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Eastern versus Western Control Beliefs at Work: An Investigation of Secondary Control, Socioinstrumental Control, and Work Locus of Control in China and the US

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Abstract

La theorie et la recherche concernant les croyances (LOC) et les perceptions du controle suggerent que les Asiatiques tendent a obtenir des scores plus bas et a etre plus passifs que les Americains, mais ces travaux ont ete menes a l' aide de concepts et d' echelles developpes principalement aux USA qui certifient une primaute du controle interne (ex: en changeant l' environnement pour l' adapter a soi). Une equipe de recherche internationale a etendu la notion de croyance dans le controle en developpant des echelles qui permettent de reconsiderer la notion en faisant etat de croyances secondaires dans le controle (ex: en adaptant le soi a l' environnement) et de faire etat d' un concept nouveau de croyances socio-instrumentales (ex: le controle par les relations interpersonnelles) qui permettent de rendre compte de maniere plus pertinente des croyances en un controle dans les cultures collectivistes. Nous nous attendions a ce que, par l' utilisation d' echelles culturellement appropriees, les Americains n' obtiennent pas une croyance en un controle plus importante que les Asiatiques. Les hypotheses ont ete partiellement confirmees en ce que les Americains se sont montres comme obtenant un controle plus bas que les Chinois (de Hong Kong et de RP de Chine) sur ces echelles. Il est suggere que voir les Asiatiques comme evitant passivement le controle au travail peut etre incorrect et du aux insuffisances de controle socio-instrumental.

Research and theory concerning beliefs (locus of control) and perceptions of control suggest that Asians tend to be lower and more passive than Americans, but this work has been conducted mainly with US-developed constructs and scales that assess primary control (i.e. changing the environment to adapt to the self). An international research team expanded the notion of control beliefs by developing scales to assess secondary control beliefs (i.e. adapting the self to the environment) and the new construct of socioinstrumental control beliefs (i.e. control via interpersonal relationships), both of which were thought to better fit the control beliefs of collectivist cultures than Western-developed control scales. We expected that, when culturally appropriate

scales were employed, Americans would not show higher control beliefs than Asians. Hypotheses were partially confirmed that Americans would be lower than Chinese (Hong Kong and PR China) on these new scales. It is suggested that views of Asians as passive avoiders of control at work may be incorrect and due to the overlooking of socioinstrumental control.

INTRODUCTION

It has been assumed by many control theorists that humans have a universal motive to exert control or mastery over their environments (Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996). Indeed, much behavior is directed toward acquiring or maintaining control across all domains of life, including work. Control variables, in one form or another, play a prominent role in many theories of organisational behavior (Terry & Jimmieson, 1999), such as Hackman and Oldham's (1976) job characteristics theory and Karasek's (1979) job demands/control model. Furthermore, having a sense of control is said to be a critical element in successful psychological adjustment to not only work but also other domains of life (Kobasa, Maddi, & Kahn, 1982; Skinner, 1996), and this is thought to be as true elsewhere in the world as in Western society. However, almost all workplace control research has been either conducted in the US and other Western nations, or it is based on Western theories. This potentially ethnocentric approach might have led to a misinterpretation of how control is viewed by people in different cultural contexts, because there can be cultural biases built into the definition of constructs and their operationalisations (Boyacigiller & Adler, 1991).

We attempted to overcome such limitations by assembling an international group of researchers who designed and carried out this study of beliefs concerning workplace control. This study expands the traditional Westernbased locus of control notion by introducing two new control constructs: Beliefs about control exerted through others (socioinstrumental control), and beliefs about control of one's reactions to the environment, the latter based on Rothbaum, Weisz, and Snyder's (1982) concept of secondary control. These different aspects of control are described in detail in the next section.

THE IMPORTANCE OF CONTROL BELIEFS AND PERCEPTIONS

It can be meaningful to distinguish objective work control from people's beliefs and perceptions about control, but it is the latter that is important for adjustment and well-being (Skinner, 1996). It is also possible to distinguish people's perceptions about the control they have in the workplace, such as their level of autonomy, from more general beliefs about control as reflected in locus of control. Whereas autonomy concerns the extent to which people perceive themselves to be able to

determine how, when, and where they do their work, locus of control is considered a personality variable that reflects the person's beliefs about whether they or external forces are in control in a more general sense. Individuals who believe they are in control are called internals, and people who believe that external forces (luck, fate, or powerful others) are in control are called externals. The major difference between perceptions and control beliefs concerns the specificity and stability of the target of control. A control perception concerns whether or not the person can influence a particular event at a specified time, whereas control beliefs or locus of control concern whether or not a person believes he or she generally can control certain types of events. For example, the Work Locus of Control Scale (Spector, 1988) used in this study asks if the person believes people in general can control their own rewards (e.g. promotions) at work.

Both control beliefs and perceptions have been prominent in research on job stress and well-being in the workplace. According to Spector's (1998) control model of stress, control helps filter perceptions of situations, affecting their appraisal (Lazarus & Folkman, 1984) as being benign or threatening. A person who perceives low control is more inclined to appraise situations as job stressors, which is likely to lead to job strains. It has been well established that various control variables relate to job stressors and strains (e.g. Evans & Carrere, 1991; Ganster & Fusilier, 1989). Spector's (1986) meta-analysis showed that control perceptions at work related to both job stressors (role ambiguity and role conflict), and strains, including job (dis)satisfaction, physical symptoms, emotional distress, and intent to quit the job. Studies of locus of control at work have also shown a link with job stressors and strains. For example, Spector and O'Connell (1994) found in a longitudinal study that work locus of control in a sample of college students predicted their later reports of job stressors (role conflict, role ambiguity, and interpersonal conflict) and strains (job satisfaction and work anxiety), all of which were assessed in the current study.

