near to their place of living and this finding is inline to the finding of Buss and Angleitner (1989).

Differences can be inferred from the way how both the students end up with life partner decision. Indian students rely more on family and factors like education and job than the German students, who decide based on their own feeling and common interest during the time they spend together. Cultural difference between both the countries is evident from the way students select their life partner; Germans select after having spend time together and it is not acceptable to Indian culture.

India



Germany

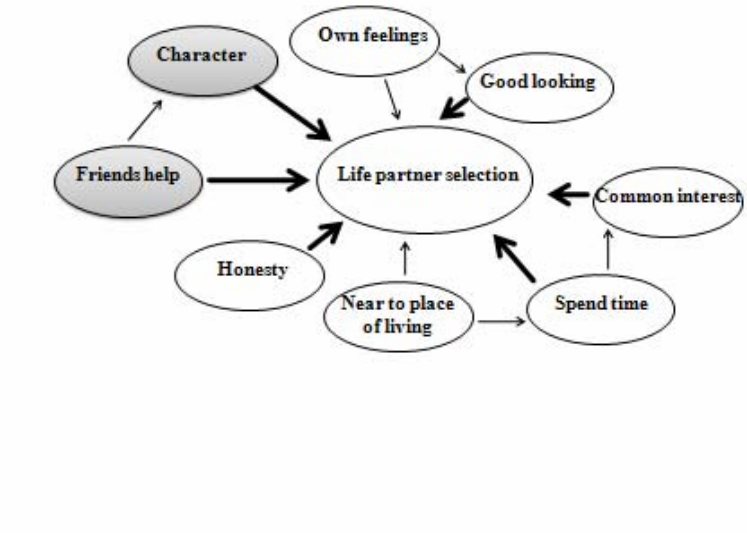


Figure 8.

Graphic representation shows relationship between factors influencing decision making to decide for life partner selection. Factors with two arrows show the direct influence and interaction with other factor. Lines with bidirectional arrows indicate important dynamic interactions between two factors.

Buying decision

Figure 9 showing relative percentages for categories to decide for buying. The common categories were *cost benefit*, *needfulness, salesman information*, and *advertisement*. Indian students dominated Germans in categories like *quality, information from others, parental influence, brand, financial constrains,* and *intuition*. Indian students' decision is based on the quality of the product and they are brand oriented, though their decisions are influenced by their parents concerning financial reasons. Advertisement plays a remarkable role for their decision about buying and it is based on their intuition too. German students significantly dominated Indians on categories like *attractiveness,* and *information from friends*. German students' decision for buying a product is based on attractiveness and they seek information from their friends to know about the product. Differences can be noted from the way German students decide for buying a product based on attraction and emphasis more on getting information from the friends. However Indians are seen to be more brand conscious and buy things based on their intuition.

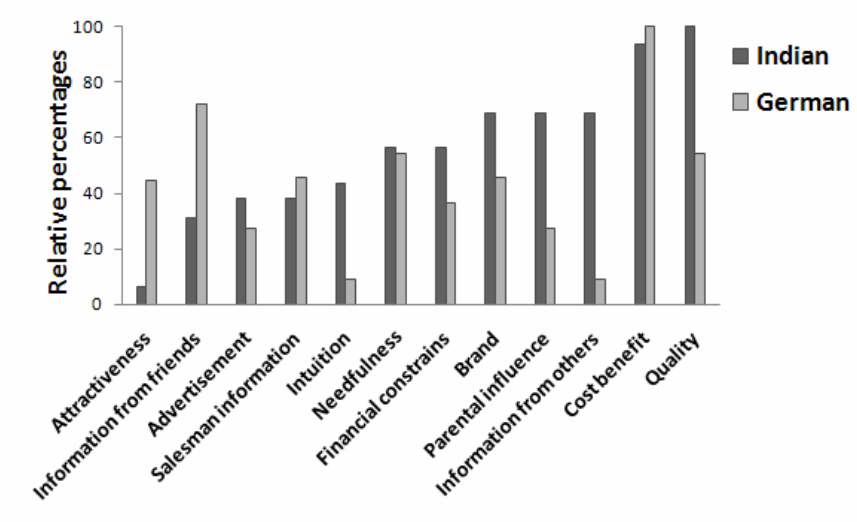


Figure 9.

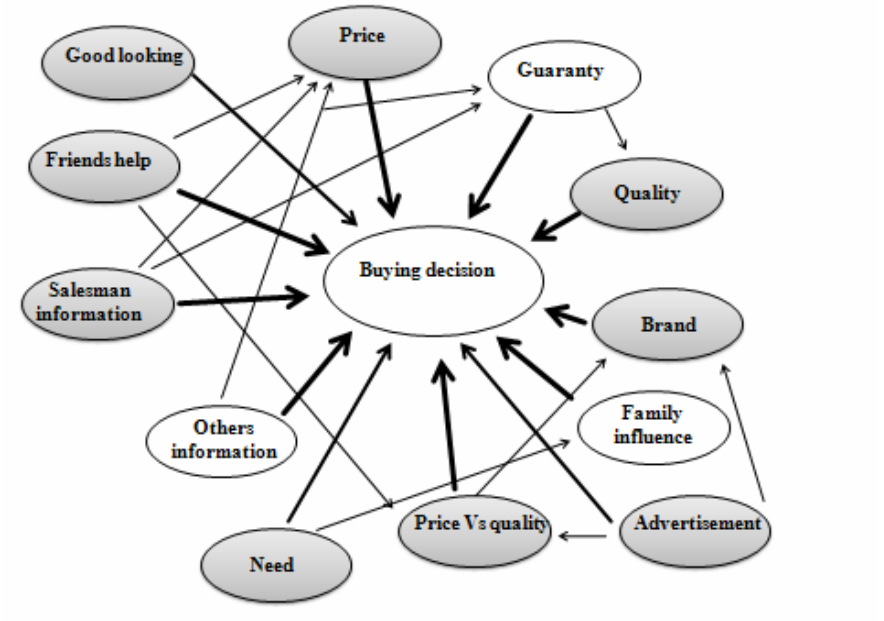
Relative percentages for categories to decide for buying.

Decision structure of Indian and Germans students for buying is showed in figure 10. As seen from the figure, there exist similar patterns of decision making process between Indian and German students except for a few factors which are specific to both the cultures. The common factors were *quality, brand, advertisement, price vs quality, need, salesman information,*

friends help, good looking and *price*. Indian students' decision for buying was based on *family influence, others information and guaranty.* Indians decision for buying was influenced by their family because in most cases they depend on their parents and they also look for others information to know about price. Similarly guaranty is also very important to them when deciding for a product. German buying decision was based on factors such as *internet information, special offer*, and *features*. Germans process information from internet to know about the features of the product and special offer, if any.

Cultural differences can be due to instable consumer market in India and so Indians always look for guaranty. However, German students perceive that guaranty is an automatic process and hence, they do not consider guaranty as a separate factor when making decision for buying a product and this is due to the fact that Germany has some of the strictest consumer protection laws in the world (Walsh, Mitchell, & Thurau, 2001). Whereas, internet information with German students shows the technological development rather than cultural differences.

India



Germany

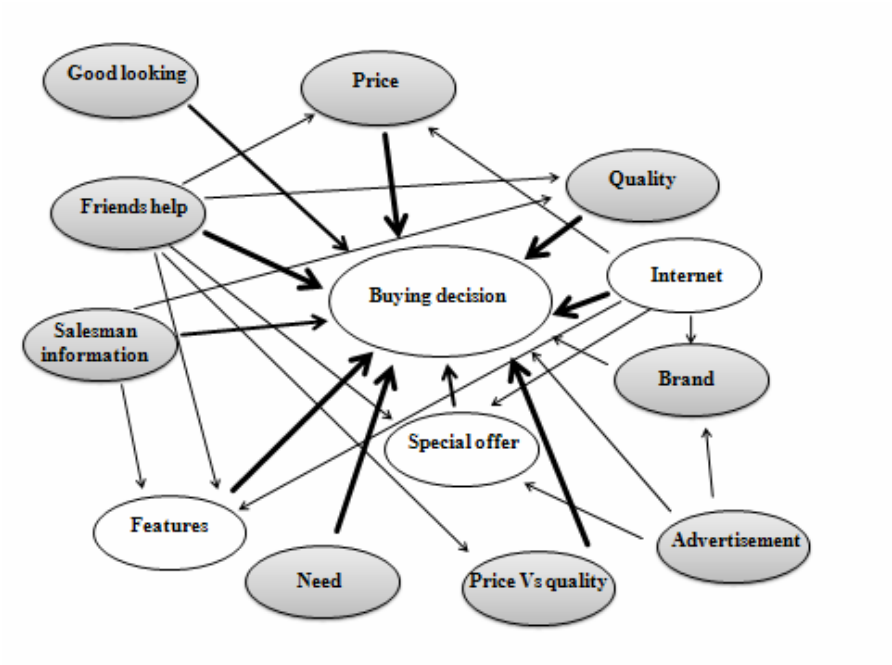


Figure 10.

Graphic representation shows relationship between factors influencing decision making for buying decision. Factors with two arrows show the direct influence and interaction with other factor.

General Discussion

Human behavior is dynamic; particularly students' attitudes are changing over a period of time due to globalization and to technological advancement. As a consequence, students from different cultures tend to behave in a similar way for various decision making tasks. However the cultural values and social system are pulling them to practice certain habitual patterns during decision making. When deciding a subject of study Indian students end up with a subject due to chance that the preferred subject based on school subject was not possible due to heavy competition based on school final marks. Germans on the other hand decide for study based on own interest and near to the place of living. However Indians and Germans were deciding the subject of study with the help of their parents' information.

Concerning the decision about jobs, Indian students are very particular that the job should be related to the study which they have undergone, on the other hand German students prefer job

which gives them variety and which is near to the place of living and which is also influenced by their life partner. However, both the students were highly looking for interesting jobs. Life partner break up decision is an area in which Indian and German students have different opinions. Another valid culture difference can be inferred from in-laws problem in India which is not the case for German students who are living as a nuclear family. Adjustment problems between partners were the most common reason for life partner break in both students' life. Regarding life partner selection, Indian and German students decide for a life partner with good character and avail friends' help. German students decide based on their own feeling and common interest than Indian students who decide based on their family influence. However we could not find much difference between both the groups of students with regard to the buying decisions except for family influence and guaranty for Indian students and information gathering via internet and features with German students. Nonetheless, the differences between Indian and German students on factors like internet, book information, exam rules, special offers and features are evidances for the influence of soci-economic conditions (e.g., level of technological development, which might correlate with quantitative sophistication), rather than cultural differences per se (Whitcomb, Önkal, Curley, & Benson, 1995). Alternatively, some true cross-cultural differences have also been noted. In particular, the social dependency of Indian students compels them to rely on their parents for their decision making tasks (Individuals remain integral part of family even after marriage).

The findings of this study clearly indicate the differences between German and Indian cultures on various levels. As discussed earlier, researchers should incorporate the factors which are common and specific to both cultures when looking for cultural differences, rather than only considering the factors which are only common in both. Further, one could use these factors for constructing or formulating items to develop a common questionnaire for cross-cultural decision making. The items derived from these factors might be free from construct, item and method bias in cross-cultural comparison, and should be verified using quantitative survey. The purpose of Grounded Theory is to develop theoretical analysis and systematic procedures enabling qualitative researchers to generate ideas. In turn, these ideas may later be verified through traditional quantitative methods (Charmaz, Albrecht, Fitzpatrick, & Scrimshaw, 2000). However the underlying factors explaining similarities and differences are specific to these five areas and cannot be considered for other areas of decision making. The use of Grounded Theory in the present study lends support to the perspective that the concept of

decision making and the factors underlying each important areas of decision making are to some extent culture specific rather than universal.

Conclusion

In the previous research on cross-cultural decision making, when comparing Indian and German students (Tipandjan et al., in prep), we have only identified the important decisions in students' lives and not the factors that influence those decisions. It was far from clear as to how people with different cultural backgrounds would decide for various real life issues and how they make decisions. The present research was designed to address a critical limitation of previous research by identifying the factors underlying each important decision making areas in both Indian and German students. Our study revealed several important cultural differences and communalities during decision making processes by identifying culture neutral and culture specific structures. To this end, we believe that the present study will definitely help to formulate items to construct a common measure for cross-cultural decision making which will be less biased comparing Indian and German students.

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Appendix I: Brief version of the interview guidelines

1. Subject to study

Please imagine – as real as possible – the situation in which you had to decide what subject to study. Try to go back to this situation and think of all your thoughts and considerations.
The first general question is: How did you proceed in the decision for a subject to study? (College)

a. How was your interest sparked for this subject?
b. Did your time in school have any influence on your decision? How?
c. How did you choose your subjects in school? Was this a free decision or were there limited alternatives? Did those subjects have any influence on the decision for the subject to study?
d. How long did it take to make the decision?
e. When did the decision process start? How long did it take?
f. When did you decide finally? (When were you sure about your decision?)
g. Had there been any influences from 'outside' on your decision? Who? What?
h. What were your reasons to decide for your actual subject, finally?
i. Did your personal aims/ambitions have any influence on your decision? Which aims/ambitions?
j. Had there been any obstacles in your decision?
k. How and how intensely did you seek for information about your actual subject? How did they have an influence on your decision?
l. Did you learn any other profession before you studied? Had this profession had any influence on your decision for the subject to study?

