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THE TRANSPORTABILITY OF JOB INFORMATION ACROSS COUNTRIES

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Three Occupational Information Network (O*NET) instruments (Generalized Work Activities, Basic and Cross-Functional Skills, Work Styles) were administered to 1,007 job incumbents, from 369 organizations, performing 1 of 3 jobs (first-line supervisor, office clerk, computer programmer) in New Zealand, China, and Hong Kong. Data from these countries were compared with archival data collected from 370 incumbents holding similar jobs in the United States. Hypothesized country differences, derived from cross-cultural theory, received limited support. The magnitude of differences in mean item ratings between incumbents from the United States and the other 3 countries were generally small to moderate in size, and rank-orderings of the importance and level of work activities and job requirements were quite similar, suggesting that, for most applications, job information is likely to transport quite well across countries.

Globalization of business has brought substantially increased numbers of cross-border mergers and acquisitions, foreign business affiliations such as overseas branches and subsidiaries, and international flows of labor. For example, the number of multinational corporations, worldwide, has grown from 7,300 at the end of the 1970s to an estimated 60,000 at the start of the 21st century, and, despite year-to-year fluctuations, the rate of foreign direct investment has been growing at an accelerating pace, to levels in 2000 that were roughly six times the levels experienced in the early 1990s (Köhler, 2003).

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Not only are large organizations increasingly likely to have work performed in other countries, but the nature of that work is becoming increasingly diverse and complex. Foreign direct investment in China, for example, has shifted from labor-intensive industries during the 1980s to capital-intensive ones in the early 1990s and more recently into technology-intensive industries (UNCTAD, 2001). Firms in the United States are now increasingly "offshoring" a variety of services, such as information technology services, call centers, business processes, drawing, testing, and research and development, that, until very recently, had been performed at corporate and regional headquarters within the United States (UNCTAD, 2004).

These global developments create new opportunities for the application of job information across country boundaries. Nevertheless, such opportunities require an understanding of how perceived job demands may differ as a function of the country in which they are performed. For example, industrial-organizational (I-O) psychologists who apply information on job requirements for the same job performed in multiple country branches of a multinational corporation must take into account possible cross-country differences. Little prior research has examined differences across countries in job analysis ratings (Aycan, 2005), which raises the question of how transportable such information is to work performed in other countries.

Understanding how jobs may vary across countries is particularly important for the cross-country application of job information and job models that are intended to be generalizable across organizations, such as the identification of generic dimensions of performance for particular families of jobs (e.g., Borman & Brush, 1993; Hunt, 1996), competency models for managerial and professional jobs that have been developed and promoted by international consulting firms, and job information databases, such as the US Department of Labor's Occupational Information Network (O*NET—Peterson, Mumford, Borman, Jeanneret, & Fleishman, 1999; Peterson et al., 2001). Generalizable job information and job models have been developed largely in the United States and based on research of workers and jobs within U.S. organizations, but they have potentially valuable applications to other countries' organizations, and, indeed, they are already being utilized in other countries. For example, the Position Analysis Questionnaire (PAQ) and its associated database of job-related information has been used routinely in organizations throughout the world. International consulting firms apply leadership competency models around the world, and the O*NET database of job information is readily accessible to organizations globally through the World Wide Web.

This study explored the degree of similarity in work activities, and two aspects of worker requirements (skills and work-related personality traits), for jobs performed across countries. Our aims were two-fold: (a) to test hypotheses, derived from cross-cultural theory and research, concerning particular dimensions of job analysis ratings; and (b) to assess the degree of similarity in mean ratings of the importance and level of work activities and job requirements between the United States and each of the other three countries. Focusing on the three different jobs (first-line supervisors of service/administrative staff; general office clerks; computer programmers), we compared job analysis ratings between incumbent samples from the United States, China, Hong Kong, and New Zealand on three O*NET content domains: Generalized Work Activities (GWAs), Basic and Cross-Functional Skills (Skills), and Work Styles (a measure of jobs' work-related personality requirements).

We chose to use O*NET job ratings because O*NET is the most comprehensive and readily accessible repository of occupational information available globally. The three O*NET instruments were selected to represent three different domains within the O*NET content model: GWAs from the Occupational Requirements domain; Skills from the Worker Requirements domain, and Work Styles from the worker characteristics domain. (See Peterson et al., 2001, for a description of the full O*NET content model.) GWAs represent a fundamentally important aspect of job information, and Skills, and Work Styles represent two critical aspects of job requirements. The three jobs were chosen from a set of approximately 35 jobs composing the initial research data set collected in the United States by the National Center for O*NET Development (Peterson et al., 1999), which were available to us for comparison purposes. We chose these particular three jobs because of their diversity (one entry-level, one supervisory, and one technical) and the fact that they are fairly common jobs within many organizations and, therefore, posed no particular difficulties for data collection in the three comparison countries.

The four countries compared in this study represent two relatively diverse cultures of differing levels of economic development. Both China and Hong Kong represent regions with strong corporate ties to multinational companies from western countries, particularly the United States. But they differ substantially from western countries, including the United States and New Zealand, relative to culture. Hong Kong shares China's Confucian culture but is closer to the United States than to China in terms of its level of economic development. New Zealand shares similar cultural features with the United States, both being considered Anglo cultures (House, Hanges, Javidan, Dorfman, & Gupta, 2004), but its level of economic development is below both the United States and Hong Kong.

The Influence of Cross-Cultural Variables on Work

Several sets of researchers have theorized that sociocultural variables, on which countries can be distinguished, can affect human resource management (HRM) practices within firms. For example, Poole's (1986) comparative framework for analyzing firms' industrial relations practices across countries posits that country-level environmental variables, including cross-cultural values, influence managerial policies and styles, and the extent of shared decision making within organizations. Janssens and colleagues (Janssens, Brett, & Smith, 1995) adapted Poole's model to predict and test the influence of cross-cultural values on the priority given to safety within a multinational corporation's plants located across countries. Jackson and Schuler (1995) have theorized that cross-cultural values, along with many other contextual variables, influence HRM philosophies, policies, and practices emphasizing the mediating role that managers' sensemaking of that environmental context plays in these relationships. More recently, Aycan, Kanungo, and associates (Aycan, 2005; Aycan & Kanungo, 2001; Aycan et al., 2000; Aycan, Kanungo, & Sinha, 1999) have developed, and found empirical support for, a "model of culture fit," in which cross-cultural values, in combination with variables associated with the enterprise environment (e.g., market characteristics, industry), are thought to influence HRM practices such as job design characteristics (feedback, autonomy, skill variety, task significance), mediated through each organization's internal work culture. Although these research teams have not specifically investigated job analysis ratings, their research provides support for the contention that sociocultural variables at the country level can influence variables broadly related to HRM practices, such as job design characteristics and job requirements, which, we believe, are likely to be reflected in cross-cultural differences in job analysis ratings.

Initial support for links between sociocultural variables and job analysis ratings has been provided in a recent study of U.S. government employees working as expatriates on international assignments (Shin, Morgeson, & Campion, 2007). Expatriates were asked to rate the frequency with which they performed the various work behaviors represented within the O*NET Generalized Work Activities (GWA) instrument. As hypothesized, scores (aggregated at the country level) on GWA items composing a dimension of relationship-oriented behaviors were negatively related with countries' scores on individualism (the degree to which individuals' focus is the self *vs.* the collective), and partial support was found for a relationship between scores on a dimension of administrative behaviors and the cross-cultural value of power distance (the extent to which the less powerful members of organizations tolerate an unequal distribution of power).

As in the Shin et al. study (2007), we base predictions about country differences in particular job dimensions on the two cultural dimensions of individualism–collectivism and power distance—the two cross-cultural variables that have received considerable attention in organizational research. These two cross-cultural dimensions are quite highly correlated: Hofstede (1980), who reported a correlation between individualism and power distance of −.67, had initially identified these as a single factor (Berry, Poortinga, Segall, & Dasen, 2002) and distinguished them as separate dimensions only after partialling out countries' level of economic development. More recent research has found similarly high correlations between the two dimensions: Schwartz (1994) reported a correlation of −.70 between individualism and power distance; and Project GLOBE (House et al., 2004) reported a correlation of .55 between their similar constructs (in-group collectivism practices and power distance practices). In fact, in categorizing 58 countries in terms of both individualism–collectivism and power distance, Hofstede (2001, p. 217) classified all but six countries as either both individualistic and low-power distance or both collectivistic and high power distance. Therefore, although these two dimensions are conceptually distinct, from an empirical standpoint there is sufficient overlap that most countries can be categorized as either individualistic and low power distance, or collectivistic and high power distance.

The four counties included in this study represent contrasting poles of these two highly-correlated, cross-cultural dimensions: The United States and New Zealand are both individualistic and low power distance countries, whereas China and Hong Kong represent two collectivistic, high power distance countries. We hypothesized that the cultural contrasts among these countries should be reflected in differences in particular aspects of job analysis ratings, including (a) the perceived importance and the level (i.e., complexity) of decision-making activities, and related skill and work style requirements; (b) the perceived importance and level of interpersonal activities, and related skill and work style (i.e., work-related personality) requirements; and (c) the variety of work activities and skills perceived as important in jobs. Next, we explain our specific hypotheses.