Despite its well-established relation with stressors and strains, the Western conception of locus of control has remained monolithic. That is, control beliefs are classified into either external or internal based on whether the person believes in direct personal control or sees control to lie elsewhere such as in powerful others. This notion fails to consider that direct control is not the only means of achieving control, and that cultural differences may affect how people experience and view control. For example, in collectivistic cultures people tend to be more concerned with group harmony and can be hesitant to take direct and independent action to benefit themselves (Kim, Triandis, Kagitçibasi, Choi, & Yoon, 1994). In such cultures, people focus attention on the development of interpersonal relationships, and may attempt to influence powerful others or groups of others in order to exert control. Such attempts may appear to be passive to a Western observer who may overlook the function of the subtle forms of social influence that characterize collectivistic cultures.

PRIMARY VERSUS SECONDARY CONTROL

Rothbaum et al. (1982) proposed a theory that suggests control can be classified into two categories—primary and secondary. Primary control consists of actions taken by a person to change the world, or in other words is the attempt to adapt the world to the person. Secondary control, on the other hand, involves changing the self to fit the external environment. Rothbaum et al. suggest that people are highly motivated to adapt to the world and that these two forms of control function in a hierarchy to accomplish that objective. Primary control is preferred and will generally take precedence. However, if the individual is unable to exert primary control, secondary will be used as a back-up coping response. Thus primary control involves direct action to change the world, whereas secondary control represents cognitively mediated action designed to change the person's appraisals and emotional reactions.

Secondary control consists of four different forms (Rothbaum et al., 1982). Predictive control involves actions taken to enhance the ability to predict what will happen in the future. Often a person will purposely fail in a task so they can maintain the ability to predict the outcome. This failure also enables the person to maintain self-esteem, since if one doesn't really try, one didn't really fail. Illusory control involves making attributions to chance, and can result in both seeking out chance situations (e.g. playing the lottery) and engaging in superstitious behavior. Vicarious control is sought by associating with powerful others who have power, such as managers in the organisation. Interpretive control consists of attempts to find meaning in events. This control is mainly cognitive action that may help a person cope with the world, by selectively attending to information that maintains beliefs about events.

Rothbaum et al. (1982) argue that control theorists have tended to misinterpret control actions, attributing passive and submissive behaviors as reflecting a lack of motivation and poor adjustment to the world. They point out that secondary control can involve highly motivated action and a high level of effort, and is just as important as primary control in adaptation because it helps us cope with what is uncontrollable. Heckhausen and Schulz (1995) echo this idea in their developmental theory, arguing that both forms of control are important, and that secondary control functions to maintain and support primary control.

CONTROL IN THE INTERNATIONAL CONTEXT

It has been noted that cross-national differences exist in beliefs about control. Quite a few studies have compared countries on general locus of control. Asians tend to believe they have less personal control than Americans and others typically classified as Western (Hamid, 1994; Hui, 1982; Smith, Trompenaars, & Dugan, 1995). Hui (1982) points out that there has been some

inconsistency in results due to the use of scales across and within studies that assessed different domains of life. For example, he notes that Asians may be particularly external when it comes to control over personal things in life, but may be less so when it comes to issues of societal control.

Spector, Cooper, Sanchez, O' Driscoll, Sparks, et al. (2002) studied work locus of control across 24 nations. They found that Asian samples (Japan, Hong Kong, PR China, and Taiwan) scored lower on the Work Locus of Control Scale (Spector, 1988) than samples from a wide variety of regions around the world, including North America and Europe. Furthermore, locus of control means per country were associated with the level of individualism – collectivism, with collectivism being associated with externality (Spector, Cooper, Sanchez, O' Driscoll, et al., 2000).

Other streams of research have noted cross-cultural differences in control beliefs. Weisz, Rothbaum, and Blackburn (1984; see also Gould, 1999) used their concepts of primary and secondary control to draw distinctions between Eastern and Western cultures in how they view and practice control. Contrasting Americans and Japanese, they suggested that the former tend to focus more on primary control whereas the latter emphasise secondary control. This can be seen in child rearing practice as the Japanese socialize their children to favor secondary control over primary control. Evidence for this distinction in the workplace can be found in a study by Lundberg and Peterson (1994) that showed that Japanese consider autonomy, a form of primary control, to be less important than Americans.

SOCIOINSTRUMENTAL CONTROL

It seems clearly established that control beliefs and behaviors differ between East and West. However, one must be careful in interpreting the meaning of such differences, and in particular in assuming that seemingly passive and submissive behaviors are manifestations of secondary control, that is, attempts to adapt the self to the environment rather than influencing that environment. As Rothbaum et al. (1982) point out, it is possible to have primary manifestations of the four types of secondary control. For example, primary vicarious control would involve active attempts to influence powerful others. Furthermore, Heckhausen and Schulz (1999) question the evidence that Asians really emphasise secondary control. They give examples of how control scales have tended to confound in their items primary/secondary with individualism/collectivism.

