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Title	The "Ripple Effect" : Cultural Differences in Perceptions of the Consequences of Events
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Citation	Personality and Social Psychology Bulletin, 32(5), 669-683 https://doi.org/10.1177/0146167205283840
Issue Date	2006-05
Doc URL	https://hdl.handle.net/2115/33952
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Type	journal article
File Information	yuki.pdf

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RUNNING HEAD: The Ripple Effect

Word Count: 10,483

The "Ripple Effect":

Cultural Differences in Perceptions of the Consequences of Events

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(Published in *Personality and Social Psychology Bulletin*, *32*(5), 2006, p.669-683.)

ABSTRACT

Previous research has demonstrated that people from East Asian cultural backgrounds make broader, more complex causal attributions than people from Western cultural backgrounds. In the current research, the authors hypothesized that East Asians would also be aware of a broader, more complex distribution of *consequences* of events. Four studies assessed cultural differences in perceptions of the consequences of 1) a shot in a game of pool, 2) an area being converted into a national park, 3) a CEO firing employees, and 4) a car accident. Across all four studies, compared to participants from Western cultural backgrounds, participants from East Asian cultural backgrounds were more aware of the indirect, distal consequences of events. This pattern occurred on a variety of measures, including spontaneously generated consequences, estimations of an event's impact on subsequent events, perceived responsibility, and predicted affective reactions. Implications for our understanding of cross-cultural psychology and social perception are discussed.

In April of 2004, three Japanese citizens – two freelance journalists and an aid worker – were taken hostage in Iraq. Their captors threatened to execute them if the Japanese government did not withdraw its troops from Iraq. Although the Japanese government refused to bow to the captors' demands, a week later the hostages were released unharmed and returned safely to Japan. Surprisingly, however, the hostages were met with severe criticism from the Japanese public upon their return home. The hostages were vilified as being "selfish" and "reckless." A Japanese official in the foreign ministry indicated that, "when it comes to a matter of safety and life, I would like them to be aware of the basic idea of personal responsibility." The Japanese government indicated they would bill the hostages for the financial costs incurred in releasing them. Ultimately, the hostages had to seek psychiatric help for dealing with the stress of the public's negative reaction toward them, a level of stress that they said was more intense than it had been when their lives were being threatened in Iraq. They eventually issued a public apology for having "caused trouble" (Onishi, 2004).

In an effort to understand the underlying reasons for this situation, some pundits and reporters in Western nations speculated that the hostages were criticized because they ignored explicit warnings from the Japanese government that civilians should not enter Iraq. However, others noted that the Japanese spoke about the idea of personal responsibility (*jiko sekinin*) in a way that seemed to be qualitatively and quantitatively different from how it is typically thought of in the West. Personal responsibility in Japan seemed to refer not only to taking into account the consequences of actions on oneself, but also taking into account the consequences for any number of people who could be either directly or indirectly

affected by one's actions; in this case, the families and friends of the hostages, the Japanese government, even Japanese society as a whole. For example, the Japanese prime minister highlighted the inconvenience experienced by members of the Japanese government: "Many government officials made efforts to rescue them, without even eating and sleeping." Another Japanese government spokesperson noted that the hostages "must consider how many people they caused trouble to because of their actions," the trouble ostensibly referring to the amount of worry Japanese citizens experienced over the hostage crisis (Onishi, 2004).

The above example highlights the vastly different psychological responses individuals from different cultural backgrounds may have to the same type of situation. In a country like the United States, for example, hostages returning from the conflict in Iraq are typically given a hero's welcome; in Japan, the public's reaction toward the released hostages could not have been more different. Although these different responses are likely due, at some level at least, to the different political situations of the two countries at the time (the Japanese government actively discouraged its citizens from going to Iraq, the U.S. government did not), this example may also be a manifestation of a deeper cultural difference in how Japanese and Americans view the world psychologically. In particular, the above example suggests that Japanese and Americans may think about the consequences of events in fundamentally different ways. The goal of the present research was to empirically explore this possibility.

Culture and Social Perception

Culture has a significant impact on the way individuals think about and perceive the world. Over the past decade and a half, research has documented a host of psychological

differences between people from East Asian cultures (e.g. Japan, China, Taiwan, Korea) and people from Western cultures (the United States, Canada, Australia) (for reviews, see Markus & Kitayama, 1991; Fiske, Kitayama, Markus, & Nisbett, 1998; Nisbett, Peng, Choi, & Norenzayan, 2001). The consistent emergence of cross-cultural differences in perception, cognition, motivation, and emotion has led researchers to the conclusion that many psychological processes, previously thought to be universal, are actually quite culturally specific (e.g. Nisbett, 2003).

Existing cross-cultural theories suggest that cultural differences originate because fundamental psychological differences tend predominate across cultures. Prior research indicates that, compared to Westerners, East Asians tend to be more collectivistic, and tend to have more of an interdependent sense of self; however, people from Western cultures have been found to be more individualistic, and have more of an independent sense of self (e.g. Hofstede, 1980; Triandis, 1995; Markus & Kitayama, 1991; Fiske, Kitayama, Markus, & Nisbett, 1998). East Asians' interdependence with others leads them to stress the importance of interpersonal and intragroup relationships, fulfilling obligations to others, and maintaining intragroup harmony, whereas Westerners tend to emphasize the importance of the individual relatively independent of others' influence (e.g. Cousins, 1989; Markus & Kitayama, 1991; Fiske et al., 1998; Endo, Heine, & Lehman, 2000; Yuki, 2003). Thus, Westerners tend to think of themselves as separate, autonomous entities that exist independently of the norms and expectations of other people. By contrast, personal identities for East Asians tend to be created and defined by webs of social relationships, and thus a sense of having strong sense of interconnectedness with others is paramount for people living in East Asian societies (e.g., Markus & Kitayama, 1991; Heine, Lehman,

Markus, & Kitayama, 1999; Yuki, 2003; Yuki, Maddux, Brewer, & Takemura, 2005).

In addition, cultural differences in cognition and perception may also extend to include the physical and abstract as well as the social world. A variety of evidence indicates that East Asians maintain a holistic perception of the world, which involves focusing on how objects are interrelated with one another (Masuda & Nisbett, 2001), being accepting of contradiction (Peng & Nisbett, 1999), and showing a heightened awareness of how the surrounding context can influence focal events (Choi & Nisbett, 1998). On the other hand, Westerners have a more analytical view of the world, focusing on the use of formal logic, and perceiving focal objects as relatively detached and independent from the surrounding context (for a review, see Nisbett, Peng, Choi, & Norenzayan, 2001). Thus, existing cross-cultural theories suggest that in a variety of domains, East Asians are more aware of, and place a stronger emphasis on, the interrelationships that exist in the social and physical world. On the other hand, Westerners are more focused on individuals and individual objects and events as relatively detached from and independent of outside influences.

Culture and Causal Attribution

One domain of particular relevance for the current research involves cultural differences in causal attribution, and evidence from this area of research also supports the idea that compared to Westerners, East Asians tend to be more aware of how individuals and events are interrelated (see Choi, Nisbett, & Norenzayan, 1998, for a review). A variety of evidence suggests that East Asians tend to make relatively broad, complex causal attributions, whereas Westerners make narrower attributions. For instance, many studies have demonstrated that whereas Westerners have a strong tendency to explain behaviors in terms of an actor's personal characteristics – the so-called "fundamental attribution error"

(e.g. Ross, 1977) – East Asians are more inclined to explain behaviors in terms of situational factors influencing the actor (Morris & Peng, 1994; Lee, Hallahan, & Herzog, 1996). In one study demonstrating this difference, Morris and Peng (1994) examined newspaper articles about similar types of mass murders in the United States and China, and showed that American journalists tended to focus on the negative personal characteristics of the murderers, whereas Chinese journalists focused much more on the situational and contextual influences that might have influenced the murderers.

A second cultural difference in attribution involves the type of causal agent typically deemed responsible for events. Previous findings have demonstrated that although Americans tend to indicate that single individuals cause events, East Asians are more likely to hold many people, particularly groups, accountable for a given action (Menon, Morris, Chiu, & Hong, 1999; Chiu, Morris, Hong, & Menon, 2000). For example, Chiu et al. (2000) had participants read a vignette in which a pharmacist filled prescriptions with the incorrect medicine, causing several patients to become sick. Chiu and colleagues found that Americans were more likely to indicate that the pharmacist who filled the prescription caused this event, while Chinese participants were more likely to say the pharmacy as a whole was responsible for causing the event. Finally, a third cross-cultural difference in attribution involves the amount of information that East Asians and Westerners take into account when explaining an event (Choi, Dalal, Kim-Prieto, & Park, 2003). Choi and colleagues (2003) demonstrated that when presented with a list of one hundred possible contributing factors for an event, Korean participants indicated a larger number of potential causes could have plausibly contributed to the event than Americans did.

