Culture and the Process of Person Perception: Evidence for Automaticity Among East Asians in Correcting for Situational Influences on Behavior

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The authors evaluate three models of the cognitive processes underlying person perception (i.e., the processes perceivers use to judge whether an actor's behavior reflects a personal disposition), each of which implies a different way in which culturally instilled lay theories of behavior affect attributions. The models make distinctive predictions concerning how cognitive busyness will affect dispositional inference among members of different cultures. To test the models, the authors compared attributions of U.S. and Hong Kong perceivers for an expressive act under conditions of high and low cognitive busyness. Whereas cognitive busyness increased dispositionism among U.S. participants, it did not for Hong Kong participants. Findings from numerous measures combine to support the automatized situational correction model, which posits that holders of a situation-based lay theory of behavior (such as members of Chinese culture) have automatized the ability to correct attributions to personal dispositions to take into account situational influences.

The tendency of lay perceivers to overattribute behavior to personal dispositions while underestimating the role of situational constraints in shaping behavior was once considered to be a universal bias in social judgment (Heider, 1958; Ichheiser, 1949; Ross, 1977). The last two decades, however, have seen a growing recognition that this inferential tendency—known as "correspondence bias" (Gilbert & Malone, 1995) or the "fundamental attribution error" (Ross & Nisbett, 1991)—is a culture-bound phenomenon (e.g., Miller, 1984). Cross-cultural research suggests that the tendency to attribute outcomes to personal dispositions is less marked in East Asian cultures than in Western cultures, such as the North American and European settings where most social psychological research has been conducted. Using a variety of experimental paradigms, researchers have demonstrated that East Asians are less apt to attribute behavior to an actor's personal dispositions, and more apt to attribute behavior to the situational context, than are members of Western cultures (Kitayama & Masuda, 1997; Lee, Hallahan, & Herzog, 1996; Morris & Peng, 1994).

Despite the growing body of evidence for Western dispositionism and East Asian situationism, little is known about the nature of this cultural difference. It is particularly surprising that cognitive-process models of person perception, which came to dominate attribution theory just as cross-cultural findings were coming to light, have rarely been evaluated in terms of their ability

to account for cultural differences. To help fill this void, we conducted a cross-cultural test of three cognitive-process models of person perception, each of which yields different predictions concerning how cognitive load, or *cognitive busyness* (Gilbert, Pelham, & Krull, 1988), will influence dispositional attribution in different cultures. We examined the effect of cognitive busyness on American and Hong Kong Chinese perceivers' attributions for an expressive act—specifically, a speech on a controversial political topic. Before describing the experiment, however, we discuss a promising approach to studying the effect of culture on person perception—that of "lay theories" (Dweck, 1996; Dweck, Chiu, & Hong, 1995; Kruglanski, 1995; Morris, Ames, & Knowles, 2001). We then review three cognitive-process models of person perception, each of which articulates a different way in which culturally instilled theories of social behavior may influence the person perception process.

CULTURE AND LAY THEORIES OF BEHAVIOR

Lay theories consist of people's basic assumptions about the nature of their physical and social environment (Dweck, 1996). Lay theories are taken to be implicit; that is, they need not be consciously accessed to influence judgments in a domain (Dweck, 1996; Kruglanski, 1995).[1] The notion that theory-like knowledge structures guide attributions is not new (see Heider, 1958; Kelley, 1973), and empirical evidence documenting the influence of lay theories has accumulated (e.g., Reeder, 1993). A theme in recent years is that stable individual differences in lay theories may account for people's differing attributional tendencies. For instance, Morris and Larrick (1995) showed that lay theories containing one's assumptions about the causal power of personal dispositions and situations predicted the use of discounting (Kelley, 1973) in attribution. Moreover, Chiu, Hong, and Dweck (1997) offer evidence linking dispositional attribution to an "entity" theory portraying people as having fixed, static attributes. Holders of an "incremental" theory, in contrast, conceive of people as possessing more malleable, dynamic qualities and are less likely to explain behavior using personal dispositions. Finally, individually varying lay theories have been shown to influence attributions of moral responsibility (Chiu, Dweck, Tong, & Fu, 1997) and explanations for academic setbacks (Hong, Chiu, & Dweck, 1995).

In light of evidence that individual differences in lay theories contribute to individual differences in attribution, we believe that cultural differences in lay theories might account for cultural differences in attribution. Indeed, the constructivist approach in cognitive anthropology has made similar claims concerning the role of shared "cultural schemas" in regulating social behavior (D'Andrade, 1990). We suggest that development within a culture instills individuals with lay theories specific to that culture. Western cultures, which teach individualist values of personal autonomy (Triandis, 1993) and the authenticity of behavior (Dubois, 1988), may instill their members with a lay theory emphasizing the causal sufficiency of personal dispositions in producing social behavior. In contrast, cultures that teach collectivist values of interdependence and adaptiveness to situations may instill their members with a lay theory stressing the potency of situations in producing behavior. We turn now to the candidate social-cognitive models of person perception, which make different claims concerning just how lay theories influence attribution.

INTEGRATING CULTURE INTO COGNITIVE-PROCESS MODELS OF PERSON PERCEPTION

With important exceptions (e.g., Kruglanski, 1980; Read & Miller, 1993), person perception researchers agree that person perception consists of (at least) two functionally distinct stages of inference (e.g., Gilbert & Malone, 1995; Krull, 1993; Quattrone, 1982; Trope, 1986). These stages are linked in serial, such that the latter stage can only be carried out once the initial stage has been completed. Moreover, most models characterize the initial stage as an "anchoring" inference and the latter stage as an "adjustment" or "correction" inference in which the initial inference is modified in light of relevant information (e.g., Quattrone, 1982).

Stage models provide a promising framework for understanding the influence of culture on person perception. In the most recent and comprehensive review of cultural variation in attribution, Choi, Nisbett, and Norenzayan (1999) use the stage framework to generate several plausible models but note that no research has been done to test them (p. 51). The current research is an attempt to further articulate and test stage models of person perception that take culture into account.