2. Deciding for a job

Imagine your study is over and you have to decide for a job. Direct your thoughts to the concrete situation in the future.

a. How will you proceed when you have to decide for a job?
b. Have you any preference for a job? Do you have concrete ideas about it?
c. Why is this job interesting for you?
d. Did you have any experiences with job decisions in the past? What did influence the decision for this job?
e. Are there aspects which will be relevant in your decision? From yourself (aims/ambitions/values)? From others (family/friends/institutions)?
f. Does the security of employment have an influence on your decision?
g. What could be obstacles in your decision?
h. Would you choose a job which has nothing in common with your study? Why?

3. Partnership

Sometimes in life, partnerships can come to an end. Have you ever broken up with a partner? Please imagine this situation as real as possible? (Past)
How did you act in this concrete decision?

a. How long had you been together? How long did it take you to make this decision? Why did it take this time?

b. What caused this decision?
c. Was it hard for you to make this decision?
d. What was helpful in this decision? How you came to this decision?
e. Had there been any crucial situations or events which caused the decision?
f. Did you balance reasons for and against the decision?
g. Had there been any influences from outside (e.g., other people)? Did any past experiences have an influence on your decision?
h. Were there obstacles on your decision?

(If such a situation has not occurred yet, it should be asked how the respondent would act in such a situation)
Future:

a. What will be helpful in this decision? Why you came to this decision?
b. How will you justify the reasons for and against the decision?
c. Is there anyone who will influence from outside on your decision? (e.g.other friends , relatives)
d. How do you compensate this loss?

4. Choosing a life partner

Do you have a life partner?

How have you chosen your life partner?

How will you select your partner?
Please go back in thoughts to the time you met. How did you act in your decision for your partner?

a. Please describe what happened when you met
b. Did you have any experiences with each other before you decided to establish a partnership
c. Did you seek for any encouragement from others in your decision
d. Which factors were crucial in your decision?
e. Did you have any expectations about cohabitation?
f. Did you have any expectations which your partner had to serve or fulfill?
g. Were there any obstacles in your decision? Is there anyone?

If not having a partner

a. How will you select your partner?
b. Please describe what will happen if you met one?
c. Do you need some time to decide on him/her
d. Do you need any help from people to select your partner.(friends , relatives, etc.,)
e. Which factors will be crucial in your decision?
f. Do you have any expectations about cohabitation?
g. Do you have any expectations which your partner have to serve or fulfill?
h. Is there any obstacle to execute your decision (to select a partner)? Is there anyone?
i. How you will select your partner?

5. Buying situation

Please imagine the last situation you decided to buy an expensive thing (e.g., clothes, technical equipment).

How did you proceed in your decision?

a. What was important in your decision?
b. Are there things which you pay attention for in each buying situation?
c. Were there any factors which had an influence on your last buy?
d. Do you have a special procedure when deciding to buy or not to buy a certain thing? Which kind of?
e. Which information had been relevant for your last buy? From where you got these information?
f. Were you free in your decision or were there any limitations? Which?
g. Did some kind of intuition play a role in your decision? How would you describe it?

4

Paper 3: Cross-cultural Decision making- a new exploration Germany and India -compared

The following paper was written together with Peter Sedlmeier, Thomas Schafer and Alin Georgie (Chemnitz University of Technology, Department of Psychology). It will be submitted for publication to a peer reviewed psychology journal. The paper is presented here in its original form ready for submission, so that some repetitions of the introduction above in the paper were inevitable.

Cross-cultural Decision making- a new exploration

Decision making is a cognitive process. Different cultures have their own way of processing information and applying decision making strategies, hence it is understood that cultural characteristics influence decision making (Mann, 1986): Peoples' behavior is shaped by-and adjusted to- the particular culture in which they live and mature. The most commonly used dichotomy to differentiate cultures is East and West. People from Western countries are often considered as individualistic and as preferring decision by majority votes (Berry, Poortinga, Seagall, & Dasen, 1992) whereas Eastern countries are considered as collectivistic and as preferring group decisions by consensus with an emphasis on co-operation, harmony, and interdependence in social life (Yi & Park, 2003).

Berry et al. (2007) defined cross-cultural psychology as the study of similarities and differences in individual psychological functioning in various cultural and ethno cultural groups; of the relationships between psychological variables and social-cultural, ecological and biological variables. But, bias free evaluation of these cultural similarities and differences is a challenging task for cross-cultural researchers. What is a good measurement method in one culture may not be good in another. Psychological instruments established in one culture and used to search for differences in another culture may result in in-equivalence leading to biased findings. Adler, Campbell, and Laurent, (1989) suggest that researchers should examine whether the findings really are due to true cultural differences or due to measurement and scaling artifacts. And also Mullen (1995) questions whether measured similarities and differences between cultures are in fact real. Particularly cross-cultural research on decision making is prone to measurement problems, since decision making is a primary factor for consideration in intercultural relations (Ennis, 2004); and cross-cultural researchers examine how the basic psychological processes are modified in different environments (Triandis, 2000).

Cross-cultural studies that have examined decision making (e.g., Stewart, 1986; Mann, Radford, & Kanagawa, 1985; Radford, Mann, Ohta, & Nakane, 1993) have found that culture appears to affect both decision making style and the decision outcome. It is highly interesting to note how people from two different cultures respond to various decisions in their life. How to conduct a thorough examination of decision making on German and Indian students? What are the communalities and differences between German and Indian students on decision

making? What method is to be used? How to find out the culture specific process of decision making? Using conventional measures used earlier by decision researchers (e.g., Mann et al. 1997) and the cultural dimensions (Triandis, Chen, & Chen, 1998) to find out, can we replicate the earlier results of cross-cultural decision making? - These are the questions to be answered in this study. We tried to use an instrument established to measure decision making in Western culture (The Preference for Intuition and Deliberation Scale (PID) Betsch, 2004) to investigate its applicability in Eastern cultures. Additionally we planned to use the result of our qualitative analysis based on the factors underlying five decision making areas (Tipandjan, Schäfer, Sundaram, & Sedlmeier, in prep b) to develop a questionnaire, to find out whether the differences and communalities identified in prior qualitative research hold.

Methodological issues in cross-cultural comparison

The lack of a comprehensive theoretical model to compare different culture groups and a common instrument to measure decision making cross-culturally has been a long standing problem. Many theoretical models for decision making used now were established in one culture and may not yield valid results on similarities and differences between cultures. The instruments developed according to Western based decision making models and theoretical frameworks when used cross-culturally, may have yielded inadequate findings called 'cultural bias'. The typical sources of bias in cross-cultural research are the constructs, methods and items used. *Construct bias* occurs when the construct examined is not identical across cultural groups. In general, construct bias is likely to appear when authors from various societies use definitions of the concept under study that do not fully overlap (van de Vijver & Leung, 1997; van de Vijver & Poortinga, 1997). *Method bias* can stem from characteristics of the instrument or from its administration (van de Vijver & Poortinga, 1997). Sample incomparability, instrument characteristics, tester and interviewer effects, method (mode) of administration are the sources of method bias. *Item bias* refers to the measurement at the item level: bias can result from poor translation or poor item formulation (e.g., complex wording) or from the fact that item content may not be equally relevant or appropriate for the cultural groups being compared (van de Vijver & Poortinga, 1997). An item is considered biased if persons from different cultures have the same standing on the underlying characteristic (trait or state) but the measurements yield different average item scores on the instrument.

Earlier comparative studies on decision making in West and East and their limitations

Studies comparing West and East on decision making are not that common with the cross-cultural researchers due to various issues like bias and equivalence. Also the lack of interest in comparative studies probably lies in the particular home disciplines of decision researchers (Weber & Hsee, 2000). Even if the researchers tried to compare different culture groups, they often included participants from different cultures living in the same country studying in international universities where the studies were executed rather than going to the countries themselves or finding a collaborator (e.g., Zhou & Santos, 2007; Brew, Hesketh, & Taylor, 2001).

Moreover, comparative studies on decision making in West and East used instruments which were established in one part (mostly the Western one). When comparing Australian and Japanese students on decision processes, Radford, Mann, Ohta, and Nakane (1991) investigated the empirical and theoretical literature to identify decision making processes and utilized that information for the formulation of items that were intended to measure cross-cultural differences. They concluded that Japanese students' decision processes were influenced by others and Australian students' decision processes were associated with self reliance and personal ability. The problem with this study was that one cannot argue for the validity of those empirical and theoretical literatures-how those studies were conducted or how theories are evolved. Another problem was that they did not mention in detail about the item formulation. These theoretical and empirical assumptions are sometimes significantly away from the lived experience of people.

In the same way, Mann, Radford, Burnett, Ford, Leung, et al. (1998) analysed the differences among students from USA, Australia, New Zealand, Japan, Hong Kong, and Taiwan in self-reported decision making styles and confidence, using the Melbourne Decision Making Questionnaire. No cross-cultural differences were found in scores on decision vigilance (a careful decision-making style) and the Asian students tend to score higher on buck passing and procrastination (avoidant styles of decision making) as well as hypervigilance (a panicky style of decision making). Their findings supported the assumption that vigilance, buck passing and procrastination are 'in the repertoire of every decision maker' and an integral part of decision making in Western and East Asian cultures. Buck passing and procrastination are

more likely to be manifest in group-oriented cultures where decision making is a shared activity and people are often expected to refer to the group and wait until the opinions of the other significant people have been heard. No prediction was made in regard to cross-cultural differences in hypervigilance, the panicky style of decision making. Moreover, the tools established in multicultural societies applied to compare West and East, may lead to inconsistent findings due to the risk of incomplete coverage of the construct in the target culture (e.g., The Melbourne Decision Making Questionnaire). The authors, Mann et al. (1998), as an explanation for some findings suggested that the findings may have been somewhat different due to social desirability effects, if they would have compared non English speaking France, Germany, and Norway with India, Indonesia, and Malaysia.

In a cross-cultural study, Yi and Park (2003) compared college students from five countries on decision making, which revealed that culture might not be a stagnant phenomenon, and more variables and factors that they used should be explored to accurately evaluate cultural differences in decision-making. They used back translation of the tool they had constructed and used the tool for cross-cultural comparison but they did not describe clearly about the method by which the tool was developed. The problem consists in the administration of tools established in one culture and translated into the language of another culture, if the translation was not carried out properly. Such methods of translation often neglect culture specific issues which are important to both or any one of the cultures to be compared, which leads to construct and item in-equivalence.

There are only a few available studies comparing German and Indian students on decision making: by Güss, Strohschneider, and Halcour (2000) and Güss (2002), who used computer simulations (also called microworlds) for comparing both Indian and German students. The results suggested that German students' decision making strategy could be described as expansive-risky (stable decision-making behavior), whereas the Indian strategy was a defensive-incremental one (flexible decision-making approach). It is still an open question, whether the computer simulation method was free from method bias and whether both culture groups were aware of the measurement unit to measure decision making using simulation methods. This may cause procedural in-equivalence and lead to different biases in different cultures during cross-cultural comparison. Computer simulation techniques often represent what Berry (1969) has referred to as an 'imposed etic' process, in that, survey instruments initially designed for one culture are subsequently adapted in a strict technical sense for use in

other cultural groups. We cannot assure that these instruments will yield valid findings, due to possible stimulus unfamiliarity and may lead to bias when comparing different cultures. So there is a need for common approach and measure to explore decision making cross-culturally to minimise bias and attain equivalence.

Earlier attempts to give remedies to different types of biases like construct, item and method were given by various researchers (see Egisdottir, Gerstein, & Cinarbas, 2008). A further step to minimise bias is to use a common methodological approach. In order to accomplish such a methodology, we have already suggested to look at the decision areas that play an important role in the decision making of Indian and German students (see Tipandjan et al., in prep a). In a further study (Tipandjan, Schäfer, Sundaram, & Sedlmeier, in prep b), using semi structured interviews and Grounded theory, we identified the underlying factors that determine decision making in five areas judged to be important by the students: subject of study, job, life partner break up, life partner selection and buying decisions. The present study utilises the findings about those underlying factors in a quantitative survey. It is intended to complement various existing instruments used in decision making research and to explore cross-cultural differences in decision making.