Thus, cultural differences in attribution support the idea that compared to Westerners,

East Asians tend more aware of the interrelationships between various types of events. East Asians are more likely to ascribe causality to situational factors and to multiple actors, whereas Westerners tend to hold individual actors responsible. In addition, East Asians take into account a larger amount of information when making an attribution. Overall, then, East Asians seem to make broader, more complex attributions for behaviors than Westerners, focusing less on the proximate causes of an action (personal factors, single person causally responsible, few possible causes), and more on how the distal, indirect causes (situational factors, groups causally responsible, many possible causes) influence an event.

The Present Research

Although there are clear cultural differences in causal attribution, there is little research focusing on the opposite side of the coin. That is, assuming an event has already occurred and causal responsibility is not in question, to what extent are people from different cultures aware of the potential *consequences* of events? If East Asians see events and individuals as relatively interrelated, and if Westerners see events and individuals as more independent, these differences should impact both the perceived causes as well as the perceived consequences of events. This hypothesis is highly consistent with the one of the defining features of collectivist, interdependent societies, and in particular those East Asian societies with a strong Confucian heritage – namely, a marked concern with how one's actions affect others (e.g., Markus & Kitayama, 1991; Triandis, 1995). If individuals in collectivist, interdependent societies are socialized and educated to be constantly aware of other people, and to be chronically aware of how their actions affect others, this should lead such individuals to have a heightened awareness of the consequences of events compared to individuals from more individualistic, independent cultures (as was the case in the Iraq

hostage example).

Thus, in the current paper we propose that compared to Westerners, East Asians may be more aware of the "ripple effects" of events. In other words, East Asians may be more cognizant of the downstream effects of actions and events, particularly those effects that are relatively indirect and distally related to the focal event. Because their attention is directed toward the broader context and toward the interrelationships among individuals and events, East Asians may also perceive a given action as directly or indirectly affecting a larger number of people (see Figure 1). This hypothesis was tested for the first time in a series of four studies.

Study 1

The first attempt to test our hypothesis involved perceptions of the consequences of a shot in a game of pool. This event was chosen because it is a relatively simple and straightforward event. In addition, the perceived impact one pool shot has on subsequent shots is subjective and can vary from person to person: Some individuals may perceive a shot as impacting only the shots that immediately follow; others may see the shot as having a significant impact on every other shot that follows. Based on our theoretical framework, we predicted that compared to participants from Western cultural backgrounds, participants from Asian cultural backgrounds would indicate that a single pool shot would have a broader impact on subsequent shots, particularly those that were farther downstream from the focal shot.

Method

Participants. Twenty-two Asian American (12 female, 11 male) and 18 European American (11 female, 7 male) undergraduates at Northwestern University participated in

exchange for a monetary payment of $10. Participants voluntarily signed up for the experiment on a university research website. Prior to the experiment, participants were asked to indicate their gender, ethnic background, and country of citizenship. All participants were citizens of the United States. Asian American participants listed their ethnic background as either 'East Asian' (50%), 'Asian' (32%), or 'South Asian' (18%). European American participants listed their ethnic background as 'White' (72%) or 'Caucasian' (28%).

Procedure. Participants were asked to observe a picture of a person making a shot in a game of pool (see Figure 2). Participants were asked four questions about the scene: 1) how much the shot would affect the person who took the *next shot*; 2) how much the shot would affect the person who took the *third shot* after the focal shot; 3) how much the shot would affect the person who took the *sixth shot* after the focal shot; and, 4) how much the shot would affect the *overall outcome of the game*. For each consequence, participants were given 11 response options from which to choose. The lowest option was 0%, meaning the critical shot would have no subsequent impact; other options were presented in intervals of 10%, the highest option being 100%, meaning the shot would completely affect the subsequent event.

Results and Discussion

Consequences of the critical shot. A 2 (cultural background) x 4 (shot consequence) mixed-factorial ANOVA was run as an initial analysis, with cultural background as a between-subjects measure, and shot consequence as a within-subjects measure. A main effect emerged for shot consequence, $F(3,114) = 25.58$, $p < .001$, $\eta^2 = .429$, such that overall, participants thought the critical shot would affect the next person's shot the most, and the

overall outcome of the game least. A marginal main effect was also obtained for participants' cultural background, $F(1,38) = 3.65$, $p = .064$, $\eta^2 = .088$, such that Asian Americans perceived the shot as having marginally more overall impact on successive events. However, these main effects were qualified by a significant culture x shot-consequence interaction, $F(3,114) = 10.45$, $p < .001$, $\eta^2 = .216$, indicating that perceptions of the consequences of the shot depended on participants' cultural background.

Pair-wise mean comparisons indicated that compared to Asian Americans, European Americans thought the critical shot would have a greater impact on the next shot, $F(1,38) = 4.14$, $p = .049$, $\eta^2 = .098$. However, compared to European Americans, Asian Americans perceived the sixth shot as being more affected by the critical shot, $F(1,38) = 7.95$, $p = .008$, $\eta^2 = .173$. Compared to European Americans, Asian Americans also indicated that the critical shot would have a greater impact on the overall outcome of the game, $F(1,38) = 13.85$, $p = .001$, $\eta^2 = .267$. No cultural difference emerged involving the impact on the third shot, $p > .36$ (see Figure 2).

Thus, results from Study 1 offered initial support for our predictions. Compared to European Americans, Asian Americans saw an event (a single pool shot) as having a greater impact on the downstream, distal consequences of the event: Asian Americans indicated that a shot distally related to the focal shot (i.e. the sixth shot taken) was impacted more by a focal shot, as was the overall outcome of the game. Thus, results from Study 1 provide initial evidence for the hypothesized cultural differences in perceptions of consequences, with Asian Americans showing a heightened awareness of the indirect, distal consequences of an event.

However, one potential problem with the design in Study 1 is that we neglected to

control for participant familiarity with the game of pool. Although all participants were U.S. citizens, it is possible that Asian Americans and European Americans have different knowledge about the rules of pool or how the game is played. In addition, our sample of Asian Americans was not specific in terms of the country participants' families originated from, making in difficult to generalize our results to a specific type of Asian culture. Thus, it was important to conceptually replicate these results with different scenarios and with more specifically defined samples.

Study 2

In Study 2, Japanese and American participants spontaneously listed the perceived consequences of an area being turned into a national park and wildlife refuge (see Figure 3). This particular scene was selected for two reasons. First, the specific picture could be perceived as a naturally occurring area in both Japan and America. Second, national parks exist in both Japan and America, and thus the event was seen as something that could be seen as a common, everyday event in both cultures. Finally, the open-ended format of this study allowed us to assess the extent to which participants in both cultures spontaneously thought about the direct and indirect consequences of an event.

Method

Participants. Forty-three Japanese undergraduates at Hokkaido University (33 males, 10 females) and 35 American undergraduates at Ohio State University (16 males, 19 females) participated as part of a class exercise in either an introductory psychology class (Japan) or an introductory class in organizational behavior (United States.)

Procedure. Participants were presented with a picture of a scene containing an array of mountains and trees in front of a lake (see Figure 3). Participants were told that the area

had just been turned into a national park and wildlife reserve, and that we were interested in people's perceptions of the consequences that such an event would have. Participants were instructed to list as many consequences as they could think of that would result following the area becoming a national park and wildlife preserve. No time limit was given to participants in either sample.

Coding of responses. In order to determine the directness of responses listed, responses were subsequently coded as to their directness/indirectness. However, rather than coding each response individually, we decided to create a category schema of responses for subsequent rating. This was done for two reasons. First, we were unable to obtain bilingual coders, and therefore none of our coders were proficient in both Japanese and English. Second, these coders had to work separately in Japan and America and were coding different sets of responses. Thus, we were concerned that Japanese and American coders might interpret and rate the same types of consequences differently, and that this 'coder bias' had the potential to introduce a major confound into our results.