Automatic Dispositional Inference Model

Gilbert and colleagues (1988) argued that person perception consists of an initial dispositional attribution stage, followed by a "situational correction" stage in which information about situational constraints is used to adjust the initial inference. This model makes the further claim that situational correction depends heavily on the perceiver's cognitive or attentional resources, whereas the initial dispositional inference is relatively automatic, spontaneous, and thus resource independent.

Because the situational correction stage demands more cognitive resources than the initial dispositional inference stage, situational correction should be more susceptible to disruption when the perceiver lacks cogni-

tive resources. A perceiver with few resources cannot perform situational correction and thus is left with highly dispositional attributions; a perceiver with adequate resources can perform situational correction and thus manages to make less dispositional attributions. Gilbert and colleagues (1988) used a cognitive busyness (i.e., cognitive load) manipulation to test this prediction. One group of participants performed an attribution task while simultaneously performing an attention-usurping busyness task (i.e., counting backward from 90), whereas another group performed the attribution task unhindered by busyness. Consistent with the automatic dispositional inference model, busy perceivers' attributions were more dispositional than those of unbusy perceivers. According to the model, dispositional bias is pervasive because people are typically quite cognitively busy and therefore can rarely engage in situational correction to an adequate degree.

Further evidence for the automatic dispositional inference model comes from research into spontaneous trait inference. Research has demonstrated that perceivers often spontaneously and unconsciously encode behavioral information in dispositional terms. For instance, Winter, Uleman, and Cunniff (1985) found that perceivers' recall of behavioral information was facilitated more by the presentation of trait words that were semantically related to the behaviors than by priming with other types of behavior-related words. This priming effect proved invulnerable to disruption by cognitive busyness, suggesting that perceivers drew automatic dispositional inferences when they encoded information about behavior.

As originally articulated by Gilbert and colleagues (1988), the automatic dispositional inference model offers no mechanism through which culture might influence dispositionism. Hence, as depicted in Figure 1 (Model A), the model predicts that perceivers' level of cognitive busyness will not interact with culture but will instead increase dispositional attribution among Westerners and non-Westerners alike. However, it is plausible that very similar models could accommodate cultural variation in the initial or correction stage of attribution. As Choi and colleagues (1999) note, it may be that non-Western perceivers make weaker initial dispositional inferences than Westerners but perform situational correction to the same degree. Alternatively, Western and non-Western perceivers may make equally strong initial dispositional inferences, but non-Western perceivers may perform greater situational correction. Importantly, however, these models retain the essential components of the automatized dispositional inference model (i.e., automatic dispositional inference plus effortful situational correction) and therefore predict that cognitive

busyness will increase dispositional attribution among Westerners and non-Westerners alike.

Spontaneous Default Inference Model: The Initial Stage Is Not Always Dispositional

An alternative model suggests that culture—specifically, culturally instilled lay theories of behavior—may alter the type of inference made in the initial stage of person perception. This account relies on the notion that different types of social inferences may be "automatized" through practice, so that they come to require few cognitive resources (Smith & Lerner, 1986). Westerners' person-centered theory of behavior, which stresses the potency of personal dispositions in causing behavior, leads to a belief in the usefulness and explanatory power of dispositional attributions (Newman, 1993; Rholes, Newman, & Ruble, 1990). This belief, in turn, leads Westerners to make a great many dispositional attributions over time; as a result of this practice, dispositional inference becomes an automatized procedure requiring few cognitive resources. Members of non-Western cultures, conversely, have a situation-based theory of behavior that leads them to rely disproportionately on situational attributions, which consequently become automatized as the first stage of attributional inference. For members of both types of cultures, the initial, default inference is followed by a correction stage in which information about the culturally deemphasized causal factor is used to revise the initial inference.[2]

In support of this model, Duff and Newman (1997) found that Americans low in individualistic values (allocentrics) are unaffected by trait primes in recalling information about behavior, suggesting that these individuals lack an automatized dispositional inference procedure. Although this research imposes limits on the generality of spontaneous trait inference, there is as yet no direct evidence that members of non-Western cultures acquire an automatic situational attribution procedure.