Decision-making activities and associated skill and work style requirements. A growing body of literature has suggested that employees are less empowered to make decisions, solve problems, and plan their work in jobs performed within collectivistic, high power distance countries, compared with those in individualistic, low power distance countries (Aycan et al., 1999; Barsoux & Lawrence, 1990; Carl, Gupta, & Javidan, 2004; Eylon & Au, 1999; Hofstede, 1997, 2001; Hofstede & Peterson, 2000; Huang & van de Vijver, 2003; Pavett & Morris, 1995; Robert, Probst, Martocchio, Drasgow, & Lawler, 2000). For example, studies of Chinese societies have highlighted that decision-making authority is rarely delegated

to subordinates (Smith & Wang, 1996; Yates & Lee, 1996) and that subordinates are typically not consulted or involved in decision making (Hui, 1991; Reading & Wong, 1986). Likewise, compared to executives in the United States and New Zealand, executives in China and Hong Kong have rated their managers as less likely to delegate authority (World Economic Forum, 2005).

Variation in workers' freedom to make decisions concerning their work is likely to be reflected in job analysis ratings of the importance and level (i.e., complexity) of decision-making activities they engage in, and to skill and work style requirements associated with decision making, leading us to our first set of related hypotheses:

Hypothesis 1a: Incumbents from the U.S. and New Zealand will rate decision-making activities as significantly more important, and being performed at significantly higher levels, than will incumbents from China and Hong Kong.

Hypothesis 1b: Incumbents from the U.S. and New Zealand will rate decision-making skills as significantly more important, and required at significantly higher levels, than will incumbents from China and Hong Kong.

Hypothesis 1c: Incumbents from the U.S. and New Zealand will rate work styles necessary for decision making as significantly more important than will incumbents from China and Hong Kong.

Interpersonal activities and associated skill and work style requirements. Social relationships are considered particularly critical in collectivist societies (Aycan, 2000; Hofstede, 1992; Hofstede & Peterson, 2000; Triandis, 2002; Triandis & Bhawuk, 1997). In contrast to individualistic societies, where tasks and rationality are emphasized, collectivist societies emphasize the interdependence of individuals and, in particular, the importance of harmonious in-group relations. In organizational settings, the workplace often becomes an in-group, resembling a family relationship (Hofstede, 2001), in which long-term relational commitments are established and guide behavior (Gelfand, Bhawuk, Nishii, & Bechtold, 2004). Jobs are designed around cohesive work groups so as to maximize the social and technical aspects of the job (Erez, 1994). In a similar vein, organizational success in collectivist countries is attributed to the sharing of information and the development of political alliances (Hofstede, 2001) and strategies that emphasize communication and the building of interpersonal relationships.

Recently, the individualism–collectivism construct has been viewed as being multidimensional (see, for example, Gelfand et al., 2004; Oyserman,

Coon, & Kemmelmeir, 2002). The specific facet of individualism–collectivism that we focus on here is the importance of building and maintaining group harmony, which Oyserman and colleagues (Oyserman et al., 2002) have referred to as a component of collectivism. (They have argued that collectivism is a somewhat distinct construct from individualism.) Therefore, our emphasis here is on those activities and associated skill and work style requirements that concern building and maintaining harmonious interpersonal relationships with colleagues in one's work group.

Recent research has linked countries' levels of collectivism with the frequency with which expatriate managers engage in relationship-oriented work activities (Shin et al., 2007). Likewise, we anticipated that workers in China and Hong Kong, both highly collectivist societies, would rate the importance and level of work activities and related skill and work style requirements higher than ratings provided by workers in the United States and New Zealand (Hofstede, 2001; House et al., 2004).

Hypothesis 2a: Incumbents from China and Hong Kong will rate interpersonal activities as significantly more important, and being performed at significantly higher levels, than will incumbents from the U.S. and New Zealand.

Hypothesis 2b: Incumbents from China and Hong Kong will rate interpersonal skills as significantly more important, and required at significantly higher levels, than will incumbents from the U.S. and New Zealand.

Hypothesis 2c: Incumbents from China and Hong Kong will rate work styles necessary for building and maintaining interpersonal relationships as significantly more important than will incumbents from the U.S. and New Zealand.

Skill variety. Erez and Earley (Erez, 1994, 1997; Erez & Earley, 1993) have suggested that job-enrichment initiatives, including those that increase skill variety, task identity, task significance, autonomy, and feedback from the job (Hackman & Oldham, 1980), have been more prevalent in individualistic cultures, such as the United States. The results of a study by Aycan and colleagues (Aycan et al., 1999) were consistent with Erez and Earley's contention, showing that employees in India, a low individualism country (Hofstede, 2001), rated their level of job autonomy and skill variety as significantly lower than ratings made by employees in Canada, a high individualism country (Hofstede, 2001).

Skill variety refers to the degree to which workers are required to both perform a variety of work activities and use a variety of skills (Hackman & Oldham, 1980), and should, therefore, be reflected in job analysis ratings

by the number of work activities and skills considered to be important to a job:

Hypothesis 3a. Incumbents from the U.S. and New Zealand will rate a significantly greater number of work activities as important to their job than incumbents from China and Hong Kong.

Hypothesis 3b. Incumbents from the U.S. and New Zealand will rate a significantly greater number of skills as important to their job than incumbents from China and Hong Kong.

Assessing the Similarity of Job Profiles Between Countries

Judging the transportability of job information collected in one country to other countries requires more than simply determining whether statistically significant differences between countries exist on particular job dimensions. From a practical standpoint, such differences may be trivially small or limited to only certain work activities and job requirements. Therefore, our second aim was to determine the extent to which job profiles based on mean item ratings from the United States corresponded with job profiles based on data from each of the other three countries.

We approached this aim from the viewpoint of a practitioner who is considering the application of job information based on job analysis ratings collected in the United States, such as information published on O*NET Online (http://online.onetcenter.org/), to a job being performed in another country. Job profiles based on mean item ratings are the primary form of job information presented on O*NET Online. Therefore, a practitioner who is considering the application of the O*NET information to jobs being performed in other countries might reasonably ask, "How different would the job profile have been had the data been collected in the country in which this job is being performed?" In order to answer this question, we focus on mean country ratings on each item within each job and compare the United States and each of the other three countries on two aspects of job profiles: (a) the magnitude of mean item differences—what has been referred to as a job's "profile *level*" (Converse, Oswald, Gillespie, Field, & Bizot, 2004); and (b) the degree of similarity in the rank-order of work activities and job requirements derived from mean importance and level ratings for each item—what has been referred to as a job's "profile *shape*" (Converse et al., 2004). In order to provide benchmarks for interpreting the magnitude of these country differences in and correlations between item means, we present similar comparisons between the original U.S. sample and a more recently collected, independent U.S. sample, collected by the National Center for O*NET Development.

Method

Samples

The data analyzed in this study were job analysis ratings from incumbents performing one of three jobs: (a) first-line supervisors, customer service/administrative support (O*NET-SOC codes 43–1011.01/02)[1]; (b) general office clerks (O*NET-SOC code 43–9061.00), and (c) computer programmers (O*NET-SOC code 15–1021.00). Incumbent ratings for these three jobs in the United States were obtained from the National Center for O*NET Development, from their initial (1998) wave of O*NET data collection[2] (see Peterson et al., 1999 for a description of the 1998 wave of O*NET collection). Data were gathered for that study on the full O*NET content model, involving multiple job domains, and in the interest of minimizing completion times for incumbents, each U.S. respondent was asked to complete a packet of only two or three of the full set of O*NET instruments. Combinations of instruments were rotated through various pairings of instruments, and so the data used in this study were collected from respondents who, in some cases, completed just one of the three O*NET instruments focused on in this study (GWAs, Skills, Work Styles), whereas in other cases, completed two of the three instruments. Data from the National Center for O*NET Development on a total of 370 U.S. job incumbents were included in this study.

New incumbent data on the three jobs were collected in New Zealand, China, and Hong Kong, using procedures similar to those that had been used in the U.S. data collection. Organizations to be sampled in the U.S. had been drawn from a database of U.S. organizations provided by Dun and Bradstreet (Peterson et al., 1999), and similar sources were used in New Zealand and Hong Kong, for example the Kompass database in New Zealand and, in Hong Kong, multiple paper-based directories necessary to cover private for-profit, private nonprofit, and government organizations.

[1] In the first wave (1998) of O*NET data collection, first-line supervisors of both customer service and administrative support staff shared the same occupational code (51002), but these were later treated as separate jobs when O*NET adopted the Standard Occupation Classification (SOC) System for job codes (first-line supervisors of customer service 43–1011.01; first-line supervisors of administrative support 43–1011.02). In order to maintain comparability in data collection in the other three countries to the O*NET 1998 data, we treated first-line supervisors of either customer service or administrative support staff as a single job.

[2] We were unable to use raw data collected more recently in the United States through the O*NET project because respondents in subsequent waves of O*NET data collection had been ensured that their individual ratings would not be released. We did, nevertheless, have access to item means, standard errors, and *N*s for the more recently collected data, and we used these in a later analysis to provide benchmarks for interpreting the degree of similarity of job profiles between countries.

TABLE 1
Numbers of Respondents and Organizations by Job and Country

Country	No. of orgs	Total *N*	Job: First-line supervisor	Job: Office clerk	Job: Computer programmer
United States	98	370	147	203	20
Generalized Work Activities	72	166	63	94	9
Basic and Cross-Functional Skills	66	141	52	81	8
Work Styles	59	157	65	82	10
New Zealand	79	156	78	42	36
China	197	435	195	148	92
Hong Kong	93	416	173	170	73

Note. Incumbent data were collected in the United States by the National Center for O*NET Development, with some respondents completing only a single O*NET instrument and others completing two of the three instruments used in this study. Each incumbent in China, Hong Kong, and New Zealand completed all three O*NET instruments.