In order to minimize coder bias as much as possible, we wanted coders in each culture to work together and come to mutual agreement on the ratings of consequences. However, because coders could not work together face-to-face and could not directly communicate with each other (correspondence had to take place via email with a bilingual intermediary), creating a more manageable number of categories of responses for subsequent rating greatly minimized both the work that needed to be done. It also reduced potential miscommunications that could have arisen, but still allowed us the benefit of having coders in each culture use the same ratings for the same consequences, greatly minimizing any potential coder bias (see category schema, Table 1).[1] This method also

allowed us to bypass interpretation problems over which consequences were the same and which were different.

The first step in this process was to have coders go through several iterations about which consequences belonged in which of several categories. 2 coders blind to the hypothesis (1 in each culture) performed this task sequentially, going through several iterations before ultimately agreeing on the categories and the responses appropriate to each category. The number of responses listed for each category was then summed up, giving us a total number of consequences listed for each category by both Japanese and Americans (see Table 1).

Once the 2 coders reached agreement on the category schema and the consequences that belonged to each, these categories were subsequently rated on the dimension of directness/indirectness. The 2 original coders, plus 4 additional coders (2 in each culture, all of whom were blind to our hypothesis), were shown the target photograph, given the specific categories, and instructed that participants in our study had listed potential consequences of the area becoming a natural park. Coders were then asked to rate each category on a continuous scale of 1 – 9, with 1 being 'extremely indirect', 5 being 'neither direct nor indirect', and 9 being 'extremely direct.' We told coders that by direct consequences we meant those events that immediately followed the critical event in time and/or location, and that direct consequences had few if any intervening events between them and the critical event. By indirect consequences, we meant events that were relatively far away from the critical event in time and/or location, and that these consequences would have many intervening events that could occur between the consequence and the critical event. The 6 coders then proceeded to independently rate all 10 categories of consequences.

These 6 ratings were then averaged together to get the mean directness ratings for each of the 10 categories.

Once the categories were rated, we proceeded to examine cultural differences in the number of consequences placed into the categories rated as indirect compared to the number of consequences placed in categories rated as direct. This constituted our main dependent measure.

Results and Discussion

Inter-rater reliability. In order to determine inter-rater reliability, we calculated an interclass correlation coefficient to measure the degree to which coders' ratings of categories were in agreement. Across the 6 coders and 10 categories, reliability was acceptable, $r(6) = .717$, $p = .002$. Reliability for coders within each culture were also acceptable (Japanese coders: $r(3) = .671$, $p = .021$; American coders: $r(3) = .768$, $p = .004$.)

Indirectness/directness of spontaneously listed consequences. In order to examine cultural differences in the proportion of direct and indirect consequences listed, we summed the total number of consequences in categories with an average rating of greater than 5, and the total number of responses in categories rated as less than 5 (no categories received a rating of exactly 5). These cut-off points corresponded to scale labels used by coders: points less than five were labeled as "indirect", points greater than 5 were labeled as "direct". The former was considered the number of indirect responses listed, the latter the number of direct responses listed. Results indicated that Japanese listed a greater proportion of indirect consequences than did Americans. Overall, 62% of consequences listed by Americans were rated as direct, whereas 38% were rated as indirect. By contrast, 46% of consequences listed by Japanese were rated as direct, whereas 54% were listed as indirect. A chi-square

analysis indicated that these proportions were significantly different, $\chi^2(1, N = 343) = 8.18$, $p < .01$ (see Figure 3).[2]

Thus, overall results from Study 2 provided additional support for the present hypothesis. When Japanese and American participants were asked to spontaneously generate the potential consequences for an area becoming a national park and wildlife reserve, Japanese listed a larger proportion of indirect consequences than Americans did. Thus, results from Study 2 conceptually replicate those in Study 1, and extend those findings in a completely different context. In addition, the fact that these results were obtained when participants were simply asked to spontaneously generate the consequences of an event is compelling evidence that individuals from different cultures perceive the consequences of events in different ways.

Study 3

Study 3 involved a hypothetical scenario set in a social situation. Whereas Studies 1 and 2 involved situations that were only tangentially social, it was important to generalize our effects into situations where the consequences of an event had specific effects on people. The primary assumption in the current research is that East Asians and Westerners have a general cognitive tendency to perceive the consequences of events differently, with East Asians having a heightened awareness of the indirect, distal consequences of events. If this assumption is generally true, then the pattern of results obtained in Studies 1 and 2 should be conceptually replicated in scenarios that have explicitly social consequences. Moreover, the collectivist, interdependent nature of East Asians, and the independent, individualistic focus of Westerners (e.g. Triandis, 1995; Markus & Kitayama, 1991) suggests that the same pattern will emerge in social scenarios. If East Asians are highly interdependent with others,

they should have a heightened awareness of how events affect a wide range of people, since their chronic awareness of other individuals is relatively strong. However, individuals from more individualistic, independent Western cultures may be less aware of the range of possible effects that an event may have on other people, since they have a chronic individualistic, self-relevant focus.

Thus, in Study 3 American and Japanese participants were presented with a scenario in which a CEO fires employees and cuts salaries because of economic pressures. Participants were asked to read the scenario, imagine themselves as the protagonist, and then answer questions about how responsible they felt for a variety of consequences of the event. Based on our overall hypothesis, we predicted that compared to Americans, Japanese would take more responsibility for the distal, indirect consequences of this event.

Method

Participants. Ninety American students (31 males and 59 females) in an introductory psychology class at Ohio State University and 72 Japanese students (37 males and 35 females) in an introductory sociology class at Hokkaido University participated in exchange for partial course credit. The data from 3 Americans and 2 Japanese were excluded because of non-differentiation of responses (e.g., Krosnick, 1991). This left the data from 87 Americans and 70 Japanese for formal analysis.

Procedure. Participants were brought into the laboratory in groups of approximately 20-25 people, and were asked to sit at desks where questionnaire packets were presented face down. The experimenter explained that the experiment had to do with responsibility, and that participants would be asked to read a scenario and then answer several questions. The experimenter then told participants to turn over the packets and begin, at which time she

left the room. The scenario read as follows:

> You are the president of a large company. Your company is having major financial difficulties, and you decide you must lay off fifteen percent of your employees in order to try to make the company profitable again. You meet with all the high-level managers to decide which employees are the least essential to the company, and you decide to fire these non-essential employees. In addition, you decide to cut all salaries, including your own, by fifteen percent. You hope that these measures will make the company profitable again.[3]

Following the scenario, questions probed the extent to which participants felt responsible to certain target persons and for certain events. The first question involved an open-ended estimate of the number of people both directly and indirectly affected by the layoffs and pay cuts. Subsequently, a set of close-ended questions probed the extent to which participants felt responsible for, a) cutting their own salary, as well as how responsible they were to b) the employees who received pay cuts, c) the employees they fired, and d) the families of the fired employees. Finally, participants were also asked how responsible they felt if, e) a year later there was in increase in crime in the area. Responses for all dependent measures were provided on 5-point unipolar scales, with responses ranging from 1 (not at all responsible) to 5 (completely responsible).

Results and Discussion

Number of people affected. A one-way between-subjects ANOVA was conducted on the number of people Americans and Japanese thought would be affected by the firings/pay cuts. Based on the distribution of data, responses greater than 25,000 (i.e. more

than 3.5 standard deviations above the overall mean) were considered outliers and were reset to 25,000 so that they would not overly influence the results. These responses occurred for 6 Japanese and 4 American participants. The results indicated that Japanese perceived more people were affected by this situation (M = 4,498, SD = 7,900, Min = 10, Max = 25,000) than Americans (M = 1,437, SD = 3,738, Min = 10, Max = 25,000), $F(1,138) = 8.60$, $p = .004$, $\eta^2 = .058$.[4]

Perceptions of responsibility. Perceptions of responsibility were examined for each of the five target variables. An initial 2 (culture) x 5 (target) mixed-factorial ANOVA was conducted as an initial analysis, with culture as a between-subjects variable, and target-type as the within-subjects variable. The results indicated a main effect for target, $F(4,612) = 116.57$, $p < .001$, $\eta^2 = .432$. However, this was qualified by a significant culture x target interaction, $F(4,612) = 14.75$, $p < .001$, $\eta^2 = .088$, indicating that perceptions of responsibility depended on participants' cultural background (see Figure 4).