According to the spontaneous default inference model, the finding that East Asians are less dispositionist than Westerners reflects the fact that, in both cultures, perceivers are chronically cognitively busy and thus cannot sufficiently correct their default attributions. Western and Asian attributions are, however, more similar than they would be if no correction at all took place; that is, the presence of cognitive resources tempers initial attributions by allowing perceivers to take into account the causal factor not considered during the initial stage of inference. A distinctive prediction of the spontaneous default inference model is that as cognitive busyness increases, Western and Asian attributions diverge (Figure 1, Model B). Although there is some indirect support
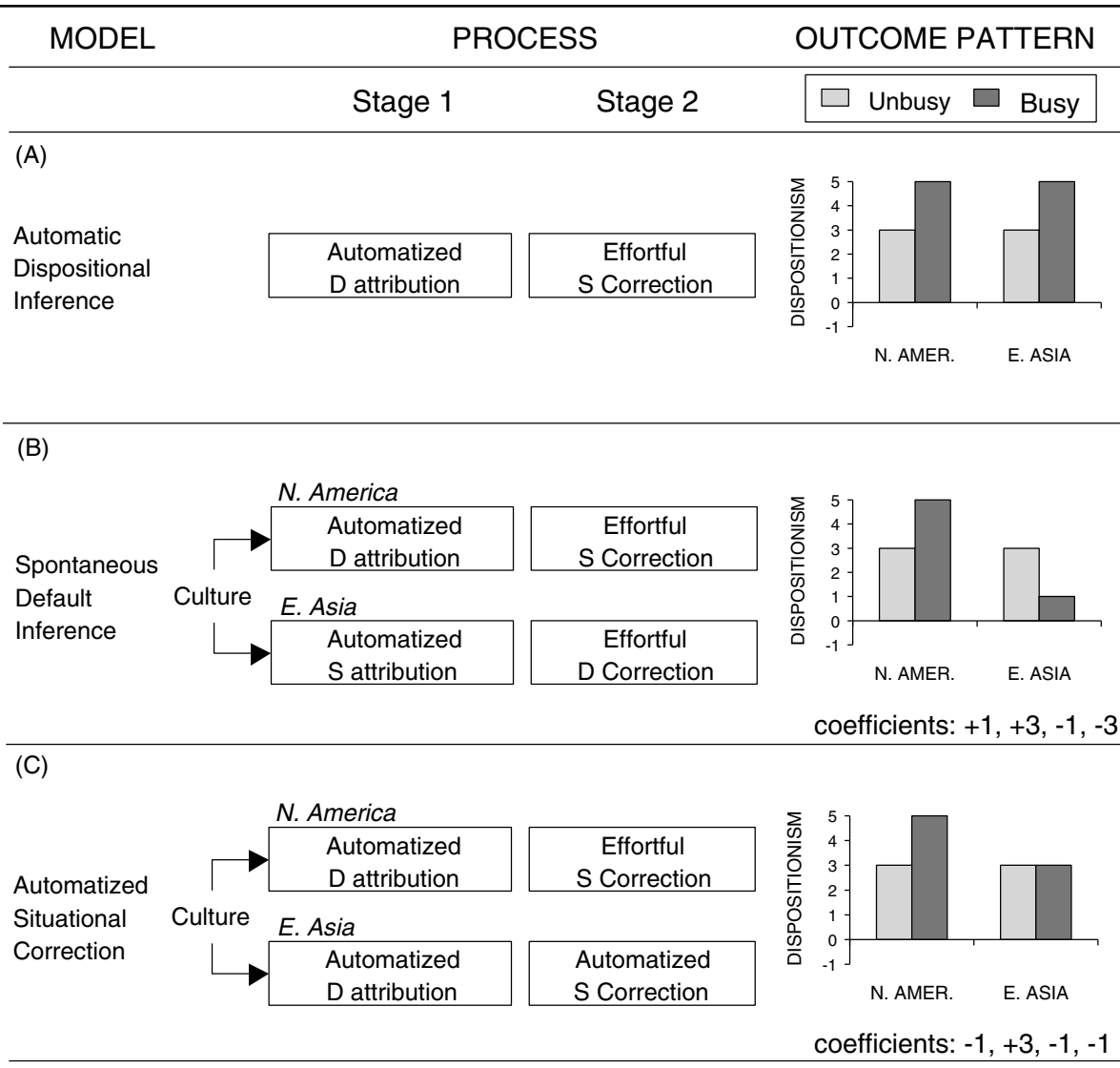
MODEL	PROCESS		OUTCOME PATTERN
	Stage 1	Stage 2	☐ Unbusy ■ Busy

(A)

Automatic Dispositional Inference

| Automatized D attribution | Effortful S Correction |

(B)

Spontaneous Default Inference

Culture

N. America
| Automatized D attribution | Effortful S Correction |

E. Asia
| Automatized S attribution | Effortful D Correction |

coefficients: +1, +3, -1, -3

(C)

Automatized Situational Correction

Culture

N. America
| Automatized D attribution | Effortful S Correction |

E. Asia
| Automatized D attribution | Automatized S Correction |

coefficients: -1, +3, -1, -1

Figure 1   Summary of candidate models and their predictions.
NOTE: D = dispositional, S = situational.

for this cultural pattern (Lee et al., 1996), the model has yet to be directly tested.

Automatized Situational Correction Model:
Situational Correction Is Not Always Effortful

An alternative model attempts to account for cultural differences in attribution while retaining the notion that attribution begins with a dispositional inference stage. The automatized situational correction model posits that whereas automatic dispositional inference is universal, situational correction may, for holders of a situation-based theory of behavior (i.e., non-Westerners), also be a relatively resource-independent stage of social inference. Through the process of automatization articulated by Smith and Lerner (1986), it may be that non-Westerners become so practiced at situational correction that this inference becomes automatized and thus resource independent. On this account, cognitive busyness should disrupt Westerners' ability to perform situational correction, causing their attributions to become more dispositional, but should not affect East Asians' attributions (Figure 1, Model C). Thus, dispositionism should be less prevalent among East Asians because everyday levels of cognitive busyness would not disrupt East Asians' resource-independent situational correction process.

There is evidence that lay theories can influence correction processes in social judgment. Wegener and Petty (1995), for instance, found that initial impressions of targets are corrected in ways that depend on perceivers' lay theories of response bias. However, whereas this research links correction processes to lay theories, the

automatized situational correction model makes the further claim that some perceivers perform correction—specifically, situational correction—so frequently that it becomes automatized. Automatic correction is not a widely documented phenomenon; however, Glaser and Banaji (1999) provide evidence that people may, under some conditions, spontaneously and unconsciously correct for the biasing effect of information on subsequent processing of a stimulus.

The automatized situational correction model is consistent with the claim of some researchers that dispositional thinking is universal and that cultures differ primarily in how they think about situations. Choi et al. (1999) cite ethnographic and social psychological evidence suggesting that members of Western and Asian cultures alike make dispositional inferences but that East Asians have a stronger belief in the power of situations to modify behavior. Because they possess a lay theory emphasizing the causal power of situations, East Asians should be more likely to discount dispositional inferences in light of possible situational constraints on the actor. In support of this argument, Choi and Nisbett (1998) found that whereas both Americans and Koreans could be shown to overattribute behavior to personal dispositions, Koreans exceeded Americans in their ability to efficiently analyze information about salient situational constraints.