As a first step, we tried to make use of mixed methods which are considered as the 'third methodological movement' (Tashkkori & Teddlie, 2003) and is used to get at subjugated knowledge. They were also given voice to those whose viewpoints were let out of the research process with the goal of presenting 'a plurality of interests, voices and perspectives' (Greene & Carcelli, 1997, p. 14). We applied a quantitative survey based on qualitative analyses for developing a questionnaire which identifies the cultural differences and similarities attached to five areas of decision making. Concurrently, we also planned to use an instrument (Melbourne decision making questionnaire) mostly used to compare West and East for cross-cultural decision making to find out whether it is replicating the earlier findings comparing Western (Germany) and Eastern (India) cultures. Additionally we planned to use an instrument which was developed and used in West (Preference for Intuition and Deliberation Scale), to find out the applicability to Eastern cultures to demonstrate if there is any possibility of bias effect during comparison. The scenarios to measure cultures based on individualism and collectivism (that is, Horizontal Collectivism, Horizontal Individualism, Vertical Collectivism, and Vertical Individualism) is also one of the measures to be used to check the previous research findings comparing inner Indian comparison and inner German

comparison can hold when applied cross-culturally. Understanding of cultural dimensions is likely to help speculate and perhaps predict the costs and rewards of endorsing a particular cultural pattern. For example, the horizontal individualism pattern can result in social isolation; the vertical individualist pattern can result in extreme stress. The horizontal collectivism pattern could absorb much of the individual's energy in social relationships, costing task accomplishment, while the vertical collectivist pattern could result in authoritarian regimes and ethnic cleansing.

Comparing decision making in Germany and India

The cultural differences between East and West have been continuing in all domains of social research due to the influence of cultural values and social norms. Cross-cultural decision making is not an exception to this. Western decision making is self-centered or depends on individual feelings and begins practically at birth. In contrast, in Eastern cultures the fundamental decisions concerning an individual's life are made by someone else (Stewart, 1985). Let us have a look at the cultural dimensions widely used to compare cultures and the place of Germany and India on these dimensions in earlier research. In Hofstede's value studies, Germany has a score of 35 and India, a score of 77 in the power distance, (the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally) implying that the power distance is very high in India, and rather low in Germany- which is a more egalitarian society having 'flatter' social hierarchies. Many cross-cultural researchers used the concepts of Individualism and Collectivism, while comparing decision making in different cultures (Gaenslen, 1986; Radford, Mann, Ohta, & Nakane, 1993). Germans are said to be individualistically orientated (see Gröschke, 2007). There is a long standing controversy about India, whether to consider it as a collectivist society or not (Mishra, 1994; Sinha & Tripathi, 1994). Still, India is considered as a collectivist society by many researchers (e.g., Verma, 2001). Similarly, in the Gender role ideology (Williams & Best, 1990), Germans scored more *egalitarian* and Indians scored towards *traditional* ideology, like, a wife doing housework and being careful of how she looks, for it influences what people think of her husband. When decision making is of concern, the only study conducted comparing India and Germany was by Güss (2002), who used computer simulation, mentioned above. It is important to think of the familiarity of computer simulation to different cultures.

Development of the Cross-Cultural Decision Making Questionnaire (CCDMQ-5)

The process of developing a questionnaire is based on our previous work that aimed at identifying the important decision making situation in the life of German and Indian students' (Tipandjan et al., in prep a), and the result of the study revealed common and different decision making situations. We included five areas which are common in both the cultures and those which are important only in one culture, either Germany or India. We identified the factors underlying decision making between Indian and German students in five major areas, using semi structured interviews (Tipandjan et al., in prep b). We started with identifying common items and proceeded with minimizing item bias and finally ended up with questions which were culture specific and common to each decision area. For example when deciding for a subject of study, both Indian and German participants preferred that the study should give them a good job. Indian students' decision was based on the school subject. On the other hand German students' decision was based on the influence of partner. Since the questions were developed based on the qualitative results on five major decision making areas, we named it as CCDMQ-5. It is basically a standardization of the semi structured interview results. We identified common items by looking into the underlying factors (reasons given for a decision) which were similar for both Indian and German students, in all decision areas. Items were also developed based on the categories which are specific in one culture and absent in another, to look for strong differences between cultures. As suggested by Brislin (1986), 'good' question wording practices were carried out using short and simple sentences, specific rather than general terms. We have used simple wordings that will be familiar to translators to carry out research with this questionnaire in different cultures and have avoided sentences with two different actions. The questionnaire is constructed using five point Likert type scales and a few open questions. The following items were used to find out more about one of the five major areas identified previously: deciding for a job.

I prefer a job which has

No repetition / Variety: Very much disagree 1……2…...3…....4…….5 Very much agree
Research opportunities: Very much disagree 1……2…...3…....4…….5 Very much agree
Teaching opportunities: Very much disagree 1……2…...3…....4…….5 Very much agree
Freedom in work place: Very much disagree 1……2…...3…....4…….5 Very much agree.

A detailed version of the questionnaire is attached in Appendix I. Since the CCDMQ-5 is developed using an etic-emic-etic approach (see Tipandjan et al., in prep a), it can be expected to minimize biases arising during cross-cultural comparison. This is due to the fact that we did not use prefabricated decision making situations but first looked for decision making situations that were really relevant in students' lives, thereby minimizing construct bias (Tipandjan et al., in prep a). In a second study, these decision making situations were examined in great detail (Tipandjan et al., in prep b), and the items of the CCDMQ-5 were derived from these analyses. So it can be expected that the resulting items are considerably less biased than those in conventional questionnaires

Aim of the study:

The aim of the study is to conduct a thorough examination of decision making on German and Indian students. Do people from different cultures react to various decision making situations similarly or differently? How to compare countries like Germany and India, which are culturally apart (Triandis, 2000)? The purpose of the study is to compare these results with the results obtained by using conventional questionnaires which are used to compare decision making cross culturally. Secondly, the validity of the newly created questionnaire (CCDMQ-5) should be examined by using a sample of German and Indian students.

Method

Participants

In India, data were collected from 490 students from various colleges and universities in Pondicherry and in Annamalai University, Chidambaram, aged 18-31 years, with a mean of 20 (SD = 1.14). 185 (37.8%) of the students were male and 305 (62.2%) female. Students at Pondicherry University come from all over India. In Germany, data were collected from 560 students from various colleges and universities. Their age ranged from 18-42 years, with a mean of 23 (SD = 3.51). 127 (22.7%) were male and 433 (77.3%) female, from all over Germany.

Materials

The following materials were used

1. The Melbourne Decision Making Questionniare (MDMQ) (Mann, Burnett, Radford, & Ford, 1997). This tool has been considered as a valuable tool to measure decision making in different cultures and has been widely used to compare students from Japan, Australia, USA, China, and Indonesia. It was translated by our research team using back translation from English to German and from German to English to check for accuracy and meaningfulness. The MDMQ consists of 22 items measuring the four coping patterns vigilance (6 items), buck passing (6 items), procrastination (5 items) and hypervigilance (5 items) on a three point scale. The tool is based on the Flinders Decision Making Questionnaire (FDMQ, Mann, 1982, as cited in Mann, Burnett, Radford, & Ford, 1997) but, it is a shortened and improved version of FDMQ with good psychometric properties (Mann, et all., 1997, p. 15).

2. We used 16 scenarios for measuring four cultural dimensions (Triandis, Chen, & Chen, 1998) which describe familiar situations/themes from the day-to-day life of a student. Each scenario is followed by four possible ways of handling the given situation (or considerations to be taken into account in order to make a decision in the described circumstances). Each alternative represents one of the four cultural dimensions namely Horizontal Collectivism (HI), Horizontal Individualism (HI), Vertical Collectivism (VC), and Vertical Individualism (VI). Students were instructed to choose the alternative which they considered the best for dealing with the respective situations. The respondents' willingness to choose a particular alternative indicated their preference for a particular cultural dimension in the given context. All the students were asked to give their first and second choice. This instrument has been used earlier on both German and Indian students in different studies and found to be a reliable measure and valid tool in both German and Indian culture (Gröschke, 2007; Verma, 2001).

3. The Preference for Intuition and Deliberation Scale (PID) (Betsch, 2004) is used to assess the two dimensions of decision making, the preference for deliberations (PID-D) and intuition (PID-I) strategies by nine Likert-type items. Both scales are considered as reliable and valid (Betsch, 2004, 2005). Since the tool is originally

provided in both German and English, it did not require translation. But, the appropriateness to various cultures will be evaluated by this study because until today no study used this tool for cross-cultural comparison. The two scales are usually slightly negatively correlated (Betsch, 2004), ($r < -.29$).

4. The Cross-Cultural Decision Making Questionnaire (CCDMQ-5) is to be used to asses the cross-cultural communalities and differences on decision making between German and Indian students. It was developed based on the result of the important decision making situations in the life of German and Indian students' (Tipandjan et al., in prep a) and the factors underlying the five decision making areas using semi structured interviews (Tipandjan et al., in prep b). The questionnaire is constructed both in English and in German with five point Likert type scales and a few open questions.

Procedure

Participants were recruited on the basis of their willingness to participate in this study. For Indian students all the materials were presented in English and for the Germans, materials were presented in German language. Data were collected in both class room settings and through internet using an online survey (using the Lime Survey software) with German participants and in class room settings with Indian students. Participation was anonymous and voluntary and no money was paid.

Results and Discussion

Comparison of internet and paper/pencil samples

In Germany, data were collected using both paper and pencil and the internet, whereas in India, only a paper and pencil procedure was used. Therefore we wanted to find out whether results from both accounts were comparable. To that aim, we compared results for both procedures used in Germany, the paper and pencil version ($N = 58$) and the internet version ($N = 502$). Since the distributions of scores differed markedly from normal distributions, the Mann-Whitney U test was used. For the PID-I there were no significant differences between participants in the paper-and-pencil and internet conditions: the U value for PID-I is 12588.0 and $p = 0.199$ with the effect size $r = 0.05$ Also concerning deliberation (PID-D), paper-and-

pencil participants and internet participants did not differ, the U value is 12831.0 with p = 0.283 and effect size r = 0.05. The result for the scenarios were similar, for HI, r = 0.02, for HC, r = 0.04, for VI, r = 0.01 and for VC, r = 0.07. For MDMQ, there were no significant differences between participants in the paper-and-pencil and internet conditions: the U value for vigilance is 13573.0 and p = 0.671 and effect size r = 0.02. Concerning buck passing, the U value is 11266.0 with p = 0.005 and effect size r = 0.12. The U value for procrastination is 12082.5 with p = 0.032 and effect size r = 0.09 and for hypervigilance the U value is 14055.5 with p = 0.663 and effect size r = 0.02. In order to get precise results, paper pencil version psychology students (N = 58) were compared to the psychology students of the internet sample (N = 173). The effect sizes are r = 0.03 for vigilance, r = 0.12 for buck passing, r = 0.06 for procrastination, and r = 0.01 for hypervigilance. These results show that the paper pencil version and internet samples basically did not differ. Hence for the further analysis these two groups will be analysed together for the German sample.

Intuition and Deliberation

Results of both PID dimensions for Indian students were higher than those for German students (see Table 1 and Figure 1). Since the scores are not normally distibuted, we used nonparametric tesing for further analysis. These results indicate that Indian students scored higher on both the dimensions of the tool than the German counterparts. So it is an interesting point for discussion because, according to Betsch (2004), intuition and deliberation are not two poles of one dimension but they are rather two independent dimensions.

Table 1.

N (Sample size), Means, SDs and U test results with effect sizes for PID, MDMQ, and Scenarios. Negative score in 'r' shows the direction of effect towards German sample

	India			Germany					
Variables	N	M	SD	N	M	SD	U value	p	r_1
PID									
PID-I	490	3.58	0.51	558	3.39	0.61	112814.0	0.000	0.15
PID-D	490	3.93	0.64	558	3.70	0.58	104448.0	0.000	0.21
MDMQ									
Vigilance	490	8.56	2.17	558	6.74	2.57	79811.5	0.000	0.37

Buckpassing	490	5.42	2.51	560	5.32	2.73	132277.0	0.312	0.03
Procrastination	490	4.30	2.33	560	4.74	2.15	121760.0	0.002	-0.10
Hypervigilance	490	5.47	2.14	560	5.21	2.06	125160.5	0.013	0.08
Scenarios									
VI	490	6.61	2.14	560	5.74	2.16	104690.0	0.000	0.21
VC	490	7.17	2.01	558	4.83	1.80	53040.5	0.000	0.54
HI	490	8.77	1.99	560	11.24	1.80	49997.5	0.000	-0.56
HC	490	9.45	2.20	560	9.70	2.13	129137.0	0.097	-0.05

r_l is calculated by dividing z scores from U test by the square root of n

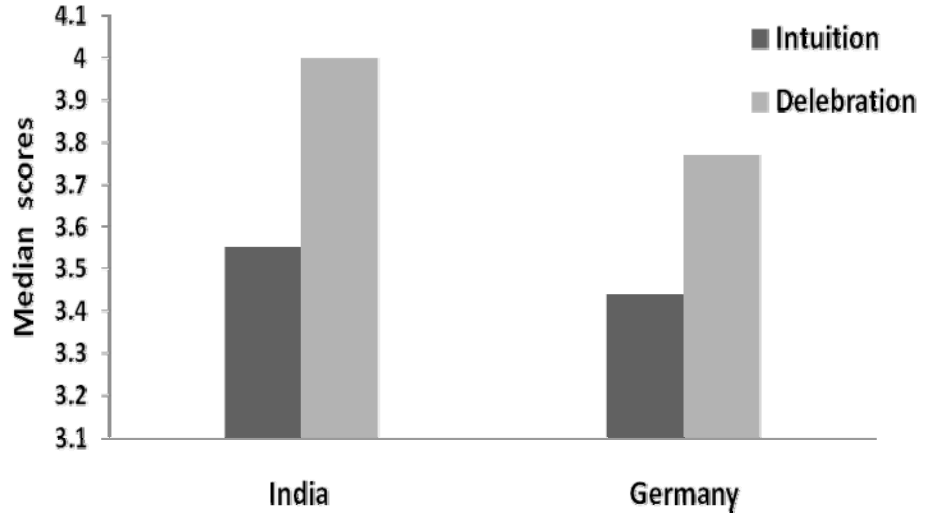

Figure 1.
Median scores for Indian and German students on PID

Cross-cultural differences on MDMQ

On analysing the results of Indian and German students on the four dimensions of MDMQ, table 1 shows a medium sized difference for vigilance (r = 0.37), favoring the Indian students. In the buckpassing dimension there were no differences between both cultures (r = 0.03). The responses on procrastination did not show much differences either (r = 0.10), and there were also no significant differences between Indians and Germans on the hypervigilance dimension