Mean comparisons across cultures elucidated the nature of this interaction. Compared to Japanese participants, Americans indicated a higher level of responsibility for cutting their own salary, $F(1,154) = 14.92$, $p < .001$, $\eta^2 = .088$. However, Japanese took more responsibility for the effects on the fired employees, $F(1,155) = 6.74$, $p = .010$, $\eta^2 = .042$, and to the families of the fired employees, $F(1,154) = 9.88$, $p = .002$, $\eta^2 = .060$. Japanese were also significantly more likely to see themselves as responsible for the most distal consequence, an increase in societal crime a year after the layoffs, $F(1,155) = 4.39$, $p = .038$, $\eta^2 = .028$. No cultural differences emerged involving the pay cuts.

Thus, results from Study 3 offer initial experimental support for the current hypothesis within an explicitly social scenario. When participants in the United States and

Japan were asked to imagine themselves as an executive firing employees and giving out pay cuts, Japanese indicated that they felt the greatest responsibility for the effects on other people, especially those indirectly related to the focal event (effects on the families of fired employees, increase in societal crime a year later). Perhaps the most striking result is that compared to Americans, Japanese took more responsibility for an increase in societal crime that occurred a year after the firings, obviously a very indirect and temporally distant consequence, and compelling evidence that Japanese are more aware of indirect consequences of social events than are Americans. Directly related to this broader awareness of the indirect consequences of this event, Japanese also perceived that a larger number of people would be affect by this event than Americans did.

An interesting implication of this study is that the traditional system of lifetime employment in Japan may be at least partly related to an increased awareness of the long-term consequences of layoffs, i.e. how layoffs would adversely impact employees, their families, and as well the long-term effects on society as a whole. In fact, some experts have argued that lifetime employment practices exist because "(the Japanese) have decided that the social costs associated with long-term unemployment would be greater than the costs to keep people at work" (Reid, 1999). This may also be one reason why, during the widespread economic recessions in East Asia and Southeast Asia in the mid and late 1990s, most Asian governments were unwilling to bow to the demands of Western governments and the World Bank to reform their economies to be more consistent with Western economic models, i.e. doing more to increase companies' short-term bottom line, and worrying less about the long-term responsibilities of taking care of employees and society (Reid, 1999). Thus, this is additional evidence that Japanese and other East Asians tend to have a heightened awareness of how their actions have far-reaching, indirect effects on

others.

Study 4

The main goal for Study 4 was to further generalize the current effects into an additional social domain; specifically, with regard to an unintentional action. Because the scenario in Study 3 involved an *intentional* action, it was important to explore the same effects in a situation where a behavior was *unintentional*. It is possible that Japanese may be more sensitive to effects on others when they intend to cause an event, but may be less likely to take responsibility for the consequences on others and the indirect consequences if an action is not purposely designed to have certain consequences. Thus, it was important to replicate the results from Study 3 in a scenario where a behavior was unintentional. To this end, Study 4 involved a scenario where the protagonist unintentionally caused a car accident on a busy street.

An additional goal of Study 4 was to generalize the results from Study 3 beyond dependent measures assessing perceptions of responsibility specifically. If our assumption is correct that the current results reflect a broad, general cultural difference in perceptions of event-consequences, then the pattern of results from Study 3 should not be limited to perceptions of responsibility. Thus, we also presented questions assessing participants' perceived affective responses toward the car accident, and well as asking participants how likely they would be to apologize to various targets as ways of further exploring the present pattern of results.

Method

Participants. One hundred twenty-eight American students (55 male and 73 female) in an introductory psychology class at Ohio State University and 104 Japanese students (45 male, 59 female) in an introductory social psychology class at Meiji Gakuin

University in Tokyo participated in exchange for partial course credit. The data from 6 participants in the American sample and 2 students in the Japanese sample were excluded due to non-differentiation of responses. This left the data from 122 American participants (51 male and 71 female) and 102 Japanese participants (44 male, 58 female) for formal analysis.

Procedure. The procedure was similar to that in Study 3. The new scenario involved a car accident scenario on a busy street, and read as follows:

> It is Monday morning, and you are driving to school on the city's largest and busiest road. You are the president of the student government, and you are in a hurry to make it on time for an important meeting. The student government is meeting to vote on several issues of interest your school, and by the rules of the student government, they cannot vote unless you are present. You glance down to review your notes for the meeting, and as soon as you do the car in front of you brakes to avoid an animal running across the road. You look up again, notice you are about to hit the car, but you can't put on the brakes in time. With a loud crash, your car slams to a stop as you rear-end the car in front of you.

Following the scenario several questions were presented. The first question involved an open-ended estimate of the number of people both directly and indirectly affected by the accident. Next, a set of close-ended questions probed the extent to which participants felt responsible toward a variety of target persons and events. Participants were asked, a) how responsible they felt for damaging their own car, as well as how responsible they were to, b) the driver they hit, c) the student government for missing the meeting, d) the other commuters delayed in traffic. Finally, participants were also asked how responsible they

were for an accident that may have occurred farther back in traffic. Responses to these questions were provided on 5-point unipolar scales, with responses ranging from 1 (not at all responsible) to 5 (completely responsible.)

In addition, participants were asked to estimate their affective reactions (how badly they felt) about each of the above five consequences. Responses were provided on 5-point unipolar scales, from 1 (not bad at all) to 5 (extremely bad.) Participants were also asked to rank order 6 consequences, from 1 (feel worst) to 6 (feel least bad) based on the negative affect they predicted they would experience for each (see Table 2). Finally, participants were also asked how likely they would be to apologize to one directly affected target (the driver they hit) and one indirectly affected target (the commuters delayed in traffic). Responses were provided on 5-point unipolar scales, with options ranging from 1 (not at all likely) to 5 (extremely likely).

Results and Discussion

Number of people affected. An initial one-way between subjects ANOVA was conducted on the number of people Americans and Japanese thought would be affected by the accident. Responses greater than 10,000 (i.e. greater than 3.5 standard deviations above the mean) were considered outliers and were reset to 10,000. These responses occurred for 4 Japanese and 4 American participants. The results indicated that as in Study 3, Japanese perceived significantly more people (M = 1,214, SD = 2,630, Min = 2, Max = 10,000) were affected by the car accident than Americans (M = 671, SD = 2,188, Min = 1, Max = 10,000), $F(1,216) = 5.27$, $p = .023$, $\eta^2 = .024$.

Subjective perceptions of responsibility. Perceptions of responsibility were examined for each of the five target variables. An initial 2 (culture) x 5 (target) mixed-factorial ANOVA was conducted as an initial analysis, with culture as a between-subjects

variable, and target-type as the within-subjects variable. The results indicated a main effect for target type, $F(4,868) = 56.90$, $p < .001$, $\eta^2 = .208$. However, this was qualified by a significant culture x target interaction, $F(4,868) = 60.81$, $p < .001$, $\eta^2 = .208$, indicating that perceptions of responsibility for each consequence depended on participants' cultural background.

Cross-sample mean comparisons indicated that compared to Japanese participants, Americans took significantly more responsibility for the damage to their own car, $F(1,222) = 76.36$, $p < .001$, $\eta^2 = .256$, and significantly more responsibility for the damage to the car of other driver, $F(1,219) = 9.11$, $p = .003$, $\eta^2 = .040$. However, compared to Americans, Japanese held themselves more responsible for delaying the other commuters, $F(1,220) = 4.14$, $p = .043$, $\eta^2 = .019$, and for causing an accident farther back in traffic, $F(1,222) = 71.94$, $p < .001$, $\eta^2 = .245$. No cross-cultural difference in responsibility toward the student government was observed (see Figure 5).

Negative Affect. An initial 2 (culture) x 5 (target) mixed factorial ANOVA was conducted as an initial analysis on perceptions of negative affect experienced, with culture as a between-subjects variable and target-type as the within-subjects variable. A main effect for target type emerged within this overall analysis, $F(4,880) = 46.79$, $p < .001$, $\eta^2 = .175$. In addition, a marginal main effect of culture emerged, with Japanese feeling worse about the consequences overall than Americans, $F(4,880) = 3.78$, $p = .053$, $\eta^2 = .017$. However, this was qualified by a significant culture x target interaction, $F(4,800) = 16.22$, $p < .001$, $\eta^2 = .069$.

