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National Culture and the Implementation of High-Stretch Performance Standards: An Exploratory Study

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ABSTRACT

This study explores how national culture affects employees' reaction to different modes of implementing high-stretch performance standards. An experiment was performed using Chinese and U.S. nationals to represent cultures that diverge on two relevant dimensions, power distance and individualism/collectivism. Consistent with culturally based expectations, Chinese nationals more readily accepted imposed high-stretch performance standards—relative to U.S. nationals—as manifested by the degree to which they performed up to those standards. Also, differences were found between Chinese and U.S. nationals' satisfaction with high-stretch performance standards under autocratic vs. consultative participation in the standard-development process. However, further analysis was unable to dismiss the possibility that this result, which was based on subjects' self-reports on Likert-scale questions, could have been an artifact of cross-national, response-set bias. Other findings indicated that national-culture effects arose in more complex ways than were originally conceived.

INTRODUCTION

U.S. firms that have adopted high-stretch performance standards include General Motors, Motorola, 3M, Pepsico, Texas Instruments,

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and General Electric (Zesiger 2000; Thompson et al. 1997; Sellers et al. 1996; Bechtell 1996; Sherman and Kerr 1995). For these firms annual improvement targets of 20, 30, and 40 percent are not uncommon (Harrington 1995). Tully (1994, 145) observes:

> To a degree not seen since the Fifties, factories and labs across the U.S. are junking business-as-usual incremental objectives— moving a few more grains of sand—and striving to hit gigantic, seemingly unreachable milestones called stretch targets....Employees are having to endure mounds, not anthills, of toil and trouble along the way.

For firms considering the implementation of high-stretch performance standards, a critical issue is the amount of control (autonomy and empowerment) to allow employees over target setting (Thompson et al. 1997). One form of autonomy/empowerment that can be offered to employees is participation in the standard-setting process. An extreme form of participation is empowering employees to set their own performance standards. However, their self-set standards may fall short of the levels needed to meet external competition. The other extreme is to dictate the performance standard. But employees may reject such imposition and desired performance improvement may not be realized (Brownell and McInnes 1986; Locke and Latham 1990; Thompson et al. 1997).

A related consideration made important by globalization is whether findings about high-stretch performance standards, whatever they are, can be generalized across countries. Accumulating evidence suggests that people of different national origins have different reactions to the same set of management practices (Bartlett and Ghoshal 1989; Birnberg and Snodgrass 1988; Child 1981; Harrison and McKinnon 1999; Steers 1989). Thus, management practices that are effective in one national setting may be ineffective, or even dysfunctional, in a different national setting (Chow et al. 1994; Chow et al. 1995; Hofstede 1983; Lincoln and Kalleberg 1990). For example, national differences in work-related culture have been suggested as possible explanations for some U.S. companies' failed attempts at adopting Japanese management practices (Fucini and Fucini 1990; Naj 1993; Young 1992).

In the specific case of high-stretch performance standards, some successes have been reported by U.S. manufacturing companies; however, national culture differences may affect the degree to which similar favorable outcomes will obtain in other countries. This issue applies both to U.S. firms considering a transfer of their domestic practices to operations in other nations, as well as firms from other nations seeking to emulate the successful practices of their U.S. competitors or partners.

The objective of this study is to explore whether, and how, national culture affects employees' reaction to different levels of participation in the implementation of high-stretch performance standards. Four hypotheses are developed based on a review of the literature on national culture and participation. These are tested in an experiment with Chinese and U.S. nationals. Both national samples performed the experimental task, in a three-period setting under the same high-stretch performance standard. Two levels (autocratic and consultative) of participation in the standard-setting process were manipulated between subjects.

China is chosen as a referent nation to the U.S. for two major reasons. First, there is a divergence between national cultures on dimensions hypothesized to influence individuals' reactions to participation in standard setting. Second, U.S. manufacturing firms continue to expand their investments and operations in China (Grossmann 1999; *Chemical Market Reporter* 2000), and thus, it is important to assess the applicability of U.S.-based management practices in a Chinese setting.

The remainder of this paper is structured as follows. The next section briefly reviews the relevant prior literature as the basis for deriving the hypotheses. Then the method is described, followed by the results. The final section provides a summary and discusses potentially fruitful directions for future research.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

This part of the paper first reviews the prior literature on national culture and participation; then it relates selected cultural dimensions to people's preferences for involvement in managerial decision making. This discussion is then used to develop four hypotheses about how Chinese and U.S. nationals would react to high stretch performance standards under different levels of participation in standard setting.

National Culture and Preferences for Participation

National culture can be defined as "the collective programming of the mind which distinguishes the members of one group or society from those of another" (Hofstede 1980, 25). Based on a survey of some 116,000 individuals from 72 countries, Hofstede (1980) identified four dimensions of work-related national culture, which were subsequently augmented by a fifth dimension (Hofstede and Bond 1984). The five cultural dimensions are Confucian dynamism, individualism vs. collectivism, masculinity vs. femininity, power distance, and uncertainty avoidance. Because of their frequent use in accounting research, we omit detailed descriptions of each dimension.[1] Power distance and individualism/collectivism are likely to be most relevant to employees'

[1] Descriptions and discussions of the five cultural dimensions are available in Hofstede (1991), Harrison (1992, 1993) and Merchant et al. (1995)

preference for, and reaction to, different levels of participation in the setting of high-stretch performance standards. Below, we discuss these two dimensions based on how they have been characterized in the literature.