Despite marshaling ethnographic and experimental evidence that East Asians are both dispositionist and situationist, Choi and colleagues (1999) leave open the question of how the coexistence of these tendencies manifests itself in the process of attribution. The automatized situational correction model provides this link. Similar to Westerners, East Asians make automatic dispositional attributions; however, East Asians, unlike Westerners, have automatized the process of discounting this initial inference in light of possible situational causes of behavior.

THE CURRENT RESEARCH

The models reviewed here make different predictions concerning the effect of cognitive busyness on dispositionism in Western and Asian cultures (see Figure 1). To adjudicate between the models, we conducted an experiment in which U.S. and Hong Kong perceivers listened to a speaker advocate a controversial political position. Perceivers then made attributions about the true attitude of the speaker under conditions of high or low cognitive busyness. Participants in the busy condition listened to the speech while simultaneously performing a challenging visual task administered by computer; participants in the unbusy condition listened to the speech without performing the visual task.

METHOD

Participants

Sixty-five students at the University of California at Berkeley participated in fulfillment of psychology course requirements (50 participated in the person perception task and 15 in deriving the attitude attribution baseline). Eighty-six students at the Hong Kong University of Science and Technology participated at the request of an instructor (56 participated in the person perception task and 30 in deriving the attitude attribution baseline). Of students participating in the attribution task, only those who answered initial questions indicating an understanding of the instructions were included in the study as participants.

Cognitive Busyness Task

As a means of creating cognitive busyness, we used a computer-administered task called the 2-back task. In this task, participants watch a succession of geometrical shapes on the screen and must hit the space bar whenever a shape appears that also appeared two shapes before (i.e., "2-back") in the succession. For example, the sequence square-triangle-square should elicit a key press. The 2-back program recorded three scores for each participant: the number of hits (i.e., correct space bar presses), the number of misses (i.e., the participant failed to hit the space bar when a 2-back appeared), and the number of false alarms (i.e., the participant hit the space bar when a 2-back had not appeared). This shape-tracking task has been successfully used to increase cognitive busyness in different research domains (e.g., Jonides et al., 1997; Kwong See & Ryan, 1995).

Procedure

Participants were run in groups of 2 to 6. After arriving, participants were brought into a testing room, seated at a computer, and given a packet containing instructions and rating scales. The materials used in Hong Kong were translated from the English version; back translation ensured the equivalence of the versions (Brislin, 1970). The instructions described the experiment as an attempt to learn how individuals "read other people" and explained that the goal of participants was to "figure out what a student's attitude about a controversial political issue is, based on a speech given by the student." Participants read that the speaker had been instructed by his professor to defend the view expressed in the speech; therefore, the speech was made under an obvious situational constraint. To provide a context for the 2-back task, participants also read the following:

> Researchers have found that reading other people is a task most people do with the left side of their brain.

Research shows that it's hard to do two left-brain tasks at once. However, two tasks can be done at once if those tasks are done using different sides of the brain. You will be asked to conduct a tedious right-brain task at the same time as you perform the left-brain task of reading another person. Specifically, you are to watch a display of changing shapes on the computer, pressing the space bar whenever certain shapes appear. To perform this right-brain task adequately, you will have to concentrate very hard on it. The left-brain task of reading another person will take care of itself.

2-back practice sessions. Immediately prior to taking part in the person perception task, participants were led through three short 2-back practice sessions. During the practice sessions, the computer provided online feedback to participants when they made errors. After each session, the computer displayed participants' scores. Participants were encouraged to ask questions if they did not understand the nature of the 2-back task.

The antiinterventionist speech. After practicing the 2-back task, participants listened to a 4-minute tape-recorded speech opposing nations interfering in the affairs of other nations (the antiinterventionist speech). All participants listened to the same speech, which was written by the investigators and read by a colleague. The U.S. and Hong Kong researchers jointly selected arguments that seemed to be ones that an undergraduate at their university might have produced; the arguments and rhetoric of the speech were of a quality that would be expected in a speech written upon instruction by a student with no special interest in the topic. We also intended the arguments in the speech to be equally agreeable to U.S. and Hong Kong participants. Participants in the busy condition listened to the speech while performing the 2-back task; each participant's performance (hits, misses, and false alarms) was recorded. Unbusy participants listened to the speech while looking at their blank computer screens.

Attitude attribution. Immediately after the speech ended, participants rated their impression of the speechwriter's attitude on a 15-point scale anchored on the left by 1 (*entirely in favor of interventionism*) and on the right by 15 (*entirely opposed to interventionism*).

Participants' own attitudes. After rating the speaker's attitude toward interventionism, participants rated their own attitude toward interventionism on the same 15-point scale.

Memory for speech content. Gilbert et al. (1988) argued that cognitive busyness affects attribution by disrupting situational correction, not merely by blocking encoding of information about behavior. We thus sought to test whether encoding of the speech would mediate any observed busyness effect. Reasoning that a participant's memory for details of the speech gauges how thoroughly he or she has encoded the speech, we included the following free-response question probing memory for speech content: "Please write down everything you can remember about the arguments and views expressed in the speech."

No-Constraint Control Condition

A distinctive prediction of the automatized situational correction model is that East Asians, unlike Americans, perform situational correction when cognitively busy. A pattern of results in which Hong Kong participants' attributions in the unbusy and busy conditions (in which the speaker's behavior was situationally constrained) do not differ would suggest that these participants have performed situational correction in the busy condition (hence Figure 1, Model C). However, concluding that a process had taken place based on the lack of a difference between two conditions is not entirely convincing. Therefore, we sought more directly to gauge the degree of situational correction in the unbusy and busy conditions. To this end, we created a control condition in which no correction is likely to occur. Participants in the no-constraint condition performed the procedure described above but read that the speaker had been given the choice of making a pro- or antiinterventionist speech. In this condition, there is no situational constraint to correct for; thus, any difference between attributions in the no-constraint condition and the unbusy or busy conditions (in which the speaker had supposedly been asked to give an antiinterventionist speech) may be taken to reflect situational correction.