Pair-wise mean comparisons mirrored those of the perceptions of responsibility. Compared to Japanese, Americans indicated they felt significantly worse about the damage

to their own car, $F(1,222) = 5.34$, $p = .022$, $\eta^2 = .023$, as well as about the damage to other person's car, $F(1,222) = 6.61$, $p = .011$, $\eta^2 = .029$. However, Japanese indicated they felt worse about delaying the other commuters, $F(1,222) = 7.75$, $p = .006$, $\eta^2 = .034$, as well as for causing the accident back in traffic, $F(1,222) = 26.31$, $p < .001$, $\eta^2 = .106$. No differences were observed in affect toward the student government, $p > .13$, (see Figure 5). These results are identical to those obtained on the responsibility measures, offering additional support for the present hypothesis. In addition, responses on the responsibility and affect measures were highly correlated (see Table 3).

Affect ranking data. Participants were also asked to rank order 6 consequences based on how bad each would make them feel. A nonparametric, Mann-Whitney U analysis was used to explore these ranking data, and results are summarized in Table 2. This forced-choice format is a comparison of the ranking of each consequence on a 1 (feel worst) - 6 (feel least bad) scale by Americans and Japanese, respectively. Thus, based on the scale given to participants, lower numbers and lower ranks equal more negative affect. These results indicated that compared to Japanese, Americans ranked direct, proximal consequences (damaging their own car, jeopardizing their own position in the student government, and damaging the car of the other driver) as significantly more inducing of negative affect, while Japanese indicated the indirect, distal consequences (inconveniencing student government, delaying commuters in traffic) induced more negative affect (see Table 2).

Likelihood of apologies. A 2 (culture) x 2 (target) mixed factorial ANOVA was examined concerning the likelihood that Americans and Japanese would apologize to two targets: the driver they hit, and the delayed commuters. Analyses revealed a main effect for target, $F(2,432) = 341.31$, $p < .001$, $\eta^2 = .612$. However, this main effect was qualified by a

significant interaction, $F(1,216) = 25.81$, $p < .001$, $\eta^2 = .107$. Mean comparisons revealed that Americans ($M = 4.60$) were more likely to apologize to the driver they hit than were Japanese ($M = 3.97$), $F(1,216) = 24.37$, $p < .001$, $\eta^2 = .101$. However, Japanese ($M = 2.65$) were more likely to apologize to the drivers delayed in traffic than Americans ($M = 2.28$), $F(1,216) = 5.10$, $p = .025$, $\eta^2 = .023$.

Thus, results from Study 4 provide additional support for the hypothesized cultural differences in perceptions of consequences of events. Japanese were more likely to feel responsible for consequences that affected others in a relatively indirect manner (e.g. commuters delayed in traffic, an accident that happened back in traffic). By contrast, Americans said they felt more responsible for the most proximal consequences (damage to their own car and the car of the other driver). Thus, the overall patterns of results suggest that Japanese are aware of a broader, more interrelated scope of the consequences of actions compared to Americans, particularly those effects on others that were relatively indirect.[5] These results were bolstered by the fact that as in Study 3, Japanese participants indicated that they thought a larger number of people were affected by the event than Americans did.

In addition to conceptually replicating the pattern of results obtained in the CEO scenario in Study 3, the car-accident scenario in Study 4 demonstrated a similar pattern of results regarding affective reactions toward various consequences, as well as the likelihood of offering apologies. It is noteworthy that the same pattern of results emerged on both rating and ranking data for perceived affective reactions. Although asking participants to make affective forecasts may contain inherent inaccuracies (e.g. Gilbert & Wilson, 2000), the fact that the pattern of data exactly replicated that on the responsibility measure, in addition to the consistent pattern across both rating and ranking data, provides additional support for the present hypothesis.

It is also interesting to note that in a forced choice format, Japanese indicated that the indirect, distal consequences of the car accident were actually more inducing of negative affect than the direct, proximal consequences. Although perhaps somewhat surprising, this result may be due to the fact the delaying commuters and inconveniencing the student government would almost certainly affect a larger number people than any of the proximal consequences. This is additional evidence that Japanese construe themselves as highly interdependent with others, and that the consequences that have the greatest impact on the largest number of others are particularly salient, even if they are indirect and downstream from the focal event.

General Discussion

The major goal of the current research was to demonstrate that there is a general psychological difference in the way East Asians and Westerners perceive the consequences of events. The current set of four studies offered an initial investigation into this hypothesis. Although cultural differences in causal attribution are well documented, as far as the authors are aware, the present research offers the first evidence that similar cultural differences may emerge when examining perceptions of the consequences of events. Specifically, we predicted that compared to people from Western cultural backgrounds, people from East Asian cultural backgrounds would be more aware of the indirect, downstream, distal consequences of events. Across four studies involving a wide variety of situations and dependent measures assessing perceptions of the consequences of events, overall results were consistent with the hypothesis that compared to people from Western cultures, people from East Asian cultures are more aware of the "ripple effects" of events.

Study 1 demonstrated that compared to European Americans, Asian Americans thought a single shot in a game of billiards had a broader impact on subsequent shots. In

Study 2, Japanese and Americans spontaneously generated various consequences of an area being turned into a national park; consistent with predictions, Japanese listed a larger proportion of indirect consequences of the event than Americans did. In Studies 3 and 4, Japanese participants perceived social events as affecting a larger number of people than did Americans; Japanese also perceived themselves as more responsible for the indirect, distal consequences of explicitly social events, felt worse about these indirect consequences, and were more likely to apologize to indirectly affected targets. The current results show for the first time that there are meaningful cultural differences in how individuals from different cultures perceive the consequences of various actions, with people from East Asian cultures being more "farsighted" than people from Western cultures.

Such an interpretation is quite consistent with distinction between the independent, analytical nature of Western cognition and the interdependent, holistic nature of East Asian cognition (Markus & Kitayama, 1991; Nisbett et al., 2001). If individuals from Western cultures view individuals and events as relatively independent, it follows that their attention should be focused primarily on the direct, immediate consequences of events with less thought as to how these direct effects may further cause other, more indirect or distal effects. In addition, Westerners' sense of interdependence with others may be relatively limited, and thus a sense of responsibility and affective reactions may be less focused on those indirectly affected by events. However, if East Asians view individuals and events as more holistic and interrelated, then the interrelationships among the consequences of events should be more salient, and thus they should perceive an event as causing a more complex chain of subsequent events. For East Asians, a sense of interdependence with others may extend farther outward in a temporal and physical manner, leading to a heightened feeling of responsibility and stronger affective reactions toward those more indirectly affected by

events. The indirect consequences of events may be more salient for East Asians at least partly because such consequences likely affect many more people than the proximal consequences. However, Westerners' sense of interdependence with others is much more limited, and therefore such individuals seem less likely to be aware of (or to acknowledge) how actions impact those farther away from a focal event.

Our results demonstrate a distinct similarity to previous research on cultural differences in causal attribution. Much research has shown that East Asians make broader attributions for behaviors than Westerners, placing more emphasis on situational factors (Morris & Peng, 1994; Choi et al., 1998), groups as causal agents (Menon et al., 1999), and taking into considering a larger number of potential causes (Choi et al., 2003). Results from the current research suggest a similar "broadening" phenomenon concerning the consequences of behaviors. Thus, it seems highly likely that these effects may be two sides of the same cognitive process: Those individuals who think about the world as more interrelated make broader causal attributions, and they may also perceive a relatively wide array of consequences; those individuals who think about events as more independent make more narrow causal attributions, and perceive a smaller number of consequences. Thus, an interesting question for future research is to explicitly investigate the interrelatedness of perceptions of cause and consequence to determine the extent to which the two are truly the result of the same process, as well as the extent to which affecting one phenomenon affects the other.

The current results have interesting implications for the way in which people from different cultures deal with certain everyday situations. One implication is that crime may occur much less often in a country like Japan than in a country like the United States at least partly because Japanese see their actions as affecting a wider variety of people. Thus, a

given crime may be seen as not only affecting oneself and the victim, responsibility may extend outward to include friends and relatives and co-workers of the victim. In addition, the temporal nature of the "ripple effect" suggests that criminals (or potential criminals) in Japan or other East Asian countries may be more likely to see themselves as responsible for the degradation of society over time if they commit crimes. Thus, if any given crime leads Japanese to feel responsible to a large number of people, this increased sense of responsibility may give Japanese much more pause about whether or not to commit crimes, not just from a legal standpoint, but a moral one as well.

