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THE CULTURAL PSYCHOLOGY OF SURPRISE: CAUSAL THEORIES, CONTRADICTION, AND EPISTEMIC CURIOSITY

by

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To my parents

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INTRODUCTION

Not all individuals feel, think, and behave in the same way. This commonplace observation sometimes obscures noticing an opposing phenomenon: Despite huge individual differences in personality, people often feel, think, and behave in remarkably similar ways in certain situations. Such influential situations, although very powerful in their effects, sometimes can be very hard for laypeople to recognize for what they are, as demonstrated by some classic studies in social psychology, such as the "Good Samaritan Study" by Darley and Batson (1973). This study showed that even devout seminary students, when they were slightly late for their appointments, did not stop to help others in desperate need as often as they did when they were not late. This surprising finding shows that deeply held moral and religious beliefs often can be subverted by situational factors as trivial as time pressure.

However, the situations are sometimes not that subtle and fleeting. The Bennington Study (Newcomb, 1943) is a good example. When young women from upper-middle class families entered Bennington College, a college known for its liberal milieu, between 1935 and 1939, they shared the conservative Republican values that their parents held. However, once they had spent a couple of years at Bennington College, their social and political views moved dramatically in a more liberal Democratic direction. What is even more remarkable was that the influences of the school environment continued even 20 years after graduation. A higher proportion of

Bennington graduates voted for Kennedy than did graduates from other comparable colleges (Newcomb, Koenig, Flacks, & Warwick, 1967).

These studies show that situational factors can *temporarily* alter (Good Samaritan Study) or even *permanently* change (Bennington Study) behaviors and beliefs. Even deeper and more general aspects of the person can be affected. One's reasoning style or way of thinking can also be affected by situational factors. Nisbett and his colleagues (Fong, Krantz, & Nisbett, 1986; Larrick, Nisbett, & Morgan, 1993; Lehman, Lempert, & Nisbett, 1988; Nisbett, 1993) have demonstrated that individuals' academic training -- a special case of the situation -- determines their reasoning style to a substantial extent. For instance, economics training enables economists to use the cost-benefit rules in their everyday lives. Graduate training that emphasizes statistical reasoning, such as psychology, makes students capable of applying statistical inferential rules to everyday life problems outside the academic or laboratory context.

Still more profound and permanent influence of the situation on basic psychological functions can be found at the level of culture. Culture often determines what kind of self-construal (Markus & Kitayama, 1991), morality (Miller, 1998), emotion (Kitayama & Markus, 1994), and value (Triandis, 1995) an individual holds. For example, people from more collectivist cultures such as Japan consider themselves as being connected to others, regard morality as duty, feel that expression of emotion is not desirable, and view themselves as subject to the wishes of their in-groups.

It has been also shown that culture significantly affects the individual's epistemology (e.g., Choi, Nisbett, & Smith, 1997; Peng, 1997). The question that has received the most research attention in this area is how cultures influence the way people

construe the cause-effect relationship (for an extensive review see Choi, Nisbett, & Norenzayan, 1998). It has been repeatedly shown that East Asians apply a more context-oriented, holistic theory of causality that emphasizes the importance of the whole context and the interaction of the person and the situation, whereas Westerners, or at any rate Americans, use a more person-centered theory of causality that focuses predominantly on dispositions of the individual and places relatively little emphasis on the situation side. This East-West difference in naive theory of causality for behavior appears to be part of more general epistemological differences between the two cultures, characterized as holistic vs. analytic, respectively (Hansen, 1983; Lloyd, 1990; Munro, 1985; Nakamura, 1964/1985; Needham, 1962; Peng & Nisbett, 1998).

The naive theories a person holds entail some substantial consequences. This is particularly true for naive theories of causality. At the level of individual differences, Dweck and her colleagues have shown that people who believe in the centrality of dispositions in behavior and their stability -- entity theory -- make substantially different judgments from those who hold to a more malleable view of the nature of dispositions -- incremental theory (Chiu, Hong, & Dweck, 1997; Dweck, Hong, & Chiu, 1993). At the level of culture, several studies have been conducted to explore the consequences of having different theories of causality (e.g., Choi & Markus, 1998; Choi & Nisbett, in press; Kitayama & Masuda, 1997; Miller, 1984; Morris & Peng, 1994). One robust finding is that East Asians, because of their interactionist theory of causality, can more readily avoid making the "fundamental attribution error" (FAE; Ross, 1977), or the tendency to over-assign causality to the person and to under-assign it to the situation, while Americans, due to their dispositionist theory, are more vulnerable to the error. This

finding can be interpreted as a virtue of East Asians' interactionist theory of causality, because being able to avoid the FAE may bring certain behavioral as well as inferential benefits.

Attention to a broad array of contextual factors (i.e., an interactionist theory), however, might not always result in virtues. Yet, little research has been conducted to examine this flip side of the coin: the disadvantages of the East Asian theory of causality. In this dissertation, I will attempt to show that precisely because East Asians reason in a more normatively correct fashion in the sense that they are sensitive to the context and hold complex theories about causality, they (1) may show greater hindsight bias (Fischhoff, 1975), or a mistaken confidence that knowledge they have just acquired was already possessed; (2) may rarely find their theories to be inconsistent or contradictory; and (3) may not be surprised when they do confront contradictions, compared to Americans whose naive theory is not so interactional. All three of these consequences, I will argue, may act collectively and may diminish East Asians' use of epistemic curiosity.

The main reason I propose that an interactionist theory may bring such undesirable consequences is that such a naive theory is typically "unspecified" and, thus not easily "testable." This argument can be illustrated by so-called the Barnum effect (Forer, 1949; Meehl, 1956): People accept any personality statement that has universal validity as being true for themselves. For example, most people believe the following statement to be true for themselves: "*At times* you are extroverted, affable, and sociable, *while at other times* you are introverted, wary, and reserved." Most people cannot reject this statement because it includes a possibility of the occurrence of inconsistency or contradiction (in this case, being introverted) as a rule without *specifying* exactly when

and how often such a contradiction will occur. In other words, it cannot be proven to be false by empirical observation; it can be only confirmed (Furnham & Schofield, 1987; Snyder, Shenkel, & Lowery, 1976). However, a simpler and less qualified statement such as "you are extroverted, affable, and sociable" can be easily shown to be false by observations of repeated occurrences of introverted behavior and only rare observations of introverted behavior. Thus, people with this more specified and limited belief are more likely than those with an interactionist belief to be surprised by their occasional introverted behavior, which is bound to occur on occasion for most people.

The East Asian theory of causality possesses a similar capacity to encompass contradiction in the sense that it emphasizes the joint action of the person and the situation without necessarily specifying the conditions in which the person or the situation will be more influential (Norenzayan, Choi, & Nisbett, 1998). In contrast, the American theory of causality is more specified in the sense that it habitually gives more weight to the person than to the situation. Therefore, an unexpected and inconsistent behavior can be readily understood in light of East Asian interactionist theory because this theory inherently anticipates such occurrences of inconsistency (Kashima, Siegel, Tanaka, & Kashima, 1992). However, inconsistency should come as a *surprise* to those holding a more dispositionist theory. Asians' ability to explain an unexpected behavior and lack of surprise about that behavior are indications of greater hindsight bias (Slovic & Fischhoff, 1977). Therefore, I hypothesize that East Asians' naive causal theories may result in greater hindsight bias, relatively infrequent recognition of contradiction, and weaker experience of surprise when contradictions are made clear.

This hypothesis seems to be consistent with claims made by sociologists and philosophers of science. Many scholars in this area (e.g., Becker, 1986; Galtung, 1981; Huff, 1993) have argued that the awareness of contradiction and adversarial attempts to resolve it have been relatively absent in Asian intellectual history. In support of this claim, Peng (1997) found that contemporary Chinese tried to resolve a contradiction between two pieces of information by accepting the two propositions as both being true (Peng called this "naive dialecticism"), whereas Westerners opted to choose one over the other as true (Peng called this "linear thinking"). Such a cultural difference in the manner of dealing with contradiction between East Asian cultures and European American cultures has been interpreted as one of the major reasons that modern science was developed in the West but not in the East. Cromer (1993) maintained that debate and recognition of contradiction are crucial in advancing science and that the presence of these two elements in ancient Greece resulted in a European intellectual culture being different from that of the rest of the world. He also argued that the ancient Greeks were the only people who were genuinely curious or interested in gaining knowledge about the world for its own sake. Consistent with my theoretical claim, Qian (1985), a Chinese theoretical physicist, concluded after a comprehensive survey of philosophy of science that the Chinese philosophy of holism, best represented as the principle of *Yin-Yang* (in my term "interactionism") was detrimental to developing modern science because it inhibited Chinese epistemic curiosity.

To test my hypotheses about East Asian interactionist epistemology, hindsight bias, and non-recognition of contradiction, I organized the dissertation in the following way.

Chapter I begins with a review of evidence showing that East Asians' theory of causality is indeed interactional while that of European Americans is dispositional. This review is then followed by some evidence that East Asian causal theories have a significant advantage, that of rendering the fundamental attribution error more avoidable. Chapter II presents the argument that, despite such an advantage, East Asian causal reasoning may result in greater hindsight bias and weakened experience of surprise, which are detrimental to the activation of epistemic curiosity. Two experiments are then reported to test this hypothesis.

Chapter III extends the findings of Studies 1 and 2 to cultural differences in the psychology of contradiction. Historical and psychological evidence is presented indicating that East Asian epistemology, compared to its European counterpart, has been characterized by the absence of the principle of non-contradiction and the avoidance of debate and argumentation, which are also detrimental to epistemic curiosity. Two experiments are reported to test the effects of such distinct epistemologies on epistemic curiosity.

Finally, in Chapter IV I discuss the implications of the findings for various issues in social psychology and science.

CHAPTER I

WHEN EAST ASIAN CAUSAL THEORY IS ADVANTAGEOUS

The finding that causal reasoning differs in East and West does not come as a surprise, partly because the two cultures have been found to be so divergent in many other fundamental ways (see Fiske, Kitayama, Markus, & Nisbett, 1998, for an extensive review). Moreover, the finding that causal reasoning is significantly influenced by such an apparently small-scale situational variable as undergraduate training (Guimond, Begin, & Palmer, 1989; Guimond & Palmer, 1990) makes the cultural variation in causal reasoning seem more plausible.

Causal Reasoning in East and West: Interactionist vs. Dispositionist

From Aristotle onward, Westerners have been inclined to ascribe causality to an individual, rather than the surrounding context of that individual. It has been believed that personality traits and other internal attributes of an individual make that person feel, think, and act in a certain way. Such widespread understanding of causality in the West has been called "lay dispositionism" (Ross & Nisbett, 1991). In the eyes of a lay dispositionist, John behaves aggressively because he is an "aggressive" person, and Susan helps others because she is a "helpful" person. Such a belief in the correspondence between a behavior and a disposition is based on the notion that the person and the

context are -- and in a sense, should be -- separate or at least separable by a clearly defined boundary, which is one's skin. Such a dispositionist theory leads to a bias toward explanations of behavior in terms of internal attributes of an individual; this "correspondence bias" (Gilbert & Malone, 1995) or the "overattribution bias" (Jones, 1979) can often be shown to result in the error of over-attributing causality to the person and under-attributing causality to the context, i.e., the "fundamental attribution error" (FAE, Ross, 1977).

In contrast, East Asians' causal view is grounded on a fundamentally different assumption: The person and the situation are not -- and perhaps should not be -- separate. The person and the situation constitute a whole in which they are organically interconnected. In this organic whole, as Chang and Holt (1991) argued, "the slightest change in any [elements of the whole] leads to the substantial alterations in others." One's skin cannot separate the person from the context. This organic and holistic stance leads to a causal belief that behavior is an outcome of the complex interactions of the person and the situation, not just of internal attributes of the person (Norenzayan, Choi, & Nisbett, 1998). Consequently, the correspondence bias is more avoidable for Easterners. In the following section I will provide a brief survey of such East-West differences in causal reasoning (see Choi, Nisbett, & Norenzayan, 1998 for an extensive review).

Person Description

How one describes the person, both self and others, provides an opportunity to infer what kind of causal theory of behavior one has. To the extent that the person is believed to be a causal agent operating independent of context, the person may be

described in terms of context-free general abstract dispositions. According to a lay theory of this sort, person descriptions need not be qualified by contextual considerations such as time, role, and situation. The description "Joe is generous" implies that Joe is generous to most people most of the time. On the other hand, to the extent that the person and the situation are believed to jointly determine behavior, the person should be described in context-specific ways. For example, if Joe is generous only to his friends, it should be stated that "Joe is generous to his friends."

Several studies have found that East Asians' person description was more contextualized than European American one. Shweder and Bourne (1982) and Miller (1987) asked Hindu Indians and Americans to describe their acquaintances and found that Hindu Indians' descriptions were contextualized with reference to roles, social identities, and occupations while Americans' descriptions were more typically decontextualized and full of abstract personality traits. Interestingly, the tendency to use general dispositions increased with age for Americans but not for Hindu Indians (Miller, 1987). This developmental pattern strongly supports the contention that a theory of person or behavior is a cultural product.

The same pattern of cultural difference was found in self-description. Cousins (1989) asked Japanese and American college students to describe themselves in the Twenty Statement Test (TST, Kuhn & McPartland, 1954), in which they were asked to complete twenty statements beginning with the words "I am....." Cousins (1989) found that American participants used general abstract personality traits (e.g., "I am curious," "I am sincere") three times as often as Japanese participants did. Japanese descriptions of self reflected their social identities (e.g., "I am a Keiyo student") or referred to specific

contexts (e.g., "one who plays Mah-Jongg on Friday nights"). Koreans (Rhee, Uleman, Lee, & Roman, 1996) and Chinese (Ip & Bond, 1995; Triandis, McCusker, & Hui,1990) displayed a similar tendency to describe themselves in a more contextualized way in the TST.

In sum, whether they describe themselves or others, East Asians tend to make more contextual references and fewer dispositional references than European-Americans, implying that they have an interactionist theory of behavior

Causal Explanation

More direct test of cultural differences in naive theory of causality would be to examine how behavior is actually explained in different cultures. Miller (1984) contrasted social explanations of Hindu Indians with those of Americans. She asked participants of varying ages (8, 11, and 15 year-old children and adults) from both cultures to explain both good and bad behavior on the part of their acquaintances. Americans explained their acquaintance's behavior, either good or bad, predominantly in terms of corresponding traits whereas Hindu Indians explained similar events in terms of social roles, obligations, and other context-specific factors. Contextual attributions were twice as frequent for Indians as for Americans but dispositional attributions were twice as common for Americans as for Indians. More importantly, Miller found that such cultural differences appear gradually through socialization: American and Indian children were much more like each other in their causal attributions than American and Indian adults. Dispositional attributions increased with age for American participants but not for Hindu Indians.

Morris and Peng (1994; Morris, Nisbett, & Peng, 1995) provided a similar demonstration of cultural divergence in causal attribution for Chinese and Americans. Morris and Peng analyzed accounts of two mass-murder incidents in an English language newspaper and in a Chinese language newspaper. They found that the English newspaper speculated heavily about the mental instability and other negative dispositions of the perpetrator as possible causes (e.g., "the man was mentally unstable," "darkly disturbed man who drove himself to success and destruction," and "he had a short fuse"). In contrast, the Chinese newspaper emphasized contextual, situational, and even societal factors (e.g., "did not get along with his advisor," "tragedy reflects the lack of religion in Chinese culture," and "followed the example of a recent mass slaying in Texas"). Morris and Peng showed that the same contrasting attributional patterns were obtained when Chinese and American university students were asked to explain the events: Chinese participants were more likely to prefer contextual explanations whereas American participants were more likely to prefer dispositional ones. Choi and Markus (1998), in a conceptual replication of the Morris and Peng study (1994), discovered a similar divergence in causal attribution between Koreans and Americans.

Another area where lay theory of behavior is likely to manifest itself is explanations of achievement. A dispositionist theory of behavior is more likely to lead to interpreting one's achievement mainly in terms of one's stable internal dispositions such as ability, while an interactionist theory of behavior is more likely to lead to explaining similar outcomes in terms of context-specific factors such as effort. Several cross-cultural studies demonstrate that this is the case (see Crittenden, 1996, for a review). Stevenson and Stigler (1992) reported that children, parents, and teachers in Asia believed effort was

a far more important determinant of children's academic achievement than ability whereas their counterparts in the U.S believed the opposite. For example, when asked whether they agreed with the statement "The tests you take can show how much or how little natural ability you have," children in Japan and in China tended to disagree (for Japanese children, strongly disagree) but American children strongly agreed with it.

Cultural differences in explanations for achievement are not limited to academic settings. Lee and her colleagues (Hallahan, Lee, & Herzog, 1997; Lee, Hallahan, & Herzog, 1996) examined newspaper accounts for sports outcomes and showed that American journalists focused on dispositional explanations for sports outcomes whereas Hong Kong journalists focused on contextual ones.