Collectivist societies, such as in Asia, emphasise group harmony over individual achievement. To be successful in an organisational setting, one must learn to fit in with others, and this involves adopting what would seem to a Westerner, a passive posture of withdrawal. To be effective in such an environment, one must cultivate relationships with colleagues at all levels, and must express a high level of social sensitivity. Avoidance of conflict and focus on group achievement (as

opposed to individual achievement) involves a different set of behaviors from those typical in Western individualist society. A great deal of what a Western observer may deem secondary control might instead be an Asian (or collectivist) approach to primary control. We use the term socioinstrumental control to describe the idea that this approach involves active attempts to influence the environment through social means. Where Asians differ from Americans and other Westerners in our view is not that they do not believe they can be effective at controlling their environment, but rather in that they believe the social world mediates such effectiveness. In essence, where a Westerner might believe he or she can just change the world, the Asian believes he or she must convince the group to change the world.

THE CURRENT STUDY

One of the criticisms of most cross-national research is that it involves the application of Western findings and theories to non-Western countries (Boyacigiller & Adler, 1991). Our plan was to compare control beliefs in China and the US, but to use not only American designed scales, but also scales designed by a multi-national research team including members from Hong Kong and PR China (PRC). We began with the Rothbaum et al. (1982) definitions of primary and secondary control. The existing Work Locus of Control Scale (Spector, 1988) was used to assess the former, and we devised a new scale to assess the latter. In addition we defined our new concept of socioinstrumental control as the active, primary control common to collectivist countries, and we developed a new scale to assess it. All team members wrote items to avoid potential cultural blind spots. An initial item pool was administered first to a sample of employed American college students, and the scales were refined. This was done because our initial item pools were quite large and needed to be reduced to a smaller internally consistent set of items. Next the scales were administered to samples in the PRC, Hong Kong, and the US, along with measures of job stressors and job strains, in order to test a series of hypotheses.

The first three hypotheses concerned differences in control beliefs among our three samples. Based on the existing literature, we expected to find locus of control differences among the samples. As found in Spector, Cooper, et al. (2000), we expected the following:

Hypothesis 1: The US sample will be the most internal on work locus of control, followed by Hong Kong and then the PRC.

Rothbaum et al. (1982) argue that Asians are higher in secondary control than Americans since they are socialised to prefer this approach to direct primary control. Therefore, we expected the following:

Hypothesis 2: The US sample will be lower in secondary control than either Hong Kong or the PRC.

Socioinstrumental control is presumed to be more prevalent in collectivist countries than in individualist countries due to their greater emphasis on group harmony and a notion of personal achievement that rests on subordination of the self to the group's interests. Therefore, we expect the following:

Hypothesis 3: The US sample will be lower than either the Hong Kong or the PRC samples on socioinstrumental control.

The next hypothesis is based on the prior research suggesting that locus of control will relate to job stressors and strains. Most of this research, however, has been conducted in the US. Therefore, we expect to find this in our US sample, but it is less certain that results will be similar in Hong Kong or the PRC. We predict the following:

Hypothesis 4 : Work locus of control will be related to job stressors and strains such that internality will be associated with low stressors and strains.

Rothbaum et al. (1982) suggest that secondary control might serve much the same function in adaptation to the world as primary control. In the former case one adapts the self to the world, whereas in the latter it is the world adapted to the self. It has been characterised as a means by which people can compensate for lack of primary control, and thereby expand coping capabilities (Heckhausen & Schulz, 1995). Therefore, one might expect to find that secondary control will account for additional variance beyond that explained by work LOC, leading to the following:

Hypothesis 5: Secondary control will account for incremental variance in job stressors and strains over and above that accounted for by work LOC.

Socioinstrumental control is proposed as a form of primary control used more often in collectivist than individualist countries. It functions where more direct forms of control are unavailable, and therefore is an additional control tool a person can use. Therefore, we would expect it to also account for additional variance in job stressors and strains over and above work LOC, leading to the following:

Hypothesis 6: Socioinstrumental control will account for incremental variance in job stressors and strains over and above that accounted for by work LOC.

METHOD

Participants

Participants for the study were 530 employed individuals, 146 from PR China (PRC), 130 from Hong Kong, and 254 from the US. Initially 590 people completed questionnaires, but 60 were disqualified either because they were not working at the time of the survey, or because they did not have the nationality of the host country. The latter primarily occurred in the US. In order to

control extraneous differences in samples across countries, we decided to select employed college students and university support personnel as our target populations. The US samples included employed individuals who were taking university coursework as either part-time or full-time students ($n=164$), and nonfaculty support personnel from the University of South Florida ($n=90$). We included the latter group in order to check that employed students would show responses similar to a more typical employed group. The employed students were from two universities: Florida International University and the University of South Florida. These institutions were chosen because they are urban, located in the two largest metropolitan areas in the State of Florida: Miami and Tampa Bay, respectively, and have nontraditional student bodies comprising older students, the majority of whom are employed. The situation is similar in the participating Chinese universities. The mean age for the PRC sample was 30, and the Hong Kong sample was 33. The Hong Kong sample consisted of 83 students and 47 university support personnel from one university. The PRC sample consisted of employed students from two universities.

In order to determine if the American students were different from the support staff, we conducted two sets of analyses. First, we compared means for the students vs. the support staff on all 11 variables in the study using a one-way analysis of variance (ANOVA). Four of the ANOVAs were significant, with the means being significantly higher for students on intent to quit and state anxiety, and means being significantly higher for support staff on autonomy and job satisfaction. We also computed correlations of our three control measures with the other eight variables in the study for students and support staff separately. In only one case (job satisfaction with secondary control) out of 27 correlations was there a significant difference, according to the z test for independent correlations. We concluded that the sample characteristics had little effect on results, and combined all American participants into a single group. With the Hong Kong participants, there were significant mean differences for interpersonal conflict, role conflict, and work anxiety. In all three cases students were higher. We didn't compare correlations because of the small sample size for the employed group.

