Judgement and Decision Making across Cultures

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Abstract: This paper reviews research outlining cross-cultural differences in judgement and decision making. As the majority of research in this area is directed on the differences between Asian and Western cultures, this review mainly focuses on the juxtaposition between these two cultures. Specifically, the authors outline the differences in probability judgements and confidence, risk perception, risk taking behaviours, consumer behaviour, and business and economic judgments and decisions. This review reveals that while judgement and decision making differs markedly between Asian and Western cultures, significant differences also exist within these cultures. The paper also suggests directions for future research in the area of cross-cultural judgement and decision making in order to garner a greater understanding of this subject.

Key words: culture; judgment; decision making; risk taking

Culture affects reasoning and thinking (Hofstede & Bond, 1984; Nisbett, 2003). Considering the rapid globalization of the world, acquiring a greater understanding of cultural variations in judgment and decision-making is important (Weber & Hsee, 2000). In this paper, we attempt to outline the current understanding of culture and judgement and decision-making by exploring differences in probabilistic reasoning and confidence judgements, perceptions and preferences of risk, and differences in economic and consumer judgement and decision-making. Much research in the area of cross-cultural comparisons is focused on the differences between Asian and Western cultures, and thus, the majority of this paper will focus on the juxtaposition of these two cultures.

1 Probability judgment and overconfidence

Probability judgments, or judgments about the certainty of an outcome using probability theory, differ across cultures. In order to test this phenomenon, researchers often use a calibration design in which participants are typically presented with a general knowledge question, and asked to pick one of two possible answers for each question (Yates, Zhu, Ronis, Wang, Shinotsuka, & Toda, 1989). Participants are then asked to rate their confidence in their judgement, and this rating (or an average confidence rating) is compared to the actual accuracy of their answers. Well-calibrated probabilistic judgements closely match the accuracy of the participants’ actual answers. A participant that indicated 70% certainty in their answers and answered 70% of the questions correctly would be displaying a well-calibrated judgement, whereas a participant that indicated 70% certainty and answered 30% of the questions correctly would be overconfident.

Early studies demonstrated that Asian students (from Hong Kong, Indonesia and Malaysia) tended to make poorer calibrated judgements than British students (Wright, Phillips, Whalley, Choo, Ng, Tan, & Wisudha, 1978; Wright & Phillips, 1980). When asked to answer a variety of questions and rate their certainty of their answers, the Asian participants gave more extreme and unrealistic probabilistic judgements than the British participants. Thus, Asian participants were more overconfident in their judgements. Overconfidence not only
affects participants in studies; it affects scientists who are trained to present unbiased results. Li, Bi and Rao (2011) found that Chinese speaking researchers of top journals were more overconfident in their research results and in the journals they were published within than were English speaking researchers. When asked to try to find arguments against their research findings, English speaking authors were able to generate more than were their Chinese counterparts. This indicates that cross-cultural differences in overconfidence are pervasive; they even affect the most highly trained scientific professionals.

Later studies revealed that the cultural difference in probabilistic judgement is much more complex than originally postulated (Yates, Zhu, Ronis, Wang, Shinotsuka, & Toda, 1989). In one study comparing Americans and Chinese, Yates, Lee and Bush (1996) report that while both Chinese and American participants displayed overconfidence, the Chinese participants showed greater overconfidence than Americans. In another study comparing overconfidence in Taiwan, Japan and the U.S., Yates et al. (1998) conclude that overconfidence “tends to be especially strong, it seems, in Chinese cultures. And there are indications that it is weakest among the Japanese.” Such cultural differences in overconfidence between Japanese and the other two groups (esp. Chinese) could be explained by cross-cultural variations in decisiveness and thoroughness. Specifically, Japanese participants self-reported more indecisiveness than both Chinese and American participants, and viewed indecisiveness more favourably (Yates, Ji, Oka, Lee, Shinotsuka, & Sieck, 2010). Additionally, Japanese participants display more thorough decision-making behaviour (such as taking more time to answer questions and generating counter-arguments) compared to Chinese and American participants. Perhaps an increase in thoroughness leads to more indecisiveness and less overconfidence in judgement-making, as being thorough makes one come up with a greater number of counterarguments, which could result in less certainty in one’s answers.