Data from China were collected primarily in four major cities (Beijing, Tianjin, Guangzhou, and Shanghai), with the assistance of human resource managers who attended government-sponsored training workshops on human resource management.

Procedures similar to those used by the National Center for O*NET Development for collecting the original U.S. sample were followed in the other three countries for identifying suitable incumbents and distributing and collecting questionnaires. In each of the three countries, a researcher described the project to the human resource manager, requested the organization's participation in the study, described each of the three target jobs with the aid of brief descriptions of key duties, and asked the human resource manager to identify and distribute questionnaires to incumbents holding any or all of the three target jobs. For all three of these countries, each incumbent completed all three O*NET questionnaires: New Zealand $N = 156$, China $N = 435$, Hong Kong $N = 416$. Numbers of respondents and organizations for all four countries, broken down by job, are summarized in Table 1.

Demographic information on respondents and their organizations within each country are summarized in Table 2. Samples differed on most demographic variables, including job tenure (in which U.S. respondents had substantially less experience in their jobs than incumbents in the other three countries) and education (with China having a higher proportion of incumbents having received education beyond high school). Some of the demographic differences between country samples reflected fundamental differences in the nature of organizations and industries in these countries. For example, the smaller proportion of large organizations

TABLE 2
Percentages of Respondents Within Demographic Categories by Country

	United States	China	Hong Kong	New Zealand
Incumbent's tenure in job				
<1 month	28.3	.2	.5	14.1
≥1 month, but <3 months	20.6	2.4	2.2	9.6
≥3 months, but <1 year	22.8	6.6	10.0	4.4
≥1 year, but <3 years	16.1	22.6	32.5	36.3
≥3 years, but <6 years	8.6	22.9	18.6	28.1
≥6 years, but <10 years	2.5	21.5	17.1	4.4
≥10 years	1.1	23.8	19.1	3.0
Incumbent's level of education				
Less than high school	0.3	0.9	15.7	1.7
High school diploma	58.1	55.9	42.6	74.8
Bachelor's or advanced degree	41.7	43.1	41.7	23.5
Organization size >1,000 employees	66.2	35.4	45.5	22.0
Industry				
Agriculture, forestry, and fisheries	0	0.2	0	4.6
Mineral industries	0	0.7	0	0
Construction	9.3	18.6	4.2	2.6
Manufacturing	9.0	38.4	11.3	13.2
Transportation, communication, and utilities	0.3	15.9	4.4	6.6
Wholesale trade	5.2	0.5	5.2	2.6
Retail trade	16.0	1.4	7.4	6.6
Finance, real estate, and insurance	44.5	6.4	23.4	13.2
Service industries (including education)	15.7	16.8	39.2	33.6
Public administration	0	0.2	4.9	7.2

(>1,000 employees) in New Zealand reflects the relatively small average size of organization there, and the larger proportions of organizations in the manufacturing sector in China, and in the agricultural, forestry, and fisheries industries in New Zealand, are reflective of industrial patterns within those countries.

Measures

*O*NET questionnaires.* We used the Generalized Work Activities (GWA) instrument within O*NET as a means of assessing the activities performed in jobs—a central component of describing a job. The Skills and Work Styles instruments were selected because they cover important job requirements used for staff selection and training.

The GWA instrument included ratings of both importance and level (complexity) of each of 41 work activities; the Skills instrument included both importance and level ratings of each of 35 basic and cross-functional

skills; and the Work Styles instrument included only importance ratings for 16 work-related personality items. For all three instruments, importance ratings were made on a 5-point, linear rating scale, with descriptive anchors of *not important*, *somewhat important*, *important*, *very important*, and *extremely important* corresponding to each of the five scale points (1–5). Level ratings, for items in the GWA and Skills instruments, were made on 7-point rating scales, with item-specific, behavioral anchors at points 2, 4, and 6. For example, when asked at what level a job requires "getting information" (GWA item no 1), behavioral anchors were 2 = *following a standard blueprint*, 4 = *reviewing a budget*, and 6 = *reviewing the results of a large financial audit*. Further details about these instruments can be found in Peterson et al. (1999, 2001), and complete questionnaires can be viewed at the O*NET Web site (http://www.onetcenter.org/).[3]

The three O*NET instruments were translated into Chinese, using the back-translation method (Brislin, 1980), by three, bilingual graduate I-O psychology students in Hong Kong. After back translation, we took an additional step toward maximizing the quality of translation by administering both English and Chinese versions of the three O*NET questionnaires to a sample of 25 bilingual, working adults in Hong Kong and for each item, we computed a correlation coefficient between the English and Chinese versions in order to identify and refine problematic items. Median item-level correlations between English and Chinese versions were .73 and .72 for GWA importance and level ratings, respectively; .76 for both importance and level ratings on the Skills instrument; and .71 for importance ratings on the Work Styles instrument. Items with low correlations between English and Chinese versions were revised by the translation team to further improve translation quality. Finally, the Chinese version, consisting of complex characters appropriate for Hong Kong, was converted into simplified characters for use in Mainland China.

*Rescaling of O*NET ratings.* O*NET job information is published through the O*NET Online Web site, where, for ease of interpretation, item means have all been rescaled on a 0–100 point scale. In the interest of consistency, we, too, rescaled item ratings on the same 0–100 point scale. Importance and level ratings, which in raw form were made on 5- and

[3] Between the initial (1998) wave of O*NET data collection in the United States and our subsequent data collection in the other three countries, the O*NET questionnaires were updated, resulting in minor modifications to some items (Hubbard et al., 2000). These modifications were primarily to simplify, clarify, and shorten the questionnaires, including reductions in the number of items contained in each questionnaire (from 42 to 41 items in the GWA, from 46 to 35 items in the Skills, and from 17 to 16 items in the Work Styles); the elimination of some rating scales (the "frequency" scale was dropped from the GWA, and the "level" scale was dropped from Work Styles instrument); and minor rewording of some items (e.g., GWA Item 1 was changed from "Getting information needed to do the job" to "Getting information").

7-point scales, respectively, were transformed to a 0–100 scale using the O*NET Online conversion procedure of ((O-L)/(H-L))∗100, where O is the original rating score, L is the lowest possible score on the rating scale used, and H is the highest possible score on the rating scale used. This rescaling procedure is a linear transformation and has no effect on measurement models, hypothesis tests, or correlations presented here.[4]

Development of Job Dimensions for Testing Hypotheses 1 and 2

Testing hypotheses about workers' freedom to make decisions (Hypothesis 1) and interpersonal relationships with coworkers (Hypothesis 2) at the level of individual items was impractical both because of the large number of hypothesis tests that would be required and because the measurement equivalence of individual items across countries would have been uncertain. Alternatively, using existing clusters of items from the O*NET instruments was inappropriate because, although prior exploratory factor analytic work (Peterson et al., 1999) has established broad support for the validity of each instrument's high-order structure, the construct validity of the lower-order clusters of items within each instrument's hierarchical taxonomy has yet to be established. Furthermore, existing taxonomic clusters of items within an O*NET instrument did not, in all cases, match the constructs of interest in this research. For example, items involving decision-making skill requirements for jobs are not found within a single taxonomic cluster within the Basic and Cross-Functional Skills instrument. Consequently, from each of the three O*NET instruments, we

[4] Respondents from different cultures may complete rating scales using different response styles. For example, respondents from low individualism/high power distance countries, including East Asian countries such as China and Hong Kong, may be more inclined than those from high individualism/low power distance countries, including the United States and New Zealand to provide higher scale ratings, (i.e., an acquiescence response style, (Harzing, 2006; Johnson, Kulesa, Cho, & Shavitt, 2005), which can confound the interpretation of mean differences between countries on substantive constructs. In an effort to eliminate response style differences, some cross-cultural researchers have standardized scores within each country prior to performing substantive analyses. Within-culture standardization procedures, nevertheless, constrain all countries' grand means (i.e., the mean of all individuals in each country, across all items) to be equal and, therefore, are justified only when differences between countries in grand means can be assumed to be caused entirely by response style differences and are not due to true variation between countries (Fischer, 2004; van de Vijver & Leung, 1997). In the case of job analysis instruments, this assumption is untenable because it would require that, in the absence of response style differences between countries, higher (true) job analysis ratings on a particular item or dimension in one country (relative to other countries) must *necessarily* be associated with lower ratings for that country on other items/dimensions (relative to other countries). Therefore, standardizing job analysis ratings within countries is likely to remove meaningful between-country variance, and so we present results for job analysis ratings that have not been standardized within countries.

developed and tested the measurement equivalence of multi-item job dimensions as measures of decision-making and interpersonal relationship activities, skill requirements, and work style requirements prior to testing hypotheses.

GWA dimensions. Of the 41 activities described within the GWA instrument, items concerning workers' freedom to make decisions fall within the "reasoning and decision-making" cluster of activities, such as "making decisions and solving problems" and "thinking creatively." We included all but one of the six items in this cluster, "updating and using relevant knowledge" because this item concerns keeping up-to-date technically and applying knowledge to the job, which we judged to be unrelated to workers' freedom to make decisions. GWA items that concern activities that build and maintain interpersonal relationships with coworkers are found in the "communicating/interacting" and "coordinating/developing/managing/advising others" clusters, and we initially included all but two of these items. We excluded "communicating with persons outside of the organization" and "performing for or working directly with the public" because these items concerned interactions exclusively with people outside of the organization, leaving 11 items to represent the interpersonal activities dimension.