Attribution Baseline

Jones and Harris (1967) argued that dispositional attribution should be operationalized, not merely as a raw attitude rating but rather as the difference between ratings of the actor's attitude and ratings of the "typical" actor's attitude. This removes from attributions variance owing to participants' differing baseline perceptions of attitudes on the dimension. However, the difference-score approach has not been common practice in research on cognitive busyness because having participants rate the typical student before rating the actor may create an overly analytic mental set that may interfere with the busyness effect (D. T. Gilbert, personal communication, June 10, 1997). To filter out variance due to differing baselines without disrupting the busyness effect, we asked a separate sample of U.S. and Hong Kong participants to estimate the typical student's opinion toward interventionism on the same 15-point scale used by participants in the attribution task. In all of the results reported here, we subtracted from each participant's raw attitude attribution the mean typical-student rating for the participant's cultural setting.[3]

RESULTS

Derivation of Task Performance Indices

Several of the analyses to be described required an index of participants' memory for the antiinterventionist speech and performance on the 2-back task. To measure memory for speech content, we tallied how many of 25 key details of the antiinterventionist speech participants listed in their answers to the free-response memory probe.[4] Performance on each phase of the 2-back task (i.e., the three practice phases performed by all participants and the test phase performed only by participants in the busy condition) was gauged by signal detection analysis. Specifically, each participant's performance was measured using d, an index of the avoidance of errors (misses and false alarms) in a discrimination task. Although it is most commonly used by psychophysicists, signal detection analysis has also been employed in social cognition research (e.g., Banaji & Greenwald, 1995).

Derivation of Attitude Attribution Scores

Attitude attribution ratings were computed by subtracting from each participant's raw attribution the mean typical-student rating for the participant's cultural setting. The mean rating of the typical student's antiinterventionist attitude was 7.98 in the United States and 9.47 in Hong Kong, indicating that Hong Kong participants judged their peers to have a stronger antiinterventionist attitude than did U.S. participants. This difference was marginally significant, $t(43) = -1.67$, $p = .10$, suggesting that difference scores provide a more precise measure of attitude attribution than do raw attribution scores.

The Effect of Cultural Setting

This research was premised on the notion that East Asians tend to be less dispositionist than Westerners and was cast as an attempt to identify the source of this effect. Thus, we began by testing the main effect of cultural setting on attitude attribution.[5] Across all experimental conditions, cultural setting had a significant effect on dispositionism, in which Hong Kong participants were less dispositionist than American participants, $F(1, 64) = 17.29$, $p < .0001$ (see Figure 2). Having established that cultural setting had the expected effect on attitude attributions, we next sought to test which candidate model best accounted for this pattern.

Testing Between Automatic Dispositional Inference Model and Rivals

Cultural setting by cognitive busyness interaction. The automatic dispositional inference model makes the distinctive prediction that cultural setting will not
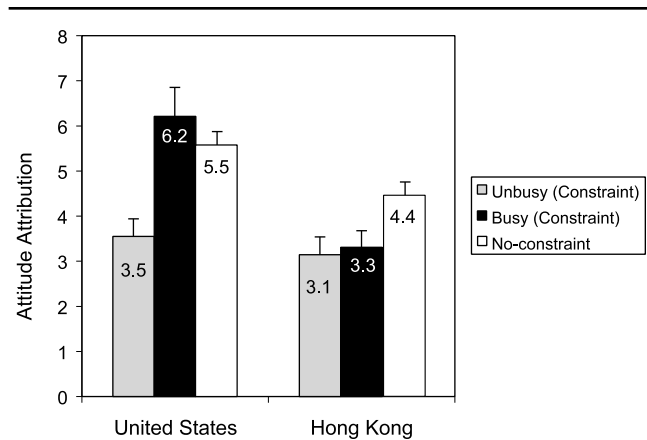

Figure 2   **Attitude attribution as a function of cultural setting and experimental condition (error bars represent 1 standard error).**

moderate the effect of cognitive busyness on attitude attribution (see Figure 1, Model A). In testing this prediction, we sought to increase power by statistically eliminating extraneous influences on attributions, such as differences between participants' own views toward interventionism, their memory for details of the speech, or their competence at the 2-back task. Hence, we performed a 2 × 2 (Cultural Setting × Cognitive Busyness) analysis of covariance (ANCOVA), controlling for participants' own attitudes toward interventionism, memory for the speech, and performance (d) during the final 2-back practice session. This interaction, depicted in Figure 2 (compare the shaded bars), was significant, $F(1, 46) = 5.75$, $p < .05$.

Testing Between Spontaneous Default Inference and Automatic Situational Correction Models

The spontaneous default inference and automatized situational correction models agree that cultural setting will moderate the influence of busyness on attribution but predict qualitatively different interaction patterns. We thus sought to adjudicate between these models.

Within-cultural-setting simple effects. The automatized situational correction model predicts that cognitive busyness will have no effect in Hong Kong, whereas the spontaneous default inference model predicts that busyness will reduce dispositionism in Hong Kong (compare Figure 1, Models B and C). We therefore examined the simple effect of busyness in each cultural setting. Controlling for the same covariates as in the foregoing interaction analysis, the simple effect of busyness among U.S. participants was to increase attitude attribution, $F(1, 15) = 9.49$, $p < .01$, whereas cognitive busyness had no significant effect on attitude attribution among Hong Kong participants, $F(1, 27) = .016$, $p = .90$.

Contrast analyses. To further discriminate the spontaneous default inference and automatized situational correction models, we tested planned comparisons derived from each model. Specifically, we used linear regression to simultaneously test contrasts corresponding to the automatized situational correction model (coefficients: -1, 3, -1, -1) and spontaneous default inference model (coefficients: 1, 3, -1, -3) (compare these coefficients to the outcome patterns depicted in Figure 1, Models B and C). The automatized situational correction model fit the observed interaction well, $t(46) = 2.58$, $p < .05$, whereas the spontaneous default inference model did not, $t(46) = -.152$, $p = .88$.