Power Distance

According to Hofstede (1980, 1991), members of high-power-distance cultures more readily accept interpersonal inequality and its institutionalization, as compared to members of a low-power-distance culture, who believe that inequality between people should be minimized. Relative to their counterparts from a low-power-distance culture, subordinates from a high-power-distance culture more readily accept decisions and demands made by their superiors. Indeed, it has been observed that members of high-power-distance cultures expect people in superior positions to be more intelligent than their subordinates and consider involvement of subordinates in decision making to be a sign of poor leadership (Child 1981; Hofstede 1984). In contrast, subordinates from low-power-distance cultures consider themselves to have equal rights to their superiors and expect to be consulted on decisions that affect them (Child 1981; Hofstede 1980; Perera and Mathews 1990).

As reported in Hofstede (1991, 26), the power-distance scores of U.S. nationals and Chinese nationals from Taiwan were 40 and 58, respectively, or about equidistant above and below the mean of 51 for 39 countries. This directional difference between U.S. and Chinese cultures also is manifest in evidence from uni-national contexts. U.S. culture's emphasis on interpersonal equality is amply evident in the country's constitution. Observers of Chinese culture, on the other hand, have noted its high regard for hierarchy in which individuals in superior positions are accorded a wide range of prerogatives and authority over those below them (Bond and Hwang 1986; Hofheinz and Calder 1982; King and Bond 1985).

Individualism/Collectivism

According to Hofstede (1980, 51), "Individualism pertains to societies in which...everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth onwards are integrated into strong, cohesive ingroups." In an employment setting, people from an individualistic culture tend to be emotionally independent from, and have a calculative involvement with, the company (Hofstede 1984). They also prefer management practices that allow for individual initiative (Deutsch 1975; Hasegawa 1986; Hofstede 1984; Triandis 1989). Collectivists, on the other hand, tend to have an emotional dependence on and a moral involvement with the company. Collectivists tend to favor practices premised on a sense of

loyalty and duty binding the individual to the organization (Bond et al. 1982; Hofstede 1984; Kashima et al. 1988; Leung and Bond 1984).

Numerically, Hofstede (1991, 53) reported individualism scores of 91 and 17 for U.S. nationals and Chinese nationals in Taiwan, respectively. Recent studies based on Hofstede's taxonomy have found continued existence of this cultural difference between U.S. and Chinese nationals.[2] The classification of the two cultures as high and low on individualism has support from studies focusing on each country. Research about Chinese culture has especially noted its emphasis on subjugating one's self interests to those of the group (Bond et al. 1982, Hofstede 1991; Leung and Bond 1984; Redding and Wong 1986). In contrast, the self-interest motive is often cited as the cornerstone of Anglo-American management theories and practices (Harris and Moran 1987; Triandis et al. 1988). Ralston et al. (1992, 1993) further note that a primary and enduring difference between Eastern and Western cultures is the relative emphasis on group vs. individual differences.

Participation

Research about the relationship between participative budgeting and employee satisfaction and performance finds a positive correlation (Cherrington and Cherrington 1973; Milani 1975; Kenis 1979; Brownell 1982a, 1982b, 1985; Brownell and McInnes 1986), though there also are exceptions (e.g., Brownell 1981; Milani 1975; Brownell and Hirst 1986).[3] Researchers have identified a spatial continuum for participation from unilateral decision making at one extreme to a complete sharing of power at the other (Maier 1963; Vroom and Yetton 1973). At the lower participation levels is an autocratic decision-making style with little or no participation by subordinates in decision making. A midpoint (consultative) style allows for sharing of problems with the subordinate(s). Finally, a group-decision style is at the far extreme of the continuum, suggesting that superiors accept the solution(s) proposed by subordinate(s).

Previous research shows that the effects of participation in budgeting and decision making may differ across nations because of cultural differences (Brownell 1982a; Hofstede 1991; Daley et al. 1985). However, actual tests of national culture effects in participative budgeting

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[2] In accounting research, both Awasthi et al. (1998) and Chow et al. (1998) have measured the individualism of U.S. and Chinese (from Taiwan) subjects. Awasthi et al. (1998) reported individualism scores of 72.81 and 6.03, for their U.S. and Chinese subjects respectively. The corresponding scores reported by Chow et al. (1998) were 46.42 and -7.25. Both sets of figures support Hofstede's (1980) characterization of the two cultures, though the magnitude of difference is less extreme.

[3] Goal-setting research also has considered the effects of participation in standard setting on satisfaction and job performance (Buller and Bell 1986, Jackson and Zedeck 1982; Latham and Saari 1979, Locke 1982, White et al. 1977, Shalley et al. 1987).

are rare. Harrison (1992) found that participation in standard setting lowered job tension among Australian and Singaporean nationals, but had no effect in either nation on job satisfaction. More recently, Lau and Tan (1998) found that budget participation interacts significantly with task difficulty to affect performance, but there was no difference between Australia and Singapore. Thus, neither study provides an indication of a national culture effect. However, neither study considered high-stretch performance standards.

In this study we use an autocratic (no participation) vs. a consultative (participation) manipulation. Allowing self-set performance standards under a group decision-making style will not result in high-stretch performance standards. As a result, this design is limited to only considering the *process* of standard setting (autocratic vs. consultative). It does not address the *outcome* of the standard-setting process, as all participants ultimately received high-stretch performance standards.