(r = 0.08). Additionally, median differences were calculated and were presented in Figure 2. These results were not in line with earlier findings stating that Western students score higher in the vigilance dimension than their Eastern counterparts - the only coping pattern that allows sound and rational decision making - and Eastern students from collectivistic countries score high on the other three maladaptive decision making dimensions

In contrast to previous studies, we found that Indian and German students performed similarly in the buck passing, procrastination, and hyper vigilance but not in the vigilance dimensions. Indian students were more vigilant than German students. From a Western perspective, the first three styles are considered as maladaptive patterns of decision making, while the fourth, vigilance, represents competent or adaptive behavior (Brew, Hesketh, & Taylor, 2001). It is important to note that vigilance, for example, is dependent upon the fulfillment of a) the awareness of serious risks about preferred alternatives b) the hope of finding a better alternative c) the belief that there is adequate time to search and d) deliberation before a decision is required. Early research with individualistic and collectivistic cultures revealed that individualistic cultures scored high on vigilance (see Radford et al., 1991). The discrepant results can also be due to the development of technology and the recent globalization. Even the author of this tool (Mann et al., 1998) suggested that the overall findings may be different if Germany and India are compared, due to the fact that they have studied only three English-speaking cultures and three East Asian cultures for deriving the tool. According to them, the combined mean scores were vigilance (9.42), buckpassing (4.33), procrastination (3.25) and hypervigilance (4.30) for the three English speaking Western countries. The three East Asian countries have scored vigilance (9.39), buckpassing (5.36), procrastination (4.49) and hypervigilance (4.92). In our analysis of German and Indian students, Germans have scored 6.74 for vigilance, 5.32 for buckpassing, 4.74 for procrastination, and 5.21 for hypervigilance. In contrast to the result of Germans, Indian students have scored 8.56 for vigilance, 5.42 for buckpassing, 4.30 for procrastination, and 5.48 for hypervigilance. Germans scored lesser than Indian students on vigilance, also when compared to the earlier findings of Western countries. Indians have scored in line with the earlier findings of East Asians. However the difference between Germans and Indians on vigilance shows an important finding that Germans might be special in vigilance dimension.

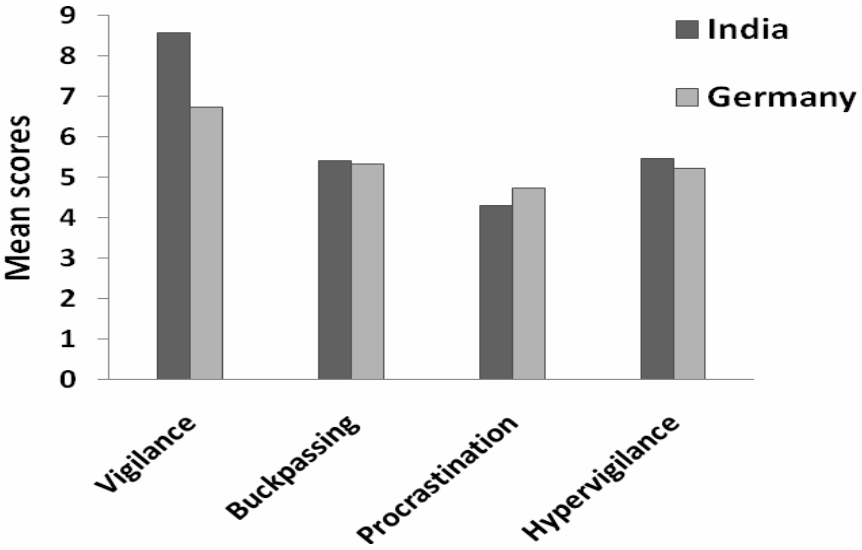

Figure 2.

Mean scores of Indian and German students on MDMQ

Scenarios and cultural differences

Regarding the scenarios, with out focusing on the distinction between first and second choice, we calculated the median values for German and Indian students. As can be seen from Figure 3, there is a marked difference between German and Indian students on Horizontal Individualism (HI) and Vertical Collectivism (VC). The median for German students is higher than that of the Indian students on the HI dimension, whereas the median for Indian students is higher than for the German students on the VC dimension. These findings are consistent with former research outcomes of cultural and cross-cultural researchers using this tool. To our knowledge no studies were available that directly compared Indian and German students using the scenarios. However, studies within India and Germany showed that Germans are Horizontal Individualistic (Gröschke, 2007) and Indians are Vertical Collectivistic (Verma, 2001). U tests confirmed the findings (see Table 1)

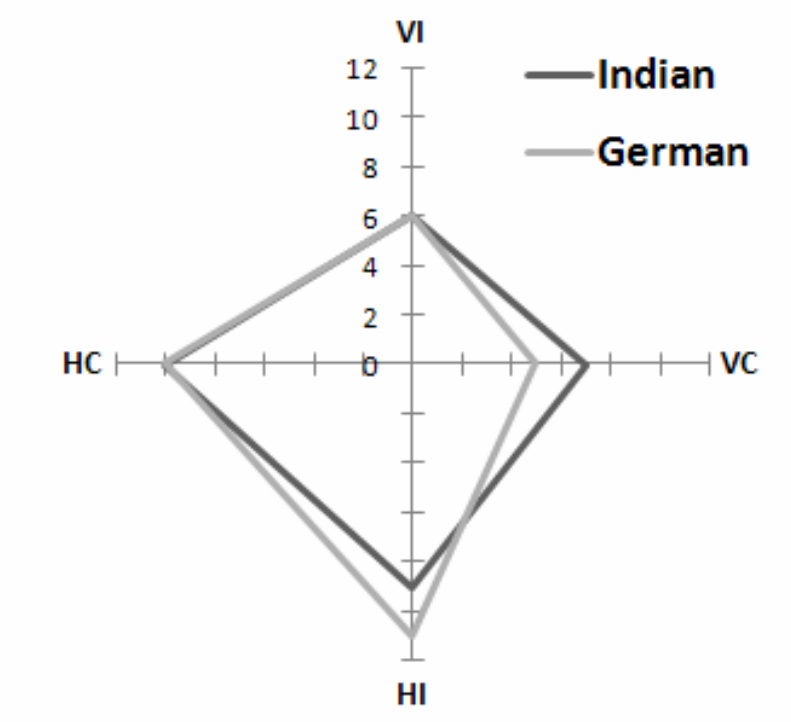

Figure 3.

Star plot diagramme for Indian and German students' median values on scenarios.

CCDMQ-5 and cross-cultural differences

We tried to find out whether the differences and communalities identified in prior qualitative research (e.g. Tipandjan et al., in prep a; Tipandjan et al., in prep b) hold when using CCDMQ-5 with large representative samples from Germany and India. We will first illustrate the results for all five groups of items graphically, with the size of the differences shown by icons: two stars for high effects ($r > 0.5$) and a star for medium effects ($r > .0.3$) as calculated from the U-tests.

Subject of study

The topics around which the items are developed to examine the decision about what to study are: *life partner influence, friends' influence, information from others, teachers influence, information from internet, information from seniors, school final exam, school subject, information from book, parental influence,* and *job opportunities.* To understand better, students were asked about 'How strong was the influence of the persons below on your decision for your subject of study?' - parents, friends, teachers, and life partner. A detailed version of CCDMQ-5 is presented in the appendix I. As can be seen from Figure 4, Indian

and German students have comparable scores in *information from others.* German students scored higher in the item *information from internet*.

On the other hand, medians for Indian students show higher scores in all other items, particularly in the items *friends influence, school final exam* and *the school subject.* Cultural differences between India and Germany can be observed from the fact that Germans decide for their subject based on information processing and Indians decide based on influence of friends and the influence of school final exam amd subject. These results are in line with our earlier qualitative analysis (Tipandjan et al, in prep b).

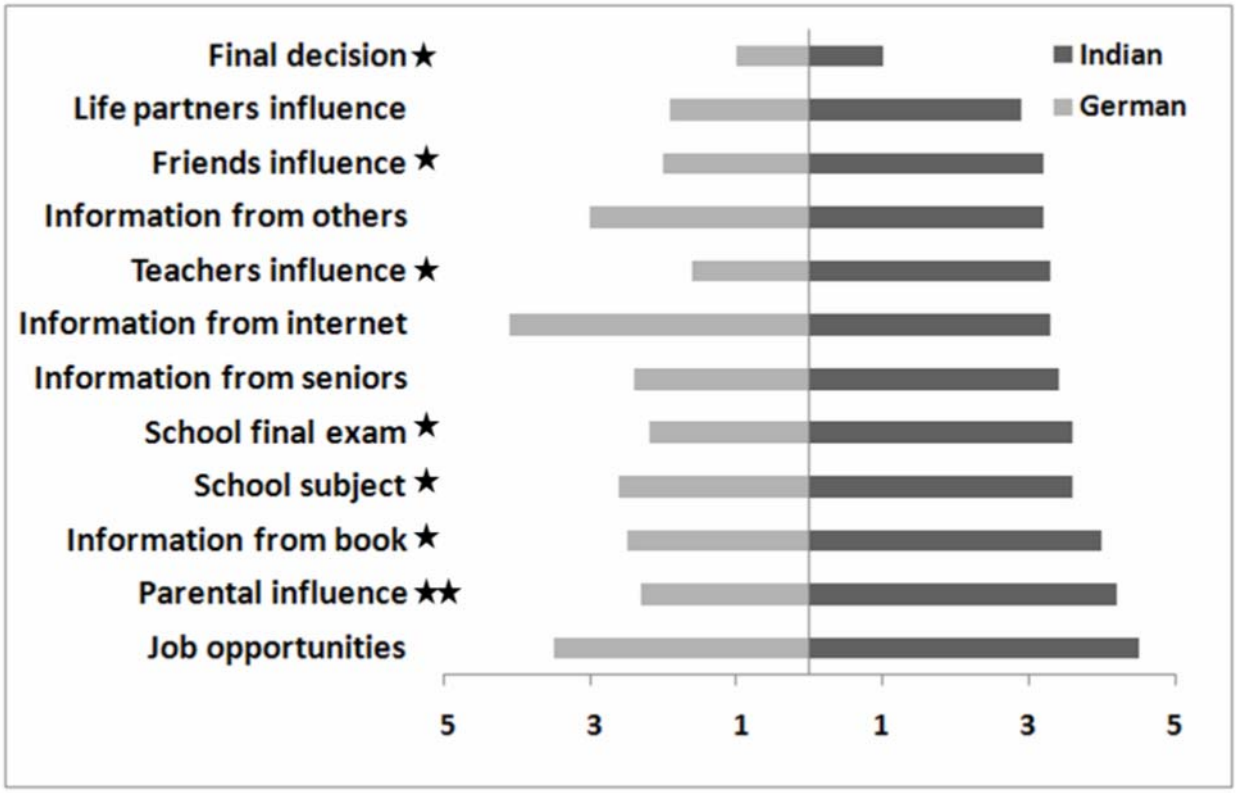

Figure 4. Median ratings of Indian and German students on decision about subject of study. Two stars indicate a large effects (r > 0.5) and a star indicates medium effect (r > 0.3)

Job

The topics around which the items are developed to examine the decision about a job are: *teachers opinion, friends opinion, near to living, teaching, no repetition, preference, research, parents opinion, time scheduel, high salary, related to study, security, freedom to work*, and *interesting*. As can be seen from Figure 5, Germans and Indians have comparable scores in

interesting, security, and related to study. Germans scored higher on *no repetition,* which means they prefer a job which has more variety and no repetitive tasks. Indian students scored higher on other items which indicate that they are more dependent on the opinion of other people, particularly parental opinion. This can be due to Asian parents implicitly or explicitly conveying their career expectations to their children, and also due to familial pressure on career choices (Leong & Chou, 1994; Leong & Serfica, 2001). Moreover, Indian students value their culture when making career related decisions as, for example, respecting elders, teachers opinion, partners opinion, and individual goals like those that are related to study and freedom to work. There are some similarities between German and Indian students: the job should be related to the study and should be interesting to them. Both prefer a job that has high security and provides opportunities for research and collaboration with other people; and they decide for a job that is near to the place they stay. They also differ in some areas: Indians decide for a job which gives them good salary and freedom to work. Indians decide for a job with adjustable time schedule and strongly consider friends' and partners' opinions when compared to German students.