A second implication has to do with the fact that there is an enormous discrepancy in the amount of lawsuits between Japanese and Americans: Lawsuits are as rare in Japan as they are common in the U.S. If Americans' sense of responsibility is most closely dependent on how actions affect themselves, they may be less likely to take into account how their actions affect others, and thus disputes over who is responsible for the consequences of events may occur much more often in America than in East Asia. Third, cultural differences in awareness of event-consequences may contribute to different types mental disorders as well. It is notable that Japan is the only known country where individuals suffer from a psychological disorder called "*taijin kyofusho*," an extreme form of social anxiety in which individuals are excessively afraid of hurting or offending others, and/or being judged harshly by others. Such individuals may be so incapacitated with the disease that they refuse to go out in public for months or years at a time. This mental disease is similar to other social phobias except that its focus is explicitly on *other people,* rather than involving an anxiety about harm to oneself, as is typically the case with mental illnesses in other countries. Thus, it is possible that a heightened awareness of the consequences of one's actions, when taken to extreme levels, be a contributing factor to

different manifestations of mental illness.

Finally, the present research may offer one explanation for how governments in the East and West respond differently to political and economic crises. As was the case with the hostage situation in Iraq, the Japanese people and their government focused on the far-reaching consequences that the event had on a number of other people indirectly or tangentially involved, much more so than is the norm for individuals and governments in Western societies like the U.S. In addition, the economies of many East Asian and Southeast Asian nations are structured to keep unemployment lower than is typical in many Western economies; even during times of economic recession, business leaders in Asian countries are highly resistant to ways to improve economic viability if it comes at the expense of the greater societal good (Reid, 1999). Thus, it is possible that an understanding of cultural differences how people think about the consequences of events can ultimately help to elucidate different types of decision-making strategies for leaders in the East and West, and why they may respond so differently to the same types of situations.

Limitations and Directions for Future Research

It is important to reiterate that the major goal of the current research was to demonstrate that the "ripple effect" reflects a general cognitive phenomenon in which people from East Asian cultural backgrounds and people from Western cultural backgrounds perceive the consequences of events in fundamentally different ways. Thus, the four studies presented in this paper contained a wide variety of situations in which this difference emerged. Although the present results offer the first evidence for cultural differences in how people perceive different types of consequences, a few caveats are in order.

First, although the wide variety of situations in the present research demonstrated the

general nature of this phenomenon, a drawback of this approach is that the current set of studies was not particularly systematic. At this point moderators, boundary conditions, and mediators of these effects are not yet known. Thus, future research should undertake more systematic explorations to explicitly examine what types of variables attenuate, eliminate, or perhaps even reverse the heightened awareness of East Asians to focus on indirect consequences of events, as well as identifying the causal mechanisms underlying these effects.

Various limitations were present in the social scenarios in Studies 3 and 4. First, all behaviors and consequences were negative. One might argue that the fact that because Japanese tend to be more self-deprecating and Americans tend to be more self-enhancing (e.g. Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Heine et al., 1999), Japanese may be more sensitive to the consequences of actions that negatively affect others, but would not be more sensitive to the consequences of actions that positively affect others. Thus, it remains to be seen whether similar cross-cultural effects would emerge for more pro-social behaviors and consequences, and to what extent valence of the event is a moderator of the current results.

In addition, scenarios in Studies 3-4 involved protagonists in leadership roles, and cultural differences in expectations for leaders may have partially responsible for results in these studies. Although Studies 1 and 2 did not contain protagonists with leadership roles, suggesting that this phenomenon is not necessarily dependant on the protagonist of an event having a leadership role, future research is needed to address the role of leadership as a potential moderator of these effects, especially in explicitly social scenarios. Finally, both social scenarios were hypothetical, and thus only hypothetical behaviors and hypothetical reactions to those behaviors were studied. Future investigations should extend the present

findings by looking at behaviors that have more meaningful consequences for participants and that involve more real-world situations, for example in various types of interpersonal interactions with other individuals.

It is also important to point out that the samples in the present research were somewhat limited. Study 1 involved Asian American and European American undergraduates at a single university in the United States. Studies 2-4 involved U.S. undergraduates at a single university and Japanese undergraduates at two universities. Although much research has demonstrated similar psychological tendencies among individuals in cultures with a strong Confucian heritage on the one hand (i.e. Japan, China, Taiwan, Korea) and among individuals in cultures with a strong Aristotelian/Judeo-Christian heritage on the other hand (i.e. United States, Canada, Australia, Western Europe) the generalizability of the current results is still somewhat in question. A comprehensive investigation into these additional issues would provide compelling evidence that the "ripple effect" is in fact a general and pervasive cultural difference in how people from the East and West think about the social and physical world.

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Authors' Note

This article was based on a dissertation submitted by William W. Maddux to The Ohio State University graduate school in partial fulfillment of the requirement for the doctoral degree. We extend special thanks to Marilynn Brewer, the chair of the committee, for her advice and support with every stage of this project. Thanks also to other dissertation committee members, Richard Petty, Robert Arkin, Hal Arkes, and Douglas Crews for their valuable feedback on this research. Thanks also to Carol Sansone and two anonymous reviewers for their helpful comments on earlier drafts of this article. We also appreciate the help that Megumi Kaneko, Marissa Lin, Ayumi Hara, Takako Maddux, Nobuyuki Takahashi, Kazuki Takashima, Helena Yu, Vanessa Hsieh, and Akshat Ghiya provided with data collection and coding.

This research was supported by two grants to the first author: an Alumni Grant for Graduate Research and Scholarship from The Ohio State University, and a post-doctoral research grant from the Dispute Resolution Research Center, Kellogg School of Management, Northwestern University.

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Table 1: Categories of direct and indirect consequences spontaneously listed, Study 2.

Category Of Responses	**Directness Rating** (1 = extremely indirect 9 = extremely direct)	**Cultural background of participants**	**Number of consequences spontaneously listed**	**Total number of consequences spontaneously listed**
Direct				
Environmental improvement in immediate area	8.5	Americans	86	TOTAL NUMBER OF DIRECT CONSEQUENCES LISTED: AMERICANS, N = 90 JAPANESE, N = 92
		Japanese	79	
Increased environmental awareness	5.3	Americans	2	
		Japanese	8	
Effects on the local society	5.2	Americans	2	
		Japanese	5	
Indirect				
Legal & political consequences	4.5	Americans	5	TOTAL NUMBER OF INDIRECT CONSEQUENCES LISTED: AMERICANS, N = 55 JAPANESE, N = 106
		Japanese	10	
People inconvenienced	4.2	Americans	32	
		Japanese	19	
Media attention	4.2	Americans	0	
		Japanese	3	
Adverse environmental effects	4.2	Americans	0	
		Japanese	10	
Economic effects	3.7	Americans	15	
		Japanese	53	
Global level environmental effects	3.7	Americans	2	
		Japanese	3	
General indirect effects on people	3.7	Americans	0	
		Japanese	8	

Table 2: Rank orderings of affective reactions toward consequences, Study 4. Lower ranks indicate more negative affect.

	Culture	Mean Rank	Z score	P value
Damaged own car	Americans	93.58	-4.05	< .001
	Japanese	127.61		
Jeopardized own position in student government	Americans	97.69	-3.11	.002
	Japanese	122.94		
Damaged car of other driver	Americans	89.51	-5.14	< .001
	Japanese	132.23		
Inconvenienced other driver	Americans	116.09	-1.71	.087
	Japanese	102.01		
Inconvenienced student government	Americans	123.35	-3.52	< .001
	Japanese	93.75		
Delayed commuters in traffic	Americans	129.14	-4.99	< .001
	Japanese	87.17		

Table 3: Correlations between perceived responsibility and negative affect for target consequences, Study 4.

Target Consequence	**Culture of Participants**	**Correlation between responsibility & affect**
Self	Americans	.28
	Japanese	.34
Driver	Americans	.31
	Japanese	.48
Government	Americans	.67
	Japanese	.70
Commuters	Americans	.70
	Japanese	.88
Accident	Americans	.69
	Japanese	.83

Note: all correlations are significant at the $p < .01$ level.