We expect that U.S. and Chinese nationals would have different reactions to high-stretch performance standards. Chinese nationals, with their greater concern for collective interests and a greater willingness to accept superiors' directives, are expected to be significantly more satisfied with high-stretch performance standards overall than are their more individualistic, and lower-power-distance U.S. counterparts. Thus:

> **H1:** Culture will have a significant impact on reported satisfaction with the standard-setting process, with U.S. subjects reporting significantly lower satisfaction than Chinese subjects.

As a contrast, the difference in satisfaction with high-stretch performance standards between U.S. and Chinese nationals, when standards are reached through consultation, is expected to be smaller than it is when no such consultation is allowed. Here we expect U.S. nationals to react more favorably to high-stretch performance standards when they are able to participate in developing them. Their lower power distance suggests a preference for the opportunity to provide input, while their higher individualism suggests a preference for being able to differentiate themselves from others, including their performance standards. On the other hand, with their higher power distance and collectivism, Chinese nationals are not expected to have as strong a preference for individual assertiveness or differentiation and thus their satisfaction with high-stretch performance standards should decrease when they are allowed to consult in their development.[4] The combination of these

[4] A significant national culture main effect as well as a significant national culture × participation interaction of this type can be examined in an ANOVA (Judd et al 1995)

influences suggests that, while U.S. nationals still would be less satisfied than their Chinese counterparts with high stretch performance standards, this difference would be lessened by the opportunity to participate in the standard-setting process:

H2: Culture and participation will significantly interact, with consultation in standard setting leading to higher satisfaction scores for U.S. subjects and lower satisfaction scores for Chinese subjects than those obtained in respective autocratic conditions.

Finally, the differences between U.S. and Chinese nationals' power distance and individualism/collectivism implies that they would have different adherence to high-stretch performance standards. More so than standards of less extreme tightness, high-stretch performance standards require individual employees to make self-sacrifices (via prolonged, intensified work effort) in favor of the firm. Given the Chinese nationals' higher collectivism and power distance, they can be expected to more readily adhere to demands from superiors to work hard for the sake of the company. At the same time, however, given their high collectivism and power distance, the Chinese can be expected to have lower levels of adherence to high-stretch performance standards when allowed to consult in their development. Conversely, U.S. subjects should have greater levels of adherence to high-stretch performance standards when they consult in their development. Thus, similar to the effect in H2, the combination of these influences suggests that while U.S. nationals still would adhere less closely to high-stretch performance standards than would their Chinese counterparts, this difference would be lessened by the opportunity to participate in the standard-setting process. Thus, we hypothesize:

H3: Culture will have a significant impact on adherence to high-stretch performance standards, with U.S. subjects experiencing significantly lower adherence than Chinese subjects.

H4: Culture and participation will significantly interact, with consultation in standard setting leading to higher adherence to high-stretch performance standards for U.S. subjects and lower adherence to high stretch performance standards for Chinese subjects than those obtained in respective autocratic conditions.

METHOD

Since our study involves comparing members of two cultures, it is important to recognize that cross-cultural research of this type

encompasses both "etic" and "emic" dimensions (Williams et al. 1998).[5] Our goal is an etic one: to make behavioral generalizations across cultures (Brislin 1983). Yet in conducting the study, an emic concern arises that constructs and their components may not be ascribed the same meaning by members of different cultures. Thus, a major challenge in our experimental design and data analysis is to control for the potential effects of emic differences.

Hui and Triandis (1985) suggest four areas of potential emic inequivalence in cross-cultural studies: (1) conceptual/functional, (2) construct, (3) item, and (4) scalar. In this study, a potential conceptual/functional inequivalence relates to how Chinese vs. U.S. nationals may perceive the same level of participation (autocratic vs. consultative). However, based on the results of a manipulation check (see Results Section), it does not appear that we have an emic concern in this dimension because both national samples recognize a difference between having consultative participation vs. no participation (autocratic). Further, there is no significant difference across nations as to level of participation perceived under each treatment.

The design of the study also aimed at attaining emic equivalence in construct operationalization. This measure of equivalence is tied closely to item equivalence, which requires that a construct be measured by the same instrument. Our approach was to conduct the entire experiment identically in both nations by using a script. The script for U.S. administration was developed first. Then, following previous cross-cultural accounting research (Chow et al. 1994; Chow et al. 1997), a modified version of Brislin's (1983) suggested approach was used to develop the Chinese-language instrument for use in Taiwan. First, the English instrument was translated into Chinese by one of the bilingual research-team members. Then this translation was independently evaluated by a second bilingual team member, who then worked with the initial translator and an independent graduate assistant to ensure that appropriate terms and phrases were used to convey the same meaning as in the English version. Finally, a bilingual colleague of one of the team members not involved in the project translated the Chinese instrument into English and concurred with its agreement to the English original.[6]

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[5] We are indebted to an anonymous reviewer for heightening our attention to this concern.

[6] Both team members grew up in a Chinese society and are fluent in both spoken and written Chinese. One completed his/her post-secondary education in the U.S. and taught there for two decades. The other completed his/her doctorate in the U.S. and taught at a Taiwanese university for almost a decade. The graduate assistant was a Chinese national who grew up in Taiwan. The independent colleague obtained his/her doctorate in the U.S. and taught at a Taiwanese university for over five years.