Perception of Physical Causality

There are grounds for believing that metatheories of behavior go beyond perception of human social behavior. Kurt Lewin (1935) noted that people tend to see even the behavior of objects as being exclusively due to attributes of the object -- a mistaken physical theory that he called "Aristotelian." In Aristotelian physics, a stone drops into water because it has the property of "gravity." A piece of wood floats on water because it has the property of "levity." Lewin contrasted Aristotelian physics with "Galilean" physics, which recognizes that the behavior of objects is the result of an interaction between the object and the environment. The ethnographic evidence indicates that ancient Chinese physics characterized the world as "wave-based," rather than "particle-based," and this may be more similar to Galilean physics than to Aristotelian physics (Needham, 1962). The Chinese discovered the principle of action at a distance

1500 years before Galileo, presumably because of their attention to the physical context, which played little role either in Aristotelian or Western Medieval science (Lloyd, 1990). Peng and Nisbett (1997) demonstrated that Chinese indeed explained the ambiguous movement of an object in relation to the entire field in which the object was located, while Americans were more likely to explain the same movement in terms of internal properties of the object.

Thus, East Asians have a more holistic view of causality that emphasizes the interactive nature of behavior between the person and the situation. European Americans have a simpler mechanical view that emphasizes the direct link between the person and behavior. As a result, East Asians show little or no correspondence bias in circumstances where European Americans do show the bias.

When East Asian Causal Theory is Advantageous

After considering the studies that have demonstrated that East Asians are more attuned to the interactive nature of human behavior between the person and the situation, Aronson, Wilson, and Akert (1994) concluded that:

> people in Western cultures appear to be like personality psychologists ...whereas people in Eastern cultures seem to be more like social psychologists (p.185).

Who, then, is more nearly correct? Can East Asians avoid attributional errors of the sort that are pervasive in Western cultures?

The Attitude Attribution Paradigm and the FAE

The Jones and Harris attitude attribution paradigm (1967) allows for a logical analysis of cultural differences in causal attribution. In a typical attitude attribution study, participants are asked to read an essay or hear a speech presumably written by another person and then to infer the true attitude of the target person toward the topic. In the Choice condition of the paradigm, participants are told that the target person wrote the essay (as part of an exam, for example) under conditions of free choice, and could choose which side of the issue to support. In the No-Choice condition of the paradigm, participants are told that the target person was assigned to defend one side of the issue (by the teacher or debate coach), regardless of the person's own attitude toward the issue. In the No-Choice condition, either the true attitude of the target person or the situational constraint is a sufficient cause for writing an essay supporting one side of the topic. Inferring that the attitude of the target person "corresponds" to that expressed in the essay is logically valid in the Choice condition, but far less justified in the No-Choice condition since the situational constraints alone are enough for determining the direction of the arguments in the essay (Jones & Davis, 1965). Therefore, the difference in the degree of correspondent inference between the Choice and the No-Choice condition can be logically defined as an "error" (or FAE) -- the less the difference, the greater the error.

The FAE for East Asians in the Attitude Attribution Paradigm

Several studies have been conducted to compare East Asians and Westerners in the attitude attribution paradigm for Koreans vs. Americans (Choi & Nisbett, in press), for Japanese vs. Americans (Kitayama & Masuda, 1997; Masuda & Kitayama, 1996), for

Chinese vs. Americans (Krull, Loy, Lin, Wang, Chen, & Zhao, 1996), and for Japanese vs. Australians (Kashima, Siegel, Tanaka, & Kashima, 1992). Interestingly enough, none of these studies found cultural differences in the standard Jones and Harris paradigm. For example, Choi and Nisbett found that both Korean and American participants inferred that the essay writer in the No-Choice condition held an attitude corresponding to the essay. These unexpected findings run counter to the expectation that East Asians' judgments can be more normative.

Choi and Nisbett (in press) attributed the FAE for their Korean participants to the low salience of the situational constraints in the standard No-Choice condition of the attitude attribution paradigm. The authors expected that if they increased the level of salience of the constraints, Korean participants would recognize the power of the constraints more readily than American participants.

To test this salience hypothesis, Choi and Nisbett (in press) attempted to raise the salience level of the situational constraints in two ways in their Study 2. In the Exposure condition, participants themselves were asked to write essays, either supporting or opposing capital punishment, regardless of their genuine attitudes toward it, before reading the target person's essay about the same topic. This manipulation was intended to expose the participants to the same situational constraints under which the target person allegedly wrote the essay in the No-Choice condition.

Participants in the second condition of Choi and Nisbett (Study 2, in press), the Exposure + Arguments condition, were also asked to write essays, either supporting or opposing capital punishment, regardless of their genuine attitudes. However, they were given four arguments, either supporting (in the Pro-Essay condition) or opposing (in the

Anti-Essay condition) capital punishment, and it was recommended that they use them in their essays. Moreover, they were told that the target person had been also provided with those four arguments, and the four arguments did indeed appear in the target person's essay. The purpose of this manipulation was to make the constraints even more salient than in the Exposure condition by inducing participants to realize that the target person's essay was almost a verbatim copy of the four arguments.

Choi and Nisbett (in press, Study 2) also were able to explore the actor-observer difference (Jones & Nisbett, 1972) across cultures. The actor-observer difference hypothesis predicts that participants may tend to attribute their own behavior, their essays in this case, to the situational constraints, but attribute the target person's essay to his true attitude. However, if Asians are truly sensitive to the situational constraints, such an actor-observer difference might be smaller or even non-existent.

Thus, whether East Asians' causality is more normative or not can be tested in two ways by the Choi and Nisbett experiment; first, by examining whether the salience manipulations reduce the degree of the FAE, and second, by investigating whether the actor-observer bias is weaker for Korean participants.

The findings of Choi and Nisbett supported the expectations that Korean participants would make more normative attributions in both respects. American participants displayed the FAE to the same degree in the two exposure conditions as in the standard No-Choice condition. In contrast, Korean participants showed a significant decrease in the FAE from the standard No-Choice condition to the Exposure condition, and in turn from the Exposure condition to the Exposure + Argument condition. Choi and Nisbett also found that Korean participants believed that the target was no more likely to

be expressing his true views than they themselves were, whereas American participants reported that the target person probably expressed his own attitude in his essay more than they themselves had.

Masuda and Kitayama (1996) and Kitayama and Masuda (1997) employed a similar salience manipulation in the same attitude attribution paradigm with Japanese participants and demonstrated a similar pattern.

In sum, although Asians appear susceptible to the basic attribution error in the standard No-Choice condition of the Jones and Harris paradigm, it is possible to show that the error is lessened or obliterated by the kinds of manipulations that had no apparent effect on Americans. In addition, when participants themselves were exposed to the same powerful situational constraints as the target person, Koreans but not Americans realized that the target person's behavior was no more a true reflection of his attitude than was the case for themselves (Choi & Nisbett, in press).

Use of Consensus (or Base-Rate) Information

The normativeness of causal attribution can also be tested by examining the way people use relevant causal information. If an individual uses the causal information in a more logical manner than another individual, we can describe the first person as being more accurate than the second person. Kelley (1967) proposed a model of causal attribution that prescribes a normative usage of causal information -- reliance on consistency, distinctiveness, and consensus information. For example, when asked to explain why Ralph tripped over Joan's feet, and given that one knows that hardly anyone trips over Joan's feet (low consensus), that Ralph always trips over Joan's feet (high

consistency), and that Ralph trips over other partners' feet (low distinctiveness), then people should attribute Ralph's behavior to an internal disposition -- he is clumsy.

However, McArthur (1972) found that people systematically deviate from these normative rules in their uptake of the three types of information that Kelley's model prescribes. Specifically, people strikingly underutilize consensus information. The information that either "almost everyone" or "hardly anyone" behaves in the same way has little effect on people's causal attributions.

In contrast, Cha and Nam (1985) replicated McArthur's study in Korea and found that their Korean participants used consensus information far more than the American participants in McArthur's study did, even though their participants were about as responsive as Americans to consistency and distinctiveness information. Therefore, it can be said that Korean participants are more normative than American participants, at least in the sense that Koreans utilize consensus information more than Americans do. Norenzayan, Choi, and Nisbett (1998) also demonstrated that Korean participants utilized base-rate information -- conceptually the same thing as consensus information -- more than Americans when making predictions about an individual. In this study, participants were asked to predict how a randomly selected group of people would behave in a particular situation before they made a guess about how a target person would behave in the same situation. In other words, they were forced to generate a base-rate estimate before making judgments about a single individual. As consistent with Cha and Nam's finding (1985), Korean participants, compared to American participants, adjusted their predictions about a single individual more in the direction of the base-rate they generated.

Thus, East Asians can be thought of being more normative in causal attributions for the following reasons: (1) they show a lessened FAE in the attitude attribution paradigm when the situational constraints are made salient; (2) they are less susceptible to the actor-observer bias; (3) they use consensus information in a more normative way; and (4) they use base-rate information in making prediction.

CHAPTER II

WHEN EAST ASIAN CAUSAL THEORY IS DISADVANTAGEOUS

It is undoubtedly highly beneficial to be able to avoid the fundamental attribution error and the actor-observer bias, because these are errors that often invite many other inferential and behavioral failings. However, if Taoist wisdom is any indication, every blessing is accompanied by a curse. There will be (or should be, if you are a Taoist) some vices of East Asian causal theories, parallel in their magnitude to the virtues discussed earlier. For example, it is likely that East Asians do not give enough credit to an individual for her success because they also assume that a large amount of situational help was available to the individual. This reluctance to make internal attributions on the part of East Asians may thus constitute an error under some conditions, just as a reluctance to make situational attributions among Americans can constitute an error.

This chapter focuses on another possible -- and in a sense inevitable -- downside of East Asian causality. Specifically, I will argue that East Asians, because of their interactionist theory of causality, are (1) more likely to show the hindsight bias or a tendency to feel that they have known novel information all along, (2) less likely to be surprised by unexpected and inconsistent behavior ("contradictions"), and (3) as a consequence will be less likely to experience epistemic curiosity. These hypotheses are all based on the relationship between causal reasoning and hindsight bias.

Hindsight Bias

Hindsight bias or the "knew-it-all-along" effect (Fischhoff, 1975) is the tendency to exaggerate the predictability of an outcome of an event in hindsight. In hindsight, people overestimate what could have been predicted in foresight. Hindsight bias has been repeatedly shown in a variety of judgmental domains (for reviews, see Christensen-Szalanski & Willham, 1991; Hawkins & Hastie, 1990), such as historical events (Fischhoff, 1975; Fischhoff & Beyth, 1975; Wasserman, Lempert, & Hastie, 1991), political elections (Leary, 1982), scientific findings (Slovic & Fischhoff, 1977), and general knowledge (Fischhoff, 1977; Wood, 1978).

Why is causal reasoning important in hindsight bias? A clue can be found by examining another related bias in probability judgments.

Explanation bias

One of the most striking findings in studies on probability judgments is that simply imagining or explaining a hypothetical future event increases the perceived likelihood of the event; hence the "explanation bias," (Campbell & Fairey, 1985; Hirt & Markman, 1995; Hirt & Sherman, 1985; Hoch, 1985; Koehler, 1991; Sherman, Skov, Hervitz, & Stock, 1981; Sherman, Zehner, Johnson, & Hirt, 1983). For example, when people were asked to imagine Jimmy Carter winning the presidential election (prior to the election), those people predicted that he was more likely to win than did others who were asked to imagine Gerald Ford winning (Carroll, 1976). Those who explained why the Montreal Expos would finish in first place in the National League East 1993 predicted

that the Expos were more likely to do so than did those who did not provide such an explanation (68.63% vs. 45.85%; Hirt & Markman, 1995).

Such an explanation bias sometimes results in what is called the *belief perseverance effect* (Ross, Lepper, & Hubbard, 1975). Simply put, people tend to hold to their personal beliefs even after the grounds for their beliefs are totally discredited. In Ross et al. (1975), participants undertook the task of distinguishing authentic suicide notes from inauthentic ones. Some participants were given the (false) feedback that they were above average at the task while others were told that they were below average. Following this, they were thoroughly debriefed concerning the random nature of the feedback. They were told that their feedback was false and further that it was randomly determined whether they would receive the success or failure feedback. Thus, it should have been apparent that there was no logical reason to continue to believe the feedback. Yet they continued to hold to the belief about their (in)ability to distinguish suicide notes that the feedback had suggested. So those who had been given false feedback about their success in the task predicted that they would also succeed in the future task. It looks as if participants in this study might have generated explanations for why they were good or bad at the task that were too convincing. They might have drawn upon a number of seemingly supportive (but in fact irrelevant) aspects of their lives to explain why they were (or were not) successful in distinguishing suicide notes. Ross, Lepper, Strack, and Steinmetz (1977) demonstrated that this was in fact the case. In their study participants who were asked to *explain* a hypothetical event perceived its likelihood to be higher than did those who were not asked to do so.

Nisbett and Ross (1980) succinctly summarized the role of explanations in these phenomena:

> People's facility in forming causal explanations is so great that they usually will be able to explain most events and relationships they observe. These explanations may often prove so convincing that they survive even the total discrediting of the "evidence" that prompted their invention in the first place. (p.186)

Hindsight bias and causal reasoning

There is reason to believe that causal reasoning plays as key a role in hindsight bias as it does in explanation bias. This becomes obvious when considering the definitions of the two biases. The definition of the explanation bias (i.e., the tendency to exaggerate the probability estimate of a *future* event after explaining it, *pretending that it actually happened*) is almost identical to that of the hindsight bias (i.e., the tendency to exaggerate the likelihood estimate of a *past* event, *pretending that one did not know that it had actually occurred*).

This intuition receives some support from the original account of hindsight bias by Fischhoff (1975). Fischhoff (1975) argued that people automatically assimilate the outcome information into their preexisting knowledge representation, resulting in a new representation in which the outcome cannot but be seen as inevitable (he called this process "creeping determinism"). This assimilation process thus makes it very difficult to access the original foresight state of knowledge. Although Fischhoff was silent on the matter, it is possible to identify such an assimilation process with causal reasoning. Upon receiving the outcome knowledge, people may construct causal accounts for that outcome very easily -- as the term "creeping" suggests -- and the causal accounts may survive even

when those people are required to assume that they did not know that the particular outcome occurred. As a consequence, people are inclined to that outcome as inevitable.

There is some evidence that supports such a central role of causal reasoning in the occurrence of hindsight bias. Wasserman, Lempert, and Hastie (1991) presented participants with a historical event -- a war between Britain and Nepal in 1814. Some participants received the outcome information (i.e., who won) with a "chance" explanation such as an unexpected storm or an earthquake or with a "deterministic" explanation such as human skill or lack of skill. They found greater hindsight bias for participants who had received a deterministic explanation than for those who had received a "chance" explanation. Roese and Olson (1996) also confirmed the role of causal reasoning in the occurrence of hindsight bias.

In addition to the above studies that have explicitly tried to link causal reasoning to hindsight bias, there are some studies that implicitly indicate such a link. Mazursky and Ofir (1990) found that when an outcome was too surprising -- that is, hard to explain -- the reverse of a hindsight bias could occur. Schkade and Kilbourne (1991), on the other hand, found that when an outcome was too consistent with prior expectations -- that is, too easy to explain -- hindsight bias was very small. These studies suggest that when an explanation is very difficult (or an outcome is too surprising) or too easy (or an outcome is not surprising at all), hindsight bias can be very small and is sometimes reversed.

Causal Reasoning of East Asians, Hindsight Bias, and Epistemic Curiosity

The previous section has established that causal reasoning results in biases in probability judgments of a future event (i.e., explanation bias) and of a past event (i.e., hindsight bias). The upshot of the section was that, to the extent that an explanation of an event is moderately easy and fairly convincing, the two biases are large. Now my hypothesis stated at the outset of this dissertation predicts that an interactionist theory of causality can explain even an unexpected behavior more easily than a dispositionist theory. Although Chapter I provided a review of the previous studies indicating that East Asians apply a complex, organismic, and interactionist causal theory, I will present more direct evidence for it here. Norenzayan, Choi, and Nisbett (1998) provided Koreans and Americans with the following argument emphasizing the interactive nature of behavior, and asked them how much they agreed:

> How people behave is always jointly determined by their personality and the situation in which they find themselves. We cannot claim that either personality or the situation is the only determinant of our behavior. Our behavior is an outcome of the complex interaction between personality and situational factors. We always have to consider personality and situation simultaneously. Therefore, we cannot predict and explain one's behavior with personality or situation alone.

Consistent with my proposal, Norenzayan et al. (1998) found that Koreans agreed with the argument more than Americans.