As to the finding that Chinese showed more overconfidence than Americans, a few explanations have been put forward, including socio-economic conditions, social orientations, upbringings, and educational differences (Weber & Hsee, 2000). Yates et al. (1989) postulate that the marked differences in American and Chinese education systems could account for the difference in overconfidence. They argue that the current Chinese education system encourages respecting tradition, whereas the American education system encourages critical thinking and questioning knowledge. The researchers believed that Americans would search for more disconfirming evidence to their judgements, and thus, be less confident, whereas Chinese individuals would be more likely to search for confirming evidence of their original judgement, and thus, be overly confident in their decisions. Additionally, Li, Chen, and Yu (2006) compared Chinese students educated in China with Chinese students educated in Singapore (which is more Westernized), and found that the students in China were markedly more overconfident than the Singaporean students, and argued that this trend is a result of differing educational systems. However, the researchers did not control for other factors, such as income levels, social economic class, or parenting styles and involvement, which could have influenced judgment confidence. More research has to be conducted before we can be confident about the underlying reasons for cross cultural differences in overconfidence.

2 Risk Perception

Researchers have uncovered other cultural differences in judgement and decision making with risk perception and preferences being notable examples. Weber and Hsee (1998) presented Chinese, German, Polish and American participants with possible investments, and asked them to indicate how risky each investment was and how much they would be willing to pay for
them. Chinese individuals perceived lower risks in the possible investments, and were willing to pay more for the investments. The study demonstrated a marginally significant trend for Chinese participants to be slightly less risk-aversive than Americans (Weber & Hsee, 1998). Similarly, recent research (Marshall, Huan, Xu, & Nam, 2011) has shown that Asian participants (Singaporeans, Chinese and Japanese) are less risk averse than the Western participants (Dutch, New Zealanders and Americans) over both gain and loss framed situations.

Risk perception seems to be affected by different elements across cultures. Participants from the United States, the Netherlands, Hong Kong and Taiwan (Bontempo, Bottom, & Weber, 1997) were asked to rate the riskiness of monetary lotteries. Negative outcomes in the lotteries had different effects on risk perception, as the Asian participants’ perception of risk were more affected by the magnitude of the loss, whereas the probability of the loss had a greater effect on the Western participants’ perception of risk.

3 Risk Taking Behaviours

Certain circumstances have uncovered cultural differences in risk taking behaviour; Weber and Hsee (1998) demonstrated that Chinese participants were more risky than Americans when choosing between lotteries and investments. However, this cultural difference in risk-seeking behaviour did not extend to medical or academic decision-making. Weber and Hsee developed the “cushion hypothesis” to explain these findings. They hypothesized that Chinese made more financial risks than Westerners because social networks in their societies were stronger, which increased the likelihood that they would receive financial aid if needed (1998; 1999; 2000). However, further studies by Li & Fang (2004) indicated that Chinese participants did not choose riskier alternatives if they had more social supports. An analysis of regression demonstrated that an increase in people considered social supports does not increase risky decision making.

Recent research has shown that Asians and Asian Americans seek less social support in the face of stressors compared to Europeans, out of fear of disturbing social harmony, losing face, being criticized and possibly making the situation worse (Taylor, Sherman, Kim, Jarchow, Tokagi, & Dunagan, 2004). Taking this evidence into consideration, the cushion hypothesis seems problematic, as reaching out for financial help could lead to similar social ramifications as asking for social support (see also Lau & Raynard, 2005). Indeed, Li & Fang (2004) describe that the cushion hypothesis may be a doubled edged sword. They found that participants from collectivist societies strongly consider their social networks when considering a risky financial decision. When asked why someone may choose to make a risky decision, many indicated that their friends and family would likely help them if needed. On the other hand, when asked why someone may choose to not make a risky decision, participants indicated that they feared being a burden to their family and friends. This evidence indicates that the cushion hypothesis can have both positive and negative social ramifications.

Although the cushion hypothesis may not provide an adequate explanation for the cross-cultural variations in risk-taking, differences in probabilistic reasoning or the use of probability theory to make a judgement may partially explain the results. Lau and Raynard (2005) examined probabilistic reasoning and risk-taking behaviours of Chinese and English gamblers and non-gamblers in order to determine the relationship among culture, risk taking and probabilistic reasoning. They found that the Chinese participants displayed less probabilistic reasoning than English participants, and gamblers displayed less probabilistic reasoning than non-gamblers. Chinese participants exhibited higher levels of risk taking than English participants, as
measured by the sum expected loss in a hypothetical horse-race task. Most importantly, the researchers found that probabilistic thinking could partly explain such cultural difference in risk taking.