Last scalar equivalence means that a given numerical response to an evaluation scale must refer to the same degree, intensity, or magnitude of the construct regardless of the population of which the respondent is a member. Previous research has suggested that attitude measures such as Likert scales are culture specific instruments and thus are subject to bias (Yu et al. 1993). This was a potential issue in our tests related to standard satisfaction, as this variable was based on subjects' responses to Likert-scale questions. As detailed below, tests were included to specifically assess the sensitivity of our results on satisfaction to this factor.

Experimental Design

The laboratory experiment employed a 2 × 2 × 3 full factorial design. There were two between-subjects variables: national culture (U.S., Chinese) and participation level (autocratic, consultative). Period with three levels was a within-subject variable.

Task

The experimental task was adapted from Young (1985) and Lindquist (1995), and involved building toy castles using Loc-Blocs. Each castle required 26 blocks of various sizes and shapes. To be of acceptable quality, a completed castle had to satisfy two conditions: (1) be identical to a model in size and number of pieces; and (2) the pieces at four specific locations had to be of specific sizes and colors. Similar tasks have been seen as an appropriate means of bringing the realism of a manufacturing setting to a controlled environment (Burns and Mills 1997).

Subjects

The initial sample consisted of 25 U.S. and 31 Chinese nationals. All were volunteers attracted by posted flyers that promised pay for participation, but that did not disclose the nature of the experiment. The U.S. subjects were students at a large public university in a Western state; all were Caucasian in ethnicity. The Chinese subjects, all of whom were of Chinese ethnicity and of Chinese mother tongue, were students at a large Taiwanese public university. After a sequential matching process aimed at equalizing task ability across treatments (described further below), each national sample was reduced to 18 subjects.

Procedure

The same procedures were followed in the U.S. and Taiwan. Each subject was scheduled for a two-hour block of time and randomly assigned to one treatment. Each subject completed a consent form and a brief demographic questionnaire when they arrived. Then subjects

were directed to one of the rooms reserved for the experiment. In both the U.S. and Taiwan, each subject completed the experiment in a separate room to avoid contamination by observing other subjects' proceedings. One research assistant was assigned to each room to act as "foreman." A member of the research team acted as the "manager" for all subjects in each national setting.

All assistants were given approximately two hours of training before the experiment began. When the subjects arrived at their assigned room, the assistant provided a one-page scenario explaining that their job was assembling toy castles. After reading the scenario, the subject was shown a model of the castle and how to assemble it. Subjects were given ten minutes to practice the assembly task. After counting the number of quality castles, the subject was given a second ten-minute practice production period. Following Young (1985), Young et al. (1993), and Lindquist (1995), a piece rate was paid for each quality castle produced in this second period to increase salience of the financial reward from the experiment.[7]

The experimental treatments were activated for three production periods upon completion of the second practice period. To avoid potential end-of-game effects, the subjects were not told the total number of production periods. Following Young (1985), Young et al. (1993), and Lindquist (1995), output for each production period was paid for using the following scheme:

$$Y = \$X\,(A) - \$X\,|A - S| \qquad (1)$$

where:

Y = pay for the production period,
X = both the pay per unit of output and penalty per unit of deviation between output and the performance standard,[8]

S = the performance standard, and
A = output in number of acceptable quality castles.

This pay scheme motivates individuals to both truthfully reveal what they believe to be their attainable level of output, and to work

[7] The piece rate for U S subjects was U S $40 per quality unit. Taiwanese subjects were paid U S $24 per quality unit The difference between the two national locations was designed to achieve parity in the pay rates relative to the local pay scale. The ratio of 1 0 6 between the U.S and Taiwan was based on a beginning salary for U S graduates of approximately U.S.$27,000 and U S $16,000 for Taiwanese graduates Pretests indicated that these piece rates were sufficient for sustaining subject interest and effort

[8] The value of X was U.S.$40 for the U S subjects and U S $24 for the Taiwanese subjects These were the same as the piece rates paid for the output of the second practice period.

toward the performance level selected as their standard.[9] This is important because we need to ratchet standards up to a very difficult level and we want to be sure that subjects receive a high-stretch performance standard that is individually difficult for them. Subjects were provided with detailed explanations and numerical illustrations of the scheme at the end of the second practice period and before activation of the experimental treatments.

Consultative Participation Treatment

1. The subject was told that pay for the upcoming period's output would be computed according to the scheme in equation (1). Subjects were asked to write down the range of output that they could attain for a new, 10-minute production period under this pay scheme. The range was in the form of three consecutive numbers (e.g., 6, 7, 8). The subject was told that the attainable range was private information that would not have to be disclosed to either the foreman or the manager.[10]
2. Subjects placed the completed attainable range form in their file. Subjects were told that prior to setting performance standards for the upcoming production period, the manager wanted to give them the opportunity to express an opinion regarding the standard-setting process, the task, and a preferred performance standard for the period. A standardized questionnaire ensured consistency in implementing this treatment. Subjects were told that the manager would try to incorporate their indicated preference in the standard-setting process.
3. The assistant left the room to get the manager. Upon entering the room, the manager looked over the subject's written responses, and told the subject that for the upcoming production period, the subject's preferred standard would be used. Then the manager instructed the foreman to get the production run underway.
4. Steps 1–3 were repeated for two more ten-minute production periods. The only difference was that in the second (third) period, the manager imposed a standard that was 30 (70) percent higher

[9] Young (1985) has shown that this pay scheme motivates subjects to perform exactly equal to the standard. Under this scheme, if actual individual production A is less than the individual standard S then compensation is reduced by $X times the absolute difference between A and S. Conversely, if A is greater than the individual standard, S, then compensation is again reduced by the absolute difference between A and S and a subject makes the same compensation as if they had only performed up to the standard. Previous accounting research has found this incentive scheme to have strong motivational properties (Young 1985; Young et al. 1993, Lindquist 1995).