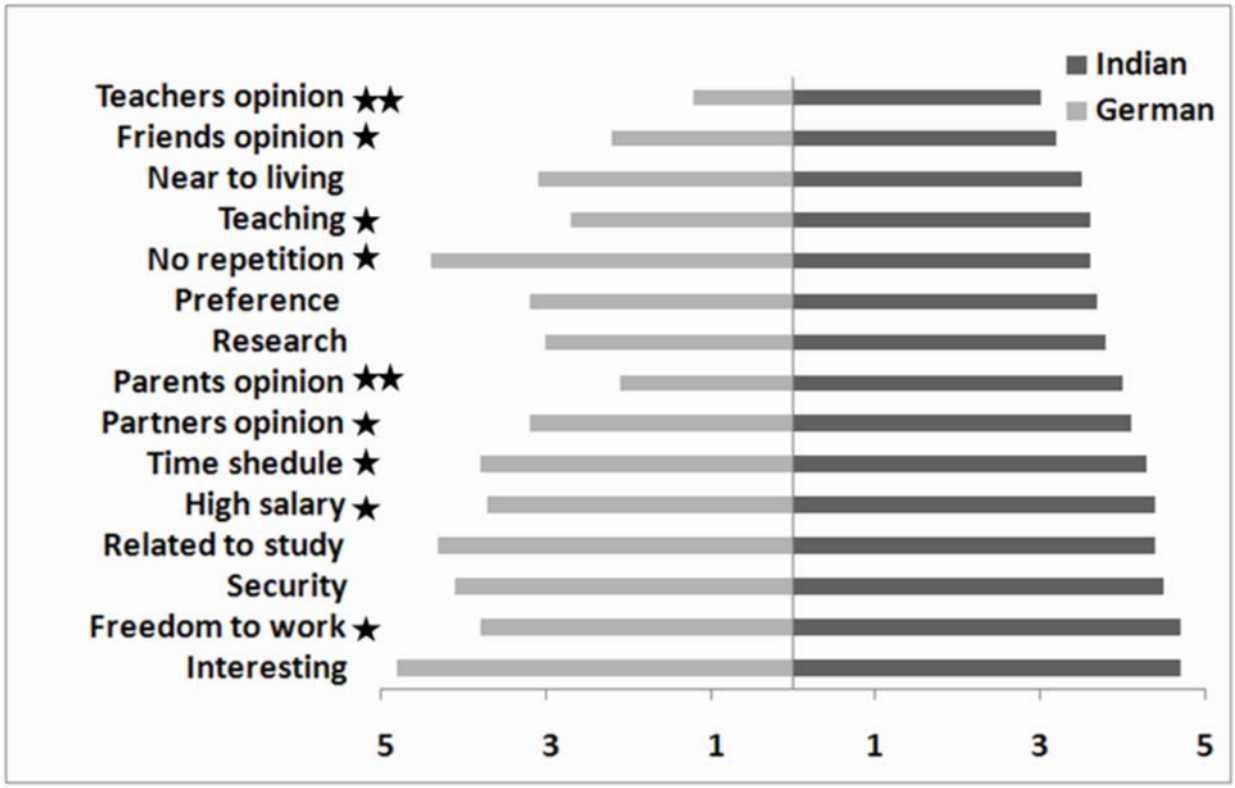

Figure 5. Median ratings of Indian and German students when deciding for a job.

Two stars indicate a large effects ($r > 0.5$) and a star indicates medium effect ($r > 0.3$)

Life partner break up

The topics around which the items are developed to examine the decision about life partner break up are: *Friends opinion, friends influence, inlaws problem, realtives influence, place of living, parental influence, extra marital relationship, confident about relationship,* and *partners behaviour.* The questions were mainly hypothetical for Indian students. As can be seen from Figure 6, *friends opinion* and *friends influence* were comparable for Germans and Indians. Students from both cultures were markedly influenced by their friends' opinions when deciding to have break up with their life partner. German students' scored higher on *extra marital relationship* and *partners behaviour*. However differences due to different cultural values can be inferred from other items. Parents, in-laws and relatives were playing an influencial role during life partner break up in the life of Indian students.

The reason behind the difference on the item *place of living* was due to the difference in cultural practices between India and Germany. In India, after getting married, the girl stays with the family of the boy, with her in-laws. If the husband works away from home the girl has to stay with her in-laws until he settles in his work environment. Another point is, in many cases the husbands leave their wife under the care of in-laws to work in another city or foreign country. Misunderstandings between wives and her in-laws rise the probability of having problems with her husand in India. Whereas in German context, the problem of living in different places itself attributed to misunderstanding between partners. For the Item 'I am confident to hold my current / future relationship through out my whole life' Indians were very confident about continuing their relationship with their life partner. This issue is also an interesting area to explain cross-cultural differences, because life partner break up is perceived as 'Divorce' in India. On the other hand in Germany one can have life partner break up at any time and have another partner, if they found that the partner's behaviour is improper or else he or she is having an extra marital relationship. Furthermore in India, societial pressure and cultural norms make partners not to have a break up in their life, and even if they have problems due to misunderstanding, they are forced to live as couples throughout their life span. However the divorce rate has been increasing in India recently.

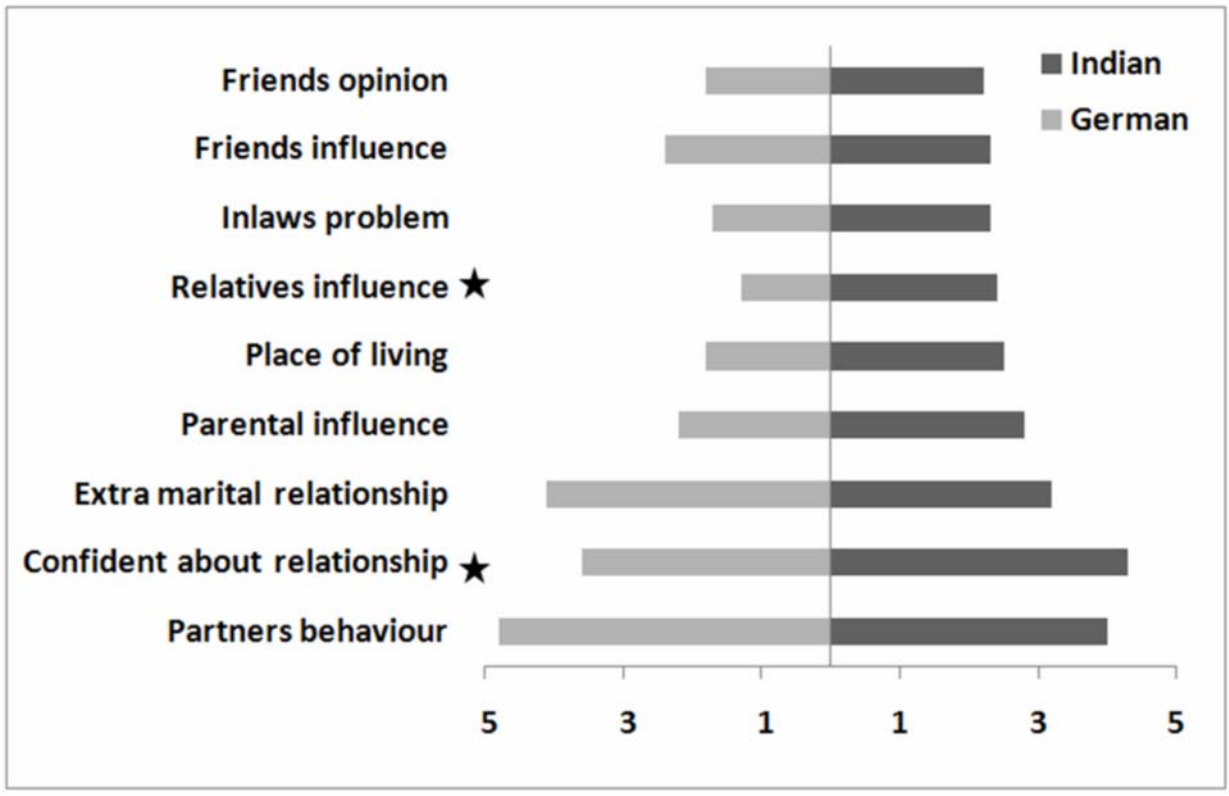

Figure 6. Median ratings of Indian and German students to decide for life partner break up. Two stars indicate a large effects (r > 0.5) and a star indicates medium effect (r > 0.3)

Life partner selection

The topics around which the items are developed to examine the decision about life partner selection are: *Live together, relative influence, friends influence, religion, nationality, attractiveness, job, parental influence, education, care for both parents, honesty, care for me*, and *good character* shown in Figure 7. Germans and Indians have comparable scores in *good character, honesty, education*, and *attractiveness*. When students were asked 'I have lived / expect to live together with my partner before marriage,' German students scored higher implying that their decisions were based on living together (time spent together to know each other). Indian students have high scores in other items and their decisions were based on the influence of parents, family, relatives, religion, nationality, job, care for both parents, and care for them. Additionally Indians are expecting life long care from their partner and that the partner should also take responsibility in taking care of their parents. It is important to note, in India, there are many issues influencing the life partner selection process like religion, nationality, and job. Parental, friends' and family influence are higher with Indian students.

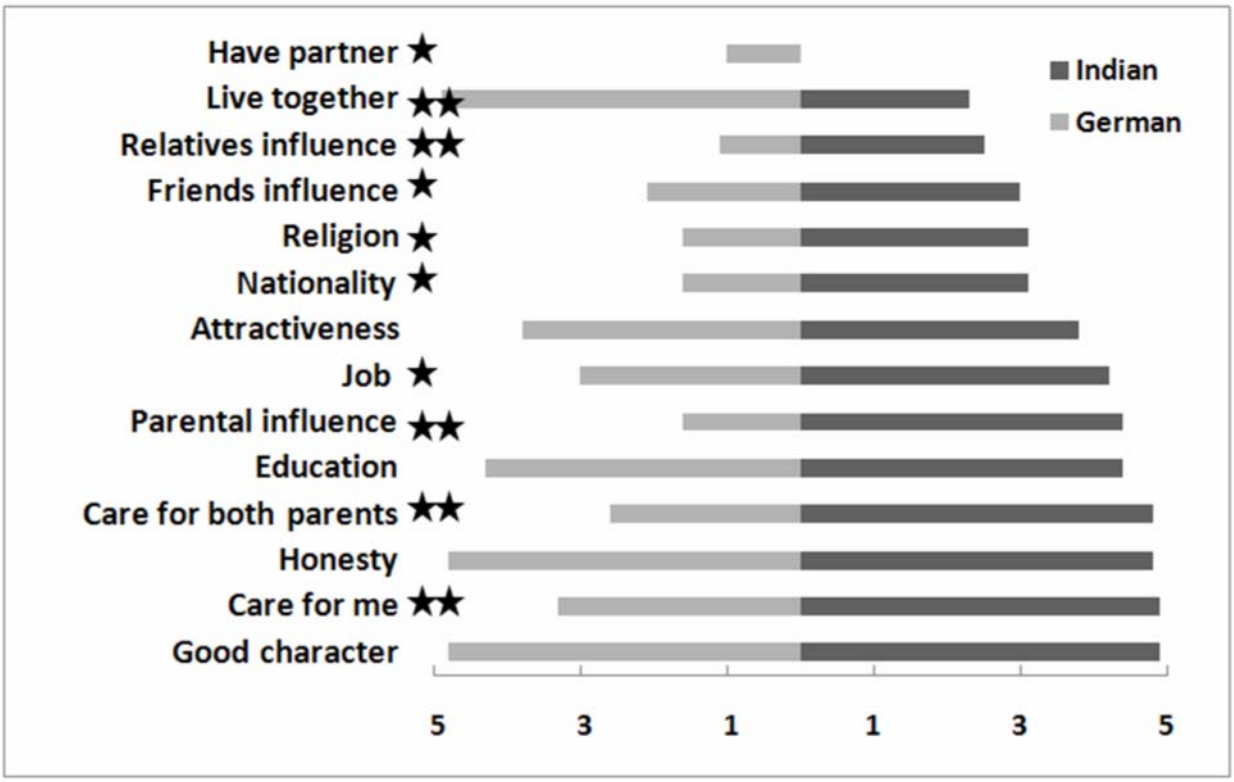

Figure 7. Median ratings of Indian and German students to decide for life partner. Two stars indicate a large effects (r > 0.5) and a star indicates medium effect (r > 0.3).

Buying decision

The topics around which the items are developed to examine the decision for buying are: *relatives influence, internet information, special offer, friends' influence, advertisement, intuition, price, parental influence, brand, guaranty, performance, price and quality ratio*, and *quality* were included. Figure 8 shows median scores for the corresponding items, Germans and Indians have comparable scores in *quality, price and quality ratio*, and *price*. Germans have higher scores in Internet information. Indian students decide based on others' influence. Guaranty was the important factor which made Indian students to rely on brand when buying things. This is consistent with previous research findings (Tipandjan et al., in prep b). Indians depend on others like parents, relatives, and friends while buying.