Measures

Job Stressors. Four common measures of job stressors were included in the study. Role ambiguity and role conflict were assessed with the Rizzo, House, and Lirtzman (1970) scale. Responses are made on 5-point scales ranging from 1 (*very false*) to 5 (*very true*). Six items assess role ambiguity and eight items assess role conflict. Interpersonal conflict was measured with the Interpersonal Conflict at Work Scale (Spector & Jex, 1998). This is a 4-item scale with responses ranging from 1 (*rarely*) to 5 (*very often*) that ask about frequency of conflicts with others at work. Autonomy (lack of which is a stressor) was measured with the 3-item subscale from the Hackman and Oldham (1975) Job Diagnostic Survey. It was modified slightly as suggested by Idaszak and Drasgow (1987). Responses ranged from 1 (*very inaccurate*) to 7 (*very accurate*).

Strains. Four strains were assessed: job (dis)satisfaction, work anxiety, intent to quit the job, and life (dis)satisfaction. Job satisfaction was measured with the Cammann, Fichman, Jenkins, and Klesh (1979) 3-item scale. Because of internal consistency problems with the Hong Kong sample, the single reverse scored item was eliminated leaving a 2-item scale. Responses ranged from 1 (*disagree very much*) to 6 (*agree very much*). Work anxiety was assessed with a modification of Spielberger's (1979) state anxiety scale from the State-Trait Personality Inventory. The scale has 10 items with responses ranging from 1 (*not at all*) to 4 (*very much so*). Instructions were modified slightly to ask the person to indicate how he or she had been feeling at work for the past month. It has been used this way in several studies, including Spector, Dwyer, and Jex (1988). Intent to quit was assessed with a single item measure (Spector et al., 1988) that asked how often the person has been seriously considering quitting from 1 (*never*) to 6 (*extremely often*). Life satisfaction was measured with the 5-item Diener, Emmons, Larsen, and Griffin (1985) Satisfaction With Life Scale. Response choices range from 1 (*strongly disagree*) to 7 (*strongly agree*).

Work Locus of Control. The Spector (1988) Work Locus of Control Scale (WLCS) was used to assess beliefs about personal control in the workplace. This 16-item measure has response choices ranging from 1 (*disagree very much*) to 6 (*agree very much*). High scores represent externality. It was chosen because it was developed in the US to assess beliefs about what would be classified as primary control, that is, whether or not the respondent believes he or she can control rewards at work through his or her own actions. Half the items are written in an internal direction (beliefs that the individual has control) or the external (beliefs that luck or powerful others have control).

Secondary and Socioinstrumental Control.

Two new scales were developed for use in this research. The conceptual basis for the secondary control scale came from Rothbaum et al. (1982), and their description of the four components of secondary control. The idea for the socioinstrumental control scale came from the experience some of our group had in doing business in Latin America. In this region the development of personal relationships and the need for group harmony are greater than in the individualist US. Therefore, we felt that this construct would represent an alternative means of primary control through the cultivation of personal relationships. One of our goals was to avoid potential culture bias in our new scales by not having them developed exclusively by Americans. To avoid this problem, the scale items were written by our international team of researchers. We began by first developing definitions for the two types of control. Based on these definitions of the constructs, each of us independently wrote items which were translated into English where necessary. An initial list of 113 items was compiled. We each scanned the list and removed items that were either duplicates or were unclear, reducing the number to 87, 27 of which reflected secondary control and 60 of which reflected socioinstrumental control. This represented the initial item pool that was refined

empirically in a pilot study.

The goal of the pilot study was to reduce the number of items to a more manageable number. Our thinking was that we would choose a smaller, internally consistent subset using one country only, and then test the shorter version in the other two countries.

This first version of the scale was administered to 126 employed university students at Florida International University and the University of South Florida (see Participants section for further details on this population, although not this sample). Response choices ranged from 1 (*disagree very much*) to 6 (*agree very much*). The WLCS was also included. Item analyses were conducted for each of our new scales, and were used to reduce the size of each scale. Eleven secondary control items yielded an internal consistency (coefficient alpha) of .75 with item-remainders ranging from .28 to .57, and this formed the final Secondary Control Scale (SCS). None of the remaining items was able to improve the internal consistency if added. The Socio Instrumental Control Scale (SICS) had 24 items with a coefficient alpha of .87 and item-remainders ranging from .36 to .58. These scales were independent, with an intercorrelation of .12 (nonsignificant). SCS correlated $-.44$ with the WLCS, and SICS correlated $.26$, both of which were significant.

Example items for the SCS are “I take pride in the accomplishments of my superiors at work” (vicarious control) and “In doing my work, I sometimes consider failure in my work as payment for future success” (interpretative control). Example items for the SICS are “It is important to cultivate relationships with superiors at work if you want to be effective” and “You can get your own way at work if you learn how to get along with other people.”

The pilot study was successful in reducing the number of items to a smaller and more manageable number that demonstrated reasonable internal consistency. The independence of the two new scales suggests they assess distinctly different constructs. It was interesting that the direction of relation of each scale with the WLCS was opposite. With this American sample, externality in locus of control was associated with a high score on socioinstrumental control, suggesting that people who believe control is achieved through cultivation of relationships at work tend to have an external point of view. However, internality and not externality was associated with secondary control. This runs counter to the ideas expressed in Rothbaum et al. (1982) that these forms of control would be compensatory, and therefore should be reciprocally related. Rather individuals who believe in primary control also tend to believe in secondary control. It should be kept in mind that Rothbaum et al. were concerned with control behavior and not beliefs, and this might explain why our results ran counter to their theorising.