[10] In reality the assistant glanced at the sheet as the subject was writing down his/her attainable range. This was necessary to get the needed information for subject matching described further below.

than the subject's self-indicated preference for that period (or what they were able to achieve). In both periods two and three, the manager told the subject that the company was under pressure to vastly increase its output level and that the manager actually wanted to set the standard at a higher figure (45 [85] percent higher than the subject's self-reported preference in the second [third] period). But given the subject's indicated preference, the manager was willing to compromise at the lower level.

5. At the conclusion of the third production period, the subject completed an exit questionnaire, and then was paid and debriefed.[11] Subjects were asked not to discuss the experiment with anyone for one week to prevent contamination of other subjects.

Autocratic Participation Treatment

These subjects were processed in the same sequence of steps, with the following differences:

1. Individualized high-stretch performance standards were based on each subject's self-expressed attainable output level, reflecting each subject's performance capability and/or planned effort. In other words, a high-stretch performance standard for one individual might be making 8 castles, while for another it might be making 15 castles. Matching was used to control for the effects of this subject characteristic across treatments and make certain that variances across conditions were not due to differences in individuals' abilities. The matching variable was the subjects' self-reported attainable ranges just prior to the start of production period one (after the two practice periods). Recall that each subject was compensated under the Young (1985) and Young et al. (1993) pay scheme, which has been analytically shown to induce accurate revelation of expected output levels. We had to match based on this self-reported information prior to operationalization of the treatments because once the treatments were operationalized, only the consultative participation subjects were given the option to reveal such information. To shed some light on the effectiveness of matching, we also tested for cross-cell equivalence on the subjects' performance in the second practice period, as actual performance also can reflect the subjects' performance capability. A two-way ANOVA showed that there was no significant effect due to nation ($F = 1.22$, $p < 0.276$), participation level ($F = 0.231$, $p < 0.795$) or their interaction ($F = 0.486$, $p < 0.688$). Mean performance for the Chinese sample was 4.67; that for the U.S. sample was 5.04. A match was defined as having

[11] On average, the U S subjects earned U S $10 for 1-1/2 to 2 hours (depending on their assigned experimental treatment). The average for the Taiwanese subjects was U S $7

at least two out of the three numbers in the subjects' self-stated attainable range overlapping. Among the 18 U.S. subjects (i.e., nine between-cells pairs) in the final sample, six pairs were matched across participation levels on all three numbers in the attainable range. Each of the remaining three pairs was matched on two out of three numbers in the attainable range.

The Taiwanese portion of the experiment was conducted after the U.S. portion. As each Chinese subject was processed, he/she was matched to an U.S. subject assigned to the same treatment. Those subjects without U.S. matches still completed the experiment, but their data were discarded. Fifteen of the 18 subjects in the final Taiwanese sample (nine from consultative participation and six from autocratic participation) were perfectly matched to their U.S. counterparts. The remaining three (all from autocratic participation) were matched on two out of three numbers in their stated attainable ranges.

2. In each production period, the autocratic participation subjects were simply assigned the standard given to their match from the consultative participation condition. They were not afforded the opportunity to reveal their opinion regarding the standard-setting process, the task, or their preferred performance standard levels. To ensure salience of this treatment, each assistant carried a very visible packet of envelopes. The subject was told that these envelopes contained the performance standards to be used in each production period. Prior to the start of the first production period, the assistant left the room to get the manager. While outside the room, he/she used the subject's privately written attainable range (which he/she had gleaned at the conclusion of the second practice period (cf footnote 9) to find a match from the consultative participation condition. Sealed envelopes containing the latter's performance standards for all three production periods were inserted into the visible packet. Later, they were opened in front of the subject to start each new production run.

RESULTS

To ensure that the subjects did understand the relation between their performance and pay, the exit questionnaire asked each subject to compute the pay for a given standard level and actual output. All subjects answered this question correctly.

Demographic Randomization

A two-way analysis of variance (ANOVA) was used to test for between-cell differences in age, gender, and years of full-time equivalent work experience. The between-subject factors were country (two levels) and participation (two levels). There were no significant main effects or

two-way interactions, indicating no systematic difference in these demographic characteristics between nations and across treatments.

Manipulation Checks

To assess the salience of the participation treatment, subjects were asked to indicate their agreement/disagreement with two statements: "I was able to vocalize my feelings" and "I didn't have a chance to tell the foreman how I felt." Both used five-point fully anchored response scales, with 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree. The second question was reverse scaled and the two responses were summed. The Cronbach alpha for this combined scale was 0.82.