The proposal that the East Asians' complex interactionist theory of causality makes hindsight bias more likely and the experience of surprise less likely can be well illustrated by the following thought experiment. If person A has a theory that an honest

person will be always honest regardless of the situation (e.g., Americans' dispositionist theory), person A has a greater chance of being surprised when the honest person commits a dishonest act. In contrast, if person B has an interactionist theory holding that even an honest person will behave dishonestly depending on the situation (e.g., Asians' contextualist theory), person B is less likely to be surprised when the honest person behaves dishonestly. In other words, the more strongly a person believes in the consistency of dispositions and behavior, the more that person is likely to be surprised by inconsistency. Kashima and his colleagues (Kashima, Siegel, Tanaka, & Kashima, 1992) measured beliefs in attitude-behavior consistency for Japanese and Australians. As expected, Japanese did not believe in attitude-behavior consistency as strongly as Australians did. Thus, we can expect that Japanese would be less surprised by attitude-behavior inconsistency. In sum, since East Asians tend to pay attention to the entire context and to consider a multitude of interconnected factors within that context, they generate a more complex causal account than Americans do. As a consequence, any behavior is over-explained, resulting in strong hindsight bias and weak experience of surprise.

Strong hindsight bias and weak experience of surprise necessarily suppresses one's epistemic curiosity. Epistemic curiosity is conceptualized as a motivational drive induced by the gap between new information and one's current knowledge state (Berlyne, 1954, 1960). This motivational state is experienced sometimes as "frustration," "conceptual conflict and contradiction," "irritation," and "surprise" (Berlyne, 1960; Berlyne & Frommer, 1966; Crandall, 1971).

Feelings of irritation that the new information cannot be explained by one's own current knowledge, and feelings of surprise that the new information could not have been predicted given one's own knowledge, and feelings of contradiction that the new information is incompatible with one's current knowledge all activate one's epistemic curiosity and drive the person to engage in information-seeking behavior. In fact, Zajonc (1989), following Cohen and Nagel (1934), argued that a research question is often generated when an individual is irritated by something. In this way, epistemic curiosity facilitates creativity (Csikszentmihalyi, 1997) and is an important basis for human culture and knowledge (Little & Creaser, 1968).

The key to activating one's epistemic curiosity is the awareness of the "gap." If a person is not aware of the gap between new information and what is already known, epistemic curiosity is not likely to be activated. Hindsight bias is one instance of such a failure to acknowledge the gap resulting in a lack of surprise making it difficult to learn more about a phenomenon (Russo & Schoemaker, 1989). Thus, it follows that hindsight bias decreases the chance to be surprised and in turn decreases the likelihood of activating one's epistemic curiosity, which decreases the chance to be engaged in information-seeking behavior or scientific inquiry.

STUDY 1: THE BAD SAMARITAN STUDY

A powerful test of my hypothesis would be to show that East Asians (Koreans in this dissertation) would not be as surprised as Americans by an unexpected event and would display stronger hindsight bias for that event than Americans. For this purpose, I decided to examine whether or not one of the most surprising studies in social

psychology, the Good Samaritan Study (Darley & Batson, 1973), surprises Koreans in the same way as it does Americans. Why the Good Samaritan Study should be surprising becomes clear when we consider details of the study.

In the original Darley and Batson (1973) study, participants (seminary students) were supposed to give a practice sermon. Half of the participants were put in a time constraint situation (Hurry condition -- they were already *slightly* late for a practice sermon), and the other half were put in a no-constraint situation (No-Hurry condition -- they were not late). While they were proceeding to the place where they were supposed to give a sermon, they saw a victim who was obviously in need. The question was who would stop to help the victim and risk missing their delivering a sermon. This question was particularly interesting because dispositions of the participants (i.e., their religiosity) and the situational variable (i.e., being late) were pitted against each other. The experimenters found that only about one-third of the participants in the Hurry condition helped the victim; however, two-thirds of the participants in the No-Hurry condition stopped to help the victim. This finding is particularly surprising because the participants were seminary students, deeply religious, and thus expected to help a victim regardless of whether they were slightly late or not.

When Pietromonaco and Nisbett (1982) gave a detailed report of this study to American college students, the experimenters found that their students were extremely surprised by the finding. Moreover, the experimenters found it very hard to teach those students the point of the study (i.e., the importance of a situational variable as simple as time pressure) so that they could apply it to a similar situation. They seemed to be unable

to incorporate the implications of the study into their thinking about the importance of a factor such as being in a hurry.

I believe that the reason that the Good Samaritan Study creates such an intense reaction in American audiences is that they have a dispositionist view of behavior. They might have expected that a religious person would always help others no matter what and might have underestimated the power of the seemingly trivial situation operating in the Good Samaritan Study -- being late. In contrast, I hypothesize that since East Asians are highly sensitive to the entire context of behavior, they will more readily recognize the inhibiting power of the situation in the Good Samaritan Study and thus will be less surprised by the non-helping behavior of those religious students in the Hurry condition. As a consequence, they will display greater hindsight bias.

Method

Participants

Sixty students from the University of Michigan and another sixty students from So-Gang University in Korea participated in the study to receive partial course credit.

Procedure

The study was introduced as an attempt to investigate how people make judgments about others. All participants were given a booklet containing a vignette substantially similar to the Good Samaritan Study. In the vignette I used, the target seminary student, John, was described as very religious, generous, and helpful. It was further described that: he was taking a sermon course; he was supposed to give a practice

sermon as a course requirement; unfortunately, he was 10 minutes late for the sermon; the professor had been known for being harsh on students for being late; and it was obvious that if he had helped the victim he could not have given the sermon. All materials were translated into Korean and back-translated.

Participants were randomly assigned to three conditions: No-Outcome, Help, and No-Help conditions. Participants in the Help condition read at the end of the vignette that the target person in fact had helped the victim whereas participants in the No-Help condition read that the target person had not helped the victim. However, participants in the No-Outcome condition did not receive any such outcome information. This No-Outcome condition was crucial to establish the existence of hindsight bias by allowing comparisons between it and the other two outcome conditions. Participants were then asked several questions, which are reported below (I also asked causal judgment questions, but they are reported in Appendix A).

Dependent Variables

1. Probability of helping. Participants in the No-Outcome condition were asked to judge the probability that the target person would help the victim on a scale running from 0-100%. Specifically they were asked: "Do you think John would help the man? Indicate your probability that John would help the man." In the two outcome conditions (Help, No-Help), this probability question was phrased as counterfactual because participants knew how the target person actually had behaved. Specifically, they were presented with the following instruction before they read the probability question stated above: "If you had been asked the following question before you read that John

helped ["had not helped" in the No-Help condition] the man (in other words, pretend that you did not know that John helped the man), what might have been your answers?" In other words, participants in these two conditions had to pretend that they did not know the target person's actual behavior. Such a counterfactual question about probability is typical in the literature on hindsight bias (e.g., Fischhoff, 1975).

2. Experience of surprise. Participants in the No-Outcome condition were asked to report how surprised they would be if the target helped or did not help the victim. However, participants in the two outcome conditions were asked to report how surprised they were, given that the target person helped (Help condition) or did not help (No-Help condition) the victim: "Are you surprised by the fact that John helped (or did not help) the man? In other words, is his behavior something that you could not expect in advance?" The surprise ratings were made on an 11-point scale with 0 (not surprised at all) and 10 (extremely surprised) as anchors.

3. Consistency estimate. Participants in the No-Outcome condition were asked, if they were to observe the target in 100 similar situations, how many times the target would help another person: "If you were to observe John in other 100 situations similar to the above one, how many times do you think John would help another person?" In the two outcome conditions, participants received the following instruction before reading the consistency question stated above: "If you had been asked the following question before you read that John helped ["had not helped" in the No-Help condition] the man (in other words, pretend that you did not know that John helped the man), what might have been your answers." I included this consistency measure, although it is

conceptually identical to probability, because it might be possible that the concept of probability may not be equally familiar to the two cultures and that the consistency measure may be easier to understand.

Results

Probability of Helping

The mean probability estimates are represented in Figure 2.1.

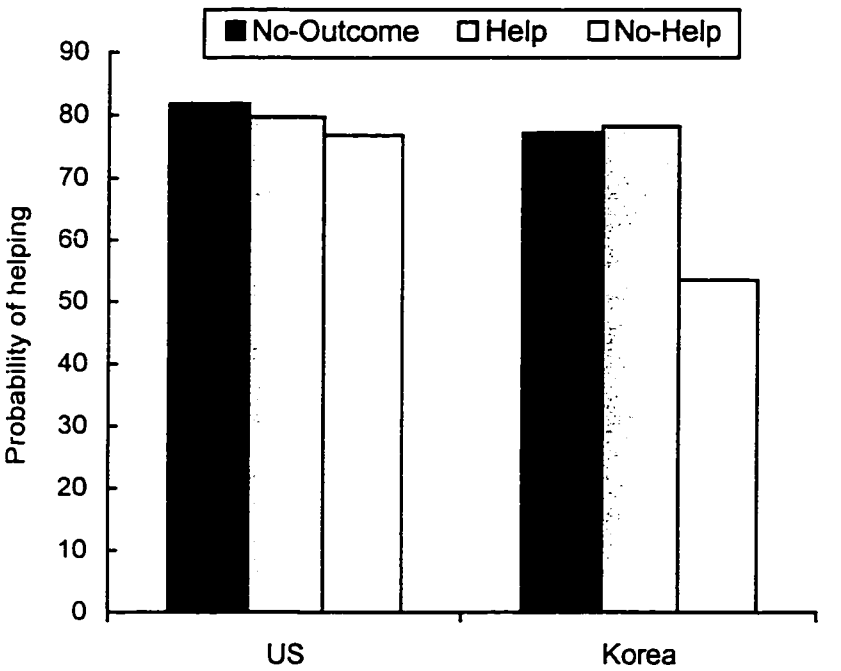

Figure 2.1 Probability that the target person would help the victim in Study 1

A 2 (culture) X 3 (outcome) analysis of variance (ANOVA) was conducted on the participants' probability judgments. There was a main effect of culture F (1,114) = 9.01, p < .005, indicating that American participants predicted the target person would help the victim more than Korean participants did (79.4 vs. 69.62). There was also a main effect

of outcome, F (2,114) = 8.30, $p < .001$: probabilities of helping in the Help condition (78.95) and in the No-Outcome condition (79.45) were significantly higher than the probability in the No-Help condition (65.13), F (1,114) = 12.00, $p <. 001$, and F (1,114) = 12.88, $p < .001$, respectively. This indicates that the typical hindsight bias occurred in the No-Help condition but not in the Help-condition. However, this was further qualified by culture, F (2,114) = 4.34, $p < .05$: the probability of helping did not differ among the three conditions for American participants, $F < 1$, while it differed markedly among the three conditions for Korean participants, F (2,114) = 12.25, $p < .001$. As can be seen in Figure 2.1, Korean participants' probability estimate in the No-Help condition was significantly lower than the probability in the No-Outcome condition, F (1,114) = 17.55, $p < .001$; however, the difference in the probability of helping between the No-Outcome condition and the Help condition was not significant, $F < 1$.

In sum, Korean participants displayed the hindsight bias in the No-Helping condition, whereas American participants did not show any indication of the bias in either of the two outcome conditions.

Self-reported Surprise

I compared self-reported surprise in the two outcome conditions (i.e., how much they were surprised given that the target person helped or did not help the victim). A main effect of culture was found, F (1,76) = 14.12, $p < .001$, indicating that, overall, American participants were more surprised than Korean participants. There was also a main effect of outcome, F (1,76) = 127.10, $p < .001$, indicating that participants were more surprised by the target person *not* helping the victim than when he *did* help the

victim. However, as can be seen in Figure 2.2, there was a significant interaction between culture and outcome, F (1,76) = 16.10, $p < .001$: there was no cultural difference in the Help condition, $F < 1$, but American participants were significantly more surprised than Korean participants in the No-Help condition, F (1,76) = 30.21, $p < .001$.

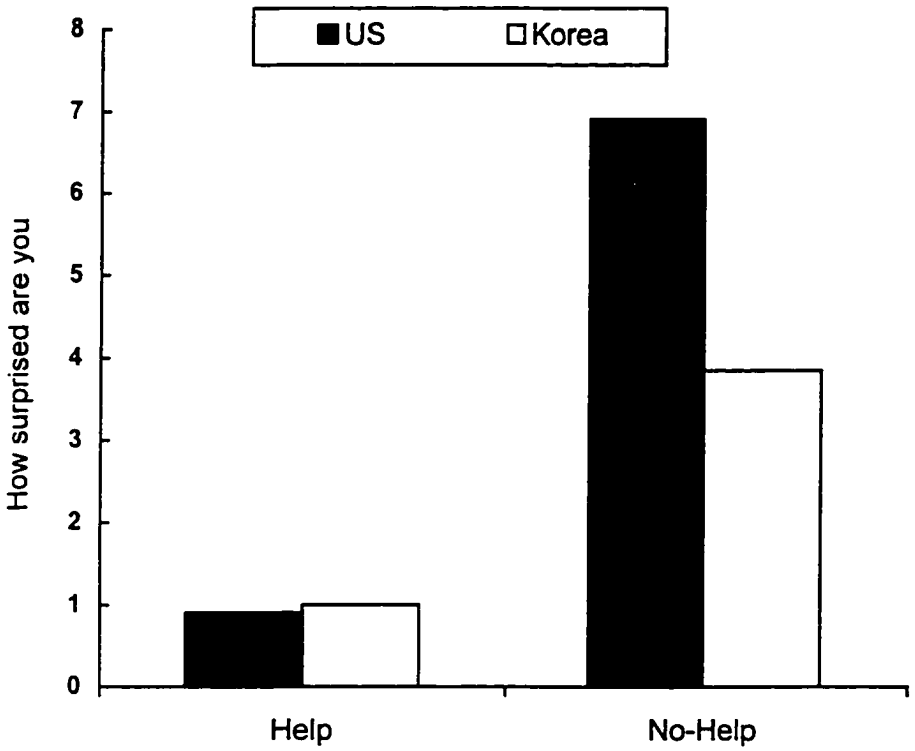

Figure 2.2 Self-reported surprise in the outcome conditions in Study 1

Since I asked participants in the No-outcome condition to anticipate how surprised they would be if the target person had (or had not) helped the victim, I could compare the anticipated surprise (No-Outcome condition) with the actual (self-reported) surprise (two outcome conditions). Indeed, this is another way of measuring the hindsight

bias (Slovic & Fischhoff, 1977). The means of surprise ratings are presented in Figure 2.3.

When the target person helped the victim, participants were less surprised than they thought they would be (.95 vs. 1.68), F (1,76) = 4.55, $p < .05$. This was true for Korean participants, F (1,76) = 5.73, $p < .05$, but not true for American participants, $F < 1$, although the interaction was not significant, F (1,76) = 1.56, $p = .22$.

When the target person did not help the victim, again participants were less surprised than they thought they would be, F (1,75) = 7.29, $p < .005$. But this was the case only for Korean participants, F (1,75) = 9.89, $p < .001$ and not at all for American participants, $F < 1$. This interaction of culture and outcome was marginal, F (1,75) = 3.07, $p = .08$.

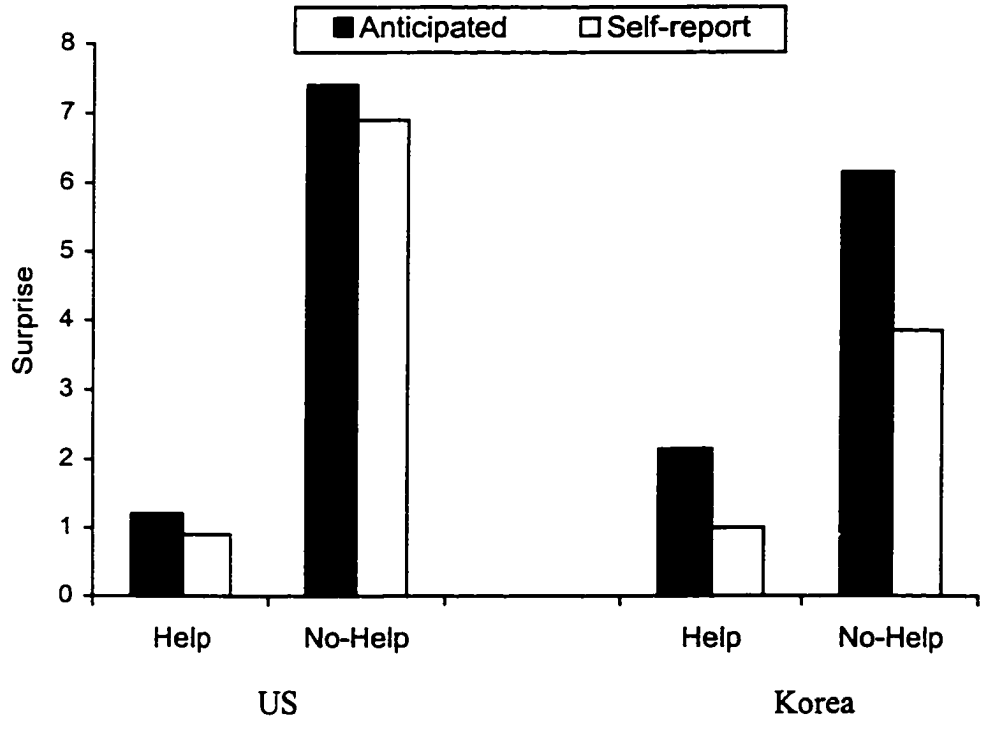

Figure 2.3 Anticipated vs. self-reported surprise in Study 1

Consistency Estimate

The consistency estimate is conceptually close to the concept of probability. Thus, I expected a pattern of consistency estimate similar to that of probability judgment. Indeed that is what was found. The means of consistency estimates are presented in Figure 2.4.