4 Consumer Behaviour

Cultural differences in consumer behaviour have been observed through the endowment effect (Maddux, Haiyang, Falk, Adam, Adair, Endo, Carmon, & Heine, 2010). The endowment occurs when an owner places greater value on their possession than potential buyers do. In these studies, participants in a lab were presented with a gift (either a mug or chocolates), and were asked to name a price that they would be willing to sell it for. The other participants, the “buyers”, were asked to name a price at which they would be willing to buy a mug or chocolates. The difference between the two prices would then show the magnitude of the endowment effect. Although all participants demonstrated the endowment effect, European-American and European-Canadian participants displayed a greater endowment effect (by valuing the chocolates and the mug more than the potential buyers) compared to the Asian, Asian-American, and Asian-Canadian participants. The authors attribute these cultural differences to different self construals across cultures: European-Americans and European-Canadians have a more independent self construal, whereas Asians have a more interdependent construal. To test such an explanation, they found in another study that Chinese participants demonstrated a larger endowment effect when primed with an independent self-construal than when primed with an interdependent self-construal. Thus, an independent view of the self, which is typically associated with European Americans and Canadians, was linked to a greater expression of the endowment effect.

Cross-cultural consumer research has also focused on the compromise effect. Suppose that a consumer is presented with three possible computers to choose from: one that maximizes data storage and minimizes processing speed, one of that maximizes processing speed and minimizes data storage, and one option that provides moderate levels of both processing speed and data storage (Briley, Morris & Simonson, 2000). When these three options were presented together, both Americans and Chinese preferred the moderate, compromising option; thus, demonstrating the compromise effect. However, when told before making a decision that they would have to justify their decision, cultural differences emerge: Chinese participants were much more likely to choose the compromise option, whereas American participants were more likely to choose an extreme option. This finding extends to language environments; bilingual Hong Kong Chinese participants were more likely to choose the compromise option when tested in a Chinese language environment compared to an English language environment (Briley, Morrison & Simonson, 2005). However, when the participants were placed in a cognitive load condition by attempting to remember an 8-digit number during the study, this language effect disappeared, suggesting that this difference in choosing the compromise option could be attributed to motivation to behave in a culturally sanctioned manner.

5 Business and Economic Judgments and Decisions

Cultural variations in judgement and decision-making can have important consequences for business and economic behaviour. For example, an early study outlined differences in marketing decision making between executives from China, Hong Kong, and Canada (Tse, Lee, Vertinsky, & Wehrung, 1988). Compared to executives from Hong Kong and Canada, Chinese executives were more concerned with maintaining long-term exchange relationships, preferred authoritarian decision-making, displayed
more moral concerns for customers, were more
decisive, were less likely to adjust to their
environment, and were less likely to adopt
risk-adjustment strategies.

Cultural differences can also be seen in
stock market decisions. While Canadians are
more likely to believe that a stock market trend
will continue, buy a rising stock, sell a falling
stock, and take only recent stock trend
information into account while making decisions,
Chinese are more likely to predict a stock trend
reversal, sell a rising stock, buy a falling stock,
and consider the long-term picture of a stock
while making decisions (Ji, Zhang, & Guo, 2008).
Interestingly, this cultural effect has been
replicated among both professional investors and
lay people.

Substantial cultural differences in economic
decision making have also been demonstrated
between various large- and small-scale societies.
Researchers have found that these economic
decisions are heavily influenced by a society’s
economic structure. A paradigm known as the
“ultimatum game” was used to measure economic
judgements in societies of different sizes. This
paradigm gives the “proposer” a sum of money
and lets them choose how much to give to a
“responder”. If the responder accepts the offer,
they both receive the agreed amount of money
but if the responder declines (likely because an
offer is too low), neither participant gets any
money. Classic game theory posits that a
proposer should offer the smallest amount of
money possible while the responder should
accept any offer because any money is better than
none.

Research results were not always consistent
with classic game theory. In developed, populous
societies that are heavily involved in market
interactions, proposers tend to offer between
forty and fifty percent of the original sum of
money, and responders choose to reject offers
that are lower than twenty percent of the original
sum. However, this finding is not universal;
Henrich (2000) recruited Machiguenga
participants who reside in the Amazon in very
small, rural villages, and produce most of their
goods independently (low market involvement).
When playing the ultimatum game with this
population, he found that the Machiguenga
demonstrated decision-making that closely
mirrored behaviour predicted by classic game
theory, as proposers offered an average of
twenty-six percent of the original sum, and the
responders rarely rejected offers.

After testing differences in economic
judgments with an additional fourteen small-scale
societies, researchers conclude that the
differences in economic decision-making can be
attributed to how much a society depends on
market interactions and the importance and size
of a group’s payoff from cooperation in economic
production (Henrich et al., 2001; Henrich et al.,
2005). To illustrate this point, the Machiguenga
do not rely on market exchange nor cooperation
with outsiders in production, whereas the
Lamelara are a whale-hunting society that rely
greatly on trade, and would thus be motivated to
act in a way that promotes sharing. Indeed, the
researchers were able to prove that cooperation in
economic production and reliance on market
trade accounted for 68% of the variance of the
results. Thus, it seems that the social interactions
that individuals are exposed to greatly influence
economic decision-making.