A 2 × 2 ANOVA showed that the main effect due to nation was not significant ($F = 0.009$, $p < 0.925$) but the effect due to participation was highly significant ($F = 52.27$, $p < 0.0001$). The two-way interaction was not significant ($F = 0.68$, $p = 0.511$), and two-way contrasts indicated no significant difference between the U.S. and Chinese subjects for each level of participation. Within the U.S. sample, consultative participation subjects showed greater recognition of giving input than autocratic participation ($t = 8.1$, $p < 0.0001$). The same pattern of significant differences was observed for the Chinese subjects ($t = 6.5$, $p < 0.000$). These results indicate that the participation manipulation was successful in both experimental locations and at similar levels of salience.

To assess whether the imposed standards were viewed as high-stretch, the exit questionnaire also asked each subject to rate the tightness of his/her performance standard. The provided alternatives were easy, moderate, and tight. Coding these as 1, 2, and 3, respectively, the mean for the U.S. (Chinese) sample was 2.81 (2.70), with no significant difference between nations or participation levels. Thus, consistent with the experimental design, both national samples had considered their standards to be of the high-stretch type.

Hypothesis Tests

Tests of H1

Hypothesis 1 proposed that U.S. relative to Chinese nationals would be significantly less satisfied with high-stretch performance standards. This hypothesis was tested with an ANOVA. The independent variables were nation (Chinese, U.S.), participation level (autocratic, consultative), and their interaction. The dependent variable was the aggregate of responses to four exit questions: "Overall, I was satisfied with the standards under which I worked"; "The standards I worked under suited me fine"; "I would have preferred different standards than what I received" (reverse scaled); and "I liked the standards which I received." The fully anchored five-point response scale was 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree.

The Cronbach alpha for the summed scale was 0.93 and cell and marginal means are reported in Table 1. Table 2 provides the results of the ANOVA.

Table 2 shows that the model as a whole was significant ($F = 3.492$, $p < 0.027$). The main effect due to nation was significant ($F = 10.233$, $p < 0.003$). Consistent with H1, U.S. subjects had significantly less satisfaction (7.34) than their matched Chinese counterparts (10.56) with high-stretch performance standards.

Tests of H2

The interaction of culture and participation regarding satisfaction with high-stretch performance standards between U.S./Chinese nationals and autocratic/consultative input is next analyzed. Hypothesis 2 predicted that the differences between U.S. and Chinese nationals' satisfaction with high-stretch performance standards would lessen with those individuals working in a consultative vs. an autocratic environment. The ANOVA discussed in H1 provides information to answer H2 and shows that the interaction is not significant. This is further explored through contrast analyses. Here one-tailed, t-test analyses determine that U.S. subjects have significantly less satisfaction with imposed standards (autocratic condition) than Chinese subjects (7.00 vs. 10.67 respectively; $t = -2.32$, $p < 0.017$). Mean levels of satisfaction with performance standards for all conditions are presented in Table 1. However, when consultation is allowed in high-stretch performance standard setting, there still exists a significant difference in satisfaction with high-stretch performance standards between the U.S. and Chinese nationals (7.67 vs 10.44 respectively; $t = -2.22$, $p < 0.021$). It appears that consulting in the development of high-stretch performance standards is not enough of an incentive to move U.S. subjects' satisfaction levels up in line with the Chinese. Also, having an opportunity to participate through consultation does not seem to have a negative reaction on Chinese satisfaction with standards contrary to theory.

Exploring Potential Emic Inequivalence in Testing H1 and H2

Since the tests of both H1 and H2 are based on subjects' responses to Likert scales, we evaluated the potential of an emic validity threat by "normalizing" the individual responses within each national sample in three different ways. The first approach was to divide each individual response by the mean response for its national sample. The second approach was to subtract from each individual response its national mean. The third method was to first subtract from each individual response its national mean, then divide this difference by the standard deviation for the national sample. These methods of adjusting for the respective national means are consistent with the suggestions of prior research (Cattell 1944; Broverman 1962; Leung and Bond 1989). Each

TABLE 1
Mean Levels of Satisfaction with Performance Standard[a]

Statements comprising aggregated scale:[b]

1. "*Overall, I was satisfied with the standards under which I worked.*"
2. "*The standards I worked under suited me fine.*"
3. "*I would have preferred different standards than what I received.*" (Reverse scaled)
4. "*I liked the standards which I received.*"

	Participation Level		
Sample	**Autocratic**	**Consultative**	**Row Means**
U.S.	7.00	7.67	7.34
Chinese	10.67	10.44	10 56
Column Means	8.83	9.06	

[a] n = 9 individuals in each condition
[b] Response scale: 1 = Strongly disagree, 2 = Disagree, 3 = Undecided, 4 = Agree; 5 = Strongly agree.

TABLE 2
Analysis of Variance for Satisfaction across Nations and Levels of Participation[a]

Dependent Variable: Satisfaction with High-Stretch Performance Standards

Effect	**df**	**Sum of Squares**	**F-Ratio**	**p-value**
Nation	1	93.444	10.233	0.003
Participation	1	0.444	0.049	0.827
Nation x Participation	1	1.778	0.195	0.662
Explained	3	31.889	3.492	0.027
Error	32	292.222		

[a] n = 36 subjects.

of the three sets of normalized satisfaction scores was used as the dependent variable in ANOVAS of the form discussed above. Consistent across all ANOVAS, none of the effects come close to statistical significance. We believe this result is due to the normalizing procedure eliminating genuine national mean differences from the data. However, it also does not preclude the possibility of scalar inequivalence. The data collected in the experiment did not permit further differentiating between these alternatives, and such an exploration is left to future research.