We assessed metric invariance (factor loading invariance) through multi-group confirmatory factor analysis (MGCFA), analyzing importance ratings and level ratings separately. This test revealed an inadequate model fit across the four countries: for importance ratings, chi square/df = 1818.86/460, RMSEA = .103, GFI = .854, NFI = .940, CFI = .956, IFI = .956, and TLI = .954; for level ratings, chi square/df = 1803.69/460, RMSEA = .102, GFI = .857, NFI = .948, CFI = .962, IFI = .962, and TLI = .960.[5] Referring to modification indices, we identified and removed three items ("communicating with supervisors, peers, or subordinates," "training and teaching others," and "coaching and developing others"), which resulted in improved model fit: for importance ratings, chi square/df = 894.74/295, RMSEA = .085, GFI = .918, NFI = .949, CFI = .965, IFI = .965, and TLI = .953; for level ratings, chi square/df = 975.39/295, RMSEA = .091, GFI = .904, NFI = .952, CFI = .966, IFI = .966, and TLI = .964. Items and alpha coefficients for the two GWA dimensions are summarized in the top section of Table 3.

Skills dimensions. In order to assess skill requirements for independent decision making, we identified three relevant items from the Basic and Cross-Functional Skills instrument: "critical thinking," "complex

[5] RMSEA = Root mean square error of approximation; GFI = Goodness- of- fit test; NFI = Normed fit index; CFI = Comparative fit index; IFI = Incremental fit index; TLI = Tucker-Lewis Index.

TABLE 3
Items Composing the Decision Making and Interpersonal Dimensions Within Each Instrument

Generalized Work Activities	
Decision-making activities	Interpersonal activities
Making decisions and solving problems	Establishing and maintaining relationships
Thinking creatively	Assisting and caring for others
Developing objectives and strategies	Selling/influencing others
Scheduling work activities	Resolving conflicts
Organizing, planning and prioritizing work	Coordinating work and activities
(imp. ratings $\alpha = .81$; level ratings $\alpha = .83$)	Developing and building teams
	Guiding/directing others
	Providing consultation and advice
	(imp. ratings $\alpha = 87$; level ratings $\alpha = .89$)
Basic and Cross-Functional Skills	
Decision-making skills	Interpersonal skills
Critical thinking	Social perceptiveness
Complex problem solving	Coordination
Judgment and decision making	Persuasion
(imp. ratings $\alpha = 76$; level ratings $\alpha = .81$)	Negotiation
	Instructing
	Service orientation
	(imp. ratings $\alpha = 87$; level ratings $\alpha = .88$)
Work Styles	
Decision-making work styles	Interpersonal work styles
Independence	Cooperation
Innovation	Concern for others
Analytical thinking	Social orientation
(imp. ratings $\alpha = .73$)	(imp. ratings $\alpha = .79$)

problem-solving," and "judgment and decision making." We used the six items within the "social skills" cluster (e.g., "social perceptiveness" and "coordination") to represent skills necessary for interacting effectively with coworkers. Again, we performed a MGCFA, and found acceptable levels of metric equivalence for both importance and level ratings: chi square/*df* = 324.10/131, RMSEA = .074, GFI = .959, NFI = .965, CFI = .979, IFI = .979, and TLI = .976; and chi square/*df* = 267.41/125, RMSEA = .065, GFI = .977, NFI = .975, CFI = .986, IFI = .986, and TLI = .984, respectively. Items and alpha coefficients for these two Skill dimensions are summarized in the center section of Table 3.

Work style dimensions. We chose three items from the Work Styles instrument as work-related personality requirements associated with

workers ability to make decision independently: "independence," "innovation," and "analytic thinking;" and used the three items from within the "interpersonal orientation" cluster ("cooperation," "concern for others," and "social orientation") to represent the interpersonal orientation necessary to interact effectively with one's coworkers. These sets of items demonstrated adequate levels of metric equivalence (chi square/df = 155.18/50, RMSEA = .086, GFI = .964, NFI = .951, CFI = .966, IFI = .966, and TLI = .960), and are summarized at the bottom of Table 3.

Number of GWAs and skills rated as important. For each respondent, we counted the number of GWA items (maximum of 41), and separately for number of Skill items (maximum of 35), with importance ratings of "3" (corresponding to "important") or greater on the original 5-point importance rating scale.

Demographic variables and covariates. Demographic variables were measured and coded as follows. Job tenure was measured on a 7-point scale, ranging from *less than 1 month* to *equal to or more than 10 years*. Education level was measured with an 8-level item, ranging from *less than a high school diploma* through to *doctoral degree*. Organization size was measured as the organization's number of full-time employees. The industry within which each respondent's organization operated was coded according to the 10 major Standard Industrial Code (SIC) industry classifications.

Differences in sample demographics, if left uncontrolled, may lead to spurious results if those demographic variables are, in addition, correlated with dependent variables (i.e., job dimensions). Incumbent tenure and level of education, for example, have been found to be related to job analysis ratings (Borman, Dorsey, & Ackerman, 1992; Landy & Vasey, 1991; Tross & Maurer, 2000), and some work-related activities or job requirements may vary as a function of organization size and industry. In order to control for demographic differences between the samples, we tested hypotheses concerning country differences with relevant demographic variables included as covariates.

We first identified the covariates that made significant, independent contributions to explaining variance in the dependent variables, in order to avoid using impotent control variables with associated losses of statistical power (Becker, 2005). Each dependent variable was regressed first on the three jobs, represented by dummy variables for the clerk and computer programmer jobs (i.e., the supervisor job was left as the uncoded reference group), in order to control for variance in job analysis ratings due to differences in jobs. Next, the demographic variables were entered together in a stepwise procedure. Organization size, as measured by the number of full-time employees within the organization, was transformed to its natural log to overcome its positive skew (Guthrie & Datta, 1997; Pablo, 1994;

Subramaniam & Youndt, 2005). Industry classifications were converted to a set of dummy-coded variables for each industry classification, with the last industry (public administration) left as the uncoded reference group.

Results of these preliminary regression analyses revealed, as expected, that respondents' job (supervisor, clerk, or programmer) made the greatest contribution to explaining variance in job dimensions. Respondents' level of education made significant contributions to all but one dependent variable. Tenure, and to a lesser extent, industry, made substantially smaller contributions toward explaining variance in job dimensions. Based on these results, we decided to include both respondents' level of education and tenure as covariates in substantive analyses used to test hypotheses. We ran substantive analyses with and without the inclusion of relevant industry codes as covariates and found that results were essentially the same, and so for the sake of brevity, we present results without industry codes included as covariates.

Results

Analyses concerning hypothesized country differences on job dimensions are presented first, followed by comparisons between job profiles generated from U.S. item means with those of the other three countries.

Descriptive statistics and correlations among variables are presented for each of the three jobs in Table 4. Level of education correlated significantly with most job dimensions, particularly for the first-line supervisor and computer programmer jobs. For all three jobs, correlations between importance and level ratings for the same dimension were quite high, in the .80–.90 range, reflected by similarly high correlations between the two types of rating scales at the item level found both in this study and in a previous research on O*NET instruments (Hadden, Kravets, & Muntaner, 2004). With such high correlations between the two rating scales, combining the two into a single scale for each item might be justified. Nevertheless, we decided to analyze importance and level ratings separately because, at least conceptually, they address somewhat different aspects of each item descriptor. Finally, as indicated in Table 4, intercorrelations between dimensions were quite high, a finding that is consistent with previous research on incumbent-rated O*NET instruments (Hadden et al., 2004; Peterson et al., 2001).

We began comparing countries on job dimensions by performing preliminary, two-way ANCOVAs on each job dimension, with job and country as independent variables, and incumbent education and tenure included as covariates, in order to determine the presence of any job $\times$ country interactions, as these would influence our analysis strategy. In the absence of job $\times$ country interactions, country differences could be tested across all jobs

TABLE 4A

Descriptive Statistics and Correlation Matrix for the First-Line Supervisor Job

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Education	–	–													
2. Tenure	–	–	.09												
3. Decision-making activities – importance ratings	58.7	18.5	.22	.01											
4. Decision-making activities – level ratings	55.5	17.4	.22	−.03	.84										
5. Interpersonal activities – importance ratings	59.8	17.7	.16	−.03	.64	.55									
6. Interpersonal activities – level ratings	57.1	17.0	.18	−.13	.57	.65	.84								
7. Decision-making skills – importance ratings	56.5	20.4	.31	.04	.61	.58	.65	.60							
8. Decision-making skills – level ratings	55.2	18.6	.30	.03	.59	.67	.59	.69	.87						
9. Interpersonal skills – importance ratings	58.0	19.1	.22	−.01	.55	.50	.78	.69	.65	.60					
10. Interpersonal skills – level ratings	57.3	16.7	.25	−.01	.54	.62	.70	.80	.62	.73	.85				
11. Decision-making work styles – importance ratings	66.0	17.8	.12	−.04	.53	.45	.60	.51	.56	.49	.56	.52			
12. Interpersonal work styles – importance ratings	67.7	18.1	.04	.12	.41	.33	.58	.43	.38	.31	.60	.47	.52		
13. No. of GWA items rated as "important"	26.7	7.0	.09	.02	.66	.58	.74	.67	.60	.58	.61	.59	.49	.41	
14. No. of Skill items rated as "important"	21.2	7.1	.15	−.01	.55	.53	.60	.60	.64	.64	.62	.64	.48	.35	.82

Notes. Educational levels = 2.8% less than high school; 50.5% high school diploma; 46.7% bachelor's or advanced degree. Tenure levels = 28.1% less than 1 year; 78.1% 1 year or more. Means and *SD*s for generalized work activity, skill, and work style dimensions are on 100-point scales. No. of GWA and Skill items rated as "important" represent the number of items rated ≥ 3 (3 = *important*) on the original 5-point importance scale in each instrument (total of 41 GWA items and 35 Skill items). $r > |.08| = p < .05$; $r > |.12| = p < .01$; $r > |.16| = p < .001$.