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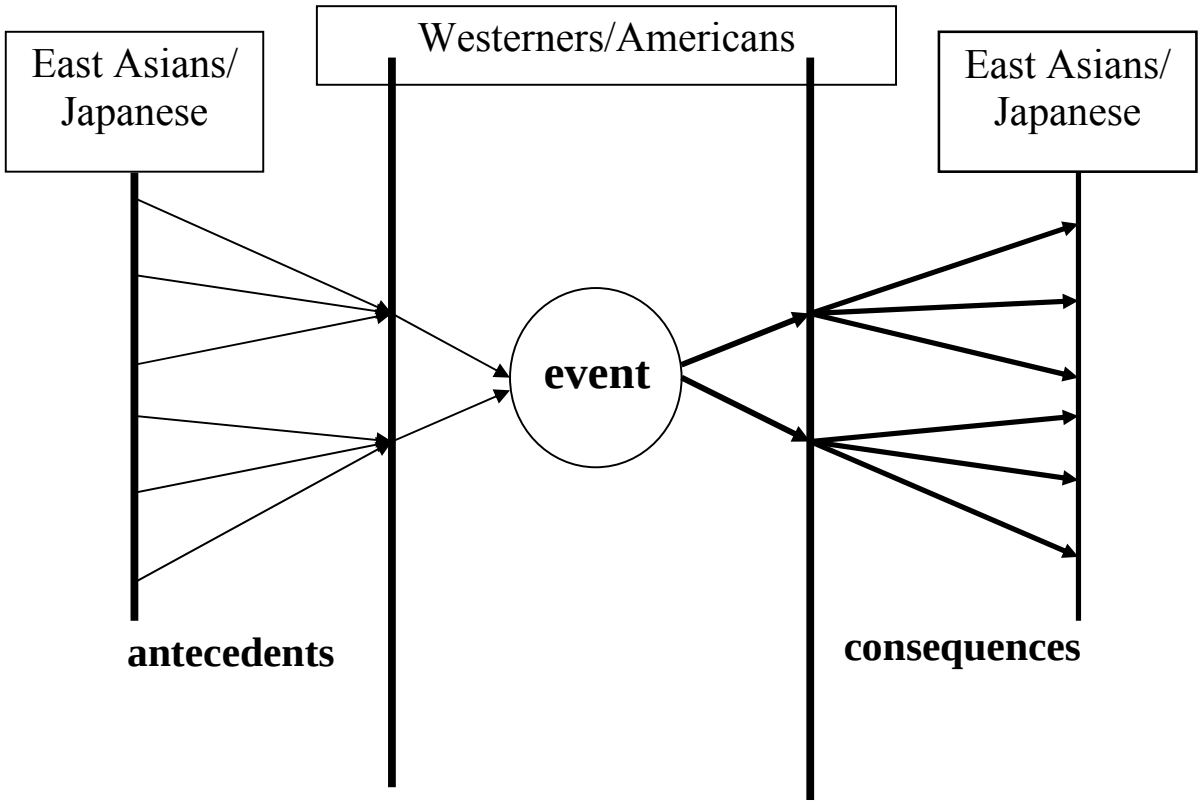
Figure 5: Perceptions of responsibility and predicted negative affect, Study 4.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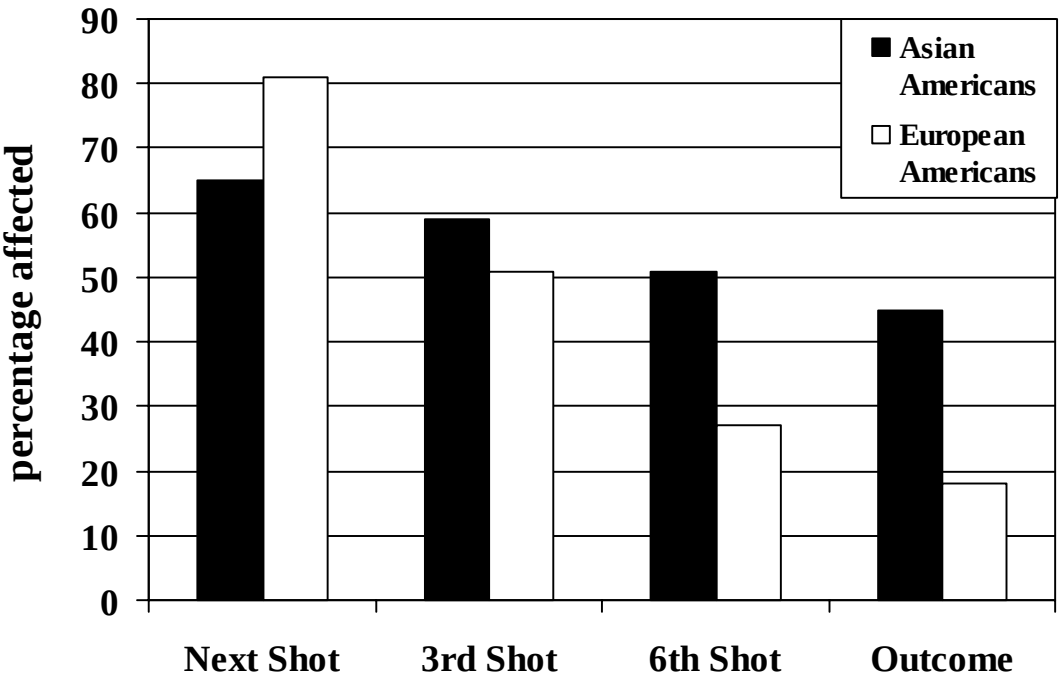
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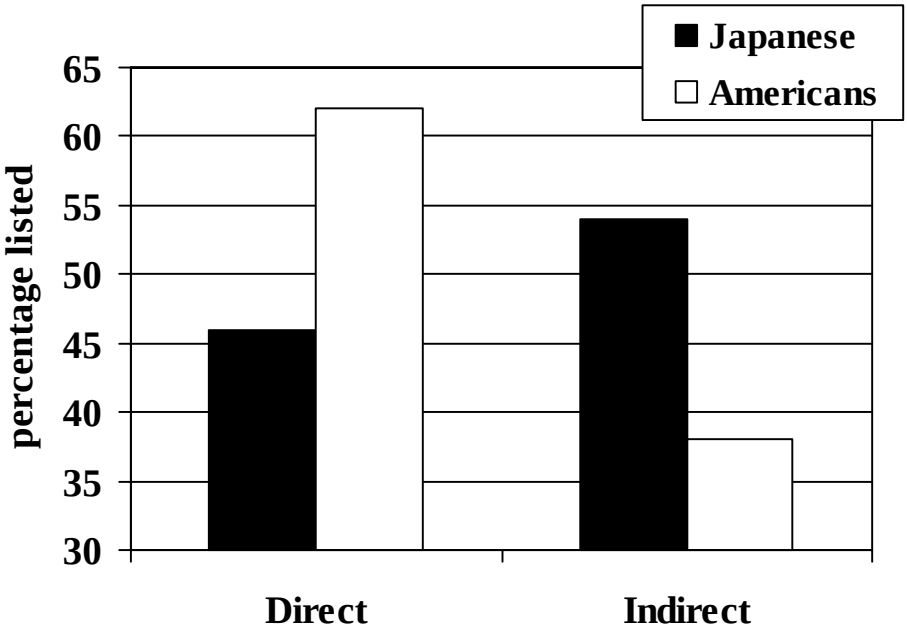
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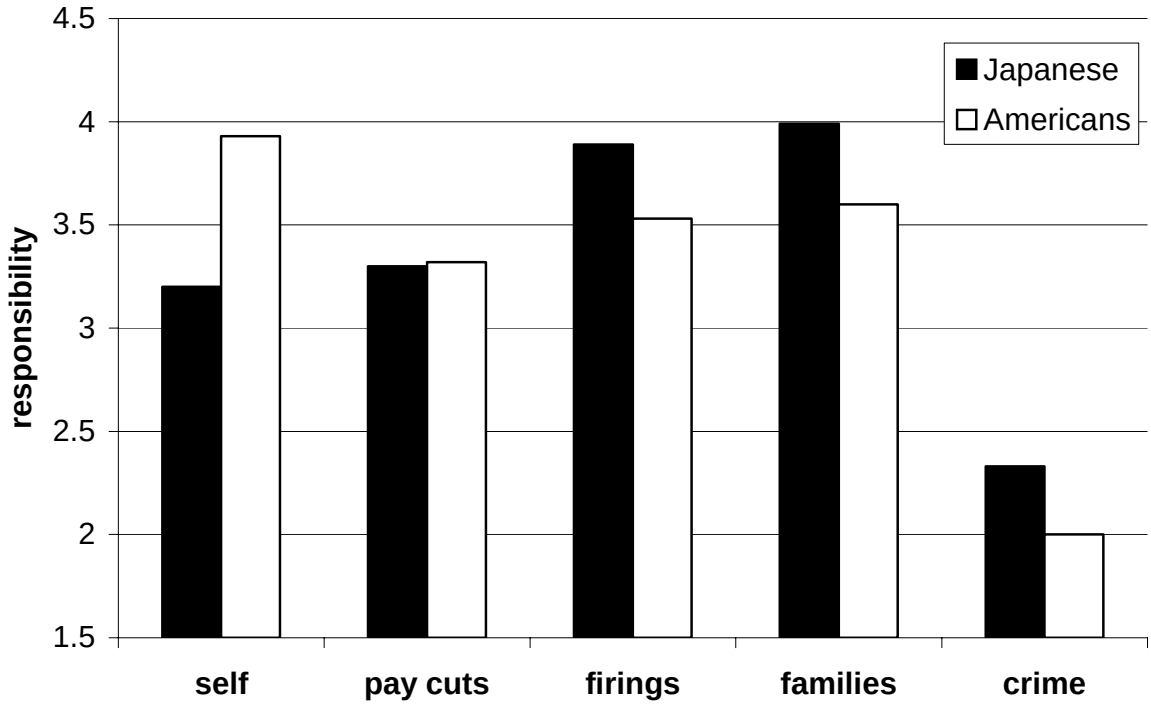
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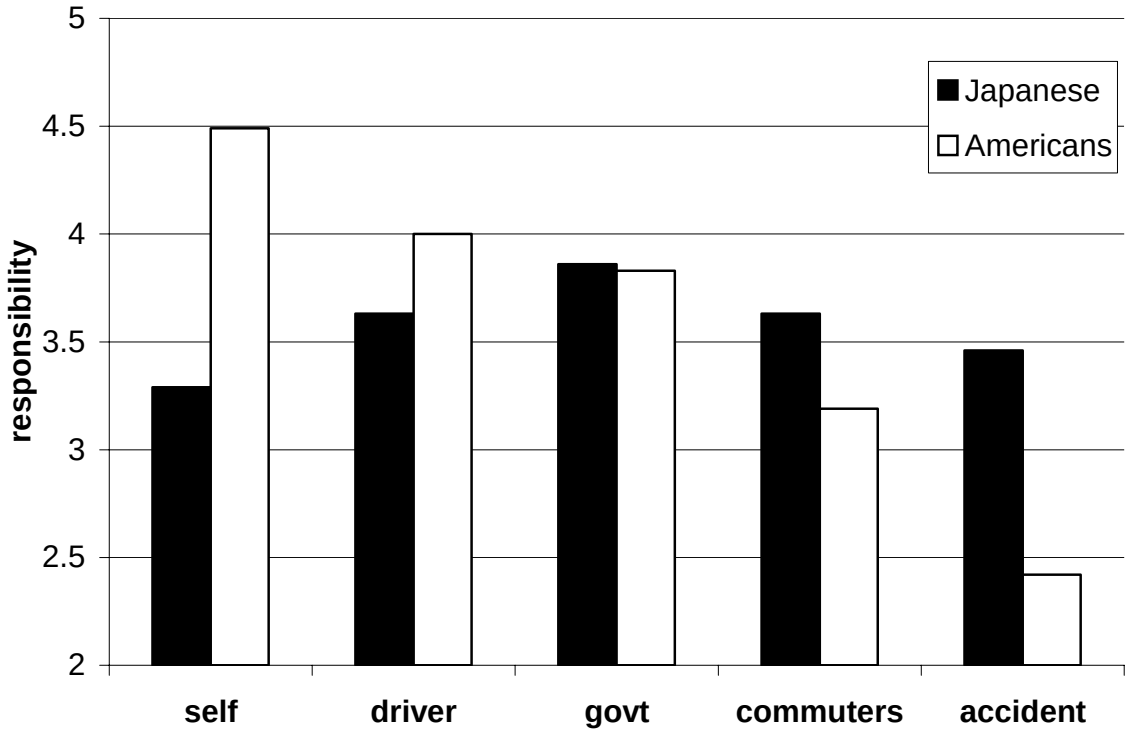
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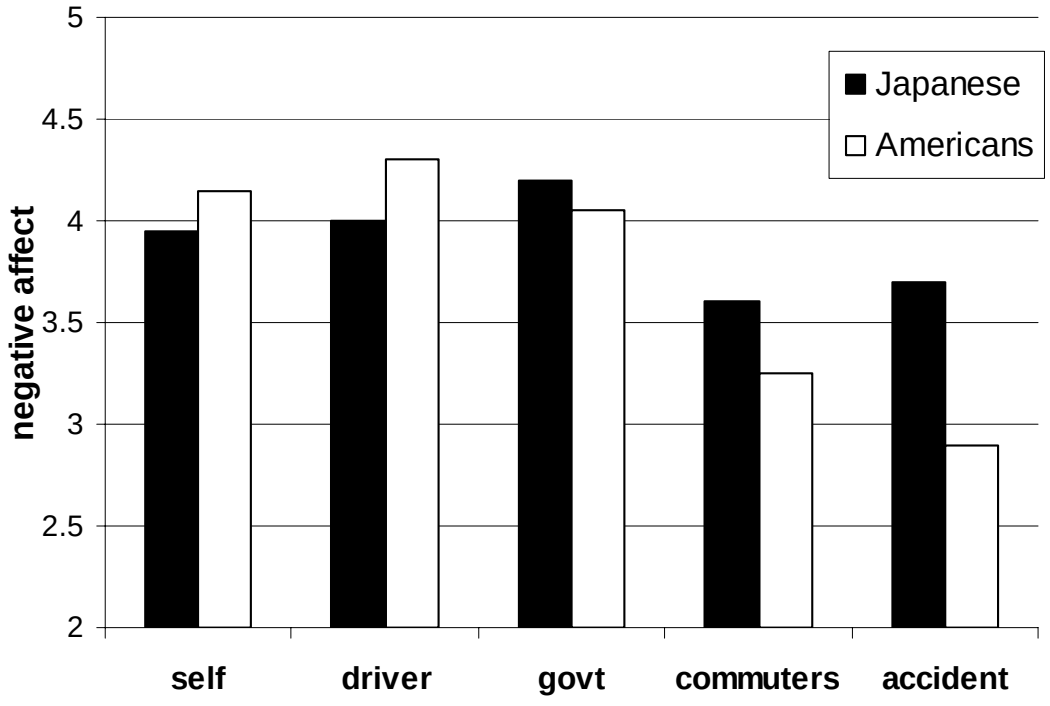
commuters
accident