Situational correction in the busy condition. A distinctive prediction of the automatized situational correction model is that Hong Kong participants, unlike Americans, perform situational correction when cognitively busy. To test this prediction, we compared attributions in the unbusy and busy conditions (in which the behavior was situationally constrained) to attributions in the no-constraint control condition. In the no-constraint condition, there is no situational constraint to correct for; therefore, if attributions in the unbusy or busy conditions are less dispositional than in the no-constraint condition, this may be taken to reflect performance of situational correction. Controlling for participants' own attitudes toward interventionism, their proficiency at the 2-back task, and their memory for speech content, the difference in dispositionism between the unbusy and no-constraint conditions was significant in both Hong Kong, $F(1, 26) = -2.36$, $p < .05$, and the United States, $F(1, 30) = -4.02$, $p < .001$ (see Figure 2). This suggests that both U.S. and Hong Kong participants were able to perform situational correction in the unbusy condition. However, again controlling for covariates, levels of dispositionism in the busy and no-constraint conditions differed significantly in Hong Kong, $F(1, 29) = -2.25$, $p < .05$, but not in the United States, $F(1, 21) = .56$, $p = .91$ (see Figure 2), suggesting that Hong Kong participants, but not American participants, were able to perform situational correction when cognitively busy.

Alternative Explanations

Our ability to distinguish the candidate attribution models depends on the validity of the observed Cultural Setting × Cognitive Busyness interaction. We therefore attempted to rule out possible alternative explanations for the interaction.

U.S. and Hong Kong participants may have had different attitudes toward interventionism. A difference between U.S. and Hong Kong participants' attitudes toward the speech topic could cloud interpretation of the observed Cultural Setting × Cognitive Busyness interaction. However, a *t* test revealed no significant difference between U.S. and Hong Kong participants' views toward interventionism, $t(49) = -.774$, $p = .46$.

Cognitive busyness manipulation may have had an unequal impact on U.S. versus Hong Kong participants. It is possible that our busyness task (i.e., the 2-back task) failed to make U.S. and Hong Kong participants equally busy; this might, in turn, suggest an alternative explanation for the observed Cultural Setting × Cognitive Busyness interaction. If Hong Kong participants dedicated a smaller proportion of their attention to the 2-back task than did U.S. participants—that is, were less cognitively busy—one might expect the busyness manipulation to have had a diminished effect on Hong Kong attributions.

To establish that the busyness manipulation had the same impact on U.S. and Hong Kong participants, we tested whether busy U.S. participants paid the same amount of attention to the 2-back task and to the speech as did busy Hong Kong participants. Our primary measures of attention to the 2-back task and anti-interventionist speech were 2-back performance score and memory for speech content in the busy condition, respectively:

1. *2-back performance.* Cultural setting had no significant effect on 2-back performance in the busy condition as measured by *d* , $t(39) = -1.10$ $p = .28$.[6]
2. *Memory for speech content in the busy condition.* We observed no significant effect of cultural setting on speech memory in the busy condition, $t(33) = -.60$, $p = .55$.

As an additional, less direct measure of attention to the 2-back task, we also tested whether the 2-back task caused the same decrement in speech memory for U.S. and Hong Kong participants:

3. *Speech memory decrement caused by 2-back task.* A 2 × 2 (Cultural Setting × Cognitive Busyness) ANOVA revealed that the 2-back task significantly reduced participants' memory for the speech, $F(1, 67) = 16.75$, $p < .001$. However, the lack of a Cultural Setting × Cognitive Busyness interaction, $F(1, 67) = .002$, $p = .96$, indicates that busyness reduced U.S. and Hong Kong participants' speech memory to the same extent.

Cognitive busyness may have impeded participants' ability to encode the behavior. According to Gilbert and colleagues (1988), cognitive busyness blocks perceivers' ability to incorporate situational constraint information into their attributions. In the current experiment, busyness may have instead affected our U.S. participants' attributions by blocking their ability to encode the actor's behavior—specifically, the antiinterventionist speech. However, the foregoing analyses of within-cultural-setting simple effects, in which the effect of busyness on memory for the antiinterventionist speech was controlled for,

suggest that the busyness effect for Americans was not mediated by speech memory.

DISCUSSION

The current research tested three cognitive-process models (see Figure 1) integrating culture and the person perception process. Specifically, we employed a cross-cultural comparison (United States vs. Hong Kong) to test each model's predictions concerning how cultural setting will interact with cognitive busyness to produce attributions for an expressive act. Whereas busyness had the expected effect of increasing attitude attribution among American participants, busyness had no effect on attitude attribution among Chinese participants. Importantly, the Cultural Setting × Cognitive Busyness interaction was not driven by a difference in the impact of the busyness manipulation on American versus Chinese participants. Analyses of attention to the 2-back task and antiinterventionist speech in the busy condition revealed no difference between American and Chinese participants' allocation of attention to the concurrent tasks, suggesting that the groups were made equally cognitively busy. In addition, busyness did not affect American participants' attributions merely by blocking their encoding of behavior. Our use of ANCOVA, in which we controlled for memory for speech content, ensures that the effect of busyness on attributions was not mediated by an effect of busyness on memory for the speech. In sum, we may conclude that the scope of the busyness effect (Gilbert et al., 1988) is limited.

Moreover, the current experiment best supports the automatized situational correction model, which posits that holders of a situation-based lay theory of behavior (i.e., Chinese people) have automatized the ability to perform situational correction. Analysis of within-cultural-setting simple effects and contrast analyses casts doubt on the automatic default inference model, which posits that holders of a situational lay theory make automatic situational inferences that are corrected in light of dispositional causes when cognitive resources are present. Finally, our analysis employing the no-constraint control condition suggests that Chinese participants did, in fact, perform situational correction when cognitively busy, whereas American participants did not. Therefore, the present research provides strong evidence for the automatic situational correction model. In turn, it is probable that, as posited by the automatized situational correction model, the oft-observed cultural difference in person perception is due to the fact that everyday levels of cognitive busyness disrupt Westerners', but not East Asians', situational correction process.