Procedure

In the US samples, participants were recruited from undergraduate classes. A researcher came to class and asked for volunteers to complete a questionnaire. The stated criterion for participation was that the person had to be employed. It is difficult to give precise response rates, since it was not clear if nonrespondents did or did not meet the criterion, but in most cases almost everyone in the class participated, making response rates over 90 per cent. A mail survey was conducted of the university support personnel. Questionnaires were sent to 490 employees, for a response rate of 18 per cent. In Hong Kong the procedure was quite similar with questionnaires being distributed and collected in class, with a response rate of 91 per cent for the students and 72 per cent for the university support personnel. In the PRC the procedure for the students was the same as in Hong Kong. For the samples in Hong Kong and the PRC, the English version of the questionnaire was translated into Chinese by one author, and the translation was independently checked by another for accuracy. Modifications were made where necessary to maintain equivalence of meaning.

RESULTS

Internal consistency reliability (coefficient alpha) for all scales across the three samples can be seen in Table 1. For the US sample, all scales met the widely accepted minimum alpha of .70 (Nunnally, 1978), ranging from .76 (SCS) to .91 (SICS). For Hong Kong alphas were satisfactory, except for role ambiguity that was .62. For the PRC, two alphas were low—job satisfaction at .65 and role conflict at .54.

The first hypothesis of this study was that Americans would be more internal (higher in primary control beliefs) than Chinese. This was addressed by conducting a one-way ANOVA with the three samples as levels of the independent variable. As can be seen in Table 2, the ANOVA for the WLCS was highly significant, with a squared correlation of .38, and it was in the

TABLE 1
Internal Consistencies (Coefficient Alpha) of Scales Across Samples

<i>Scale</i>	<i>PR China</i>	<i>Hong Kong</i>	<i>US</i>
Socioinstrumental control	.88	.91	.91
Secondary control	.70	.87	.76
Work locus of control	.76	.84	.82
Job satisfaction	.65	.82	.89
Work anxiety	.83	.82	.89
Life satisfaction	.82	.80	.87
Autonomy	.90	.81	.86
Interpersonal conflict	.67	.83	.78
Role ambiguity	.75	.62	.79
Role conflict	.54	.78	.78

TABLE 2
One-way ANOVA Comparison of Sample Means

<i>Variable</i>	<i>F</i>	<i>R</i> ²	<i>US mean</i>	<i>HK mean</i>	<i>PR China mean</i>
Socio control	4.33	.02	91.9 ^A	93.4 ^A	97.1 ^B
Secondary control	3.19	.01	45.6 ^B	43.8 ^A	46.0 ^B
Work loc	155.2	.38	40.2 ^A	51.0 ^B	57.0 ^C
Job satisfaction	19.3	.07	9.0 ^B	8.1 ^A	7.7 ^A
Work anxiety	36.8	.12	18.4 ^A	23.7 ^C	20.3 ^B
Life satisfaction	35.4	.12	23.5 ^B	23.9 ^B	18.4 ^A
Intent to quit	7.96	.03	2.8 ^A	3.1 ^{AB}	3.4 ^B
Autonomy	22.5	.08	16.1 ^B	13.5 ^A	15.5 ^B
Interpersonal conflict	104.6	.28	7.1 ^A	11.2 ^C	9.1 ^B
Role ambiguity	77.0	.23	12.4 ^B	17.1 ^C	11.5 ^A
Role conflict	28.0	.10	19.8 ^A	24.0 ^B	23.0 ^B

Note: All *F* values were significant at $p < .05$.

expected direction with the US being significantly more internal than Hong Kong that was significantly more internal than the PRC.

The second hypothesis was that Chinese would be higher than Americans in secondary control. For this comparison, the ANOVA was significant, but the effect size was quite small with a squared multiple correlation of only .01. Furthermore, results were not as expected. The PRC and the US scored higher than Hong Kong, but were not significantly different from one another.

The third hypothesis was that the Chinese would be higher in socioinstrumental control than Americans. The ANOVA for this variable was significant, with an effect size of .02. This partially confirmed expectations as the PRC had the highest mean on SICS, but Hong Kong and the US did not differ from one another.

Table 2 also shows results of the sample comparisons of means for the other variables in the study. As can be seen, all were significant, with effect sizes varying considerably from .03 for intent to quit to .28 for interpersonal conflict. For the most part, the US tended to be lower in strains and jobstressors than the PRC, with the exception of role ambiguity that was higher and autonomy that was not significantly different. The US also tended to have lower stressors and strains than Hong Kong, except for life satisfaction and intent to quit that were not significantly different. In 5 of 8 cases there were significant differences between Hong Kong and the PRC, and in each of those, the PRC was lower.