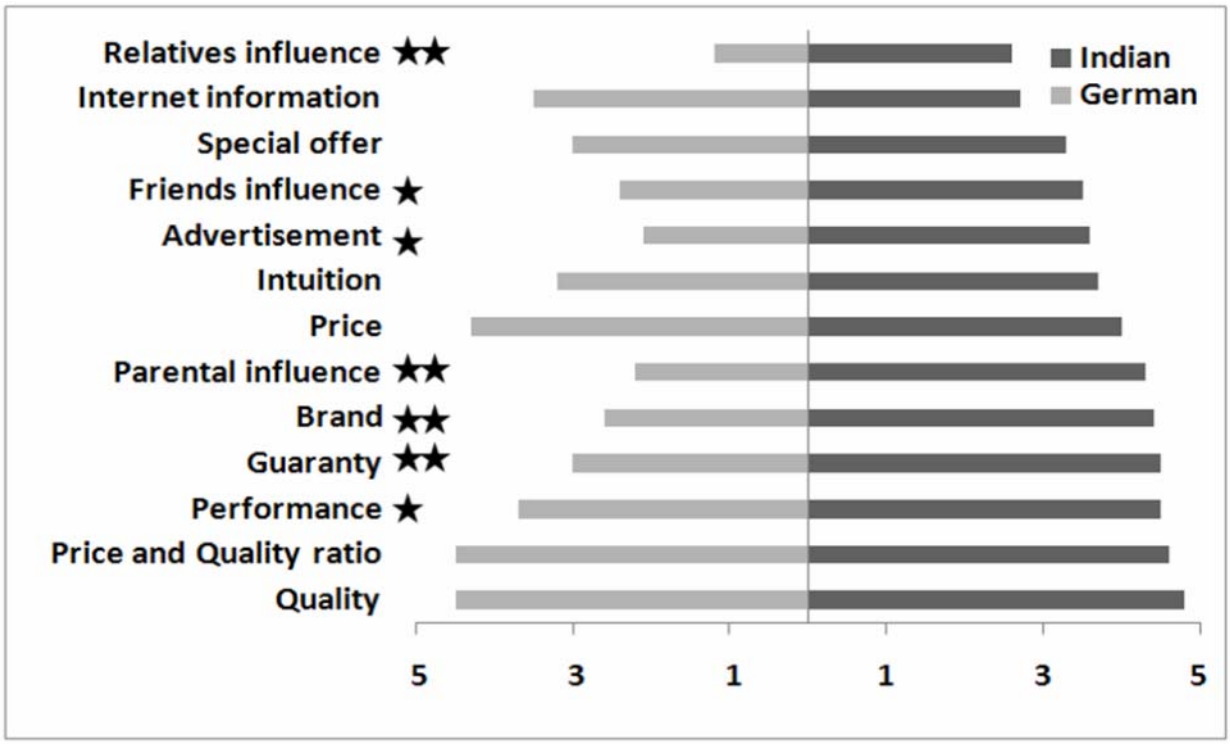

Figure 8. Median ratings of Indian and German students to decide for buying. Two stars indicate a large effects ($r > 0.5$) and a star indicates medium effect ($r > 0.3$)

Factor Analysis:

We used exploratory factor analysis to explore the components that underlie CCDMQ-5, to find out the similar or different factor structure of German and Indian students. Initial analyses were run separately for the Indian and German samples for each of the five decision areas. Principal component analysis with varimax rotation was used throughout. The number of factors for both Indian and German students was determined by the scree plot. All the original items were part of the factor analysis, and those that had the strongest loadings (greater than 0.30) were retained. Same or similar factor structures indicate that decisions are made in a similar way in both cultures and different factor structures hint at differences between both the cultures. The items are ordered based on the item loadings. Each factor was given a label based on the content of the items loading upon the factor. However, it turned out that separate labels had to be given to some German and Indian factors. A detailed version of items presented in Appendix 1.

Subject of study

Four factors were extracted from the Indian sample. The factors explained 50.1% of the total variance. The factor loadings are depicted in Table 2. Bold letters relate to common factors between India and Germany, Un-bold letters relates to culture specific factors and item loadings are depicted in various fonts relating to different factors loaded on to with respect to Indian factors (bold, un-bold, bold italics, un-bold italics. This holds for all the tables presented in the factor analysis section.

The first factor we infer for the Indian sample was *interpersonal influence*, based on how others influenced the decision on which topic to study. Items like friends' influence, teachers' influence, life partners' influence and finally school subject loaded on that factor with loadings of at least 0.39. The second factor was named *information gathering.* It consists of items that refer to information that is used to decide for a subject of study, such as information from books, information from the internet, parental influence and job opportunities. The third factor was named as *external impact.* It includes the items information from others, school final exam, and information from seniors. Among the items, school final exam has a negative factor loading. The fourth factor was named *impact of time* (how long the decision about study took for them) and included the items total time to decide and before or after school (whether the decision about study was made before completing school or after).

Five factors were extracted for the German sample that explained 57.8% of the total variance. The first factor was named *interpersonal influence* and includes items such as friends' influence, teachers' influence, life partners' influence, and parental influence. The second factor was referred to as *information gathering*. Information from books, information from the internet, and information from seniors loaded on the factor. The third factor was named *preference for subject* and the items included were school subject, job opportunities, and school final exam. We extracted a fourth factor referred to as *evaluating factor* which included items such as total time to decide and information from others. Further, a fifth factor emerged for German students that contained only the item before or after school.

The factor analyses of the two samples yielded commonalities as well as differences. We found two similar factors, namely the factors *interpersonal influence* and *information gathering* which were common to both samples. In the Indian sample, school subject also loads on the *interpersonal influence* factor. In the German sample, one additional item

(parental influence) loads on the interpersonal factor, while in Indian sample parental influence loads on the information gathering factor. The items information from internet and information from book load on the factor *information gathering* in both cultures. In the German sample, this factor additionally contains the item information from seniors and in the Indian sample it additionally contains the items parental influence and job opportunities. The remaining factors strongly differ between the German and Indian sample. In the Indian sample, the third factor includes information from seniors and information from others, and (with a negative loading) school final exam. It can thus be seen as an additional interpersonal factor. In Germany, the third factor contains information specific to the subject and job, i.e. the items school subject, job opportunities, and school final exam. Those items do not form a separate factor in India, but are completely absorbed in several other factors.

In sum, it is visible from the data that there are two rather interpersonal factors in India, but only one in Germany. Interestingly, other than in Germany, parental influence is not contained in the interpersonal factors in India but in the information gathering factor. Parental influence in India is thus seen as a similar influence as more 'objective' sources of information, such as information from books and information from the internet.

Table2

Factor loadings based on a principle components analysis with varimax rotation for subject of study with Indian and German students.

	Indian				German				
Items	**Interpersonal influence**	**Information gathering**	*External impact*	*Impact of time*	**Interpersonal influence**	**Information gathering**	*Preference for subject*	*Evaluating factor*	Before or after school
Friends influence	**0,743**				**0,819**				
Teachers influence	**0,699**				**0,634**				
Life partners influence	**0,689**				**0,645**				
School subject	**(0.391)**						**0,567**		
Information from book		0,817				0,520			
Information from internet		0,666				0,754			
Parental influence		0,456			0,676				
Job opportunities		(0.398)					0,689		
Information from others			***0,638***					***-0,529***	
School final exam			***-0,606***				***0,700***		
Information from seniors			***0,593***			***0,638***			
Total time to decide				*-0,708*				*0,777*	
Before or after school				*0,680*					*0,807*

Job

Five factors were extracted from the Indian sample. The factors explained 53% of the total variance. The factor loadings are depicted in Table 3.

The first factor we infer for the Indian sample was *interpersonal influence*, based on how others influenced the decision for a job. Items like friends' opinion, parents' opinion, teachers' opinion, and partners' opinion loaded on that factor. The second factor was named *job characteristics.* It consists of items that refer to characteristics that were used to decide for a job, such as higher salary, freedom in work, how interesting the job is and security of the job. The third factor was named as *academic aspects.* It includes the items research, related to study, and teaching. The fourth factor was named as *organizational aspects* and included the items preference to work independently or in a group, near to place of living, and time schedule (duration of work). The fifth factor was named as *variety* and included the item no repetition.

Six factors were extracted for the German sample that explained 62.3% of the total variance. The first factor was named *interpersonal influence* and included items such as friends' opinion, parents' opinion, and life partners' opinion. The second factor was referred to as *characteristics of tasks*. Teachers' opinion, freedom to work, interesting, and no repetition loaded on that factor. The third factor was named *academic aspects* and the items included were research and teaching. The fourth factor was named *organizational aspects* which included items such as near to place of living and time schedule. The fifth factor called *materialistic aspects* emerged for German students. German data extracted a sixth factor as *prefer to work* which included item preference (to work independently or in a group)
The factor analyses of the two samples resulted in commonalities as well as differences. The three similar (but not identical) factors were *interpersonal influence, academic aspects,* and *organizational aspects*. The factor *job characteristic* of Indian students turned out to be two different factors for German students such as *characteristics of tasks* and *materialistic aspects.* However, loading of teachers' opinion and no repetition items in *characteristics of tasks* factor, high salary, security, and related to study items in *materialistic aspects* factor of Germans are perceived to be interesting information. The remaining factors strongly differ between the German and Indian sample.

In sum, it is visible from the data that there is only one job characteristics factor in India but it turned to be two factors as *characteristics of tasks* and *materialistic aspects*. Interestingly, other than in India, teachers' opinion is not contained in the *interpersonal influence* factors in Germany but in the *characteristics of tasks* factor. Teachers opinion in India is seen as a similar opinion as more a sources of opinion, of friends', parents', and partners'. Similarly, preference to work turned out as a separate factor in the German sample. The factor *organizational aspects* were similar between the two samples.

Table3

Factor loadings based on a principle components analysis with varimax rotation for decision about job with Indian and German students.

	Indian					German					
Items	**Interpersonal influence**	*Job characteristics*	**Academic aspects**	**Organizational aspects**	*Variety*	**Interpersonal influence**	*Characteristics of tasks*	**Academic aspects**	**Organizational aspects**	*Materialistic aspects*	*Prefer to work*
Friends opinion	**0,777**					**0,873**					
Parents opinion	**0,736**					**0,841**					
Teachers opinion	**0,688**						**-0,514**				
Partners opinion	**0,603**					**0,625**					
High salary		0,676								0,649	
Freedom to work		0,614					0,464				
Interesting		0,613					0,774				
Security		0,455								0,671	
Research			***0,708***					***0,711***			
Related to study			***0,661***							***0,658***	
Teaching			***0,559***					***0,761***			
Preference				*0,753*							*0,798*
Near to place of living				*0,567*					*0,778*		
Time schedule				*0,564*					*0,705*		
No repetition					0,793		0,729				

Life partner break up

Three factors were extracted from the Indian sample. The factors explained 57.7% of the total variance. The factor loadings are depicted in Table 4.

The first factor for Indians we infer to as *interpersonal influence*, based on how others influenced the decision on life partner break up. Items like influence of parents', friends', and relatives' and friends' opinion were loaded in it. The second factor was named *context of living.* It consists of items that refer to problems faced in line with living, such as in-laws problem, place of living, and friends' opinion. The third factor was named as *partner characteristics.* It includes the items partners' behavior, extra marital relationship and confident about relationship (I am confident to hold my current / future relationship through out my whole life).

Four factors were extracted from the German sample. The factors explained 66.6% of the total variance. The first factor for Germans we inferred to as *interpersonal influence*, based on how others influenced the decision on life partner break up items like parents' influence, friends' influence, relatives' influence and friends' opinion. The second factor was named *context of living.* It consists of items that refer to problems faced in line with living, such as in-laws problem, and place of living. The third factor was named as *partner characteristics.* It includes the items partners' behavior and extra marital relationship. Further, a fourth factor called *confident to continuing relationship* emerged for German students with a single item confident about relationship (I am confident to hold my current / future relationship through out my whole life).

The factor analyses of the two samples produced similarities and differences. The factors *interpersonal influence, context of living, and partner characteristics* were common to both samples. In the German sample, friends' opinion also loads on the *interpersonal influence* factor. In the German sample, the item confident about relationship loaded on to the factor *confident to continuing relationship* as the fourth factor. It can thus be seen with Germans that the opinion of friends was considered to be interpersonal influence. In contrast, in the Indian sample friends' opinion loads on *context of living.*

In sum, it is distinct from the data that there was a similarity on the factor loadings between Indian and German students on decision about life partner break up, except the friends' opinion which was perceived as interpersonal influence in the German sample.

Table 4

Factor loadings based on a principle components analysis with varimax rotation for life partner break-up with Indian and German students.

	Indian			German			
Items	Interpersonal influence	Context of living	Partner characteristics	Interpersonal influence	Context of living	Partner characteristics	Confident to continuing rela
Parental influence	**0,855**			**0,791**			
Friends influence	**0,855**			**0,781**			
Relatives influence	**0,665**			**0,683**			
Inlaws problem		0,800			0,728		
Place of living		0,783			0,803		
Friends opinion		0,622		0,588			
Partners behavior			***0,758***			***0,736***	
Extra marital relationship			***0,718***			***0,802***	
Confident about relationship			***0,488***				***0,861***

Life partner selection

Four factors were extracted from the Indian sample. The factors explained 62.7% of the total variance. The factor loadings are depicted in Table 5.