Limitations of the Current Research

The current research points to culture as an important moderator of the busyness effect (Gilbert et al., 1988): Americans, but not East Asians, tend to make more extreme dispositional attributions when cognitively taxed. Moreover, our data best support a particular explanation for this finding—specifically, that East Asians, but not Americans, have automatized the ability to correct initial dispositional attributions in light of situational constraints. However, the current research has limitations that qualify this theoretical conclusion and suggest future directions for research. We now describe two such limitations.

Lack of direct evidence that East Asians made initial dispositional attributions. The present research attempts to accommodate cultural differences in dispositionism within the multiple-stage approach to attribution. Our results suggest that one particular stage model—the automatized situational correction model—best accounts for attribution differences between Americans and East Asians. This model locates the cultural difference in the second stage of inference; that is, whereas East Asians and Americans alike draw initial dispositional inferences after observing behavior, East Asians are able to revise this inference in light of the situation in an automatic second stage of inference. For Americans, in contrast, the situational correction stage is effortful.

A limitation of the present research is the lack of direct evidence that our Asian participants indeed made initial dispositional inferences. In our study, low dispositionism among Hong Kong participants in both the unbusy and busy conditions is taken as evidence that the second, situational correction stage has occurred in both conditions. However, there are other possible interpretations of this null effect. For instance, it is possible that the East Asians made attributions in a single inferential step, automatically incorporating information about both dispositional and situational factors. Such an interpretation relies on the (perhaps unparsimonious) assumption that Americans, but not East Asians, make attributions via inferential stages. Although the current project focused exclusively on stage models, further research could address whether stages per se are adequate to explain East Asians' attributions.[7]

Are initial inferences really spontaneous? Each of the models tested here makes claims about perceivers' spontaneous attributions for behavior; that is, the inferences that are triggered automatically once behavior is observed. Specifically, the automatic dispositional inference and automatized situational correction models claim that both East Asians and Westerners spontaneously draw

dispositional inference after observing behavior, whereas the spontaneous default inference model posits that Americans and East Asians draw spontaneous dispositional and situational inferences, respectively. However, our experimental instructions (which are typical of person perception research) directed participants from both cultures to "read another person," perhaps limiting our ability to make strong claims about the spontaneity of initial inferences. This, in turn, makes it more difficult to rule out alternative interpretations of our results.

Although our data argue strongly against the spontaneous default inference model, according to which East Asians should have made initial situational inference regardless of the experimental instructions, the results are perhaps more compatible with the similar "mixed model" of person perception (Krull, 1993). Similar to the spontaneous default inference model, the mixed model posits a first stage of inference that may be either dispositional or situational, followed by a revision stage in which the initial inference is corrected in light of the other causal factor. However, the mixed model differs from the spontaneous default inference model in portraying the first stage of inference as automatic but not spontaneous. According to the mixed model, the nature of the initial inference depends on whether the perceiver sets out to make a dispositional or situational attribution. A cultural version of the mixed model might posit that Americans and East Asians enter into social inference with dispositional or situational default goals, respectively. Our finding that both American and Asian participants made initial dispositional inferences does not rule out the mixed model, as it does the spontaneous default inference model, because our experimental instructions may have induced all participants to adopt dispositional inference goals. It is important to note, however, that neither the mixed model nor the spontaneous default inference model can account for the primary finding of the present study—namely, East Asians' ability to situationally correct their initial dispositional inferences (whether they be spontaneous or the product of an experimenter-induced dispositional inference goal) automatically.

Moderators of Cultural Differences in Attribution

The current research seeks to illuminate the cognitive mechanisms responsible for the oft-cited cultural difference in attribution, in which Westerners are more likely than East Asians to explain social behavior in terms of personal dispositions. This cultural difference has proved quite robust, having emerged in a number of studies, including the present one. However, some researchers have not found a cultural difference in dis-

positionism (e.g., Choi & Nisbett, 1998, Study 1; Krull et al., 1999). What might account for this discrepancy? Past studies and the current research suggest that at least two factors—situational salience and cognitive busyness—moderate the magnitude of cultural differences in attribution. We believe that these factors may help account for the fact that some studies find an effect of culture, whereas others do not. Although neither factor is strictly necessary to produce the cultural difference, either factor may facilitate it.

Situational salience. Choi and Nisbett (1998) argue that "situational salience" is an important moderator of cultural differences in attribution. In their first study, which employed the same experimental paradigm as the current research, no cultural difference between American and Korean participants' attribution emerged. In a second study, however, in which situational constraints on the actor's behavior were made highly salient, Koreans were less likely than Americans to commit the correspondence bias. Krull and colleagues (1999), who consistently failed to find an effect of culture on dispositionism, suggest that situational salience may account for the discrepancy between their research and the second study of Choi and Nisbett. Krull et al. thus imply that their methodology may not have made situational constraints salient enough for a cultural difference to emerge.

It remains unclear why situational salience affects attributions. It may be that activation of cultural theories depends on their applicability to the stimulus, as recent studies suggest (Hong, Morris, Chiu, & Benet-Martinez, 2000). Making a situational constraint highly salient may increase the applicability of a situationist theory of behavior to an observed action. Because East Asians have a chronically accessible situationist theory of behavior, situational salience may make their attribution less dispositional; Americans, who do not have a chronically accessible situationist theory, are unaffected by situational salience.