Tests of H3 and H4

Hypothesis 3 stated the main-effect prediction that as compared

to their U.S. counterparts, Chinese nationals would adhere more strongly to imposed, high-stretch performance standards, and H4 proposed the interaction that this cross-cultural difference would decrease as the level of participation increases. These hypotheses were tested using a repeated-measures ANOVA with period (1, 2, 3) as a within-subject variable, and nation (Chinese, U.S.) and participation level (autocratic, consultative) as between-subjects variables. The dependent variable (adhere to high-stretch performance standards) was the ratio of each subject's performance relative to the imposed standard.[12] In contrast to the satisfaction measure, this output-based dependent variable is not subject to the scalar equivalence emic concern. The Mauchly sphericity test indicated no violation in the sphericity of data ($W = .90237$, $p < .203$), which implied that a univariate analysis is appropriate for H3 and H4. This conclusion was supported with a Huynh-Feldt epsilon of 1.00 (O'Brien and Kaiser 1985).

Table 3 presents the cell and marginal means for the dependent variable, while Table 4 shows the ANOVA results. In addition, Figure 1 provides a plot of cell means. Table 3 shows that across the three periods, both national samples had a downward trend in performance relative to the standard (even though absolute performance was increasing). This pattern is to be expected, as the absolute level of the standard was increased substantially across periods. Also evident in this table is that starting in period two (when the imposed standard became 30 percent higher than the subject's preferred level, as opposed to being equal to it in period one), the mean relative performance (to the standard) is uniformly higher for the Chinese sample than for its U.S. counterpart. For example, whereas U.S. subjects in the autocratic treatment had a mean relative performance of 0.77 for period two, the value for their Chinese counterpart was 0.85. Similarly, considering period three, mean relative performance for the Chinese subjects under consultative participation was 0.97, whereas that of their U.S. counterpart was 0.70.[13]

Table 4 indicates that the main effects due to nation, participation, and production period are significant. The interaction between production period and participation also is significant. The significant nation main effect is consistent with H3. The absence of a significant

[12] Recall from the "Method" section that the subjects had been matched on expected output both cross-nationally and between participation levels, and that there also was no systematic difference across cells in the subjects' actual performance in the second practice period. These findings suggest that we also could use actual performance as the dependent variable in the ANOVA. The advantage of using the ratio of actual-to-standard performance is that it directly relates to our hypothesis. An ANOVA using actual performance as the dependent variable yielded qualitatively identical results.

[13] It does not seem likely that this U.S.-Chinese difference is an artifact of differences in ability, given the matching on second practice period performance and self-reported expected output range (cf. footnote 11).

TABLE 3
Adherence to Imposed Standard[a]
(Actual Performance as a Proportion of Standard Performance)

	Participation Level	U.S. Sample	Chinese Sample	Row Means
Period 1	Autocratic	1.04	1.09	1.07
	Consultative	1.09	1.12	1.11
	Column Means	1.07	1 11	1.09
Period 2	Autocratic	0.77	0.85	0.81
	Consultative	0.84	1.05	0.95
	Column Means	0.81	0.95	0.88
Period 3	Autocratic	0.59	0 67	0.63
	Consultative	0.70	0.97	0.84
	Column Means	0.65	0.82	0.74

[a] n = 9 subjects in each condition within each period.

TABLE 4
Analysis of Variance for Adherence to Imposed Standard Across Production Periods, Nations, and Levels of Participation[a]

Dependent Variable: Ratio of Actual Performance to Imposed Standard

Panel A: Between-Groups Effects

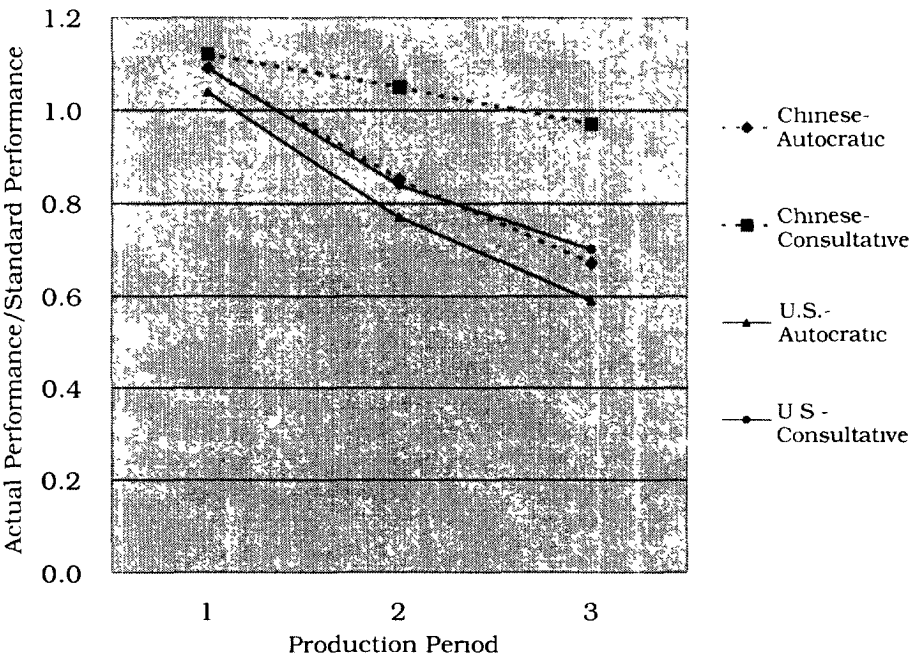
Effect	df	Sum of Squares	F-Ratio	p-value
Nation	1	0.390	8.31	0.007
Participation	1	0.430	9.31	0.005
Nation × Participation	1	0.070	1.58	0.218