Relations of WLCS with job stressors and strains was as expected (Hypothesis 4) for the US sample (shown in Table 3). Internality was associated with low stressors and strains in all cases. The pattern for secondary control was very similar, although correlations in all but one case tended to

TABLE 3
Correlations of Control Belief Scales with Stressors and Strains

<i>Stressor/strain scale</i>	<i>PR China</i>			<i>Hong Kong</i>			<i>US</i>		
	<i>Socio</i>	<i>Second</i>	<i>Work loc</i>	<i>Socio</i>	<i>Second</i>	<i>Work loc</i>	<i>Socio</i>	<i>Second</i>	<i>Work loc</i>
Job satis.	-.07	.18*	.15	.25*	.29*	-.27*	.12	.31*	-.32*
Work anxiety	.16	-.07	.13	.05	-.13	-.10	.07	-.18*	.28*
Life satis.	-.10	-.01	.02	.12	.09	.01	.04	.18*	-.24*
Intent to quit	.10	.03	.08	-.05	-.08	-.12	-.09	-.20*	.25*
Autonomy	-.07	.11	.12	.17	.19*	-.20*	.19*	.19*	-.18*
Interper conflict	.16	.16	.10	.01	-.03	-.29*	-.05	-.23*	.33*
Role ambiguity	.08	-.07	.08	-.02	-.05	-.01	-.06	-.24*	.31*
Role conflict	-.21*	-.08	-.09	-.14	-.12	-.10	.12	-.16*	.26*
Secondary control	.27*			.67*			.30*		
Work loc	.51*	.33*		-.59*	-.55*		.23*	-.21*	

* $p < .05$.

be somewhat smaller. High levels of secondary control were associated with low stressors and strains. For socioinstrumental control, only autonomy was significant.

Patterns for the other two samples were different. For Hong Kong, WLOC was significant for only job satisfaction, autonomy, and interpersonal conflict, with the latter having a sign opposite to the US sample. Secondary control was significant only for job satisfaction and autonomy, matching the sign of the US. Only job satisfaction was significant for socioinstrumental control. For the PRC sample, only two correlations were significant—one for SCS (job satisfaction) and one for SICS (role conflict).

Table 3 also contains correlations of the three control belief scales with job stressors and strains and with one another. The pattern of relations among the three control scales for the US sample was very similar to that found in the pilot study. The biggest difference was that in this case SCS and SICS correlated significantly at .30 (note the pilot correlation was .12). Again the WLCS was correlated positively with SICS ($r = .23$) and negatively with SCS ($r = -.21$).

The patterns of correlations though were quite different in the other two samples, which differed from one another. In the Hong Kong sample, all three control belief scales correlated strongly, with both SCS and SICS correlating negatively with WLOC. Thus internals tended to also believe in high levels of the other two forms of control. In the PRC SCS and SICS showed a small correlation ($r = .27$) almost identical to the US. However, in both cases secondary and socioinstrumental control correlated positively with WLCS, which is the opposite to Hong Kong.

TABLE 4
Multiple Regression Results of Each Stressor and Strain on the Work LOC
and Secondary Control

<i>Variable</i>	<i>F</i>	<i>R</i> ²	<i>Change R</i> ²	<i>Beta work loc</i>	<i>Beta second</i>
<i>Hong Kong</i>					
Job satisfaction	5.3	.07	.01*	-.15	.19*
Autonomy	5.0	.08	.02*	-.13	.19*
Interpersonal conflict	11.3	.17	.06**	-.50**	-.29**
Work anxiety	5.8	.10	.08**	-.33**	-.33**
Life satisfaction	4.0	.07	.06**	.20*	.31**
Intent	3.3	.06	.03*	-.28**	-.21*
<i>US</i>					
Job satisfaction	23.7	.16	.05**	-.27**	.25**
Autonomy	8.3	.06	.02**	-.15**	.17**
Interpersonal conflict	20.6	.15	.03**	.31**	-.17**
Work anxiety	13.3	.10	.01*	.27**	-.11*
Role ambiguity	17.6	.13	.03**	.27**	-.17**
Role conflict	10.4	.08	.01	.24**	-.09
Life satisfaction	9.9	.08	.02*	-.22**	.12*
Intent	11.7	.09	.02**	.24**	-.14**

Note: All *F* values for overall regression were significant at $p < .05$.

* $p < .10$; ** $p < .05$.

The final set of analyses tested hypotheses 5 and 6 by exploring the incremental predictability of SCS and SICS over the WLCS for each job stressor and strain. A series of hierarchical multiple regressions were computed, with WLCS and either SCS or SICS entered as predictors, and each stressor and strain entered individually as criteria. Table 4 summarises the results for the SCS and Table 5 summarizes the results for SICS. The overall *F*s, all of which were significant, are shown, as well as the multiple correlations squared, the change in the multiple regression squared when either SCS or SICS was entered to a regression with WLCS alone, and the beta weights (standardized regression coefficients) for WLCS and either SCS or SICS. Only those analyses where the overall multiple regression *F* was significant are shown. In no cases was the *F* significant for the PRC, so it isn't shown in the table.

For Hong Kong, SCS was significant (added to the prediction of WLCS alone) at $p < .05$ for interpersonal conflict, life satisfaction, and work anxiety. It was marginally significant at $p < .10$ for job satisfaction and autonomy for which WLCS was not significant. It was also marginally significant for intent to quit. For the US, SCS was significant for job satisfaction, autonomy, interpersonal conflict, role ambiguity, and intent, and was marginally significant for work anxiety and life satisfaction. In the Hong Kong sample SICS was significant for interpersonal conflict, role conflict, and life

TABLE 5
Multiple Regression Results of Each Stressor and Strain on the Work LOC and Socioinstrumental Control

<i>Variable</i>	<i>F</i>	<i>R</i> ²	<i>Change R</i> ²	<i>Beta work loc</i>	<i>Beta socio</i>
<i>Hong Kong</i>					
Job satisfaction	4.1	.07	.01	-.17	.13
Autonomy	4.2	.07	.01	-.14	.16
Interpersonal conflict	9.8	.15	.04**	-.47**	-.23**
Role conflict	4.0	.07	.06**	-.28**	-.28**
Life satisfaction	5.8	.10	.09**	.22*	.38**
Intent	3.1	.05	.02	-.28**	-.18
<i>US</i>					
Job satisfaction	20.8	.15	.04**	-.37**	.21**
Autonomy	14.0	.10	.06**	-.25**	.26**
Interpersonal conflict	18.9	.14	.02**	.37**	-.14**
Work anxiety	11.6	.09	.0	.29**	.01
Role ambiguity	15.4	.11	.01**	.34**	-.12**
Role conflict	10.2	.08	.01	.25**	.08
Life satisfaction	8.8	.07	.01	-.26**	.09
Intent	11.8	.09	.02**	.30**	-.14**

Note: All *F* values for overall regression were significant at $p < .05$.