Cognitive busyness. Our research points to cognitive busyness as another important moderator of cultural differences in attribution. Under conditions of low cognitive busyness, we found no difference in dispositionism between our Asian and American participants (Figure 1, lightly shaded bars). This is quite compatible with Choi and Nisbett's (1998) first study, which failed to find a cultural difference using the same attitude attribution paradigm as the current research. In our study, East Asians, but not Americans, were able to correct their initial dispositional attributions when made cognitively busy, thus producing a marked cultural difference in attribution (see Figure 2, heavily shaded bars). In Choi and

Nisbett's first study, participants were neither cognitively taxed nor presented with salient situational constraints. Thus, it is not surprising in light of the current work that these authors found no cultural difference in their first study.

Lay Theories as Proximal Versus Distal Causes of Attributions

The current research calls attention to an important feature of lay theories; namely, their ability to influence attributions in a distal, as well as proximal, manner. Much research has focused on lay theories as the proximal causes of attributional outcomes; in such cases, a perceiver reaches an attribution by making direct use of beliefs contained in his or her lay theory of behavior (Chiu, Hong et al., 1997; Kelley, 1973; Morris & Larrick, 1995). In contrast, the current research highlights lay theories as the distal cause of attributions; in this case, a lay theory affects attributions, not by influencing inferences as they are made but rather by promoting the development of automatized procedures that are consistent with the theory. Although the lay theory is the distal cause of the attributional outcome, the proximal cause is the automatized procedure. Both the automatized situational correction model and the spontaneous default inference model portray lay theories as the distal determinants of attributions, which are proximally mediated by automatized procedures. Insofar as the automatized situational inference model was supported by the current experiment, it appears that lay theories may indeed act as distal determinants of attributions. Future research might explore moderating factors that favor the direct access of lay theories versus the use of theory-consistent automatized procedures.

CONCLUSION

Cross-cultural research indicates that the bias to interpret social behavior in terms of personal dispositions—once thought to be a universal error in social judgment (Heider, 1958; Ichheiser, 1949; Ross, 1977)—is actually a culture-bound phenomenon. In many studies, Asian perceivers show a lesser reliance on personal dispositions than do Westerners (e.g., Kitayama & Masuda, 1997; Lee et al., 1996; Morris & Peng, 1994). In attempting to explain this cultural difference, some researchers have argued that the tendency to perceive the world in terms of dispositional properties is a uniquely Western phenomenon (e.g., Shweder & Bourne, 1982). However, other researchers (e.g., Choi et al., 1999) have criticized the notion that East Asians lack dispositional thinking. Rather, these researchers theorize that dispositional thinking is prevalent among East Asians but that East Asians have a heightened sensitivity to the role of situations in shaping behavior. The current research provides

support for a cognitive-process account of how the co-existence of these tendencies (dispositionism and situationism) manifests itself in the process of person perception. Specifically, it may be that Westerners and East Asians alike make initial dispositional inferences but that East Asians, unlike Westerners, have the ability to automatically correct these inferences in light of situational constraints.

Heider (1958) argued that dispositions constitute crucial "invariants" that help social perceivers simplify a complex social environment (Chiu, Morris, Hong, & Menon, 2000; Menon, Morris, Chiu, & Hong, 1999). The current work, in suggesting that both East Asians and Americans attribute behavior to personal dispositions, supports Heider's influential insight. Indeed, the current research is the latest addition to an accumulating body of empirical evidence that East Asians make use of dispositions in social perception. At the same time, cultures also appear to differ in the sort of dispositions that they prefer in forming social explanations. For instance, Menon et al. (1999) recently found that when given a choice between attributing outcomes to dispositions of individuals versus dispositions of groups, Western perceivers tended to attribute behavior to personal dispositions and East Asians to group dispositions. Taken together, the message emanating from recent work on cultural and person perception—including the present study—is that dispositional thinking is not absent in East Asians, although it often takes a different form or is overridden by East Asians' stronger belief in the power of situations.

NOTES

1. In referring to lay theories as implicit, we do not mean that lay theories could not, in principle, be accessed consciously but merely that they typically affect judgment outside of awareness. Consequently, it is possible to measure an implicit lay theory in an explicit manner (e.g., Chiu, Hong, & Dweck, 1997).

2. This model is similar to Krull's (1993) "mixed model" of social inference, in which perceivers' inference goal (diagnosing a dispositional vs. situational cause) controls whether the initial stage of inference is dispositional or situational. The difference between Krull's (1993) model and the spontaneous default inference model can be expressed in terms of the distinction between automatic and spontaneous processes. The spontaneous default inference model characterizes the first stage of attribution as automatic (i.e., always completed once triggered) and spontaneous (i.e., always triggered when behavior is observed). In contrast, the mixed model casts the initial stage as automatic but not spontaneous, because the choice of dispositional or situational procedures is contingent on the presence of the corresponding inference goal.

3. We also had participants in the attribution task make ratings of the typical student's attitude after rating the actor. However, we found that the busyness manipulation influenced participants' typical-student ratings and that this effect mimicked the effect of busyness on ratings of the actor. Due to this apparent anchoring effect, in which ratings of the typical student were anchored on prior ratings of the actor, we computed typical-student baselines in each country using independent samples of U.S. and Hong Kong participants.

4. The procedure for memory coding was checked on a subsample of responses and yielded an interrater reliability of $r = .91$.

5. Because several outlier participants added greatly to the variance on the attitude attribution measure, we excluded participants more than 3 standard deviations from the grand mean ($N = 4$) from subsequent analyses. This screening reduced variance on the attribution measure from 6.35 to 3.35.

6. t tests also revealed no significant effect of cultural setting on miss rate, $t(39) = .82$, $p = .42$, or false alarm rate, $t(39) = .86$, $p = .39$.

7. It is worth noting that previous research on cognitive busyness also does not provide direct evidence for temporally distinct stages of inference. In these studies, greater dispositionism in the busy condition is taken to reflect the outcome of a first stage of inference, uncorrected by a second, effortful correction stage. This logic has been criticized by researchers who explain cognitive busyness effects using models in which dispositional and situational inferences are made in parallel (e.g., Read & Miller, 1993).

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