The first factor for Indians we inferred to as *care and character*, based on the desirable characteristics. Items like good character, care for me, honesty, and care for both the parents loaded on that factor. The second factor was named *societal factor.* It consists of items that refer to social expectations to decide for a life partner, such as religion, nationality, and parental influence. The third factor was named as *interpersonal influence.* It includes the items friends' influence, relatives' influence, and parental influence. The fourth factor was named as *expectation about partner and* included the items live together, attractiveness, and job. Among the items, live together and attractiveness have a negative factor loading.

Five factors were extracted for the German sample that explained 61.1% of the total variance. The first factor was named *care* and includes items such as care for me and care for both parents. The second factor was referred as *character*. Good character, honesty, and nationality loaded on the factor. The third factor was named *interpersonal influence* and the items included were friends' influence, relatives' influence, and parental influence. German data extracted a fourth factor as *expectation about partner* and included the items education, attractiveness, and job. Further, a fifth factor called *world-view* emerged for German students with items religion and live together.

The factor analyses of the two samples yielded commonalities as well as differences. We found only one similar factor, thus the factor *interpersonal influence*. The first factor in the Indian sample *care and character* was split up into two separate factors (i.e. *care* and *character)* with the German sample. Interestingly societal influence factor of Indian samples, i.e. the items religion, nationality, and education do not form a separate factor in Germany, but are completely absorbed in several other factors. *Expectation about partner* in the Indian sample has an additional item live together with a negative loading. German samples show similar loading with one item-education, additionally loading on to it. And live together (negative loading) loads on to the fifth factor world-view, for German samples together with religion.

In sum, it is visible from the data that some factors which appears as single entities in Indian samples splits into two separate factors in the German samples. Interestingly, other than in India, live together is not contained in the expectation about partner but in the essential to select partner factor in Germany. Similarly, when deciding for life partner, societal influence is present only in India sample and is absent in German sample.

Table 5

Factor loadings based on a principle components analysis with varimax rotation for life partner selection with Indian and German students.

	Indian				German				
Items	*Care and character*	*Societal influence*	**Interpersonal influence**	**Expectation about partner**	*Care*	*Character*	**Interpersonal influence**	**Expectation about partner**	*World-view*
Good character	**0,798**					**0,832**			
Care for me	**0,774**				**0,707**				
Honesty	**0,730**					**0,838**			
Care for both parents	**0,626**				**0,552**				
Religion		0,850							0,707
Nationality		0,847				-0,419			
Education		0,423						0,653	
Friends influence			***0,817***				***0,811***		
Relatives influence			***0,805***				***0,691***		
Parental influence			***0,554***				***0,811***		
Live together				*-0,681*					*-0,809*
Attractiveness				*-0,580*				*0,661*	
Job				*0,546*				*0,681*	

Buying decision

Five factors were extracted from the Indian sample. The factors explained 56% of the total variance. The factor loadings are depicted in Table 6.

The first factor for Indians we infer to as *product property*, based on properties required for buying. Items brand, price versus quality ratio, guaranty, and quality loaded on that factor. The second factor was named *product opportunities.* It consists of items that refer to opportunities that were used to decide for buying a product, such as advertisement and special

offer. The third factor was named as *information gathering.* It includes the items internet information and relatives influence. The fourth factor was named as *interpersonal influence* (the influence of people such as parent and friends) and included items-parental influence and friends' influence. The fifth factor was named as *intuition vs deliberation*. It consists of items that refer to how students get impressed by the product during decision making, such as price, features, and intuition. Among the items, features have a negative factor loading. Detailed version of items presented in Appendix 1

Five factors were extracted for the German sample that explained 59.2% of the total variance. The first factor was named *price analysis* and includes items such as price versus quality ratio and price. The second factor was named *product opportunities.* It consists of items such as advertisement and special offer. The third factor was named *product quality* and the items included were brand and quality. German data extracted a fourth factor as *interpersonal influence* which included items such as relatives' influence, parental influence, and friends' influence. Further, a fifth factor called *intuition vs deliberation* emerged for German students. It consists of items guaranty, internet information, features, and intuition. Among the items, guaranty and intuition have a negative factor loading.

The factor analyses of the two samples yielded commonalities as well as differences. We found three similar factors, i.e. the factors *product opportunities*, *interpersonal influence*, and *impression formation* was common to both the samples. The factor *product opportunities* were identical in both the Indian and German sample. Relatives' influence also loads on the *interpersonal influence* factor in the German sample, whereas relatives' influence loads on one factor with internet information in Indian sample. In both samples, the *intuition vs deliberation* factor was common, but in Indian sample price was additionally loaded with features (negative loading). In German samples price loaded with price vs quality ratio on the *price analysis* factor, in addition to internet information and guaranty. The remaining factors strongly differ between the German and Indian samples. In Indian samples, the first factor contains *product property*, i.e. the items brand, price versus quality ratio, guaranty, and quality. Those items do not form a separate factor in German sample, but are completely absorbed in several other factors, guaranty with a negative loading.

In sum, it is viewable from the data that German considers relatives' influence as *interpersonal influence*, whereas in the Indian sample it is seen as similar to other

information. In the German sample, internet information was contained in impression formation and it was contained in information gathering with the Indian sample.

Table 6

Factor loadings based on a principle components analysis with varimax rotation for buying decision with Indian and German students.

	Indian					German				
Items	*Product property*	**Product opportunities**	*Information gathering*	**Interpersonal influence**	**Intuition vs deliberation**	*Price analysis*	**Product opportunities**	*Product quality*	**Interpersonal influence**	**Intuition vs deleberation**
Brand	**0,708**							**0,829**		
Price vs quality ratio	**0,688**					**0,783**				
Guaranty	**0,674**									**(-0,337)**
Quality	**0,513**							**0,595**		
Advertisement		0,827					0,815			
Special offer		0,816					0,729			
Internet information			***0,804***							***0,617***
Relatives influence			***0,681***						***0,697***	
Parental influence				*0,777*					*0,749*	
Friends influence				*0,646*					*0,688*	
Price					0,589	0,759				
Features					-0,584					0,719
Intuition					0,476					-0,653

As described above we used the Exploratory Factor Analysis to explain a part of theoretical underpinnings, because the construct and items were inducted qualitatively using the results of semi-structured interviews from our earlier research. However, in our analysis we used EFA to find the common and culture specific factors underlying decision making. It is interesting to note that in several cases a single factor with Indian sample loaded onto two separate factors with the German sample. When deciding for a subject of study, Indian students conceptualize parental influence as information, whereas Germans consider parental influence as interpersonal factor. When deciding for a job, German students consider teachers' opinion as personal preference. But Indians perceive teachers' opinion as merely

information. When having a break up with the life partner, both Indian and German students had the similar decision making processes. When deciding for a life partner, Germans consider living together as an essential factor, while Indians have only expectation. Nonetheless, societal influence was present only with Indian students. In concern with buying decision, internet information was considered to be a part of information gathering for Indian students, whereas Germans' use internet information for forming impression. From the factor loading it is revealed that Indian students consider guaranty as a product property, whereas for German sample guaranty is perceived as intuitive process.

Figure 9 shows the culture specific decision making process of Indian and German students using culture specific factors extracted in the EFA. An exhaustive list of culture specific factors of Indian and German students was presented, major dimensions underlying decision making process were derived explicatively for both Indian and German students based on the relationship with culture specific factors. Different arrows such as narrow, dotted were used to show the relationship between individual factor and the dimensions underlying decision making process. Indian decision making process was based on societal influence and decision characteristics. On the other hand German decision making can be described as a result of personal preferences based on selection criterions and evaluation of related information. The results were comparable to the Individualism and Collectivism dichotomy. Germans who are considered as Individualistic and Indians as Collectivistic-oriented.

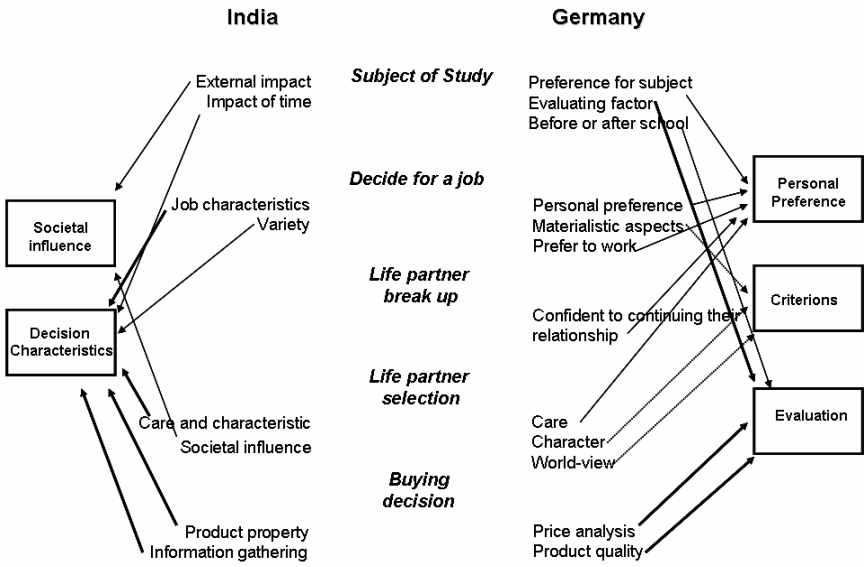

Figure 9 showing culture specific decision processes of Indian and German students

General discussion

We started our investigation with a series of questions in mind: How to conduct a thorough examination of decision making on German and Indian students? What are the communalities and differences between German and Indian students on decision making? What methods are to be used? How to find out the culture specific process of decision making? Using conventional measures used earlier by decision researchers (e.g., Mann et al. 1997) and the scenarios (Triandis, chen, & chen, 1998), can we replicate the earlier results of cross-cultural communalities and differences? Is it possible to find the real impact when the instrument developed in West is applied to Eastern culture? Additionally we used the result of our qualitative analysis based on the factors underlying five decision making areas (Tipandjan, Schäfer, Sundaram, & Sedlmeier, in prep b) and developed a questionnaire, to find out whether the differences and communalities identified in prior qualitative research hold.

Even though the results obtained by using the conventional methods yielded to some extent the usual results, there are also discrepancies. When comparing both cultures on decision making, using MDMQ, the results showed that India being an Eastern country was higher in the vigilance dimension, which was not observed by the decision making researchers who used the particular tool comparing Western and Eastern cultures. This can be due to difference in cultural values; nonetheless MDMQ was established based on three English speaking Western and three East Asian cultures. So, the role of language might have caused these differences. To use MDMQ in non English speaking cultures, one has to include items that are specific to particular culture.

Scenario based questions are found to be promising to classify Indian and German students, explaining Indians as Vertical Collectivistic and Germans as Horizontal Individualistic. The results were in line to earlier findings and replicated the earlier results. The reason why we could replicate previous findings with the scenarios but not with the MDMQ was due to the origin of the tool, because the MDMQ was established in a multicultural atmosphere i.e. Australia and may not be a preferable tool for comparing other cultures.

Indian students have scored higher on both PID-I and PID-D than the German students and there was no crossing over effect between two dimensions with Indian and German students. The tool was developed in Germany and one should keep in mind that, in this study the PID

inventory was used intentionally to look for applicability of Western derived instrument to use in Eastern culture to explain cultural differences on decision making. We suggest that culture specific items should be included to evolve bias free analysis on decision making.

How do students from India and Germany with different cultural values make decisions? How to elucidate the cross-cultural communalities and differences in a less biased way? We have developed the CCDMQ-5 to compare Indian and German students' decision making to find out communalities and differences with large representative samples from India and Germany. The newly developed CCDMQ-5 yielded several new findings such as the difference in the decision process for selecting a subject of study, job, life partner selection, life partner break up, and decision for buying. Indian students were deciding based on others' influence and German students were deciding based on their own preference. Particularly when deciding for a life partner, Indian students were influenced by the society, on the other hand Germans expect that the partner should be faithful to them and they should live together. When buying decision is of concern, Indian students were depending on properties of the product such as brand and guaranty. On the other hand German students analyze the price before in hand when deciding for a product. These findings are consistent with the previous research comparing India and Germany on decision making using qualitative methods (Tipandjan et al., in prep b). Exploratory Factor Analysis revealed culture specific factors and common factors between India and Germany. From the analysis, it is evident that the fine-grained cultural variation of German and Indian cultures which are normally missed by dichotomous cultural construct like Individualism and collectivism or allocentrism and ideocentrism are revealed. Furthermore it is recommended to use 'etic-emic-etic' approach proposed by us for further cross-cultural comparisons to minimize bias arising during cross-cultural decision making research. This approach to cross-cultural decision making will open the doors to develop a global perspective on decision making. We assume that CCDMQ-5 is a less biased tool in examining cross-cultural similarities and differences on decision making.