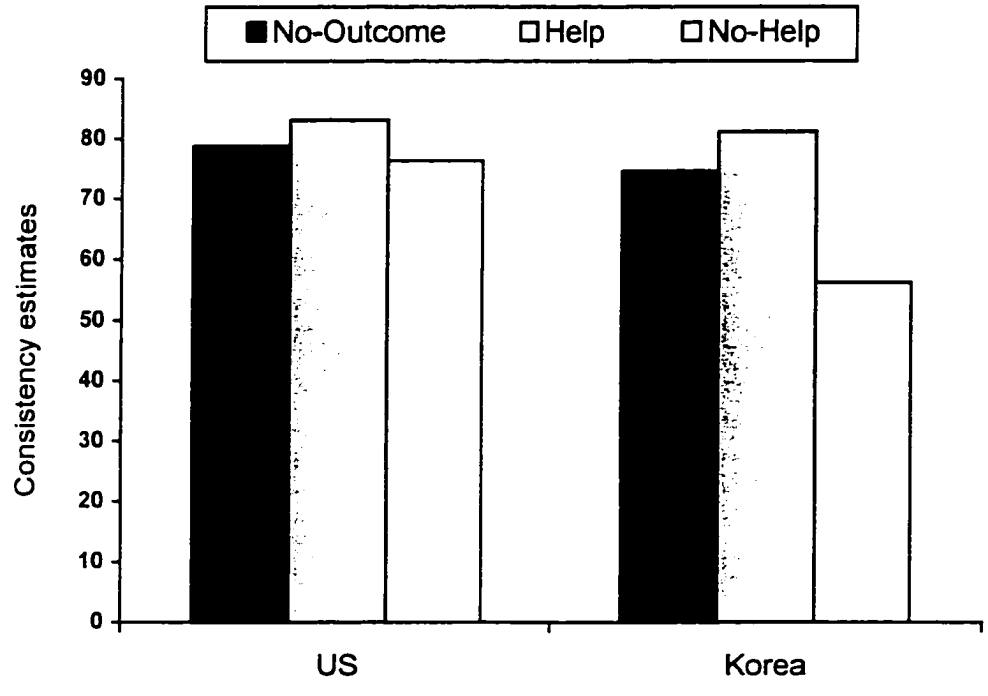

Figure 2.4 How many times the target person would help others in 100 similar situations.

There was a main effect of culture, F (1,114) =4.98, $p < .005$, indicating that American participants expected the target person to help another person in more situations than Korean participants did (79.43 vs. 70.65). There was also a main effect of outcome, F (2,114) = 5.18, $p < .05$: consistency estimate was lower in the No-Help

condition than in the No-Outcome condition, F (1,114) = 4.32, $p < .05$; and there was no difference between the No-Outcome condition and the Help condition, $F < 1$. The interaction between culture and outcome was not significant, F (2,114) = 1.96, $p = .15$: consistency estimates were different among the three conditions for Korean participants, F (2,114) = 6.67, $p < .05$, but not for American participants, $F < 1$. The estimate for Korean participants was significantly lower in the No-Help condition than in the No-Outcome condition for Korean participants, F (1,114) = 6.74, $p < .05$.

Discussion

As expected, Korean participants displayed greater hindsight bias than American participants when the religious target person did not help the victim when he was under time pressure. Korean participants reported that they could have predicted rather well that the target person would have not helped the victim. This hindsight bias for Korean participants also appeared in their reports of surprise. Compared to American participants, Korean participants were less surprised when the target person did not help the victim. Furthermore, their experience of surprise was even less than the level of surprise they had thought they would experience.

These findings are consistent with previous studies (e.g., Cha & Nam, 1985; Choi & Nisbett, in press; Norenzayan, Choi, & Nisbett, 1998) that demonstrated that Koreans are more sensitive than Americans to situational constraints on behavior. The Korean participants in the present study might have been easily able to explain the non-helping behavior of the deeply religious target person by the situational constraints (e.g., being

late, course requirement, etc.). Therefore, that behavior would appear to be somewhat "obvious" such that they might have felt that they could have predicted it anyway. However, remember that they strongly expected that the target person would help the victim in the No-Outcome condition. Their "that's obvious" reaction is contradicting to their such expectation. Yet, they were able not to experience such a contradiction because their interactionist theory could easily explain the unexpected behavior of the target person.

However, this same behavior of the target person might have been difficult for American participants to explain because they are relatively insensitive to situational constraints on behavior. Thus, it would appear to be "surprising" to them.

As I argued at the outset of this section, the Good Samaritan Study (Darley & Batson, 1973) became a classic in social psychology partly because its demonstration of the power of even a seemingly trivial situational factor on behavior was contradictory to common sense of Western lay people. Many other classic social psychological studies, such as the Bystander Intervention Study (Latané & Darley, 1968) and the Obedience Study (Milgram, 1963), share this feature. If these studies had been considered as "obvious," then they could not have been recognized as classic. The present finding then raises a question as to whether those classic studies and social psychology in general would be accepted to the same degree by East Asians. The present study suggests not. Murray Davis (1971), in his famous "That's interesting!" article, contrasted "interesting theories" with "non-interesting theories." He argued that all interesting scientific theories disconfirm, while all non-interesting theories merely confirm certain assumptions of the

audience. Interesting theories make the audience utter "that's interesting (surprising)!" while non-interesting ones elicit "that's obvious" from the audience. In other words, an interesting theory reveals the gap between the audience's knowledge and the truth and draws support from the audience. This claim implies that whether or not a theory or a discipline is accepted by a group of people or a culture largely depends on whether it merely confirms or disconfirms lay beliefs held in the culture. Thus the present findings seem to suggest that social psychology itself is a product of Western culture not only because it originated in the culture but more importantly because it can contradict common beliefs about human behavior held in the culture.

Although Study 1 confirmed the hypothesis that Koreans would display stronger hindsight bias and weaker surprise, one alternative explanation is possible: Koreans may not be typically surprised when a helpful person does not always help another person, but they may be often surprised by other behaviors -- for example, when an unhelpful person sometimes helps another person. In other words, Koreans might have unique expectations about a helpful person. To test this alternative explanation and show that vulnerability to the hindsight bias and the lack of experience of surprise for Koreans is more general, Study 2 was conducted.

STUDY 2: THE BUSY LEVITE STUDY

Study 2 examined whether or not Koreans would be still less surprised and display stronger hindsight bias than Americans by behavior opposite to that in Study 1; that is, when a seemingly less helpful person helped another person (that is, another seemingly contradictory behavior). The procedure of Study 2 was identical to that of

Study 1 except that the target person in the vignette of Study 2 was described as less helpful, cold, and politically motivated, although religious, just like the Levite in the original parable from the Bible.

Method

Participants

Sixty-one Korean students at So-Gang University in Korea and 61 American students at the University of Michigan participated in the study to receive partial course credit.

Procedure

The procedure was identical to that of Study 1. The only change was that the target seminary student was described as religious, but cold, less helpful, and politically motivated. For example, the description indicated that he "quite ambitious, cold, and a bit selfish," and "he never allowed his colleagues to use his notes before exams."

Dependent Variables

The same dependent variables were measured: Probability of helping, consistency, and surprise (see Appendix B for causal judgment questions).

Results

Probability of Helping

A 2 (culture) X 3 (outcome) ANOVA was conducted on the participants' probability estimates of the target person helping the victim. The mean probability estimates are presented in Figure 2.5.

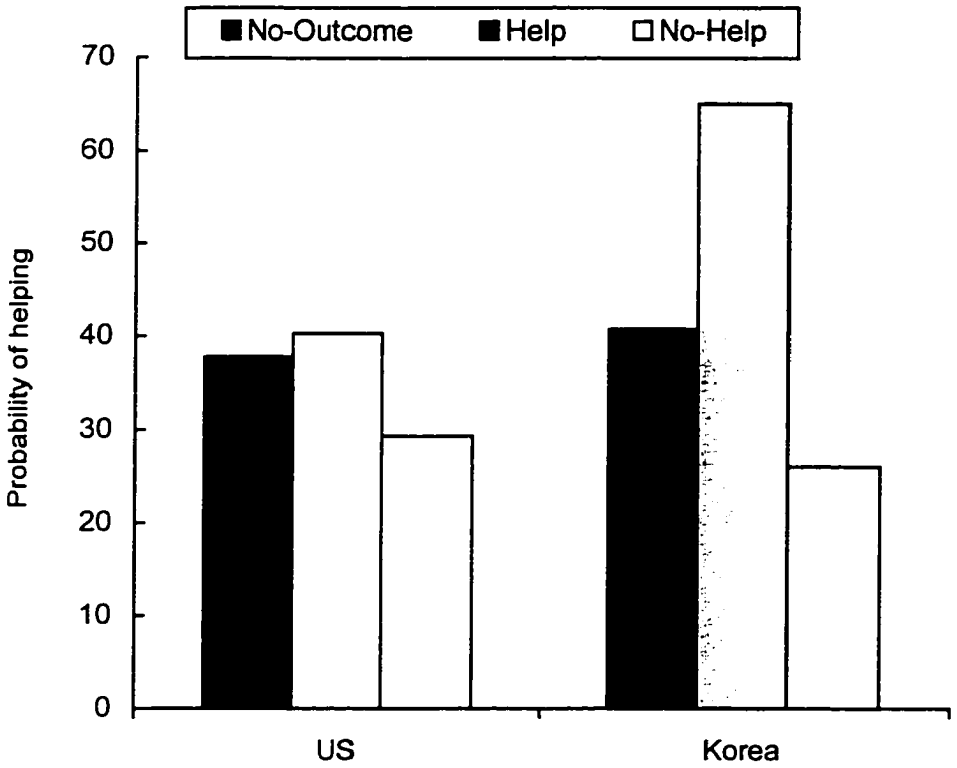

Figure 2.5 Probability that the target person would help the victim in Study 2

There was a main effect of culture F (1,116) = 4.13, $p < .05$, indicating that Korean participants reported that the target person would help the victim more than American participants did (43.92 vs. 35.66). There was also a main effect of outcome, F (2,116) = 12.89, $p < .001$: probability of helping was higher in the Help condition (M = 52.63) than both in the No-Outcome condition (M = 39.27), F (1,116) = 7.68, $p < .01$, and in the No-Help condition (M = 27.78), F (1,116) = 25.66, $p < .001$, while the two latter conditions differ significantly from each other, F (1,116) = 5.62, $p < .05$. This pattern indicates that the typical hindsight bias occurred both in the Help condition and in the

No-Help condition. In other words, probability estimates were significantly higher in the Help condition but were lower in the No-Help condition, compared to the estimates in the No-Outcome condition.

However, this pattern was qualified by culture, F (2,116) = 4.49, $p < .05$: probability of helping was not significantly different among the three conditions for American participants, F (2,116) = 1.41, $p > .20$, while it differed among the three conditions for Korean participants, F (2,116) = 15.96, $p < .001$. As can be seen in Figure 4, Korean participants' probability estimates, compared to the estimates in the No-Outcome condition, were higher in the Help condition, F (1,116) = 12.54, $p < .001$, but were lower in the No-Help condition, F (1,116) = 4.48, $p < .05$. This pattern indicates that Korean participants displayed the hindsight bias both in the Help and in the No-Help conditions.

Self-reported Surprise

Self-reported surprise in the two outcome conditions was compared. A main effect of culture was found, F (1,77) = 18.88, $p < .001$, indicating that American participants were more surprised than Korean participants. There was also a main effect of outcome, F (1,77) = 8.49, $p < .005$, indicating that participants were more surprised when the target person helped the victim than when he did not (3.98 vs. 2.54). However, as can be seen in Figure 2.6, there was also a significant interaction between culture and outcome, F (1,77) = 4.38, $p < .05$: the cultural difference was larger in the Help condition (5.6 vs. 2.35), F (1,77) = 20.64, $p < .001$, than in the No-Help condition (3.10 vs. 1.95), F (1,77) = 2.63, p = .10. More importantly, Korean participants reported the same level of surprise

regardless of whether the target person helped or did not help the victim (2.35 vs. 1.95), $F < 1$.

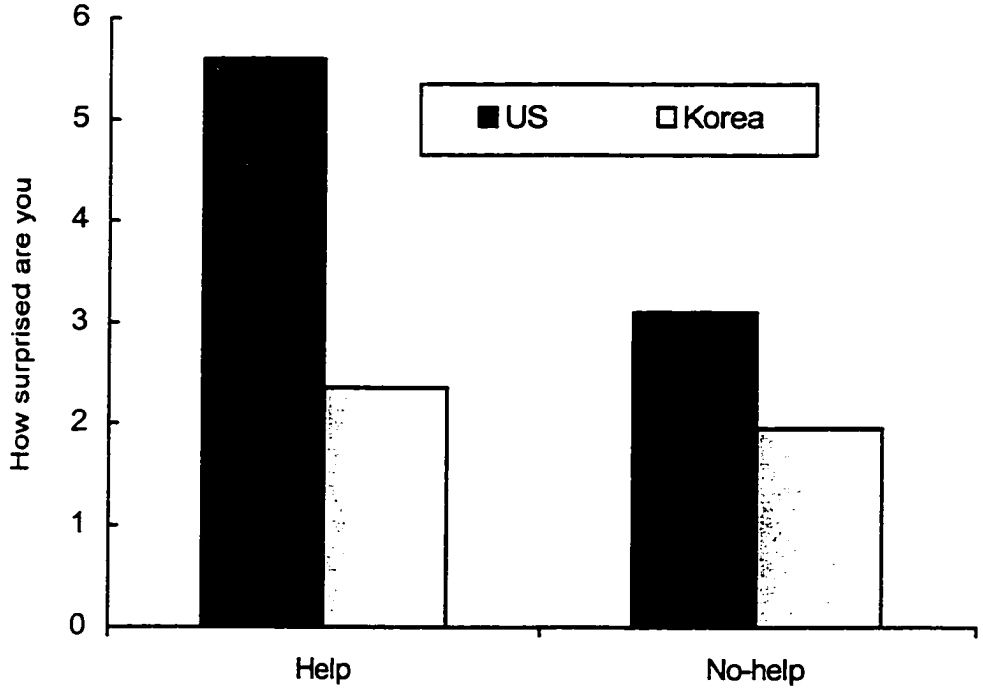

Figure 2.6 Self-reported surprise in the outcome conditions in Study 2

I also compared the anticipated surprise with the actual surprise of participants. When the target person helped the victim, participants were less surprised than they thought they would be (3.98 vs. 4.98), $F(1,77) = 3.63$, $p = .06$, but this effect was obtained for Korean participants, $F(1,77) = 11.49$, $p < .001$, and not for American participants, $F < 1$. The interaction was significant, $F(1,77) = 8.38$, $p < .001$ (see Figure 2.7).

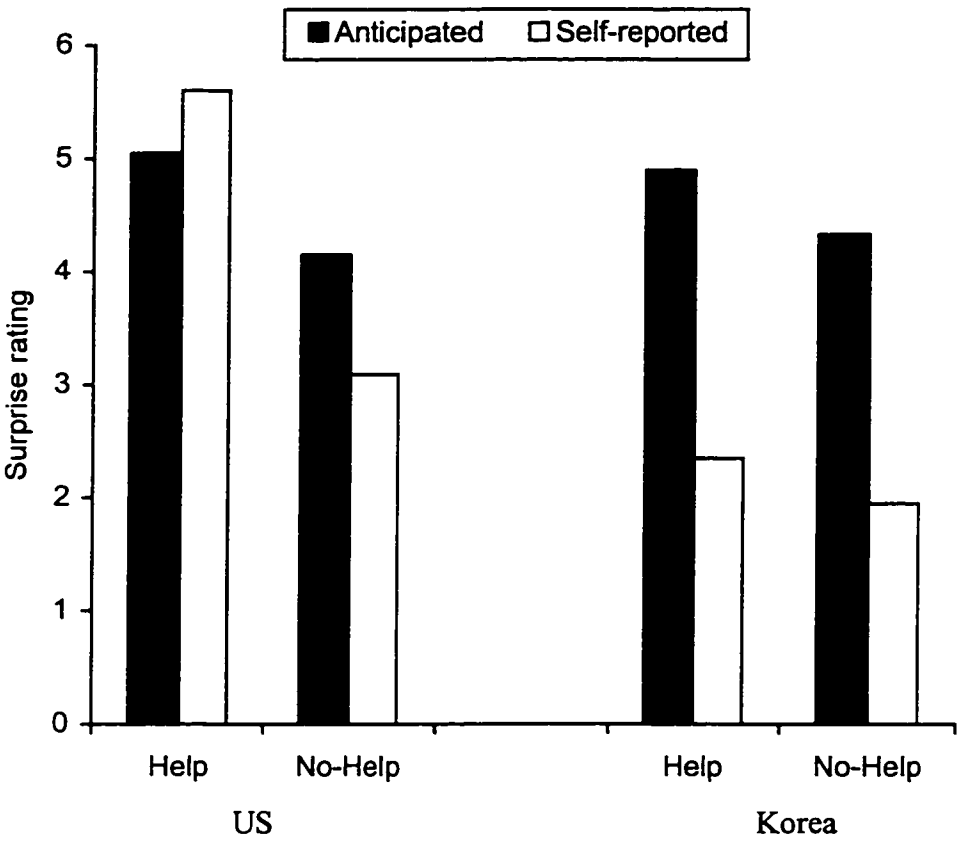

Figure 2.7 Anticipated vs. self-reported surprise in Study 2

When the target person did not help the victim, again both cultures were less surprised than they thought they would be (2.54 vs. 4.24), F (1,78) = 10.98, $p < .001$. However, this was significant only for Korean participants, F (1,78) = 10.55, $p < .001$; for American participants, F (1,78) = 2.07, $p > .20$. The interaction of culture and outcome was not significant, however, F (1,77) = 1.64, $p > .20$

Consistency Estimate

As expected, there was a main effect of outcome, F (2,114) = 3.34, $p < .05$. Further analyses showed that the consistency estimate was lower in the No-Help condition than in the No-Outcome condition (30.32 vs. 41.53), F (1,114) = 3.72, $p < .05$,

while it did not differ between the No-Outcome condition and the Help condition (41.53 vs. 44.69), $F < 1$. Neither the effect of culture nor the interaction of culture and outcome was significant, $Fs < 1$. This pattern shows that hindsight bias appeared for both cultures when the target person did not help the victim. The means of the consistency estimate are presented in Figure 2.8.