TABLE 4B

Descriptive Statistics and Correlation Matrix for the Office Clerk Job

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Education	–	–													
2. Tenure	–	–	.05												
3. Decision-making activities – importance ratings	36.4	20.0	.10	−.01											
4. Decision-making activities – level ratings	35.6	19.9	.12	−.04	.88										
5. Interpersonal activities – importance ratings	34.7	17.5	.10	−.04	.69	.63									
6. Interpersonal activities – level ratings	33.2	17.4	.11	−.10	.60	.71	.84								
7. Decision-making skills – importance ratings	32.1	21.3	.07	−.03	.59	.57	.60	.60							
8. Decision-making skills – level ratings	32.1	21.0	.08	−.07	.55	.62	.55	.68	.89						
9. Interpersonal skills – importance ratings	35.0	18.8	.07	−.03	.58	.57	.71	.69	.68	.65					
10. Interpersonal skills – level ratings	35.9	18.6	.10	−.08	.55	.64	.65	.77	.65	.74	.89				
11. Decision-making work styles – importance ratings	51.4	20.5	.03	.02	.58	.54	.51	.44	.53	.45	.55	.47			
12. Interpersonal work styles – importance ratings	58.0	21.4	.03	.05	.49	.43	.56	.46	.37	.31	.55	.45	.55		
13. No. of GWA items rated as “important”	18.1	8.7	.12	.01	.79	.73	.80	.72	.65	.62	.68	.64	.55	.51	
14. No. of Skill items rated as “important”	13.8	8.3	.09	−.06	.64	.63	.69	.68	.75	.70	.76	.71	.56	.45	.82

Notes. Educational levels = 9.8% less than high school; 66.1% high school diploma; 24.1% bachelor’s or advanced degree. Tenure levels = 33.3% less than 1 year; 66.7% 1 year or more. Means and *SD*s for generalized work activity, skill, and work style dimensions are on 100-point scales. No. of GWA and Skill items rated as “important” represent the number of items rated ≥ 3 (3 = *important*) on the original 5-point importance scale in each instrument (total of 41 GWA items and 35 Skill items). $r > |.09| = p < .05$; $r > |.12| = p < .01$; $r > |.16| = p < .001$.

TABLE 4C

Descriptive Statistics and Correlation Matrix for the Computer Programmer Job

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Education	–	–													
2. Tenure	–	–	.02												
3. Decision-making activities – importance ratings	49.9	19.7	.26	−.04											
4. Decision-making activities – level ratings	49.8	18.1	.25	−.03	.89										
5. Interpersonal activities – importance ratings	38.0	18.1	.21	−.09	.63	.58									
6. Interpersonal activities – level ratings	38.7	17.4	.20	−.11	.59	.64	.90								
7. Decision-making skills – importance ratings	57.5	21.2	.24	.12	.64	.59	.59	.54							
8. Decision-making skills – level ratings	54.1	19.5	.26	.12	.56	.62	.54	.61	.86						
9. Interpersonal skills – importance ratings	38.5	19.4	.18	−.15	.56	.51	.73	.67	.57	.51					
10. Interpersonal skills – level ratings	40.7	17.7	.21	−.10	.52	.54	.69	.73	.57	.64	.88				
11. Decision-making work styles – importance ratings	69.0	18.6	.22	.07	.51	.52	.45	.45	.57	.54	.39	.43			
12. Interpersonal work styles – importance ratings	51.5	19.6	.08	−.08	.43	.38	.60	.53	.40	.35	.57	.53	.39		
13. No. of GWA items rated as “important”	21.2	8.1	.15	−.08	.73	.66	.82	.74	.55	.51	.68	.62	.41	.62	
14. No. of Skill items rated as “important”	21.9	7.3	.16	−.11	.60	.56	.71	.66	.65	.60	.78	.70	.46	.70	.75

Notes. Educational levels = 0.5% less than high school; 31.2% high school diploma; 68.3% bachelors or advanced degree. Tenure levels = 21.2% less than 1 year; 78.8% 1 year or more. Means and *SD*s for generalized work activity, skill, and work style dimensions are on 100-point scales. No. of GWA and Skill items rated as “important” represent the number of items rated ≥ 3 (3 = *important*) on the original 5-point importance scale in each instrument (total of 41 GWA items and 35 Skill items). $r > |.14| = p < .05$; $r > |.20| = p < .01$; $r > |.26| = p < .001$.

simultaneously, with job entered as an additional covariate, although the presence of such an interaction would require that country differences be explored within each job. We found significant job × country interactions for all dependent variables, indicating that country differences varied as a function of job, and so we compared country means for each dimension separately within each of the three jobs using simple main effects (Winer, Brown, & Michels, 1991). These results are presented in Tables 5–7.

Results that address Hypothesis 1a–c, that decision-making work activities, skill requirements, and work style requirements would be rated as more important and performed at higher levels in the United States and New Zealand, are presented in Table 5. Hypothesis 1a, concerning decision-making work activities, was partially supported. Patterns of covariate-adjusted country means were generally as predicted for the supervisor and computer programmer jobs, but post hoc tests revealed that only some country differences were significantly different from one another as predicted. Most notably, mean ratings for only New Zealand (i.e., and not the United States) were significantly greater than Hong Kong. (In the case of the computer programmer job, this result may simply be an artifact of the small U.S. sample size.). Contrary to Hypothesis 1a, mean importance and level ratings for decision-making activities in China for the clerk job were comparatively high and significantly higher than mean ratings from Hong Kong.

Minimal support was found for hypothesized country differences in decision-making skill and work style requirements (Hypotheses 1b and 1c). No significant country differences were found for the supervisor job. As with decision-making work activities, clerks in China rated the importance and level of decision-making skills, and the importance of decision-making work styles, relatively high. For the programmer job, covariate-adjusted means followed the pattern for skill and work style importance ratings predicted by Hypotheses 1b and 1c, but only the New Zealand mean, and not the U.S. mean, was significantly higher than the means of China and Hong Kong. Again, the computer programmer means for decision-making skill and work style means in the U.S. sample were comparatively high but failed to reach statistical significance, which may have been attributable to the small U.S. sample size for this job.

Table 6 presents the results of country comparisons of mean ratings of the importance and level of interpersonal activities, and related skill and work style requirements. Hypotheses 2a–c, which predicted that ratings on interpersonal dimensions would be higher in China and Hong Kong than in the United States. and New Zealand, were unsupported. No significant country differences were found for either the supervisor or programmer jobs, with the exception of supervisors in Hong Kong rating the importance of interpersonal work styles as significantly more important than

TABLE 5

Differences in Country Means, After Controlling for Incumbents' Levels of Education and Tenure, on Ratings of Decision-Making Activities, Skill Requirements, and Work Style Requirements

Job and rating scale	*df*	*F*	Partial η^2	Covariate-adjusted country means: United States	New Zealand	China	Hong Kong	Significant pairwise differences
Decision-making work activities								
Supervisor								
Importance ratings	3, 467	2.76*	.02	59.5	65.7	58.3	57.3	New Zealand > Hong Kong
Level ratings	3, 457	.93	.01	54.3	58.7	55.9	54.6	
Clerk								
Importance ratings	3, 428	10.58***	.07	37.4	44.5	41.4	30.1	New Zealand, China and United States > Hong Kong
Level ratings	3, 426	13.35***	.09	35.3	38.1	43.1	28.9	China > United States and Hong Kong
Programmer								
Importance ratings	3, 178	4.47**	.07	61.5	64.7	46.2	46.7	New Zealand > Hong Kong and China
Level ratings	3, 178	4.65**	.07	63.5	61.8	49.1	44.9	New Zealand > Hong Kong

TABLE 5 (continued)

Job and rating scale	*df*	*F*	Partial η^2	Covariate-adjusted country means: United States	New Zealand	China	Hong Kong	Significant pairwise differences
Decision-making skills								
Supervisor								
Importance ratings	3, 455	1.13	.01	62.2	56.7	55.9	55.9	
Level ratings	3, 445	1.83	.01	59.0	51.9	56.4	53.9	
Clerk								
Importance ratings	3, 411	2.29	.02	34.9	32.9	34.5	28.7	
Level ratings	3, 409	2.12	.02	33.5	32.9	35.1	29.0	
Programmer								
Importance ratings	3, 177	3.23*	.05	63.7	70.7	52.8	54.4	New Zealand > Hong Kong and China
Level ratings	3, 177	2.30	.04	58.5	64.3	52.5	50.2	
Decision-making work styles (importance ratings only)								
Supervisor	3, 463	1.71	.01	63.3	62.1	66.6	68.3	
Clerk	3, 416	4.75**	.03	55.7	52.1	54.3	46.7	United States & China > Hong Kong
Programmer	3, 178	.80	.01	73.9	75.1	68.0	67.9	

Notes. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$. Pairwise differences computed at the $p < .05$ level after Bonferroni adjustment.