5
4.5
4
3.5
3
2.5
2
negative affect
Japanese
Americans
self
driver
govt
commuters
accident

Footnotes

[1] Although the creation of a category schema resulted in some loss of information, given the inherent logistics of our design, the strategy we used was the best available to us.

[2] No cultural difference emerged in the number of responses spontaneously generated by Americans (M = 4.39) and Japanese (M = 4.83), $p > .39$.

[3] The scenarios in Study 3 and Study 4 were translated into Japanese for our Japanese participant sample. Equivalence with the English version was checked by back-translation.

[4] It is possible that the typical or average company is larger in Japan than in America, and thus this result may simply have emerged because Japanese spontaneously thought of a larger company than Americans. However, it is important to note that a similar effect also emerged in Study 4 with a completely different scenario.

[5] It is important to point out that the results from Study 4 cannot be accounted for by a population density explanation, i.e. Japanese may perceive themselves as responsible to more people, and to a wider variety of people simply because an event in Japan (a more densely populated country than America) may affect more people than the same event in America. Although the Japanese portion of Study 4 was undertaken in the city of Tokyo, one of the most densely populated cities in the world (13,416 people/square kilometer), and one that has a much higher population density compared to Columbus, a replication of Study 4 was conducted in the cities of Columbus and Sapporo, which are relatively equal in population and density. However, no evidence for a population-difference explanation was obtained. No significant differences emerged on the responsibility, affect, or apology measures comparing the Tokyo and Sapporo samples, nor did a difference emerged when participants were asked to estimate the total number of people affected (all ps $> .13$). The lack of any significant differences across the two Japanese samples suggests that it is highly unlikely the current results are due to population density differences in the two cultures.