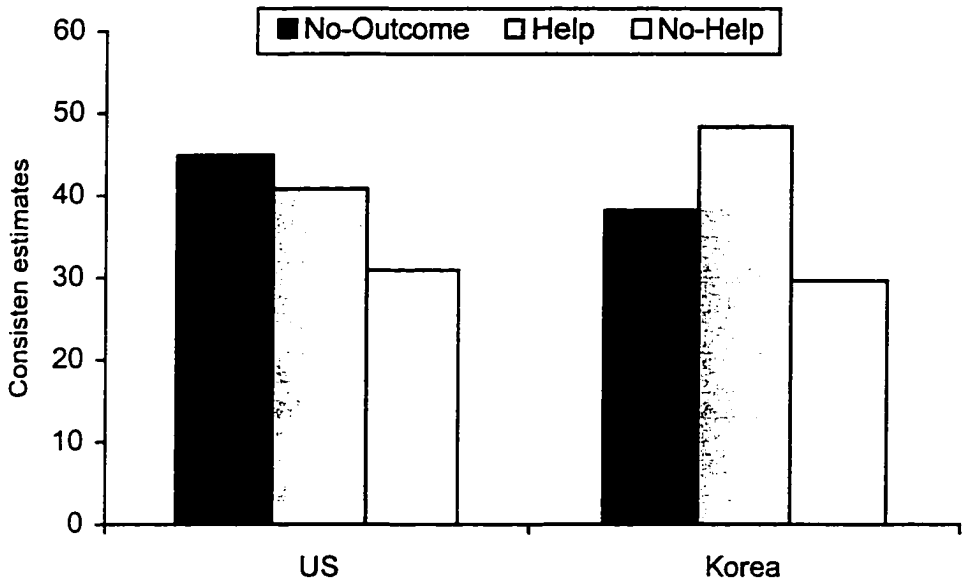

Figure 2.8 How many times the target person would help others in 100 similar situations.

Discussion

The findings of Study 2 show that the tendency for Koreans to display stronger hindsight bias and to be less surprised is a robust phenomenon. When the cold and less helpful target person helped another person, Koreans were less surprised than Americans and were more likely to believe that they could have predicted it than were Americans. Ironically, Koreans were also less surprised than Americans when the target person did not help another person and reported again that they could have predicted it more

confidently than did Americans. In other words, Koreans were less surprised regardless of whether or not the target person helped the victim. This pattern of Koreans' reactions seems to be a clear case for a violation of the law of excluded-middle, which dictates that if helping behavior was not surprising, non-helping behavior should have been surprising or vice versa. Therefore, Study 2 provides stronger evidence that Koreans' interactionist theory of causality rarely allows the experience of contradiction.

This finding appears to be consistent with the claim made by historians of science (Becker, 1986; Bodde, 1991; Cromer, 1993; Galtung, 1981; Huff, 1993) that contradictions are less bothersome in East Asian cultures. These historians of science argued that Asians' epistemology has been under the heavy influence of Buddhism, Confucianism, and Taoism, all of which place little value on the principle of non-contradiction. In particular, the principle of *yin-yang* in Chinese philosophy does not assume the existence of a contradiction because a seeming contradiction can be explained by the operation of *yin* and *yang*. In this sense, the interactionist causal view of East Asians is part of a more general epistemology of East Asians in which the tradition of contradiction is almost non-existent. Chapter III further explores epistemological differences in the two cultures with respect to contradiction and examines its consequences on epistemic curiosity.

CHAPTER III

CONTRADICTION AND EPISTEMIC CURIOSITY

A significant epistemological difference between the East and the West has been observed with respect to how the two cultures conceptualize and respond to "contradiction" (Galtung, 1981; Peng, 1997). A contradiction occurs when two pieces of information are inconsistent with each other in such a way that if one of them is true, then the other *must be* false. However, it is a subjective matter whether an individual considers two contradictory pieces of information as a "contradiction" or not. Once a contradiction is phenomenologically experienced by an individual, this is likely, as I argued in Chapter II, to stimulate one's epistemic curiosity and facilitate adversarial attempts to resolve it, such as debate and argumentation.

However, much of this Western epistemic tradition of contradiction and debate has been absent in the history of Eastern thought. Huff (1993) vividly described this cultural difference even in the Middle Ages:

> there was no awareness of -- much less a pressing need to reconcile -- the conflicting points of view or the contrasting claims to knowledge [for Chinese intellectuals]. Yet this awareness of sharply different interpretations -- of the Bible, the church fathers, Aristotle, natural phenomena, and so forth -- is what most characterizes European thought in the twelfth and thirteenth centuries (p.301).

Huff attributed the Chinese failure to develop modern science to this relative absence of awareness of contradiction in their culture. Galtung (1981) made a similar observation. He contrasted the intellectual styles, and ways of doing social science in particular, of four ethnic groups: British and American, French, German, and Japanese. The distinctive feature that separates Japanese intellectuals from their counterparts in other three groups, particularly the Americans, Galtung argued, is that Japanese do not -- and in a sense *cannot* -- debate because they believe that debate will jeopardize their interpersonal harmony, which is considered as *the* cultural nightmare. Galtung related this Japanese reluctance to debate in doing social science to their relatively small contribution to social science. By the same token, Becker (1986) documented various reasons, ranging from social, linguistic, and religious factors, why intellectual debate has been absent in the history of East Asian thought. For example, Becker argued that Chinese society was organized as a vertical hierarchy in which the expression of individual voice, especially by a lower status person, was almost impossible. The following quote from Becker (1986) illustrates this point well:

> This perception of the world as a vertical hierarchy rather than as a community of equals is nowhere better reflected than in the Chinese translations of Indian Buddhist texts. Chinese scribes literally rewrote many Sanskrit sutras (scriptures), changing phrases such as "he opened his eyes without looking to his master for help" into Chinese phrases reading, "he listened to his master's teaching and accepted it as true" (Nakamura, 1964, pp. 208-212, cited in Becker, 1986, p.77)

Contradiction has not only been recognized when it exists but also has been actively created as a means to understand truth in the West. Galtung argued (1981) that

the epistemology prevalent in American culture *required* bringing opposing views onto the table and engaging in debate over the views (Tannen, 1998). This practice appears to be based on the belief that through examining opposing views, truth can be better understood. Indeed Cromer (1991) maintained that the principle of non-contradiction and debate are the core of modern science and that these two related epistemological features were absent in all ancient cultures except the Greek, which later became the foundation of Western thought.

In support of the claim about the East-West difference in contradiction and debate, Peng (1997) provided some empirical evidence that even contemporary Chinese maintain this tradition. For example, Chinese participants in his study, compared to American participants, (1) preferred "dialectical" proverbs that accept rather than deny a contradiction (e.g., "Sorrow is born of excessive joy") to "non-dialectical" proverbs that reflect the rule of non-contradiction (e.g., "Half a loaf is better than none"), (2) actively sought dialectical solutions to avoid social conflicts such as compromise by blaming both parties, and (3) accepted two opposing arguments as both true, rather than trying to choose one over the other as American participants typically did. Such a fondness for dialectical thinking by Chinese was also found even among those who had been deeply exposed to Western education (i.e., Chinese graduate students in natural science at the University of Michigan). Peng (1997) characterized this Chinese thinking style as "naive dialecticism," and the American style as "linear thinking."

Interactionist Causality and Contradiction

Such an absence of the tradition of debate for dealing with contradiction in Asian history is predicted by the Asian interactionist epistemology, where contradiction is a norm. The findings of Studies 1 and 2 provide some support for this proposal regarding the interactionist theory and the experience of contradiction.

In Study 1, participants from both cultures in the No-Outcome condition strongly expected that the target person would help the victim. Therefore, when the target person had not helped the victim, it should have been taken as a contradiction of their expectation by those participants. Thus, Korean and American participants should have been surprised equally. However, that was not the case. Korean participants, although they had expected that the target person would help the victim as much as did American participants, were less surprised than their American counterparts when the target had not helped the victim.

A similar but stronger pattern was also found in Study 2. Participants from both cultures were equally confident that the (new) target person would not help the victim. However, when the target did help the victim, which should have been equally surprising to the participants, Korean participants were less surprised than American participants. Moreover, Korean participants experienced surprise to the same degree regardless of whether the target person had or had not helped the victim.

Cognitive Dissonance and Contradiction

Cross-cultural research on cognitive dissonance also seems to be consistent with the claim that Asians often fail to recognize and resolve contradiction. Cognitive

dissonance occurs when one's belief (attitude, value) is not consistent with (or *contradicts*) one's behavior. This dissonance is experienced as psychological discomfort that motivates an individual to restore consonance or consistency. What people typically do in order to reduce dissonance is change their beliefs in the direction of their behavior because the behavior is often irrecoverable and thus hard to change. This belief change is called the cognitive dissonance effect.

It can be easily argued, that the more an individual is indifferent to inconsistency or contradiction, the less likely is the dissonance effect to occur. Several studies found that the dissonance effect was harder to obtain for Asians. For example, Choi, Choi, and Cha (1993) tried to replicate the Festinger and Carlsmith (1959) forced compliance study for Korean college students, but failed to get the dissonance effect. The same failure occurred for Chinese (Hiniker, 1969). Heine and Lehman (1996), in a different paradigm, also found that the dissonance effect did not occur for Japanese. In a similar vein, Kashima and his colleagues (Kashima, Siegel, Tanake, & Kashima, 1992) found that Japanese do not believe in attitude-behavior consistency as strongly as Australians. In addition, Suh (1998) also reported that Koreans were not as concerned about being consistent as were Americans and being consistent did not influence Koreans' mental health as much as it does Americans' mental health.

In sum, the finding that Asians are less concerned with internal consistency seems to accord with the claim that Asians are not much concerned about contradiction.

Contradiction, Hindsight Bias and Epistemic Curiosity

If the recognition or creation of contradiction is effective for increasing epistemic curiosity, it should also decrease the chance of hindsight bias occurring (and explanation bias for the same reason) and increase the experience of surprise. In this section I will provide some supportive evidence for these claims.

As I discussed in Chapter II, simply generating an explanation for a hypothetical future event increases its subjective likelihood or explanation bias. One way to reduce this bias is to make people explain an opposite event as well. This manipulation is effective because providing a counter-explanation induces people to realize a possible contradiction between the target event and the opposite event, typically characterized as a sense of uncertainty. This will eventually reduce the feelings of predictability and inevitability of the target event. Many studies have found that this is indeed the case (e.g., Anderson, 1982; Anderson & Sechler, 1986; Hirt & Markman, 1995; Lord, Lepper & Preston, 1984). For example, when participants were asked to explain why the Montreal Expos would finish in first place in the 1993 NL East and were also asked to explain why the St. Louis Cardinals would finish in first place in the NL East, their estimates of the Expos winning the NL East were significantly lower than when they did not offer an explanation for the Cardinals' winning. Those participants might have realized higher uncertainty regarding the Expos' winning, presumably because their explanation of the Cardinals' winning might have contradicted that of the Expos' winning and vice versa (Hirt & Markman, 1995).

However, it is important to point out that such an effect of a counter-explanation appeared only when the explanation of an alternative outcome was both plausible and

available (Anderson, New, & Speer, 1985; Hirt & Markman, 1995). For example, explaining a weaker team (Florida Marlins at that time) winning the NL East did not reduce the probability estimate of the Expos' winning, presumably because explaining why the Marlins might win was difficult. Such a strategy of reducing explanation bias is called the "consider-the-opposite" (Lord, Lepper & Preston, 1984) or the "consider-an-alternative" (Hirt & Markman, 1995) technique. These techniques have been found effective in reducing a related judgmental bias, the overconfidence bias (Hoch, 1985).

Creating a sense of contradiction by providing an alternative or opposite event also has been found to reduce hindsight bias. In a study by Nario and Branscombe (1995), participants read a short passage that described a scene of confusion at an airport and a very turbulent passenger flight. Participants read that the flight resulted in either a fatal crash or an emergency but safe landing. They were asked to explain why it happened. Overall, participants with the outcome information displayed the typical hindsight bias. However, the bias was reduced when participants were asked to explain alternative outcomes. For example, when participants in the crash condition were asked to explain how events could have led to a safe landing, their probability estimates of a crash in hindsight were significantly reduced. Even more relevant to this dissertation is evidence that creating a sense of contradiction increases epistemic curiosity (Lowry & Johnson, 1981; Smith, Johnson, & Johnson, 1981). In these studies, participants were supposed to discuss an issue, and they were assigned to two groups: a controversy-based debate group vs. a concurrence-seeking discussion group. Participants in the controversy group were encouraged to actively generate and consider opposite ideas and debate them, whereas those in the concurrence-seeking group were required to avoid bringing up any opposing

argument and to offer compromise as soon as any opposing argument did arise. The experimenters in the studies generally found that participants in the controversy group showed a significantly greater increase in epistemic curiosity about the issue than those in the concurrence-seeking group. Moreover, the controversy group made better decisions.

In sum, making people recognize the existence of a contradiction between two arguments decreases hindsight bias (and explanation bias) and ultimately increases epistemic curiosity. Thus, it seems reasonable to expect that if East Asians' epistemology has not encouraged the recognition of contradiction as strongly as European Americans' epistemology, East Asians will be less influenced by such manipulations as asking participants to consider the opposite or an alternative. The next section describes two studies conducted to test this hypothesis.

STUDY 3: THE NSF DECISION STUDY

In Study 3 I attempted to investigate how the presence of an alternative (thus contradiction-provoking) hypothesis would affect the experience of surprise for Koreans and Americans. I reasoned that providing an alternative to a given outcome should increase the experience of surprise (because it would make people realize that the given outcome was not inevitable). Furthermore, I hypothesized that such effects (1) would be stronger to the extent that the alternative is perceived as more likely than the target because a sense of contradiction becomes stronger accordingly and (2) would be greater for Americans than for Koreans.

Method

Participants

Forty students at the University of Michigan and thirty-nine students at So-Gang University in Korea participated in the study for partial course credit.

Procedure

I introduced the study to participants as a survey investigating what college students thought about psychological studies. Participants were a given a booklet containing brief summaries of two psychological studies and were asked to report their opinions about each study[1].

Participants were randomly assigned to two conditions: the One Hypothesis and the Two Hypotheses conditions. Participants in the One Hypothesis condition were presented with two studies which each investigated a single hypothesis. They then read that the hypothesis of each of the two studies had been confirmed. Participants in the Two Hypotheses condition were given the identical hypothesis along with an alternative hypothesis regarding each study. They also read that the target hypothesis, not the alternative one, had been confirmed. Then participants reported how they felt about each study, including how interesting, surprising, and new the finding of each study was on

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[1] There was another target study, which concerned adoption and the likelihood of conception. Two hypotheses were that adoption may increase or decrease the chance of being conceived. However, this target study could not be used for testing my hypothesis because the adoption-increases-conception hypothesis, compared to the adoption-decreases-conception hypothesis, was perceived as more plausible in the One-Hypothesis condition but it was perceived less plausible in the Two-Hypotheses condition. In other words, which hypothesis was dominant varied in the two conditions. Therefore, a critical

three 11-point scales. In addition to those three questions, all participants were asked to report their hindsight likelihood judgment of each hypothesis on a scale of 0 ("extremely unlikely") to 10 ("extremely likely"). This likelihood judgment was necessary for determining which hypothesis was a dominant one.