TABLE 6

Differences in Country Means, After Controlling for Incumbents' Levels of Education and Tenure, on Ratings of Interpersonal Activities, Skill Requirements, and Work Style Requirements

Job and rating scale	*df*	*F*	Partial η^2	Covariate-adjusted country means: United States	New Zealand	China	Hong Kong	Significant pairwise differences
Interpersonal work activities								
Supervisor								
Importance ratings	3, 468	1.63	.01	63.9	60.3	58.2	61.3	
Level ratings	3, 458	.80	.01	55.4	55.4	58.2	58.9	
Clerk								
Importance ratings	3, 431	5.65***	.04	37.8	32.8	37.9	30.5	China and United States > Hong Kong
Level ratings	3, 429	9.84***	.06	32.8	29.2	39.3	28.9	China > United States, Hong Kong and New Zealand
Programmer								
Importance ratings	3, 178	.02	.00	39.7	37.9	37.6	37.9	
Level ratings	3, 178	.61	.01	33.3	40.1	40.4	37.0	

TABLE 6 (continued)

Job and rating scale	*df*	*F*	Partial η^2	Covariate-adjusted country means: United States	New Zealand	China	Hong Kong	Significant pairwise differences
Interpersonal skills								
Supervisor								
Importance ratings	3, 455	.99	.01	55.9	56.3	58.0	60.4	
Level ratings	3, 444	.65	.00	55.8	55.1	58.4	58.5	
Clerk								
Importance ratings	3, 411	4.47**	.03	35.9	37.3	38.6	30.8	China > Hong Kong
Level ratings	3, 409	6.1***	.04	36.3	36.0	40.7	31.5	China > Hong Kong
Programmer								
Importance ratings	3, 177	.57	.01	39.5	43.9	36.5	38.5	
Level ratings	3, 177	.66	.01	43.8	46.5	39.5	39.7	
Interpersonal work styles (importance ratings only)								
Supervisor	3, 466	3.18*	.02	71.5	67.3	64.9	70.2	Hong Kong > China
Clerk	3, 416	14.60***	.10	70.8	64.2	57.0	52.0	United States > China and Hong Kong; New Zealand > Hong Kong
Programmer	3, 180	.52	.01	46.0	46.3	52.4	51.5	

Notes. Significant pairwise differences were identified using a critical value of $p < .05$, after Bonferroni adjustment. $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

ratings made by supervisors in China, an unexpected difference. In addition, unexpectedly, office clerks in China rated the importance of both interpersonal activities and interpersonal skills as more important, and performed at higher levels, than clerks in Hong Kong; and clerks from the United States and New Zealand rated the importance of interpersonal work styles as more important than did clerks in China and Hong Kong. Because the interpersonal work style items (cooperation, concern for others, social orientation) were not focused exclusively on interpersonal relationships with coworkers, the higher ratings in the United States and New Zealand may reflect a greater emphasis in Western countries on a customer service orientation within customer-contact roles such as office clerk positions.

Hypotheses 3a and 3b, which predicted that greater skill variety for workers in the United States and New Zealand would be reflected by greater numbers of work activities and skills rated as important to their jobs, were unsupported, as indicated in Table 7. Although the patterns of country means were, for the most part, consistent with these hypotheses, no statistically significant differences were found for either the supervisor and computer programmer jobs. In the case of the office clerk job, incumbents from China rated relatively high numbers of GWAs and skills as important—significantly more than those in Hong Kong.

In sum, support was found for only Hypothesis 1a, which predicted higher mean ratings for decision-making activities among incumbents in the United States and New Zealand. Furthermore, across all job dimensions, country accounted for quite small proportions of variance that was accounted for by incumbent education and tenure, as indicated by partial η^2 values ranging from 0 to .10, with most below .04.

Similarity of Job Profiles

From a practical perspective, the transportability of O*NET job information, which is largely in the form of mean item ratings based on U.S. data, to jobs performed outside United States, is a question of how different the job profiles (in terms of both level and shape) would be had the O*NET data been collected in the country in which the job is being performed. We addressed this question by assessing the magnitude of differences in item means (i.e., the degree of similarity of job profile *levels*) and the rank-order correlations of item means (i.e., degree of similarity of job profile *shapes*) between the United States and each of the other three countries.

Similarity of job profile levels. For each item on each rating scale (importance and level), within each of the three jobs, we computed the absolute difference, on 0–100 point scales, between the mean computed from the original U.S. sample and the means from each of the three other

TABLE 7

Differences Among Countries, After Controlling for Incumbents' Levels of Education and Tenure, on Mean Numbers of Generalized Work Activities (GWAs) and Skills Rated as "Important"

				Covariate-adjusted country means				
Job	*df*	*F*	Partial η^2	United States	New Zealand	China	Hong Kong	Significant pairwise differences
Number of generalized work activities (GWAS) rated as "important"								
Supervisor	3, 466	2.24	.01	29.2	27.2	26.1	26.8	
Clerk	3, 425	10.80***	.07	20.9	19.1	19.5	15.1	United States and China > Hong Kong
Programmer	3, 177	1.08	.02	25.0	24.3	20.7	20.4	
Number of skills rated as "important"								
Supervisor	3, 454	1.35	.01	22.0	20.7	22.0	20.6	
Clerk	3, 403	7.10***	.05	13.5	13.8	16.1	11.7	China > Hong Kong
Programmer	3, 175	.84	.01	24.2	23.9	22.0	20.9	

Notes. Scores calculated for each respondent were the number of items in each instrument (41 GWAs, 35 Skills) rated as "important" (i.e., ≥3 on the original 5-point importance scale). $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$. Significant pairwise differences were identified using a critical value of $p < .05$, after Bonferroni adjustment.

countries. In order to interpret the mean absolute differences in light of the within-country variance in ratings, we also computed an effect size for each mean difference by dividing the mean difference by the square-root of the pooled variance. Finally, we averaged those absolute differences and absolute effect sizes, within each job, for each rating scale (e.g., across the 41 GWA importance ratings for the first-line supervisor job). These results are presented in Table 8.

Mean absolute differences between the United States and the other three countries ranged from 3.5 (on a 0–100 scale) for differences with New Zealand in mean importance ratings on the Work Style items for the supervisor job, to 12.6 for differences with Hong Kong in mean level ratings on Skills items for the computer programmer job. Overall, 80% of the mean absolute differences were $\leq$10 points, which when the 100-point scale is converted back to the original 5- and 7-point rating scales, reflect differences of within 1.4 scale points on the 5-point importance scale, and 1.6 scale points on the 7-point level scale.

Most (88%) of the mean absolute effect sizes $|d|$ for item-level country differences fell in the range of .20–.50 (small to medium size effects). Differences, both in terms of absolute mean differences and absolute effect sizes, were generally smallest between the United States and New Zealand and largest between the United States and China; and differences within the GWAs and Skills instruments were most pronounced in the computer programmer job and least pronounced in the first-line supervisor job.

Similarity of job profile shapes. The second aspect of similarity in job profiles concerns job profile *shapes* (i.e., the degree to which data from various samples produce similar rank-orderings of job activities or job requirements). To assess this aspect of profile similarity, we computed Spearman's Rho correlation coefficients between mean item ratings from the U.S. sample with mean item ratings from each of the three other countries for each job and each rating instrument. These correlation coefficients are presented in Table 8. Most of these correlations exceeded .80, suggesting quite similar profile shapes for the three jobs on three O*NET instruments between the United States and the other three countries. Consistent with the results of mean absolute differences reported earlier, job profiles were most similar between the United States and New Zealand (all correlations .83 or greater) and least similar between the United States and China (e.g., .61 for Work Styles items on the supervisor job and .65 for GWAS importance ratings for the computer programmer job), although most other U.S.–China correlations were still above .80.

Finally, in order to provide a baseline for interpreting the magnitudes of these country differences in job profiles, we computed similar statistics between item means derived from the primary U.S. sample and item means for the same three jobs from a second, independent sample of U.S. data,

TABLE 8

Mean Absolute Differences, Mean Absolute Effect Sizes, and Correlations of Item Means Between the United States and the Other Countries

Job and rating scale	New Zealand				China				Hong Kong				2nd U.S. sample			
	Mean |diff|	Mean |*d*|	*SD* of |*d*|	*r*	Mean |diff|	Mean |*d*|	*SD* of |*d*|	*r*	Mean |diff|	Mean |*d*|	*SD* of |*d*|	*r*	Mean |diff|	Mean |*d*|	*SD* of |*d*|	*r*
Generalized work activities																
Supervisor																
Importance	6.1	.25	.25	.83	9.2	.34	.51	.71	5.7	.22	.21	.84	11.6	.28	.19	.86
Level	4.5	.20	.19	.86	6.3	.31	.21	.83	6.0	.24	.20	.84	8.7	.21	.10	.95
Clerk																
Importance	10.8	.33	.28	.81	10.0	.35	.31	.68	8.8	.32	.31	.80	8.5	.20	.17	.84
Level	5.9	.22	.19	.89	7.9	.36	.25	.74	6.7	.26	.26	.84	5.2	.15	.14	.90
Programmer																
Importance	8.1	.38	.30	.90	11.2	.55	.90	.70	10.2	.40	.36	.82	11.6	.28	.19	.84
Level	7.2	.38	.35	.89	8.0	.52	.40	.81	10.8	.45	.48	.85	16.9	.48	.41	.82

TABLE 8 (continued)