* $p < .10$; ** $p < .05$.

satisfaction. In the US sample, SICS was significant for job satisfaction, autonomy, interpersonal conflict, role ambiguity, and intent to quit.

DISCUSSION

This study addressed two sets of hypotheses. The first set concerned control belief differences among Hong Kong, the PRC, and the US samples, and the second set concerned relations of control beliefs with job stressors and strains. There was partial support for the first set of three hypotheses. As expected, the US sample was much more internal than the Hong Kong or PRC samples. This finding was not surprising since a recent study using the same WLCS instrument found very similar results (Spector et al., 2002). What was surprising, however, was the small differences in sample means for the other two control belief scales. Weisz et al. (1984) make a very strong case for the preference for secondary control in Asian society. Although they mainly focused on Japan, they noted similarities to other Asian countries. We expected that control beliefs would show a similar magnitude of China – US difference to WLCS, but in the opposite direction. However, we found that the US sample was not significantly different from the PRC on SCS, and both were slightly higher than Hong Kong. It should be kept in mind that beliefs, just like attitudes, might not fully correspond with behavior, and that Americans might have similar beliefs about the existence of secondary control at work, but still be less likely to attempt secondary control than Asians. On the other hand, most participants in this study were in relatively low level jobs where personal autonomy and control tend to be low. Perhaps Americans in such situations

make use of secondary control to cope, just as Asians do.

Results with SICS showed as expected that the PRC was higher than the US, but unexpected was the lack of difference between the US and Hong Kong. Perhaps Hong Kong's Westernization of the workplace, a vestige of the long-held British occupation, accounts for the greater similarity with the US than we found with the PRC. Although the effect was small, our participants in the PRC believe more strongly in socioinstrumental control in the workplace. What was surprising was that Americans were not much lower, thereby hinting at the belief that the cultivation of personal relationships in the workplace is important across cultures. In the context of the workplace, it seems likely that there would be more pressure and support for socioinstrumental behavior in the PRC than in the US, and therefore we expected to see more of it in the PRC than we found.

There is one caution in the interpretation of means across countries, and that is the possibility of differential response bias. It has been suggested that Asians have a tendency to avoid strong agreement with positively worded items due to a cultural tendency toward modesty (Triandis, 1994). Thus differences might be due to differential response tendencies rather than real underlying differences on the constructs of interest. For hypothesis 4, we found some degree of support for the US sample, but not for the two Chinese samples. As expected based on prior research (e.g. Spector & O'Connell, 1994), the WLCS related significantly to all job stressors and strains in the US. We found similar correlations (although in most cases a bit lower) for secondary control. Socioinstrumental control showed little relation with job stressors and strains, which was counter to our hypothesis that it would function as a form of primary control. However, it is conceivable that this approach to control at work does not serve the same function as locus of control where job stressors and strains are concerned. Locus of control and secondary control are concerned with people's coping at work. Socioinstrumental control focuses on influence tactics at work, and might be more relevant to achievement. In the study of Type A, it has been found that the dimension of achievement striving relates to performance and is unrelated to strain, whereas impatience/irritability relates to strain but not performance (Spence, Helmreich, & Pred, 1987). Perhaps socioinstrumental control likewise is more relevant to achievement and performance, where other forms of control are relevant to adjustment and coping. Additional research will be needed to explore this possibility.

The Hong Kong sample had only a few significant relations of control beliefs with job stressors and strains, and for the PRC there were only two significant correlations. Results with job satisfaction and autonomy were similar to the US, but for interpersonal conflict, the relation was in the opposite direction. For the Hong Kong sample, internality was associated with more, not less, interpersonal conflict. One possible explanation for this result concerns the difference in job

behaviors by internals and externals and how they might affect relations with colleagues in the two countries. Blau (1993) found in a sample of bank tellers that internals put more effort into enhancing their own job skills that would benefit their careers. This pattern might well lead internals to have greater conflict in a collectivist country because individuals are expected to avoid personal achievement. This internal style might then lead to greater conflict because coworkers might resent an individual's focus on his or her own development. For secondary control, results for job satisfaction and autonomy paralleled those for WLCS in Hong Kong, but there was a nonsignificant $-.03$ correlation for interpersonal conflict.

There are several possible explanations for the lack of relation between the control variables and job stressors and strains in the Chinese samples. First, it should be kept in mind that our control variables concern generalized beliefs and are really personality variables. Research has shown that behavior in individualist societies has been found to be more traited (Church & Lonner, 1998), that is, collectivists show smaller relations between personality characteristics and behavior, as well as other variables. Whereas individualists tend to pay attention to their own personal desires and motives, collectivists are more likely to submerge such individual characteristics to the needs of the group. Given that Hong Kong and to a greater extent the PRC are collectivistic compared to the US, perhaps it is not surprising that we found weaker relations there. Clearly more research is needed to explore Church and Lonner's (1998) suggestion that personality may be less important in collectivist countries.