The two psychological studies and their hypotheses were as follows:

Study 1: Risk-taking behavior in a group

Hypothesis 1: Group increases risk-taking tendency

Hypothesis 2: Group decreases risk-taking tendency

Study 2: Self-view and mental health

Hypothesis 1: Optimism increases mental health

Hypothesis 2: Realism increases mental health

Dependent variables

Participants were asked to report their opinions about the finding of each study. Specifically they were asked to report on three 11-point scales from 0 ("not at all") to 10 ("extremely") "how surprising (interesting, new) is the finding of this study to you?" They were also asked to judge the *hindsight* likelihood of each target hypothesis on an 11-point scale, pretending that they did not know the finding of the study.

Results

Since Study 3 did not have a no-outcome condition (i.e., prediction condition), a typical analysis of hindsight bias (i.e., comparing probabilities in foresight and in

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comparison of participants' reactions to a subordinate hypothesis between the two

hindsight) could not be carried out. Based on participants' responses to the likelihood question, I was able to determine which hypothesis had been perceived as more likely (a dominant hypothesis). For target study 1, the risk-taking-in-a-group hypothesis (hypothesis 1) was perceived as more plausible than the risk-avoiding-in-a-group hypothesis (hypothesis 2) (7.00 vs. 4.72), F (1,75) = 22.17, $p < .001$. For target study 2, the optimism hypothesis (hypothesis 1) was viewed as more plausible than the realism hypothesis (hypothesis 2) (8.13 vs. 6.29), F (1,72) = 34.45, $p < .001$. In both cases, the two cultures did not differ in their perceptions of plausibility, Fs < .1

How Surprising, Interesting, and New

A primary goal of Study 3 was to test the hypothesis that providing an alternative outcome will make a given outcome more surprising, interesting, and new than otherwise. I expected this to happen especially when the subordinate hypothesis was found to be true when the dominant one was provided as an alternative. The analyses focused on the comparison between the One Hypothesis condition and the Two Hypotheses condition. For purposes of analysis, I combined participants' reports of surprise, interestingness, and novelty because they were all indicators of epistemic curiosity. A higher number means that participants found the study more surprising, interesting, and new.

For target study 1 (risk-taking in a group), there was a main effect of culture, F (1,150) = 10.01, $p < .005$, indicating that overall Americans were more surprised than Koreans (5.29 vs. 4.38, see Figure 3.1).

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conditions did not make a sense.

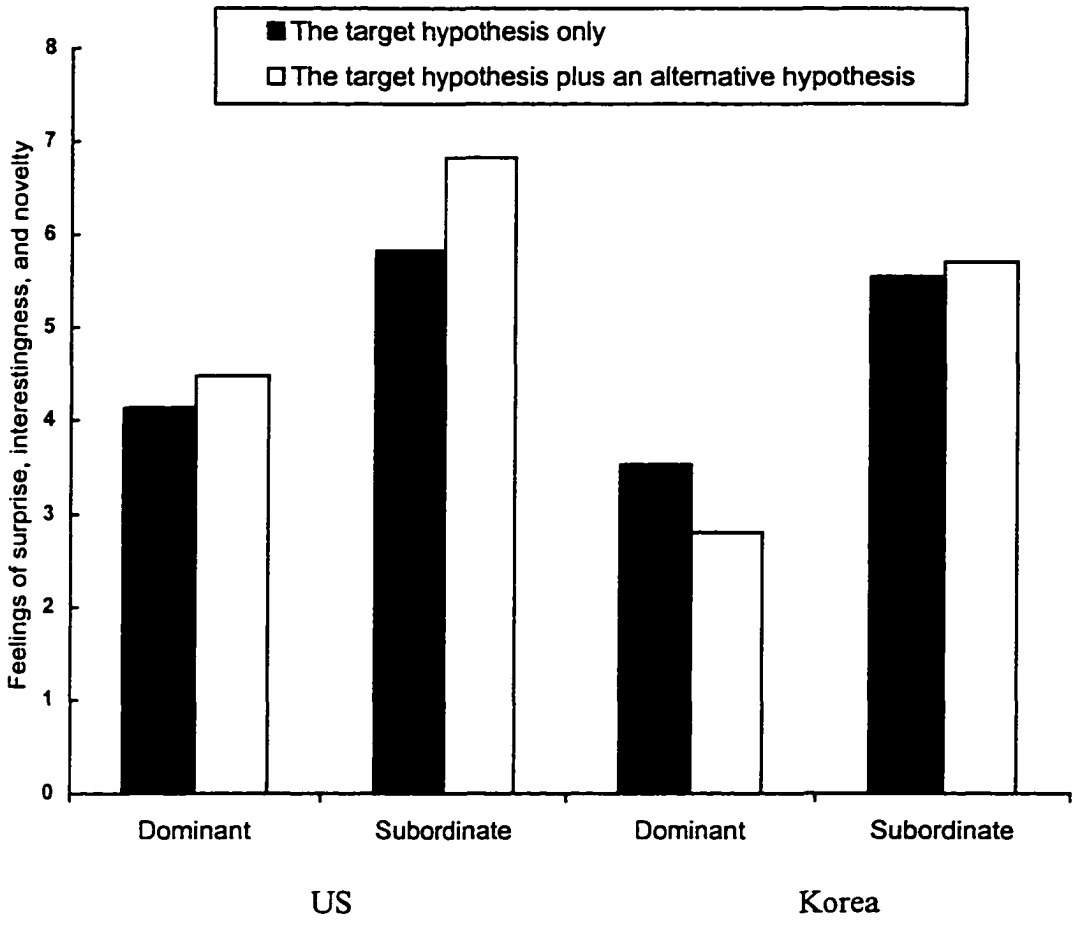

Figure 3.1. Feelings of surprise, interestingness, and novelty for target study 1

There was also a main effect of truth, F (1,150) = 58.81, $p < .001$, indicating that participants were more surprised when the subordinate hypothesis was true than when the dominant hypothesis was true (5.97 vs. 3.73). However, no effect of providing an alternative hypothesis was found, $F < 1$, although this statement must be qualified in light of a marginal interaction with culture, F (1,150) = 2.73, $p = .10$. This interaction indicates that American participants found the study more surprising, interesting, and new when they had read two hypotheses than when they read the target hypothesis only (5.61 vs. 4. 98), whereas there was no difference for Korean participants (4.25 vs. 4.50). For

Americans, as expected, this effect of providing an alternative was particularly pronounced when the subordinate hypothesis was true, t (39) = 1.89, p = .07. (However, the three-way interaction of culture, hypothesis, and truth was not significant, $F < 1$.)

For target study 2 (self-view and mental health), there were main effects of culture, F (1,151) = 18.20, p < .001, and of truth, F (1,151) = 15.56, p < .001, as in target study 1 (see Figure 3.2).

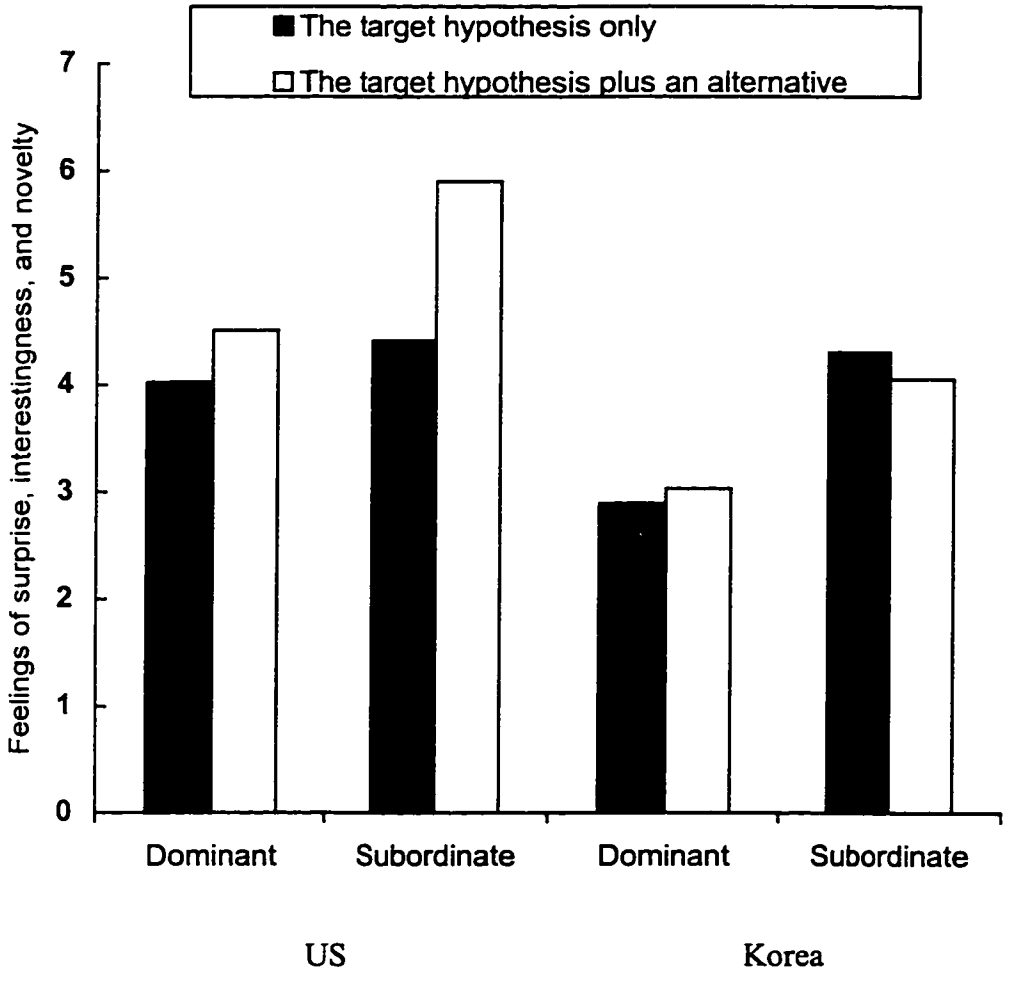

Figure 3.2. Feelings of surprise, interestingness, and novelty for target study 2

American participants were more surprised than Korean participants (4.71 vs. 3.58), and participants overall were more surprised when the subordinate hypothesis was true than when the dominant hypothesis was true (4.67 vs. 3.62). However, unlike in target study 1 and as can be seen in Figure 3.2, the effect of providing an alternative hypothesis was observed, $F(1,151) = 3.19$, $p = .08$, indicating that participants were more surprised in the Two Hypotheses condition than in the One Hypothesis condition (4.38 vs. 3.93).

More importantly, this was qualified by culture, $F(1,151) = 3.97$, $p < .05$. This interaction effect indicates that the effect of providing an alternative hypothesis existed only for Americans (5.22 vs. 4.22), not for Koreans (3.54 vs. 3.62). As expected, when the subordinate hypothesis was true, Americans were more surprised in the two hypotheses condition than in the one hypothesis condition (5.9 vs. 4.41), $t(39) = 2.57$, $p < .05$, although the three way interaction was not significant, $F(1,151) = 1.70$, $p < .20$.

Discussion

It was expected that the presence of a stronger alternative hypothesis would make the confirmation of a weaker target hypothesis appear more surprising, compared to when that alternative hypothesis was not presented. This experience of surprise would be expected to occur to the extent that people engage in counterfactual reasoning to the effect that "the alternative hypothesis could have been true." Study 3 found the expected pattern for American participants, but not for Korean participants. Korean participants were little influenced by the presence of a stronger alternative hypothesis. They seemed to behave as if the target hypothesis would have been true under any circumstances. This

finding is consistent with my hypothesis that Koreans would be influenced to a lesser degree by the presence of contradiction.

Study 3 has an interesting implication for counterfactual reasoning-related phenomena, including the experience of fate and regret. Fatalism occurs to the extent that people believe that what happened was meant to happen no matter what and that there was nothing they could have done to alter it. Korean participants' responses in Study 3 seem to suggest that fatalism may be more common in Korean culture (and by implication Asian culture) than in American culture. Indeed one of the widespread stereotypes of Asians is that they have a fatalistic attitude. It has even been suggested that because of their fatalism Asians would not think in terms of probability as often as Westerners (Wright & Phillips, 1978)

On the other hand, regret occurs to the extent that people engage in counterfactual reasoning of "only if...," implying that they could have done something to change the outcome of an event (Gilovich & Medvec, 1995). The intensity of regret increases as a given outcome is considered in counterfactual thought as undoable. In this sense, fatalism and regret seem to be moving in opposite directions. Although there is presently little empirical support, it is conceivable that Asians experience regret less than Americans. For example, several scholars in Korea characterized their culture as "Han" culture. "Han" is an indigenous term in the Korean language that typically refers to an emotion stemming from their passive stance toward their environment. This emotion of "Han" is conceptually similar to the sense of "helplessness" in the sense that both are characterized by the sense of lack of control.

Study 4 was conducted to examine whether Koreans would not be influenced even by a clear contradiction.

STUDY 4: THE LIAR LIAR STUDY

Study 3 used a relatively weak manipulation to create a sense of contradiction: providing an alternative hypothesis. Whether or not participants experienced contradiction in Study 3 depended on the extent to which they gave some thought to the alternative hypothesis. Study 4, however, attempted to create feelings of contradiction in a stronger way such that it could be more certain that participants from the two cultures might *equally* believe that an alternative outcome could have been true.

One such way would be to induce an expectation that one statement (or an alternative) is true and then inform participants that the opposite statement is in fact true and that the first statement is false. This deceptive manipulation can guarantee that people believed the first alternative *at least temporarily*. To achieve this goal, I provided two rival hypotheses for a psychological study to participants. Half of them were led to believe that one of the hypotheses was confirmed, whereas the other half were informed of the opposite. Participants were then asked how surprising, how interesting, and how new the finding of each study was. Then participants received a debriefing, which in fact was an experimental treatment. Participants heard from an experimenter that they had received by accident the wrong information and that the other hypothesis had been in fact true. They were asked to ignore the prior information they had obtained and to report their evaluations of the study again but with the new information. This manipulation

allowed me to be confident that participants had believed at least temporarily that the prior information had been true (i.e., an alternative hypothesis).

Method

Participants

Thirty-six students from an introductory psychology class at the University of Michigan participated in the study for partial fulfillment of course credit. Thirty-eight students from an upper-level psychology class at Seoul National University participated in the same study at the request of the class instructor.

Procedure

The study was introduced to participants as an attempt to survey ordinary people's opinions about a psychological study on a controversial issue, namely self-view and mental health issue used in Study 3. An experimenter informed participants that despite some armchair debate about whether an optimistic or a realistic self-view would be more adaptive for mental health, there were few studies that had empirically investigated the issue. He further explained that his laboratory had finished the first empirical study on that issue and that the laboratory members had been very anxious to find out how college students would think about their finding.

Participants were presented with a booklet containing the cover story described above and two contradictory hypotheses about mental health and self-perception. The hypotheses were; Realism (R), meaning that viewing oneself accurately without any distortion is good for mental health vs. Optimism (O), meaning that viewing oneself in an

unrealistically positive light is good for mental health. The full descriptions of each hypothesis were as follows:

> (Optimism) Despite the popular notion that accurate perception is the hallmark of mental health, there is little support for the view. If one perceives one's weaknesses too clearly as they are, this will be painful and one will be disappointed and less motivated. The person may lose any chance to engage in activities to boost self-confidence from the beginning. What is important in mental health is who I want to be, not who I am right now. Self-confidence can be obtained by viewing oneself more positively than reality would dictate. If people view themselves more positively, believe that they have control over their environment, and expect that their future is rosy, their mental health will be much greater than that of those who perceive themselves too accurately. In short, optimistic belief, even if it is an illusion, is necessary for mental health.
>
> (Realism) According to philosophical tradition spanning more than 20 centuries, the unique quality of human kind is the ability to engage in rational, adaptive thought and to distinguish the real from the apparent. The ability to perceive reality as it "really" is the prerequisite for mental health. The absence of self-delusion is critical for mental health. If one views oneself in an unrealistically positive light, one will be unrealistically overconfident and not to try hard enough. It is apparent that the person is

likely to fail. Only when people acknowledge their weaknesses, they try to improve them, and eventually become more mentally healthy.

In both experimental locations, half of the participants read that the hypothesis R had been found to be true in the study. The other half read that the hypothesis O had been true. Given this information, participants were then asked to report their opinions about the study, including how surprising, how interesting and how new the finding was to them. The experimenter then collected the questionnaires from participants, and then gave a debriefing that in fact was a deception procedure. Participants who had read that R had been true were told that the study had found that O was true and R was wrong. In other words, the experimenter deliberately, unbeknownst to participants, told a lie. Upon hearing this "inconsistent" information from the experimenter, the participants expressed obvious puzzlement and doubts and some of them asked the experimenter a question; "I read the opposite in the questionnaire. I read that R was true and O was wrong." The experimenter acted as if he was embarrassed, displayed a moment of silence, and checked out the questionnaire he had just collected. Then he announced in a very apologetic way that for some reason there had been a typing error in the questionnaire so that participants had obtained the wrong information. He explained that his undergraduate assistant might have typed "R" in the place for "O" and vice versa.