Job and rating scale	New Zealand				China				Hong Kong				2nd U.S. Sample			
	Mean |diff|	Mean $\|d\|$	*SD* of $\|d\|$	*r*	Mean |diff|	Mean $\|d\|$	*SD* of $\|d\|$	*r*	Mean |diff|	Mean $\|d\|$	*SD* of $\|d\|$	*r*	Mean |diff|	Mean $\|d\|$	*SD* of $\|d\|$	*r*
Skills																
Supervisor																
Importance	5.3	.23	.15	.83	8.9	.34	.29	.80	5.3	.23	.18	.90	7.5	.19	.13	.96
Level	4.5	.28	.15	.86	7.6	.29	.27	.82	5.5	.22	.16	.91	5.2	.16	.11	.94
Clerk																
Importance	8.5	.23	.17	.81	10.0	.34	.28	.78	5.9	.34	.29	.91	4.6	.18	.15	.95
Level	5.6	.18	.10	.89	8.3	.38	.39	.83	4.3	.19	.16	.92	2.9	.13	.13	.96
Programmer																
Importance	7.9	.33	.32	.90	11.9	.48	.31	.82	11.9	.43	.26	.87	9.6	.42	.38	.83
Level	7.1	.41	.35	.89	9.6	.49	.33	.80	12.6	.50	.34	.83	8.6	.39	.30	.83
Work styles (importance ratings only)																
Supervisor	3.5	.24	.15	.89	5.2	.40	.27	.66†	4.9	.23	.13	.82	5.7	.19	.15	.89
Clerk	9.0	.19	.18	.84	8.3	.37	.26	.86	11.1	.45	.22	.93	9.1	.34	.14	.95
Programmer	4.5	.29	.15	.81	4.2	.36	.25	.85	8.4	.36	.20	.74	5.1	.17	.15	.86

Notes. Comparisons are of the United States and each of the other three countries, and between the original U.S. sample and a second U.S. sample. Item means and SDs for the 2nd U.S. sample were provided by the National Center for O*NET Development from subsequent waves of data collection for these three jobs. *N*s for this 2nd U.S. sample were, for the supervisor, clerk and programmer jobs, respectively, 133, 54, and 16 for GWAs, 142, 67, and 19 for Skills, and 145, 52, and 25 for Work Styles. Mean |diff| = mean of the absolute differences, on a 100-point scale, between item means of the relevant scale (e.g., 41 GWAs). $|d|$ = the absolute effect sizes for each item between the United States and each other country, calculated as the difference between the two country means, divided by the square-root of the pooled variance. Means and SD of $|d|$ were calculated across all items of the relevant scale (e.g., 41 GWAs). *r* = Spearman's Rho correlations between (country) item means of the United States, the other three countries. Statistical significance of correlations is based on the number of items in each scale (i.e., 41 importance and 41 level ratings within the GWAs questionnaire; 35 importance and 35 level ratings within the Skills questionnaire; and 16 importance ratings within the Work Styles questionnaire). †$p < .01$; all other correlations significant at $p < .001$.

obtained in subsequent waves of O*NET data collection (2006; U.S. Department of Labor, 2006).[6] Averaged absolute differences in item means, averaged absolute effect sizes, and correlations of mean item ratings between the two U.S. samples are presented in the left-most columns of Table 8. Comparing these differences and correlations between the two U.S. samples with differences and correlations between the primary U.S. sample and the other countries reveals that differences in job profiles between the United States and the other three countries are, as a whole, just slightly greater in magnitude than differences in job profiles obtained when analyzing the two U.S. samples. In the case of New Zealand, average absolute differences in item means, mean absolute effect sizes for those differences, and correlations between item means are all within the similar ranges to those for the two U.S. samples. For Hong Kong and China, average absolute differences in item means are similar in magnitude to those for the two U.S. samples, but mean absolute effect sizes are slightly larger (particularly for China) and correlations slightly lower. In sum, the degree of similarity in both the level and shape of job profiles between the United States and other three countries were quite similar to those found between two independent U.S. samples.

Discussion

This study explored the extent to which ratings of work activities and two aspects of job requirements were similar for jobs performed across four countries. We had predicted that mean incumbent ratings of the importance and level of decision-making activities (e.g., making decisions and solving problems, thinking creatively, setting objectives) would be highest for New Zealand and the United States, the two countries lowest in power distance and collectivism, and lowest for the higher power distance, collectivistic countries of Hong Kong and China. The results for the first-line supervisor and computer programmer jobs were generally consistent with this prediction, particularly in relation to ratings of the importance of decision-making activities. (Contrary to expectations, office clerks in China rated the importance and level of decision-making activities unexpectedly high.) This study extends previous research that has found employees in low power distance and less collectivist countries

[6] The original sample of U.S. data was gathered in the National Center for O*NET Development's initial wave of O*NET data collection, using the original versions of the three O*NET instruments. Both the non-U.S. data that we collected for this study and the second U.S. sample data were collected using the revised versions of the O*NET instruments. Consequently, the magnitude of differences in job profiles reported here between the original U.S. sample and both the more recent U.S. data and non-U.S. data may be slightly greater than they would have been had identical versions of instruments been used.

being more empowered to make decisions and solve problems concerning their work by demonstrating that such differences influence job analysis ratings of the importance and level of decision-making work activities.

Some cross-cultural theorists (e.g., Berry et al., 2002; Drenth, 1983) have advocated that, before attributing differences in organizational data to cross-cultural variables, noncultural explanations should be explored, and one of the most salient noncultural explanatory variables is the level of countries' affluence/economic development (Georgas, Van de Vijver, & Berry, 2004). In the context of the country differences found here in decision-making activities performed, an explanation based on countries' different levels of economic development could be that, as countries become more economically affluent, employees expect and are afforded greater empowerment in making decisions concerning their work.

With only four countries included in this study, no firm conclusions can be drawn as to the cause of country differences in mean ratings of job demands, but the specific pattern of country means for decision-making activities casts doubt on an economic development explanation. The level of countries' economic development is typically measured in terms of gross national product (GNP) per capita, or gross domestic product (GDP) per capita, and on these measures the order of the countries included in this study, from highest to lowest, is the United States, Hong Kong, New Zealand, and China. In contrast, the United States and New Zealand are similarly more individualistic and lower in power distance when compared with China and Hong Kong. Therefore, had countries' level of economic development been responsible for the differences observed in mean ratings of decision-making activities, mean ratings for Hong Kong should have been relatively high in comparison to New Zealand and substantially higher than mean ratings for China. The pattern of means across the three jobs was more consistent with a cultural than an economic development explanation, with New Zealand at similarly high levels as the United States, and Hong Kong substantially lower than New Zealand, and similar in levels for China.

Although incumbents in China and Hong Kong tended to rate decision making in their jobs as slightly less important and performed at lower levels, there were few significant differences between countries on ratings of skill and work style requirements associated with decision making. Only for the computer programmer job did decision-making skill ratings follow the predicted pattern. Although workers in China and Hong Kong appear to be given less decision-making authority, they still seem expected to possess decision-making skills and work styles necessary to provide input to their managers and others in decisions.

Findings failed to support our hypothesis that, due to the higher importance placed on maintaining in-group harmony in collectivist societies,

interpersonal activities and job requirements would be rated more highly in China and Hong Kong. We suspect that this may have resulted from the interpersonal work activity, skill, and work style items available within the O*NET instruments having been too broad to target the specific job behaviors associated with maintaining harmonious relationships with one's work colleagues (i.e., one's in-group within the work context). For example, O*NET items such as "establishing and maintaining relationships" and "social perceptiveness" concern not only one's interactions with coworkers but also interactions more generally. Therefore, any differences in the importance and level of such interactions between countries in the context of maintaining harmonious relationships with coworkers may be washed out by the lack of country differences in other contexts.

Finally, skill variety, as measured by the number of generalized work activities and number of skills rated as important, was not significantly greater in the United States and New Zealand, as expected. We had hypothesized that jobs in the United States and New Zealand, two relatively low power distance, highly individualistic countries, would have been structured to provide greater job enrichment, including greater skill variety (Erez, 1994, 1997; Erez & Earley, 1993). Aycan and associates (Aycan et al., 1999), for example, found that significantly greater levels of job autonomy and skill variety were reported in Canada (a relatively low power distance, individualistic country) than in India (a high power distance and less individualistic country). It is not clear why similar country differences in skill variety failed to emerge in this study, but one possibility concerns how we measured skill variety. Aycan and colleagues had used a global, single-item measure of respondents' perception of skill variety, whereas we had operationalized the construct in terms of the actual numbers of work activities and skills perceived as important to one's job. Our measure of skill variety seems a logical application of Hackman and Oldham's (1980) conceptualization of the construct to work activity and skill requirement ratings collected in the context of job analysis, but it is possible that this measure fails to converge with more molar judgments of the degree of skill variety experienced in one's job (e.g., as measured through the Job Diagnostic Survey or the single-item measure used by Aycan and colleagues).

Similarities of Job Profiles

We turn now to the question of how transportable generic job information developed in one country, such as occupational information published by O*NET Online based on U.S. data, is to jobs performed outside that country. The level and shape of job profiles produced for the same jobs,

but with data from different countries, were quite similar, particularly in regard to job profile shapes (i.e., rank-order correlations between item means).

The confidence with which data can be transported to jobs performed elsewhere depends largely on how the data will be used. We found that job profile shapes (i.e., the rank-order of importance/level of job activities and job requirements) derived from mean item ratings were quite highly correlated. Therefore, if the U.S. job information is being applied to a job conducted outside the United States for a purpose that depends on an accurate rank ordering of work activities or job requirements, the U.S. data appears to transport quite well. Job information that is in the form of rank orderings of a set of work activities or job requirements has a variety of research and practice applications, such as in developing job descriptions; matching individual's knowledge, skills, abilities, and other characteristics (KSAOs) with requirements for occupations in career counseling; providing potential employees with realistic job previews; and developing career ladders. For example, in a recent study of the sources of variance in job analysis ratings, Van Iddekinge and colleagues (Van Iddekinge, Putka, Raymark, & Eidson, 2005) used raters' rank-ordering of KSAO ratings as a primary-dependent variable. In a more practice-oriented application, Converse and colleagues (Converse et al., 2004) recently demonstrated how the rank-ordering of ability requirements for particular occupations, based on mean ability item ratings from the O*NET database, can be correlated with the rank-ordering of individuals' abilities as a means of identifying preliminary matches between individuals and occupations. Therefore, the high correspondence found in this study between job profile shapes based on U.S. mean ratings and those of the other three countries shows promise for matching individuals and occupations in other countries, using the rank-ordering of ratings published by O*NET Online.