Second, internal consistencies for some of the job stressor and strain variables were lower, and in a few cases substantially lower, than in the US sample. In fact we had to eliminate the negatively worded item from the job satisfaction scale because of internal consistency problems in the Hong Kong sample, leaving a 2-item measure. All of these scales were developed in the US, leaving open the possibility that their construct validity may not have held in China. Third, the sample sizes were smaller in the two Chinese samples, and thus there was less statistical power to find significance. Fourth, although we attempted to control for the characteristics of the samples, it is possible that employed students and university employees differed between China and the US.

The final possibility is that our control scales lacked construct validity. Although this is possible, we feel this is not the most likely explanation. Our new scales were developed by an international research team, and the majority of items were written by non-Americans. Many of these items were originally written in Chinese, so it is unlikely that mistranslation or cultural misunderstanding would have distorted meaning when used in China. Furthermore, this international team prescreened all items to be sure that each one was content valid (i.e. it reflected the intended constructs). In addition the scales showed good internal consistency reliability in the Chinese samples, particularly the socioinstrumental control scale. There was also known group

validity evidence for the control scales, with both showing the highest scores for the PRC, and the SICS showing the lowest score for the US. Finally, relations of the WLCS with job stressors and strains were as expected in the US, but were weaker in Hong Kong, and still weaker in the PRC, paralleling results for our new scales. Construct validity evidence for the WLCS has been provided by researchers in both the US and a wide range of countries around the world, and it has been used in several studies in China and other Asian countries. Had results for this scale been as expected in China as well as the US, it would have raised doubts about the other two control scales that did not yield similar results in China and the US.

Hypotheses 5 and 6 concerned the incremental predictability for SCS and SICS, and were addressed with multiple regression analyses. Results with the US, and to some extent with Hong Kong, support the idea that there is incremental predictability of our new control scales over the WLCS, particularly for SCS. For the US, the SCS was significant in five of eight cases, and marginally significant in two more. It accounted for additional variance in job stressors and strains beyond work LOC, thereby suggesting that it might play a positive role in people's ability to cope with stress. In Hong Kong we found that SCS also accounted for incremental variance for some variables, but the patterns of results were not as clear-cut as with the US.

There are several cases of significant beta weights in the regression for variables whose bivariate correlations demonstrated that they were unrelated to job stressors and strains. This result suggests the presence of suppressor effects for some variables (e.g. interpersonal conflict, work anxiety, life satisfaction, and intent). Job satisfaction and autonomy are perhaps the only variables for which SCS seems to provide incremental predictability, and both cases had marginal significance. For the PRC there were no cases of significant incremental variance.

For SICS we also see evidence for suppressor effects for both Hong Kong and the US. Although job satisfaction was significantly correlated with both WLCS and SICS for Hong Kong, when entered together in the regression, neither was even marginally significant. For the US, only autonomy showed evidence for incremental predictability. The remaining significant beta weights are likely reflecting suppressor effects. Again, the PRC had no significant regressions.

Some of the largest inter-sample differences in correlations were among the three control belief scales. In the US sample, there were modest relations among the three scales. Furthermore, secondary control was associated with internality, and socioinstrumental control was associated with externality. The results with secondary control were opposite to what might be expected based on the theorising of Rothbaum et al. (1982). They noted that secondary control functions as a substitute for primary control, so we expected to find that secondary control was associated with externality. However, Rothbaum et al. were concerned with control behavior and not beliefs. It

may be that Americans who believe they have little primary control also believe they have little secondary control. Both forms of control have been noted as potentially effective control devices for effective adaptation to the environment (Heckhausen & Schulz, 1995), and so these beliefs may tend to develop together and reflect successful adaptation experiences in the past. In our study both related similarly to job stressors and strains, suggesting that they may serve the same function, which does support the Rothbaum et al. theory.

The Hong Kong pattern was very different. All three scales were highly interrelated, with SCS and SICS correlated at .67. Furthermore, both were related negatively to WLCS, with high levels on our new scales associated with internality. Had the same pattern occurred with the PRC sample, we might have been able to conclude that this was a Chinese pattern, but results were again different. The correlation between our two new scales in the PRC was similar to the US sample, and the relation of SICS to WLCS was in the same direction, although considerably larger (.23 vs. .51 for the US and PRC, respectively). However, the sign for the correlation between SCS and WLCS was opposite to that in the US and Hong Kong. In the PRC sample, high levels of secondary control were associated with externality, suggesting the compensatory phenomenon.

There have been quite a few studies that have shown how Asians tend to score lower than Americans and others from Western nations on scales that assess primary control, especially locus of control scales (Hamid, 1994; Hui, 1982; Smith et al., 1995). We argue that in large part this might have been due to the fact that the construct of locus of control was developed in the US to reflect American views of control, and studies have tended to use either US-based scales or scales that were patterned on them. Consistent with our prediction, we found very large differences on the WLCS among Asian and other nations including the US in a prior study (Spector et al., 2002), as well as here. However, our results showed that when control was conceptualised with national differences in mind, and when the scale development effort involved an international team, not only did we fail to find such large differences, but with one scale (socioinstrumental control), Chinese from the PRC were higher than Americans. Thus the view that Chinese and perhaps other Asians are overly passive with low levels of control beliefs may not be accurate. Rather control in Chinese and other collectivist societies may operate differently. Weisz et al. (1984) suggest that Asians in general may rely more on secondary than primary control. We would go a step further and suggest that Asians may rely more on socioinstrumental control, which is a form of primary control, but one that has been ignored in the control measures developed in the US.

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