Then the experimenter asked them a favor in a very polite manner: he asked them to fill out a second copy of the questionnaire now that they had been given the "correct" information. He also told them that the questionnaire still contained the same error and that they had to correct it themselves. All participants agreed to fill out the questionnaire

again. So they corrected the error by hand and reported their opinions again but with the new information.

Participants who had read that O was true followed the identical procedure except that they later heard that R had been true.

Dependent Variables

Participants were asked to report how surprising, interesting, and new the finding was to them on three 9-point scales with 1 (for example, "not surprised at all") and 9 ("very surprised ") as two anchors.

Results

Since Study 3 showed that both cultures perceived Optimism (O) as more plausible than Realism (R), I expected that a sense of contradiction would be stronger in the O-R sequence than in the R-O sequence. In the R-O sequence, participants finally heard what they had expected (that is, O). Thus, it was also expected that the cultural difference in the effects of contradiction would be smaller in the R-O sequence than in the O-R sequence. I will present the data for the R-O sequence followed by the O-R sequence

R-O Sequence

Participants' responses to the three questions were combined for data analyses. As can be seen in Figure 3.3, there was no effect of culture, or of truth, not was there an interaction, $Fs < 1$.

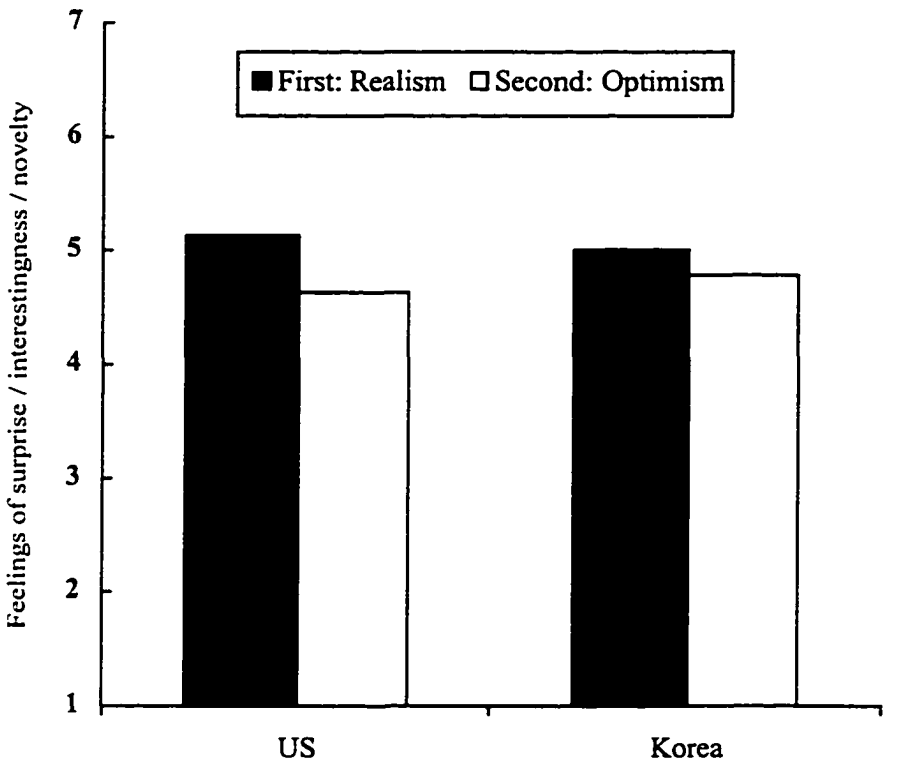

Figure 3.3. Feelings of surprise, interestingness, novelty in R-O sequence

Although participants seemed to be less surprised when Optimism was true than when Realism was true, that was not statistically significant. This pattern of data suggests that the manipulation in the R-O sequence did not create a sense of contradiction at all for either cultures. This is, however, understandable because Optimism was perceived as more plausible than Realism by both cultures.

O-R Sequence

Data are presented in Figure 3.4.

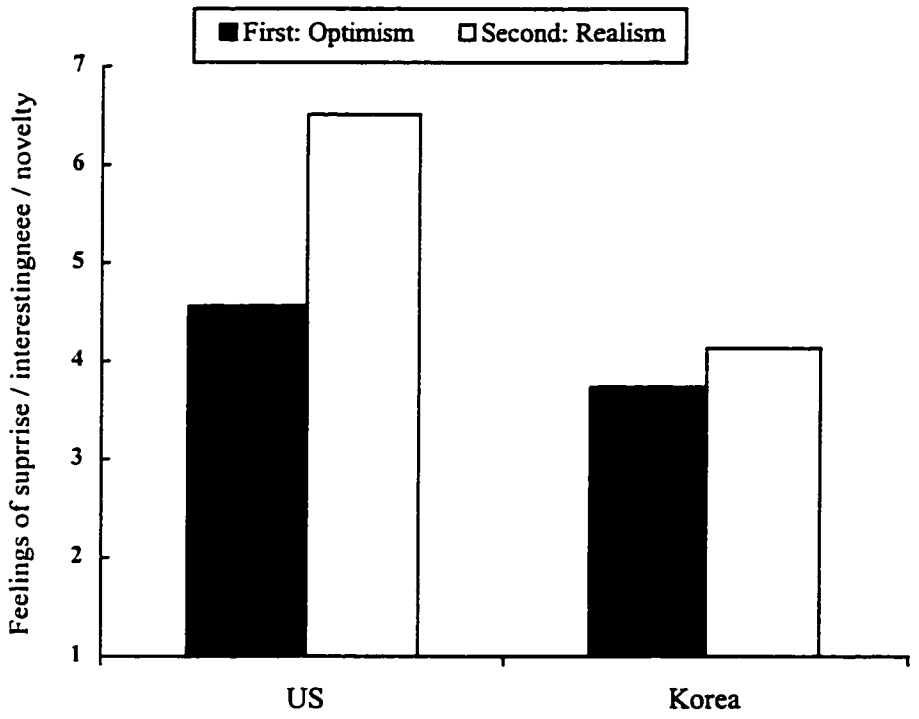

Figure 3.4. Feelings of surprise, interestingness, and novelty in O-R sequence

There was a main effect of culture, F (1,35) = 24.73, $p < .001$, indicating that the finding of the study was perceived as more surprising, interesting, and new by the Americans. As expected, participants were more surprised when R was true than when O was true, F (1,35) = 17.04, $p < .001$. However, this was qualified by culture, F (1,35) = 7.29, $p < .05$. American participants were more surprised after than before the debriefing (6.51 vs. 4.56), t (18) = 4.55, $p < .001$, whereas Korean participants did not show any significant difference in their experience of surprise, interest, and novelty (4.13 vs. 3.73), t (17) = 1.09, $p > .25$.

Discussion

As we have seen, the manipulation in Study 4 was intended to create a stronger sense of contradiction, or at least uncertainty, for participants than did that of Study 3. Nonetheless, Korean participants in Study 4 were again less influenced by the manipulation. That is, they did not display any sign of phenomenological experience associated with epistemic curiosity, such as surprise and interest. However, it may be argued that Korean participants simply might have accepted the experimenter's instruction to ignore the prior information more readily than American participants. In other words, when the experimenter asked participants to ignore the first information they had received and to base their opinions solely on the new information, Korean participants followed the instruction more fully because they are typically more respectful to an authority figure than American participants. Therefore, the absence of surprise by them cannot be interpreted as directly implying that they have weaker epistemic curiosity in general.

Although this alternative explanation might seem not to support my claim, it does not in fact contradict it. When people easily give up their beliefs faced with an authority figure, they are less likely to be motivated to engage in information-seeking behavior. If the history of science is any indication (Kuhn, 1962), obedience to authority has been one of the biggest obstacles to epistemic curiosity and science. Therefore, even if Korean participants had simply obeyed the authority, this suggests that their epistemic curiosity will be less likely to be activated.

The present findings raise an important question about the so-called belief perseverance effect (Ross, Lepper, & Hubbard, 1975) and the theory maintenance

phenomenon in general (Anderson, Lepper, & Ross, 1980). The manipulation I used in Study 4 is conceptually similar to the one that has been used in research on the belief perseverance effect and the theory maintenance phenomenon. These manipulations all require participants to ignore the prior information they have received because it was either false (Study 4) or arbitrary (Anderson et al. 1979; Ross et al, 1975). Participants in this situation would be expected to behave as if they had never heard the prior information. For example, participants in the studies of the theory-maintenance phenomenon were expected to abandon the theory that they have generated based on the prior information because the information is arbitrary. However, those participants do not typically behave that way: they continue to hold to the prior theory even after it is totally discredited. Such a perseverance tendency has been characterized as "nonnormative" (Ross & Nisbett, 1981).

Of course it is not normative. However, Study 4 indicates that if this perseverance tendency were absent, people would simply accept a new piece of information without any resistance or surprise, even when it is contradictory to their prior beliefs. As I have discussed in Chapter II, epistemic curiosity occurs when an individual recognizes a "gap" between new information and her current knowledge state. If an individual gives up her current knowledge state too easily and accepts the new information as true, the person is less likely to engage in information-seeking behavior.

To the extent that an individual sticks to her prior knowledge, there is a chance that she will be surprised or irritated by contradictory information. It is also conceivable that only when people are not easily persuaded by new contradictory information are they

more likely to engage in argumentation and debate, both of which, as I have argued earlier, facilitate epistemic curiosity and scientific endeavor.

Study 4 seems to demonstrate this point. When participants were faced with new information that was contradictory to what they had heard before, American participants were more surprised than Korean participants. Korean participants behaved as if they had never heard the first information, which may be characterized as being more "normative." This cultural difference can be interpreted as being due to the stronger tendency for Americans to stick to their prior beliefs, which has been repeatedly demonstrated (for reviews see Nisbett & Ross, 1980). Thus I argue that the nonnormativeness of the belief perseverance effect among Americans may sometimes result in more desirable outcomes, such as increased epistemic curiosity and debate.

CHAPTER IV

IMPLICATIONS

The present dissertation was based on the assertion that if a person holds a complex and unspecified interactionist naive theory about the world, she tends to take "inconsistency" or "contradiction" for granted and consequently is less likely to have phenomenological experiences such as surprise and irritation that are crucial for activating epistemic curiosity. This hypothesis was tested through four studies by contrasting Koreans, who are known to have a more interactionist epistemology, with Americans, whose epistemology is less interactional.

Studies 1 and 2 attempted to investigate whether Koreans would show greater hindsight bias and experience weaker surprise for an unexpected behavior. Study 1 used a slight variation of the Good Samaritan Study (Darley & Batson, 1973). When a very religious person did not stop to help another person in need, presumably because he was in a time constraint situation, American participants reacted as if they could not have predicted such a behavior from the target person and displayed strong indications of surprise. However, Korean participants acted as if they could have predicted such a non-helpful behavior from the religious target person and did not show much surprise. Such reactions of Koreans are at odds with their strong foresight expectation that the target person would help the victim. In other words, their reactions in hindsight were self-contradicting.

Study 2 replicated Study 1 by reversing the expectations about the target. When a selfish and less helpful person, though religious, stopped to help another person in need, Koreans, unlike Americans, acted again as if they knew it all along. More interestingly, Koreans' reactions to the target's behavior were little different regardless of whether the target person helped or did not help the victim. In contrast, Americans were more surprised when the target person helped the victim than when he did not. Such contrasting reactions are consistent with the claim that interactionists (Koreans) do not see contradictions as readily as dispositionists (Americans). If helping was surprising, then non-helping should not be surprising and vice versa. This principle of non-contradiction seemed weaker for Korean participants.

Studies 3 and 4 further explored the effects of interactionist vs. dispositionist epistemology on the experience of contradiction. Study 3 attempted to create a sense of contradiction by providing an alternative outcome together with a target outcome. This manipulation was expected to induce participants to realize that the alternative outcome, not the target outcome, could have occurred resulting in a sense of contradiction. Study 4 created a contradiction in a more direct way by flatly reversing a belief participants had just been induced to hold. In both studies, American participants experienced such psychological states as feelings of surprise, interestingness, and novelty that are crucial in epistemic curiosity. However, Korean participants displayed these phenomenological experiences to a much lesser degree.

In sum, Studies 3 and 4 demonstrated by experimental manipulations that interactionists (Koreans) were not as influenced as dispositionists by contradiction.

These findings have significant implications for the development of science and for many important social psychological phenomena.

Culture, Naive Theories, and Science

> In all history, nothing is so surprising or so difficult to account for as the sudden rise of civilization in Greece. ....certain elements had been lacking until the Greeks supplied them..... They invented mathematics and science and philosophy; they first wrote history as opposed to mere annals; they speculated freely about the nature of the world and the ends of life, without being bound in the fetters of any inherited orthodoxy. (Bertrand Russell, *A History of Western Philosophy,* p. 3)

My dissertation supports this no-longer radical claim about the cultural origins of science. Part of the reason that only the Greeks, and not the Chinese, were able to maintain their curiosity about nature, is that their models about the world were *simple* and *specific* as opposed to complicated, and thus generated *testable predictions* (Kane, 1998; Qian, 1985). For example, although Aristotle's theory of physics was amazingly wrong, his theory was nevertheless influential in the later development of science because it generated testable predictions. His theory was capable of being replaced by that of Galileo. As Kane puts it, doing science "means making up ideas to explain the natural world, and then *testing* those ideas and *modifying* them if they are wrong."

My dissertation makes a similar point that an "unspecified interactionist" theory does not stimulate epistemic curiosity mainly because it is not testable. A simple and specific theory is better, even if it is wrong, because it can be contradicted and can invite a new theory (Kane, 1998). It is not a mere coincidence that a majority of scientists prefer a simple theory to a complicated theory (Feist, 1994; cf. Zajonc, 1989). My dissertation

thus suggests that the delay of modern science in East Asia was in part due to cultural theories about the world embedded in everyday life that are relatively complicated and thus not testable.

The argument for a simpler theory in developing science is strengthened by the rhetorical nature of science (Ziman, 1968). Doing science is a social act of debating in which scientists attempt to convince their audiences and obtain their consensus (Cromer, 1993). Among ancient culture, only the Greeks and their academic institutions attached great prestige to debating skills. From as early as Homer, the ideal man in the Greek culture was a man of debate who was able to make his arguments without contradicting himself. This heavy emphasis on the principle of non-contradiction in Greek culture ushered the development of formal logic, which became an objective ruler for a convincing argument.

This emphasis on debate in Greek culture is in stark contrast to the East Asian philosophy of science (Bodde, 1991; Galtung, 1981; Huff, 1993). For example, Chinese philosophies such as Confucianism and Taoism seem to in fact discourage debate and argumentation (Becker, 1986). The following quotations illustrate this condemnation of debate in Taoism:

> True words are not beautiful; beautiful words are not true. A good man does not argue; he who argues is not a good man, ... The way of the Sage is to act but not to compete.
>
> The greatest skill seems clumsy and the greatest eloquence stutters. He who knows does not talk; he who talks does not know. Keep your mouth shut (Tao-te-Ching).

All these imply that science may not a natural product of human intelligence but a by-product of a particular cultural system and doing science may require a particular cultural system.

Psychology of Conviction

Another related point Russell made about the Greeks was that they enjoyed and encouraged *independent thinking*. Debate is possible when, at least, the following three conditions are met: (1) Belief in one's own individual thinking, (2) recognition of other independent minds, and (3) mutual agreement that debate can lead to a better understanding of the truth. It follows that debate and science will be difficult to achieve in a group or society where a strict hierarchy exists and the expression of individuality is sacrificed in order to maintain social harmony. It is not a coincidence that the ancient Greeks did not have strong central government control and instead had many independent states and institutions. In contrast, Galtung (1981) characterized Japanese intellectual debate as a social, not intellectual, act of maintaining social harmony. He argued that the discussion of ideas is "much more of a question of ... which school do you belong to? where did you get it from? who said it first?" (pp.825). Expressing one's own idea against those of an authority figure may jeopardize their interpersonal harmony, and thus it is actively avoided in the hierarchical Japanese society. The detrimental effects of enforcing the power of hierarchy were also demonstrated in a laboratory situation in a classic study by Lewin, Lippit, and White (1939). This study demonstrated that creating authoritarian, as opposed to democratic, "climates" in a group, even temporarily, affected behaviors of the members of the group in many undesirable ways. The brainstorming strategy (Osborn,

1957) and the groupthink phenomenon (Janis, 1972) seem to also support the claims about the value of openly expressed opinions.