Panel B: Repeated-Measures Effects

Effect	df	Sum of Squares	F-Ratio	p-value
Production Periods	2	2.200	48.09	0.000
Production Periods × Nation	2	0.100	2.14	0.327
Production Periods × Participation	2	0.120	2.54	0.086
Production Periods × Nation × Participation	2	0 040	0.890	0.416

[a] n = 36 (9 in each condition).

FIGURE 1
Plot of Mean Levels of Performance Relative to Imposed Standard



interaction between nation and participation is not consistent with H4. To further explore aspects of H4, we performed tests of contrasts first within each national sample between participation levels, then between nations for the same participation level. As expected, given period one's use of an imposed standard equal to the subjects' expressed preference, there was no significant difference across nations or participation levels. For periods two and three, the U.S. sample's relative performance did not differ significantly between the autocratic and consultative treatments (respectively, $t = 0.81, 1.47$; $p < 0.22, < 0.08$). Thus, contrary to the expectation of H4, being accorded greater participation in the standard-development process did not increase U.S. nationals' adherence of the imposed high-stretch performance standards.

In contrast, the Chinese sample's mean performance was significantly higher under consultative participation for both periods (respectively, $t = 2.91, 3.07$, $p < 0.005, < 0.004$). This result also is contrary to the expectation of H4, since Chinese nationals were not expected to prefer participation and, accordingly, their commitment to standard fulfillment was not expected to increase with the extent of participation.

The preceding U.S.-Chinese difference is evident in Figure 1, and also reflected in the cross-national contrasts. Contrary to the main-effect finding, U.S. and Chinese relative performance under autocratic

participation did not differ significantly in either period two or three (respectively, $t = 1.13, 1.16$, $p < 0.14, < 0.13$). Also, contrary to H4, both differences were significant under consultative participation (respectively, $t = 2.70, 2.73$, $p < 0.008, < 0.008$), with a higher mean for the Chinese sample. It appears that Chinese subjects do adhere more closely with high-stretch performance standards than do U.S. subjects, and the opportunity to participate in standard setting (consultation) is not a detriment to this Chinese adherence.

SUMMARY AND DISCUSSION

This experimental study has found that employees' national culture can significantly affect their reactions to different modes of implementing high-stretch performance standards. Based on subjects' raw responses to Likert-scale questions, nationals of a high-power-distance culture (Chinese) were more satisfied than nationals of a low-power-distance culture (U.S.) with high-high-stretch performance standards. This result was found across both autocratic and consultative levels of participation in such standards' development. However, when the raw responses were adjusted for differences in the respective national means, these significant differences were no longer evident. Thus, we are unable to dismiss the possibility that the significant findings based on the raw responses may have been an artifact of scalar inequivalence between the two national samples (i.e., the same scalar response not reflecting equivalent degrees, intensities, or magnitudes of the construct).

In contrast, the physical output-based performance measure was not subject to such a concern. Results based on this measure were consistent with the Chinese nationals, relative to their U.S. counterparts, having greater adherence to the imposed standard, as manifested in their performance relative to the tight, and continually being tightened, standard. In conjunction with the results on satisfaction (either those based on the raw responses, which indicated that the Chinese nationals were generally more satisfied than were their U.S. counterparts, or those based on the normalized responses, which indicated no difference), it seems that the higher acceptance of the imposed high-stretch performance standards by the Chinese nationals had not been attained at the expense of a lower level of satisfaction.

At a general level, this study provides further support for considering national culture differences in the design of controls. In the specific case of performance standard setting, it suggests that members of different cultures (e.g., those with high vs. low power distance) may differ in how much they would accept high-stretch performance standards. While employees from one national culture may prefer being given a larger voice in such decisions, those with a different cultural origin may react negatively to such an arrangement.

Yet, as the findings of this study also make clear, mapping the effects of national culture for purposes of designing controls is more

complex than we had envisioned. In our hypothesis tests, only parts of the predictions were borne out by the results. For the Chinese nationals, an unexpected result was that consultative participation was associated with increased efforts toward attaining the imposed, high-stretch performance standard. We surmise that the Chinese subjects, being university students, may have internalized some of the West's cultural values through their exposure to Western (particularly U.S., in the case of the Taiwanese university in our sample) textbooks and curricula (Merchant et al. 1995; Wang 1994; Yang 1996). Unfortunately, we were unable to explore the efficacy of this conjecture because we had relied on recent prior research (e.g., Awasthi et al. 1998 Chow et al. 1998) to position the two national samples on the relevant culture dimensions, rather than directly measuring such attributes ourselves.

It should be noted this experiment has used a task where output is a function of physical effort. As such, the results in this study may most likely relate to the work of a nonmanagerial, piece-rate worker. This study has also used students from only one university in each national setting. It is possible that institutional differences, could have produced subject pools that differ in attributes neither controlled for nor measured in this study (e.g., strength of work ethic). Future research should reduce these limitations and continue this multicultural exploration.

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