Limitations, Applications and Further Research

The result of our study revealed that there is similarity to the old findings of different dimensions of Individualism and collectivism using the scenarios (Horizontal and Vertical dimensions) of Triandis & Chen & Chen (1998). Indians are Vertical collectivistic and Germans are Horizontal individualistic. The result of the instrument developed from

qualitative methods (CCDMQ-5) also showed that Indian students' decision was as a result of societal influence and the German students' were based on personal preferences. Further research to adapt or to do in-depth analysis of the PID and MDMQ instrument to Indian and German cultures is recommended. We suggest, utilizing the 'etic-emic-etic' approach used in this research might be a promising line of future research to compare cultures on decision making. Research can be extended further to identifying more details in all five areas or one can look for additional common and different decision areas in both the cultures with a large sample from various parts of India and Germany. There are high scopes for cross-cultural researchers particularly, cognitive, social, and family researchers to conduct in-depth analysis based on the culture specific and culture neutral results. The findings have strong practical implications. For instance, students going abroad for studies can use these findings to adjust to the different cultures (India or Germany) and can have better communication with other students. Or another example: Multinational companies who are targeting India or Germany can benefit from knowing the culture specific and culture neutral decision making processes for framing marketing strategies. It is hoped that this study will be an eye-opener for further research comparing India and Germany cross-culturally.

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Appendix I

Cross Cultural Decision Making Questionnaire-5

Please imagine as real as possible the situation in which you had to decide what subject to study

Try to go back to this situation and think of all your thoughts and considerations.

1. I have decided the subject (college/University) based on

The marks I got in school final exam.

Strongly disagree 1----------2----------3----------4----------5 Strongly agree.

The subject I studied in school

Strongly disagree 1----------2----------3----------4----------5 Strongly agree.

2. How strong was the influence of the persons below on your decision for your subject of study?

Parents: Very weak 1----------2----------3----------4----------5 Very strong

Friends: Very weak 1----------2----------3----------4----------5 Very strong

Teachers: Very weak 1----------2----------3----------4----------5 Very strong

Life Partner Very weak 1----------2----------3----------4----------5 Very strong **(if any)**

3. How intensely did you seek for information about your present subject of study from the below mentioned?

Books: Not at all 1----------2----------3----------4----------5 Very intensely

Internet: Not at all 1----------2----------3----------4----------5 Very intensely

Seniors: Not at all 1----------2----------3----------4----------5 Very intensely

Others: Not at all 1----------2----------3----------4----------5 Very intensely

4. When did you decide finally for your present subject of study?

O Before leaving school O After leaving school

5. How long it took for deciding your present subject of study finally?

……month ……year

6. How important were job prospects when you decided for your subject of study?

Unimportant 1----------2----------3----------4----------5 Very much important

Imagine your study is over and you have to decide for a job. Direct your thoughts to the concrete situations in the future.

1. How important is the following when deciding for a job, the job should

Be related to study: Not important 1……..…2……..3……..…4……..…5 Very important

Have high salary: Not important 1……..…2……...3……..…4……..…5 Very important

Be situated close to the

place of living: Not important 1……..…2……...3……..…4……..…5 Very important

2. I prefer a job which has

No repetition / Variety: Very much disagree 1……2…...3…....4…….5 Very much agree

Research opportunities: Very much disagree 1……2…...3…....4…….5 Very much agree

Teaching opportunities: Very much disagree 1……2…...3…....4…….5 Very much agree

Freedom in work place: Very much disagree 1……2…...3…....4…….5 Very much agree

3. While deciding for a job I will give importance to

Working time: Not important 1……..…2……...3……..…4……..…5 Very important

How interesting it is to me:

Not important 1……..…2……...3……..…4……..…5 Very important

Opinion of parents: Not important 1……..…2……...3……..…4……..…5 Very important

Opinion of friends: Not important 1……..…2……...3……..…4……..…5 Very important

Opinion of Teachers: Not important 1……..…2……...3……..…4……..…5 Very important

Opinion of life partner: Not important 1……..…2……...3……..…4……..…5 Very important

4. I will look for security of employment when deciding for a job

Very much disagree 1……..…2……...3……..…4……..…5 Very much agree

5. I prefer to work

Independently 1……2……3……..4……5 in a group

Sometimes in life, partnerships can come to an end. Have you ever broken up with a partner? Then please answer the following questions according to what actually happened. If such a situation not occurred, please imagine what the case might be?

1. This was/ will be the reason for break up with my life partner.

Different place of living: Very much disagree 1……2…...3…...4...…5 Very much agree

Problem with in-laws: Very much disagree 1……2…...3…...4...…5 Very much agree

Extra Marital relationship: Very much disagree 1……2…...3…...4...…5 Very much agree

Opinion Friends: Very much disagree 1……2…...3…...4...…5 Very much agree

Behaviour of partner: Very much disagree 1……2…...3…...4...…5 Very much agree

2. I am confident to hold my current / future relationship throughout my whole life

Not at all confident 1……..…2……...3……..…4……..…5 Highly confident

3. How strong was / will be the influence of these persons in your break up with life partner?

Parents: No influence 1----------2----------3----------4----------5 Strong influence

Friends: No influence 1----------2----------3----------4----------5 Strong influence

Relatives: No influence 1----------2----------3----------4----------5 Strong influence

Please imagine about how you have chosen your life partner (if any) or how you will choose your life partner and how you act if you meet one

1. I will give / have given importance for these aspects when selecting my life partner

Should take care of both partners' parents:

Very much disagree 1……2…...3…...4...…5 Very much agree

Attractiveness: Very much disagree 1……2…...3…...4...…5 Very much agree

Good character: Very much disagree 1……2…...3…...4...…5 Very much agree

Education: Very much disagree 1……2…...3…...4...…5 Very much agree

Job: Very much disagree 1……2…...3…...4...…5 Very much agree

Care for me: Very much disagree 1……2…...3…...4...…5 Very much agree

Honesty: Very much disagree 1……2…...3…...4...…5 Very much agree

Religion: Very much disagree 1……2…...3…...4...…5 Very much agree

Nationality: Very much disagree 1……2…...3…...4...…5 Very much agree

2. How strong was / will be the influence of these persons in selecting your life partner?

Parents: Very weak 1----------2----------3----------4----------5 Very strong

Friends: Very weak 1----------2----------3----------4----------5 Very strong

Relatives: Very weak 1----------2----------3----------4----------5 Very strong

3. I have lived / expect to live together with my partner before marriage?

Strongly disagree 1----------2----------3----------4----------5 Strongly agree

4. Do you currently have a life partner?

O Yes O No

Please imagine the last situation in which you decided to buy expensive goods (e.g. clothes, technical equipment)

1. How strong was the influence of the following aspects on your buying decision?

Quality: Very much disagree 1……2…...3…...4...…5 Very much agree

Price: Very much disagree 1……2…...3…...4...…5 Very much agree

Brand: Very much disagree 1……2…...3…...4...…5 Very much agree

Quality: Very much disagree 1……2…...3…...4...…5 Very much agree

Guaranty: Very much disagree 1……2…...3…...4...…5 Very much agree

2. How strong was the influence of other persons in your last buying decision?

Friends: Very much disagree 1……2…...3…...4...…5 Very much agree

Parents: Very much disagree 1……2…...3…...4...…5 Very much agree

Salesman: Very much disagree 1……2…...3…...4...…5 Very much agree

3. Which information had been relevant for your last buying decision?

Internet: Very much disagree 1……2…...3…...4...…5 Very much agree

Advertisement: Very much disagree 1……2…...3…...4...…5 Very much agree

Special offer: Very much disagree 1……2…...3…...4...…5 Very much agree

Performance: Very much disagree 1……2…...3…...4...…5 Very much agree

4. Does intuition usually play a role in your buying decision?

Not at all1----------2----------3----------4----------5 very much.

5

Summary and Conclusion

Everyday life is filled with decisions. Do people from different cultures react similarly or differently to various decision making situations? How can we measure communalities and differences? Do we have a methodology to evaluate the underlying factors in the decision making processes of different cultures without any biases? The aim of the present work was to find an answer to all these questions. To date, cross-cultural decision making research is packed with challenges due to a lack of theoretical models and practical approaches to study cultures which are different from one another. For instance, a relationship assessment inventory that is shown to be reliable and valid in the US may show essential flaws in a non-western context. Hence, we are in need of a common approach to evaluate cultures.

Thus, the research reported here was done to give empirical solutions to methodological issues specific to exploring communalities and differences on decision making between Indian and German students. The aim of the first study was to find out what are the important decisions in the lives of German and Indian university students. The study was conducted to derive a common construct for the concept of decision making to identify what is common and what is different between both cultures. To find out past and future decision making situations, students were asked about their life experiences in an open ended questionnaire. The results indicate that German students have given more answers compared to the Indian students on past decision making, and German and Indian students differ in what they consider to be important decisions. I found out that common areas of decision making for both cultures are (1) subject of study, (2) career, (3) life partner selection, (4) buying, and (5) family. Decision making areas, reported only by Indians, were (1) social contacts, (2) helping others, and (3) emotion regulation. However, decision making areas, reported only by German students, were (1) staying abroad, (2) vacation, (3) school, and (4) life partner break up. By using decision areas which are common for both cultures as well as areas which are specific to one culture, construct biases are minimized and the underlying factors of the decision making processes can be derived.

The results of the first study revealed common and different areas of decision making in different cultures - but not the factors underlying the decision making processes. The second

study was carried out to do an in-depth analysis of the major decision making areas descended from the first study, to identify the factors underlying the major decision areas in both the cultures. Five areas were selected; semi structured interviews were conducted, based on pilot interviews.

The results revealed that Indian's decisions were much more influenced by others than German's decisions, and German's decisions were much more due to own feelings compared to Indian's decisions. German students were highly influenced by their friends when compared to Indian students. In particular, when deciding for a life partner, Indians were depending on various factors such as family, education, job and others, whereas Germans were deciding based on how well they know each other. Based on the factors of the decision making processes within the corresponding major areas, in a third study, I developed a questionnaire to compare Indian and German students quantitatively. Data were collected from German and Indian students using both, a newly developed questionnaire as well as already existing conventional questionnaires. The results revealed that findings from the qualitative analysis were in line with the results of the quantitative survey stating that Germans were deciding based on information processing, whereas Indians were deciding based on the influence of others. Nonetheless, important cultural difference can be noted in the influence of a partner. Germans were – contrary to Indians – influenced by their partners in their early part of life. A factor analysis also suggested the same findings. On the other hand, the conventional questionnaires used to measure decision making need to be reformulated for the use in different cultures.

It is assumed that the approach employed in this research might be a starting point for cross-cultural comparison in minimizing construct, method and item biases. The newly developed 'etic-emic-etic' approach starts with an etic concept (decision making) found in both cultures, identifies culture specific constructs (emic) in both cultures, and finally compares them arriving at communalities and differences in a culture neutral way (etic). This approach can be used to measure any psychological phenomena. The cultural differences between German and Indian students' decision making may help students to a better understanding of culture specific issues in order to facilitate interactions between students from different cultures. Understanding decision making processes in different cultures can increase the academic adjustment of foreign students, and furthermore, the understanding of a different culture. The

results reported here are first steps towards a comprehensive approach to minimize different types of biases.

Future research should aim at evolving a comprehensive theoretical model of cross-cultural decision making. The limitations of this research may call for further research in several respects. First, the results should be replicated with a broader sample of students living in different places in India and Germany, for example, with the students from all the states. Second, it would also be interesting to check whether the current results can be generalized to non-student populations. It is to understand that any research strategy used to investigate a cross-cultural problem is seldom a matter of arbitrary choice. But it needs a careful planning before it can be executed.

Basic human nature is similar at birth;
Different habits make us seem remote.
San Zi Jing

6

Curriculum vitae

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Conference contributions

- Important decisions in the lives of Indian and German students: what is common and what is different? Southeast European conference of Psychology, Sofia, Bulgaria. 30 oct to 1 Nov 2009.
- The first Psychology laboratory a visual experience- 11th National conference on school Psychology, Puducherry, India, 2009.
- Gender Differences among students on thinking and learning styles – 9th national conferences on creative psychological approaches in teacher education 19 – 20 May 2007, Karaikal. India.
- Thinking and Learning styles of students - First national seminar on recent trends in educational psychology and ICT in teacher education, 18-19 may 2007 Pondicherry. India
- Counseling techniques for diabetic patients. In the 10th International & 41st National conference of Indian academy of applied psychology on Innovative Dimensions of Applied Psychology: counseling for Development at Chennai, India 2006
- Decision making styles of German and Indian University Students. (A pilot study of Indian students only) in the 7th national conference on Integral Education. Pondicherry, India

Invited Talks

- Decision making in German and Indian students life. A cross cultural comparison. In the Research colloquium Inter cultural communication, TU-Chemnitz, Germany, 12.01.2010.

- Qualitative method for cross-cultural decision making research. In the Research colloquium development and culture. University of Osnabrück, Germany. 20.01.2010.

Interested areas

- Linguistic relativity
- Culture, Families and Value of Children
- Cognitive neuro psychology, decision making and fMRI.
- Applied social psychology and Intercultural communication
- Health psychology