This analysis and my dissertation also have a bearing on the psychology of conviction. Conviction is a prerequisite for a person to hold a strong and stable attitude (Abelson, 1988) and to engage herself in debate. It is a vehicle through which a person takes an action and makes a commitment. People without conviction may change their views easily and may always remain "undecided." Their language is filled with expressions reflecting their sense of uncertainty such as "maybe," "I don't know," etc. It appears that East Asians' views of the world make conviction hard to obtain because conviction arises when the possibility of the opposite being true is slim. Furthermore, their holistic stance that emphasizes obtaining all the information until making a firm judgment may also contribute to their lack of conviction. They may generally feel that they are not ready to make any firm judgment or behavior.

Conviction also makes the so-called "inoculation" effect (McGuire, 1964) possible. This seemingly paradoxical effect indicates that people often become more convinced about their opinions after being exposed to a weak counter-argument. A commonly held explanation for this inoculation effect says that people are able to generate convincing counter-arguments against the weak counter-argument. Consequently, their opinion becomes more polarized than before. However, if a person does not possess such conviction, she may not be able to generate convincing counter-arguments and changes her opinion in the direction of the weak counter-argument. Recently, Davis and her colleagues (Davis, Nisbett, & Schwarz, 1998) found preliminary evidence supportive of this hypothesis. They found that Korean college students were

more likely than their American counterparts to be influenced by even very weak counter-arguments.

Despite the fact that there are some studies that have examined cultural differences in "confidence" in terms of probability, little research has been conducted with respect to conviction. The need for investigating conviction across cultures appears particularly important because most cross-cultural studies on probability judgments have produced a somewhat counterintuitive finding that Chinese are more overconfident than Americans (Yates, Lee, & Shinotsuka, 1996; Yates, Zhu, Ronis, & Wang, 1989). This finding seems to be at odds with a common stereotype of Asians as being modest and would seem to suggest that Chinese will behave in a more confident manner than Americans. However, if the phenomenological experience of "conviction" is a more reliable indicator of behavior than a statistical criterion of "overconfidence," this puzzle can be resolved. It is plausible that Asians have weaker conviction about their judgments than Americans do while the two groups are little different in probability judgments.

The study of conviction across cultures may also provide insights about a common cultural misunderstanding. As an Asian, I can hardly understand why Americans fight each other merely because they have different views. The intensity of the tension between, for example, pro-life and pro-choice positions regarding abortion may be seen as bizarre to Asians. On the other hand, it may be equally hard for Americans to understand the fact that, for example, there is little debate between political candidates about policy in major elections in Korea and that those politicians frequently change their party affiliations. It would seem more surprising to Americans that those politicians still remain popular.

Conflict Resolution across Cultures

I have not examined "debate" per se in this dissertation. Rather I have assumed the historical claim that the tradition of debate is much weaker in East Asian cultures. Therefore, it is important to empirically investigate debate in the two cultures and to establish that the historical claim is a contemporary fact, i.e., that East Asians indeed prefer to compromise whereas Americans prefer to debate. Recently, Leung and his colleagues (Leung, 1987; Leung, Au, Fernandez-Dols, & Iwawaki, 1992; Morris, Leung, & Sethi, 1998) found that Hong Kong Chinese preferred non-adversarial strategies such as bargaining and mediation whereas Americans preferred adversarial adjudication such as legal litigation to resolve real life conflicts. Indeed, the adversarial adjudication is the most preferred procedure both in the United States (Holden, LaTour, Walker, & Thibaut, 1978) and in other European countries (Lind, Erickson, Friedland, & Dickenberger, 1978). Peng (1997) also found that Chinese attempted to offer a *compromise* between two parties in conflict more often than Americans. Such contrasting conflict resolution strategies are expected to occur in intellectual conflicts.

A debate over an intellectual issue will stop and a compromise will be made as soon as both parties agree that either (1) both parties are correct, or (2) the issue is not solvable. Alternative (1) may lead to a conclusion that further debate is not necessary, while alternative (2) will lead to the remorseful conclusion that all debate is useless. My dissertation predicts that interactionists (East Asians) will display reactions of (1) or (2) more often and more quickly than linear theorists (Americans). Famous scientific debates often concern who (or which theory) is *more* correct and are based on the firm belief that the issue is and *should be* solvable. For example, one of the hottest debates in

psychology, the nature vs. nurture debate, asks whether nature or nurture is more important than the other. Multitudes of studies were, are, and will be devoted to tackling this question. However, some people will continue to have such reactions to this debate as: "Isn't it obvious that nature and nurture *together* influence human psychology?"; "Why is it so important to determine that nature is more important than nurture or vice versa as long as they work together?"; "Well, nature will be more important than nurture for some people or in some cultures but it will be the opposite for other people or in other cultures. Thus, this debate is silly." This type of reaction inevitably views scientific attempts to solve this nature-nurture debate as not necessary and meaningless. I wonder whether these reactions would be found more frequently among Asians than Americans.

Another interesting, related question to ask is whether Asians would suffer less from the chicken-egg problem. When a given issue is a genuine chicken-egg problem, engaging in timeless debate about that issue may be counterproductive. Recently, Tannen (1998) pointed out some negative outcomes of the American "argument culture." She argued that since Americans too firmly believe that the best way to achieve a common goal is to trash out all differences as loudly as possible, some of the worst excesses of this belief occur in the society, including the shows of Jerry Springer and Jenny Jones. If Asians realize the uselessness of debate in those situations where debate is not indeed helpful and thus stop their debate more quickly than Americans, Asians may be able to avoid á la Jerry Springer.

Concluding Remarks

The present dissertation raises many other research questions: Would Koreans display the same pattern of hindsight bias -- distorted probability judgment and lack of surprise -- for non-human phenomena? I have so far focused on the effects of naive causal theories of human behavior. Whether or not the same cultural difference would occur in other domains such as naive physics and naive biology should be empirically investigated. Nonetheless, historians of science provide some clues. Boorstin (1985) has described Chinese reactions to their first encounter of a giraffe. Instead of marveling at and being curious about this strange animal, Chinese gave it the name "qi-lin," meaning a mythical unicorn-like beast whose appearance was "expected" all along whenever China had an emperor of exceptional wisdom and virtue. Surprisingly, Chinese were not surprised by the animal. Moreover, although ancient Chinese had a highly developed astronomy, they soon lost their interest in it after they discovered that there were regularities in the motion of heavenly bodies, hence the movements were probably not predictive of important events on earth (Cromer, 1993). In contrast, the regularity spurred the Greeks to create models of the motion and seek causal explanations for it.

Another remaining question is how generalizable the findings reported here are to other East Asian groups. Throughout this dissertation, I may have implied that other East Asians such as Chinese and Japanese would display the same pattern of behavior. Yet, there is some evidence that Japanese might be an exception (Yates, Zhu, Ronis, & Wang, 1989). Yates and his colleagues have repeatedly found that Japanese were more like Americans than Chinese in probability judgments. Therefore, future research should address this possibility of differences among East Asian cultures.

Finally, a question may arise as to the possible virtues of the East Asian interactionist view of the world. Despite those undesirable consequences on scientific reasoning reported in this dissertation, the interactionist theory can provide some benefits. For example, Baltes' idea about wisdom (Smith & Baltes, 1990) (i.e., A wise man acknowledges the yin-yang of life) seems to suggest that the East Asian worldview may provide better wisdom in life. As Baltes himself once put it, "The dialectics of the Asian way of thinking may be good for life but the logical Western way of thinking may be good for science" (Personal communication, 1998). Equally plausible is the possibility that Asians can find "a silver lining" more readily than Americans while they are suffering. This mental habit to anticipate a recurrence of positive events may turn out to be an effective coping strategy for Asians.

APPENDICES

APPENDIX A

Causal Judgments in Study 1

In order to examine whether participants' beliefs of a causal link between antecedents and the target person's behavior changed with outcome knowledge, I provided 21 antecedents to participants and asked them to judge the influence of each antecedent on the target's behavior on a 15-point scale: -7 ("This probably *very strongly* worked against John helping the man"), 0 ("This probably *had nothing to do with* John's behavior"), and +7 ("This probably *very strongly* influenced John to help the man"). The exact question was as follows: "Below are several factors that might have influenced John's behavior in the situation. Please use the scale below to indicate how you think each factor might have influenced John's behavior."

Participants in the two outcome conditions, while answering these questions, had to pretend that they did not know the target's actual behavior. Specifically, they were given this additional instruction: " However, as you did in the previous questions, pretend that you did not know that John helped (did not help) the man. Indicate what might have been your answers if you had been asked *before* you read that John helped (did not help) the man."

Those antecedents could be classified into internal dispositional (e.g., "John was quiet"; "John believed in God"), situational (e.g., "John was already late for 10 minutes for the appointment"; "It was John's first practice sermon"), and neutral factors (e.g., "John was short"; "John had a wide face"). All the antecedents, except two situational ones (i.e., "Current society is very individualistic and people care about only themselves";

" Modern industrialized society undermines human values"), were taken from the actual vignette. These two situational factors were added because the previous studies (e.g., Choi & Markus, 1998; Morris & Peng, 1994) had found that Asians had used this kind of broad situational factor in explaining human behavior far more often than Americans.

Comparisons of the importance ratings by participants in the No-Outcome condition and in the two outcome conditions can examine the existence of another type of hindsight bias, or causal judgment distortion in hindsight. It is highly plausible that people in hindsight may report that they could have known not only the *probability* of an event but also the *causes* of it. Participants' ratings of six internal causes and seven external causes were combined to index each of their internal and external attributions.

	Internal Causes		External Causes	
	US	Korea	US	Korea
No-Outcome	4.17	3.96	-1.96	-2.10
Help	3.28	3.58	-1.56	-2.61
No-Help	2.50	3.48	-2.09	-3.00

For internal causes, the main effect of culture was not significant, F (1,113) = 1.82, $p < .20$, while the effect of outcome was significant, F (2,113) = 5.50, $p < .005$. Further analyses show that internal causes were judged to be more influential in the No-Outcome condition than in the No-Help condition (4.06 vs. 2.99), t (77) = 3.21, $p < .005$.

This pattern of data suggests that participants in the No-Help condition behaved *as if* they could have known that those internal factors would not strongly influence the target to help the victim. The interaction of culture and outcome was not significant, F (2,113) = 1.68, $p < .20$.

For external causes, the main effect of culture was significant, F (1,113) = 4.72, $p < .05$, indicating that external causes were judged as more influential by Korean than by American participants. However, neither the main effect of outcome nor the interaction effect of culture and outcome was significant, F (1,113) = 1.01, $p < .35$, and $F < 1$, respectively. But, further analyses show that the importance of external causes was judged higher in the No-Help condition than in the No-Outcome condition by Korean participants only, t (37) = 1.78, $p = .08$. In other words, Korean participants in the No-Help condition believed that they could have known how inhibiting those external factors would be. This belief was particularly enhanced for the factor that the target person was already late. This factor was judged as far more important in the No-Help condition than in the No-Outcome condition (-5.45 vs. -1.32), t (37) = 3.52, $p < .001$. That is, Korean participants, although they underestimated its power in foresight, reported in hindsight that they could have predicted the inhibiting power of being late.

APPENDIX B

Causal Judgments in Study 2

There were two types of possible internal causes: help-facilitating (e.g., he believed in God) and help-inhibiting (e.g., he was selfish). Like in Study 1, all external causes were help-inhibiting.

	Internal-facilitating Causes		Internal-inhibitory Causes		External-inhibitory Causes	
	US	Korea	US	Korea	US	Korea
No-Outcome	2.28	1.93	-1.76	-1.90	-1.40	-2.04
Help	2.83	3.63	-1.56	-2.06	-1.63	-2.32
No-Help	2.33	2.35	-2.27	-3.13	-2.44	-3.00

The main interests in analyzing these ratings are (1) whether participants changed their importance ratings with outcome knowledge (i.e., a main effect of outcome), and (2) whether this change differs in the two cultures (i.e., an interaction effect of culture and outcome). Therefore, I will report only those statistics relevant to the two questions.

A main effect of outcome was found for all three types of causes: For internal-facilitating causes, $F(2,115) = 3.23$, $p < .05$; for internal-inhibitory causes, $F(2,115) = 4.20$, $p < .05$; for external-inhibitory causes, $F(2,115) = 4.30$, $p < .05$. Further analyses show that (1) the internal-facilitating causes were judged to be more influential in the

Help condition than in the No-Outcome condition, t (79) = 2.43, $p < .05$, (2) the internal-inhibitory causes were rated as more influential in the No-Help condition than in the No-Outcome condition, t (79) = 2.35, $p < .05$, and (3) the external inhibitory causes were judged as more influential in the No-Help condition than in the No-Outcome condition, t (79) = 2.70, $p < .01$. However, an interaction effect of culture and outcome was not significant in either case. These findings demonstrate again that in hindsight people exaggerate their ability not only to predict "what will happen" but also to tell "which cause will be important."

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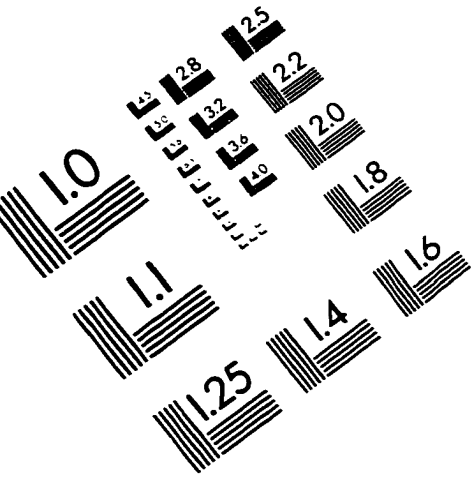
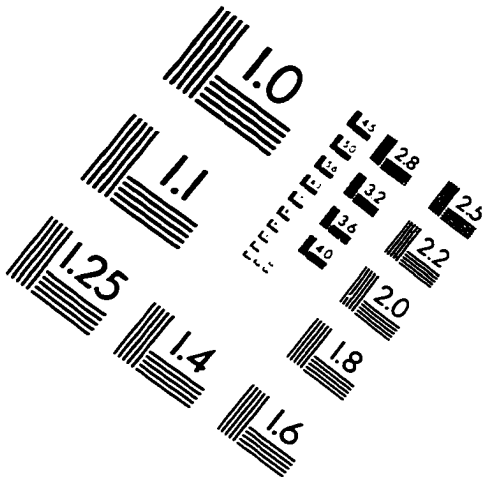
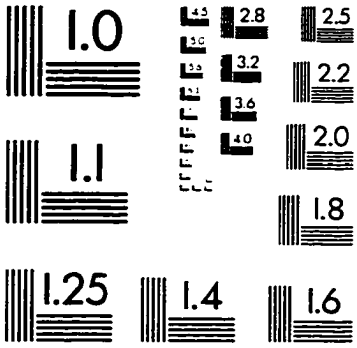
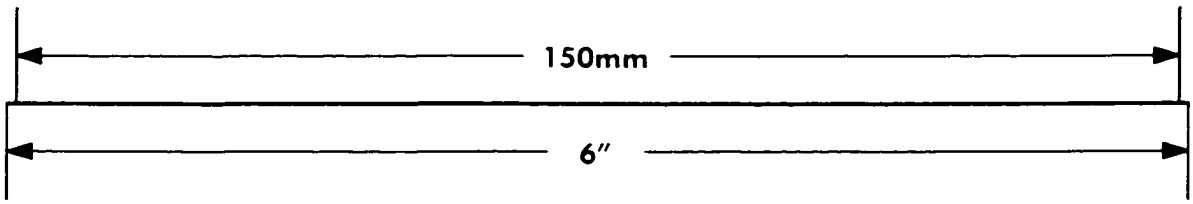
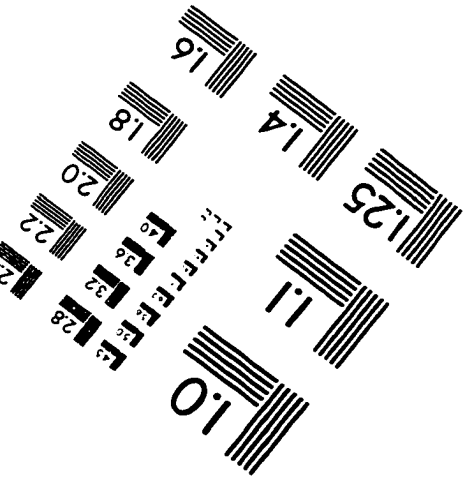
IMAGE EVALUATION TEST TARGET (QA-3)

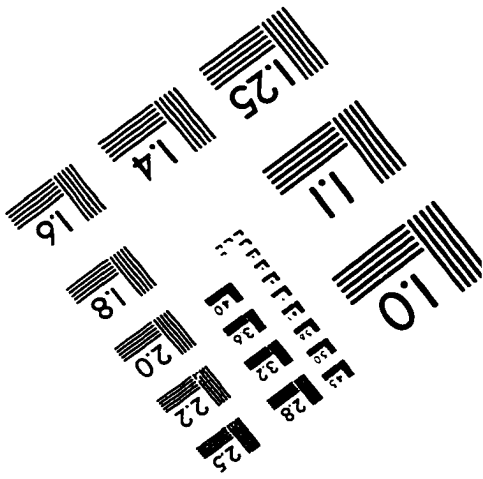












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