Similarly, job descriptions typically include lists of the primary work activities and the most critical KSAOs required for successful performance. For example, O*NET Online provides summary reports for each occupation in its database, listing, for each job, only the most highly rated items of each domain category (generalized work activities, knowledge requirements, ability requirements, skill requirements, etc.). In the case of the three O*NET domain categories measured in this study (GWAs, Skills, and Work Styles), O*NET Online includes in its job summaries the 10-scale items with the highest mean importance ratings. The high correlations that we found between the rank-orderings of O*NET items based on the U.S. data and that of the other three countries suggests that there is likely to be quite high congruence on those most critical items, had data from another country been used.

Although we found considerable similarities in the rank ordering of mean GWA, Skill, and Work Style ratings between the United States and each of the three other countries, the magnitude of mean differences between the United States and the other three countries were large enough to believe that some caution is warranted in transporting levels of mean ratings overseas for applications that require precision in the level of mean item ratings. An example of a job analysis application that requires precision in the levels of mean item ratings is in estimating the validity of a selection test or mean test scores (e.g., for establishing job requirements), using mean ratings on a job analysis instrument through a job component validity strategy (McCormick, Jeanneret, & Mecham, 1972). In a typical job component validation study, jobs are the unit of analysis, and mean incumbent test scores or test validity coefficients for each job are regressed on mean job analysis items or dimensional ratings, with the goal of identifying a subset of job analysis items/dimensions that can be used in the future to estimate either mean test scores or validity coefficients for particular jobs. Such a strategy has been applied using O*NET data from a variety of domains, including GWAs, Skills, Abilities, and Knowledge to predict mean scores on ability tests (Jeanneret & Strong, 2003), perceptual speed and psychomotor tests (Johnson, Carter, & Dorsey, 2003), and literacy requirements (LaPolice, Carter, & Johnson, 2005). Nevertheless, using mean item ratings published on O*NET Online to predict test scores for incumbents in jobs outside the United States may be problematic. Even assuming that measurement equivalence of the selection test across countries is achieved, the magnitude of mean item differences found in this study between the U.S. data and data from the other three countries is large enough to question whether different items/dimensions on the job analysis instrument would have been identified through a job component validation study, rendering test score and test validity estimates suspect for other countries.

Absolute differences in mean item ratings were smallest and correlations between rank-orderings of mean item ratings for work activities and job requirements were highest between the United States and New Zealand, countries that share both language and cultural features. We suspect that the somewhat greater differences found in mean ratings and rank-orderings between the United States and both China and Hong Kong are likely to be due to both cultural and language differences, with culture contributing to true differences in job activities and requirements, and both culture and language contributing to different interpretations of measures (Liu, Borg, & Spector, 2004; Ryan, Chan, Ployhart, & Slade, 1999). The largest differences in job profiles were found between the United States and China, which differ not only in culture and language as does the United States and Hong Kong but, in addition, in their levels of

economic development. Consequently, the mean job analysis item ratings published by O*NET Online may transport best to jobs being performed in other Anglo, English-speaking countries (e.g., Canada, the United Kingdom, Australia, and New Zealand) and least with jobs in countries that differ from the United States in culture, language, and levels of economic development.

Looking to the future, an interesting question is whether jobs performed across countries are becoming increasingly similar over time. With increased cross-border mergers, partnerships, global flows of labor and information, and decreasing gaps between countries' levels of economic development, between-country differences in work activities, and job requirements may diminish over time. Wang (1994), for example, has noted that recent economic reforms in China have been accompanied by greater worker participation in decision making. At the country level, economic development is highly correlated with individualism and consistent with recent global increases in economic development. Hofstede has reported an increase in countries' level of individualism between his 1967–1969 and 1971–1973 surveys (Hofstede, 2001).

Limitations and Future Research

The limitations of this study need to be recognized when interpreting findings and planning further cross-cultural, job analysis research. The most obvious limitation concerns the scope of the study in terms of both jobs and countries. We focused on only three jobs, and although they represent relatively diverse tasks and job requirements, they represent a very small set of the nearly 1,000 jobs represented within the O*NET database. Similarly, this study included only four countries, essentially providing a contrast between two individualistic, low power distance, and high autonomy countries with two collectivistic, high power distance, and low autonomy countries. Future research could include a larger set of countries, permitting not only a more fine-grained analysis of the influence of cross-cultural variables on job analysis ratings but, in addition, through use of variance components analysis, an estimate of the relative contribution of country to variance in job analysis ratings as compared with other sources of variance, for example, raters, rater positions, and organizations.

In a similar vein, data collected in this study were from incumbents working not only within different countries but, in addition, within different organizations. Because, during sampling, no effort was made to obtain data from multinational organizations with the same jobs performed across countries, the differences in job analysis ratings between countries reported here are probably greater than differences that would be found between offices/plants of the same multinational corporation located in

those countries. Multinational corporations are likely to introduce at least some degree of standardization in jobs across sites, and so an interesting direction for future research would be to explore the degree to which between-country differences in job analysis ratings of the same job diminish when data are collected on the same jobs performed within different countries but all from within a single, multinational corporation.

This study's scope was, in addition, limited to work activities and two aspects of job requirements (skills and work-related personality), using only incumbent ratings, which are susceptible to biases (Morgeson & Campion, 1997; Morgeson, Delaney-Klinger, Mayfield, Ferrara, & Campion, 2004). Incumbent ratings, in particular, may suffer from method effects, which has been suggested as a possible cause of the relatively high correlations among many of the items within the O*NET instruments (Peterson et al., 2001). Future research could expand to consider country differences in knowledge and ability requirements, as well as ratings from other sources, such as supervisors and job analysts. Use of the same job analysts to analyze jobs across countries, in particular, would present practical challenges but would have the benefit of eliminating any country differences in raters' response styles.

Finally, possible causes for our not having found greater support for hypothesized country differences warrant discussion. Insufficient statistical power is a common problem in organizational research (Cashen & Geiger, 2004; Mone, Mueller, & Mauland, 1996), and if sociocultural variables do affect job demands, but in only very small ways, low statistical power may have contributed to our having not found greater support for hypotheses tested here. In this study, sample sizes were large enough to provide adequate power for detecting medium effect sizes (i.e., $d = .50$), with statistical power levels well over .90 for the first-line supervisor and office clerk jobs, and over .80 for the computer programmer job. But, on the other hand, if country differences in job demands are assumed to be quite small (e.g., $d = .20$, or explaining less than 1% of the variance in job analysis ratings), the statistical power of this study drops substantially to approximately .40 for the first-line supervisor and office clerk jobs and approximately .20 for the computer programmer job. Given the high degree of similarity in overall job profiles between the United States and other three countries found here (Table 8), we suspect that socioeconomic variables are likely to exert relatively small effects on job analysis ratings, therefore, requiring substantially larger sample sizes to detect those small effects.

Another possible cause of null findings in this study was that our use of multiple-item dimensions for testing hypotheses may have masked true country differences on some items, due to the inclusion of other items on which countries did not differ. We explored this possibility by re-running

analyses on each individual item within each dimension but found little support for this explanation. Country differences on individual items were generally indicative of differences found at the dimensional level.

Greater country differences may have emerged had we used different data collection instruments in two respects. First, our use of the O*NET instruments, which were developed in the United States for the purpose of describing occupations within the U.S. economy, represents an "etic" approach to cross-cultural research (Gelfand, Raver, & Ehrhart, 2002). This approach was appropriate in the light of our having a fundamentally etic research question, that is, to what extent job analysis information developed in one country transports to other countries. Nevertheless, an alternative, more "emic" approach would have been to develop taxonomies of relevant work activities, skills, and work styles, and associated measurement instruments from all four countries rather than just one. Such an approach could be used to address the more fundamental question of whether jobs are described differently within countries and might result in the inclusion of items that are more sensitive to the dimensions on which jobs may vary across countries.

A second respect in which a different choice of job analysis instruments might have resulted in greater sensitivity to country differences concerns the specificity of item descriptors. The O*NET instruments use relatively broad sets of item descriptors—an approach that has received some criticism (Gibson, 2002; Gibson, Harvey, & Quintela, 2004). Although the use of broad item descriptors has the advantage of resulting in shorter questionnaires and, therefore, less labor-intensive data collection, it may be less likely to detect differences in quite specific aspects of job tasks and requirements. For example, our failure to find significantly greater emphasis on relationship-building tasks and associated job requirements among incumbents in China and Hong Kong may have been due to the relatively broad descriptors of interpersonal tasks and job requirements within the O*NET instruments. Had there been items specifically related to interpersonal relationship-building with coworkers available, such country differences may have emerged.

Conclusions

Globalization is leading to greater opportunities for the application of job information across countries, and the World Wide Web is making such information increasingly available. Researchers and practitioners can take advantage of this opportunity, but doing so requires an understanding of the ways in which work and job requirements may vary across countries. The results of this study suggest that job demands for the same job performed across countries appear quite similar and that generic job

information developed in one country, such as job information provided through O*NET, can be useful for understanding jobs performed in other countries.

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