6 Conclusion and Future Directions

While both cultural psychology and
decision science research have made significant
progress in the past 30 years or so, research
examining judgment and decision making from a
cross-cultural perspective is still sparse. This is
surprising, especially given that the increase
globalization has resulted in cross-cultural
interactions ranging from every day exchanges
with one’s diverse community all the way to
important international business and political
negotiations. On the other hand, this presents a
rare opportunity for researchers to explore all kinds of underdeveloped questions and theories pertaining to culture and judgment and decision making.

6.1 Cognitive heuristics across cultures

One important area to study is the prevalence of cognitive heuristics across cultures. Cognitive heuristics refer to mental shortcuts people use in judgment and decision making. Research has shown that people are more likely to engage in automatic and heuristic processing when they are cognitively busy (Gilbert, et al., 1988), when they are depleted by a difficult task (Govorun & Payne, 2006), or when they are happy (Park & Banaji, 2000). It is reasonable to expect people from all cultures to use cognitive heuristics in order to absorb and comprehend the vast amount of information encountered in life. However, the degree of reliance on these heuristics may differ across cultures. For example, Spina, Ji, and colleagues (2010) have found that Euro-Canadians are more likely than Chinese to rely on the representative heuristics in causal reasoning – expecting correspondence in magnitude between the cause and the effect (e.g., a big cause leading to a big effect). It will be important to examine how culture may affect the degree of reliance on other kinds of cognitive heuristics, and how heuristic thinking may be moderated by different factors in different cultures.

6.2 Differences in judgment and decision making within similar cultures

It is important to conduct cross-cultural research in order to determine how behaviour, attitudes, and beliefs differ across the world, and perhaps, to also provide evidence for the universality of some phenomena. As research in this area progresses, it is vital not to make sweeping generalizations about culture’s role in judgement and decision-making. As reviewed earlier, there can be great variability within similar cultures. For example, although it was previously believed that Asians were more susceptible to overconfidence, researchers showed that Japanese individuals did not display this behavioural pattern. Japanese and Chinese also differ in decisiveness (Yates, Ji, et al., 2011), and in their understanding and interpretation of actions (Miyamoto et al, in press). Different explanations have been proposed to account for differences between Japanese and Chinese (such as need to be thorough, or uncertainty avoidance), but we are far from having a clear picture of the underlying mechanisms responsible for these differences. Examining and understanding these differences are as important as understanding differences between North Americans and Asians. In addition, judgment and decision making may also differ between different social economic classes within the same country or culture (Bruine de Brain, Fischhoff, & Parker, 2007; Miyamoto & Ji, 2011; Na et al, 2010). Better understanding of these differences (and similarities) among similar cultures will safeguard against sweeping generalizations and will help us to appreciate the processes and mechanisms of judgment and decision making in general.

6.3 Everyday behaviour decision making across cultures

Much research on decision making has relied on economic games, which is a good starting point. It will be equally or even more important to study how people make everyday decisions in realistic settings, and how such everyday decisions may vary from one culture to another. For example, when making everyday purchase decisions, people may consider the opportunity cost, defined as “alternative uses for one’s resources when deciding whether to spend resources on a focal option” (Spiller, 2011, p595). For example, if a person decides to buy computer A, then she will be giving up computer B, which may have many desirable features. Research with North American participants shows that they do not consider opportunity cost information very much unless the information is made salient (Frederick, Novemsky, Wang, Ravi, & Nowlis,
An analogy may be used to compare opportunity cost to previous research on cultural differences in scene perception; opportunity cost of potential alternatives could be considered analogous to a scene background whereas the chosen alternative may be considered analogous to a focal object. Given past research showing cultural differences in attention to the background, one may expect cultural differences in consideration of opportunity costs when making everyday decisions. Our team is currently investigating the issue.

6.4 Theory driven research

As we gather more information about cross-cultural judgment and decision making, it will become crucial to develop theories to guide further research in this area. As a starting point, referring to overarching theories in cultural psychology (such as individualism-collectivism, independence-interdependence, analytic-holistic reasoning) will be necessary. However, these major theories may not be able to explain some of the complex findings in the literature. For example, both Japanese and Chinese are considered collectivistic, interdependent, and holistic, but they differ in their judgment and decision making styles. Researchers have to keep an open mind while expanding their theoretical endeavours.

As the world becomes more accessible through globalization, the importance of understanding cultural differences in cognitive processes will increase rapidly with time. The cultural differences in probabilistic judgement, risk perception and preference as well as consumer and economic decision-making are important factors to consider, both in the business world and in interactions with people in everyday life. Gaining a greater understanding of similarities and differences in these areas across and within populations may be the key to success in a globalized world.

References


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