Associations among Personal Characteristics, Work Related Factors, and Virtual Distance

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ABSTRACT

This study examined associations among work related factors, personal characteristics, and the virtual distance between employees and their work teams. Hypotheses related to these associations were derived from previous studies and tested using data collected from a sample of 238 employees from a multinational telecommunications company. The findings confirmed significant associations reported in previous studies: between age and job satisfaction; between work position, level of responsibility, and the extent to which work was challenging and interesting; and among the personal characteristics and the work related factors. In this organization virtual distance had significant associations with work position, gender, and age but contrary to previous findings it did not have a significant association with an employee's level of education. Contrary to previous findings, virtual distance was significantly positively correlated with the extent to which work was challenging and interesting, and the extent to which work provided opportunities for new learning and career growth. These were the only work related factors that had significant correlations with virtual distance. The findings contribute to theory and practice related to the management and development of virtual work environments and show clearly that in this telecommunications company virtual distance was not having a negative impact in relation to important work related factors.

Keywords: Personal Characteristics, Virtual Distance, Virtual Work Environment, Work Functional Level, Work Related Factors

INTRODUCTION

Developments in communication technologies or systems, and the convergence of several broadband technologies have had a significant impact on how people work together. Organizations no longer need to co-locate work teams and this provides opportunities for cost savings, flexibility, innovation, and higher resource utilization as well as increased competitiveness and global growth (Markus, Manville, & Agres, 2000; Mowshowitz, 2002; Alomaim, Tunca, & Zairi, 2003; Coggins, 2011). However, several studies have reported that virtual organizations with work teams distributed in multiple locations present problems as well as benefits (Putnam, 2001; Anderson & Shane, 2002; Prasad & Akhilesh, 2002; Peters & Manz, 2007; Bjorn & Ngwenyama, 2009). In the context of information technology companies Sobel-Lojeski and Reilly (2008) reported increased complexity in work operations, misunderstandings among workers, and risks of breakdown in communication.

The concept of a virtual organization was evident first in studies by economists in the 1970s concerned with the transaction cost theory as the basis for outsourcing practices which emerged in the 1980s. Different approaches to developing virtual

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organizations have evolved in conjunction with organizational restructuring and advances in communication technologies (Camarinha-Matos & Afsarmanesh, 2005).

A well known model of a virtual organization is the model developed by Sobel-Lojeski and Reilly (2008), which classified virtual distance using three dimensions: physical distance; affinity distance; and operational distance. Physical distance is based on differences in geographical location in terms of space and time. Affinity distance concerns differences in culture, social structure, and the interdependency of relationships, while operational distance is concerned with communications, multitasking, readiness, and distribution asymmetry. Physical distance was the focus in this study measured by an employee's work functional level classified in four levels (country, cluster, multi-clusters, and global) where physical distance between an employee and the other members of their work team increased across this sequence of levels. Typically, team members are often in different time zones, they rarely meet, and although they may have the same leaders they rarely see them. However, they need to contribute to the organization and have the same goals as other members of their team. Understandably, these conditions may have an impact on work related factors including: an employee's motivation; job satisfaction; and work and organizational commitment (Sobel-Lojeski & Reilly, 2008). In addition, the expected impact may vary according to the personal characteristics of employees including: gender; age; level of education; and work position (Chen, Ross, & Huang, 2008; Cohen & Shamani, 2010).

This study aimed to identify and test significant associations derived from previous studies among and between: personal characteristics of employees (gender, age, education, and work position); work related factors relevant to motivation; and virtual distance represented by an employee's work functional level. The study was conducted in a multinational telecommunications company where there were efficient and effective communications technologies, and expertise to support a virtual work environment. The findings are expected to contribute to a theoretical understanding of the relationships among these constructs in a virtual work environment and especially the role of virtual physical distance. Also, the findings were expected to provide practical insights for those responsible for the development and management of virtual environments.

LITERATURE REVIEW

The review focused on recent studies that used quantitative methods to examine relationships among variables representing personal characteristics of employees, virtual distance, and work related factors. Table 1 presents an overview of the nature of relevant studies and the variables examined in those studies. Based on the studies in Table 1 the following variables and groups of variables were identified as having relationships with each other and with virtual distance.

Work Functional Level

An employee's work functional level represents the level of his or her responsibility in an organization (Evans & Newnham, 1998) and it is normally applied to organizations with matrix-like structures for the purpose of capturing the value of scale. In this study the organization had a customer operational unit which served three geographical clusters: the Americas; Europe and Africa; and Asia and Middle East. The employees understood their work functional level as being one of: country level; cluster level; multi-cluster level; and global level. At the country level regardless of their

location employees were responsible for work in a single country in one of the three geographical clusters. At the cluster level an employee was responsible for work in more than one country in only one of the three geographical clusters while at the multi-cluster level an employee was responsible for work in countries in only two of these clusters. At the global level an employee was responsible for work in countries in all three clusters. As the work functional level changed from the country level through cluster and multi-cluster to global level, the physical distance of an employee from the other members of their work team increased. In this work environment the work functional level captured the concept of the virtual physical distance between employees and was used as a measure of virtual distance.

Work Related Factors

Motivation is a set of activation forces of goal-oriented behavior which is intrinsic or extrinsic to the employee, and initiates and determines the direction, intensity, and persistence of work-related effort (Jones & Page, 1984; Latham & Pinder, 2005; Colquitt, LePine, & Wesson, 2009). Content and process theories have developed since the 1950s as the two main approaches to the study of motivation. Content theories emphasize what motivates people at work while process theories explain how motivation behavior is initiated. Herzberg's (1987) motivation-hygiene theory (two-factor theory) is a content theory of motivation which defines two separate sets of factors: motivational factors associated with satisfaction; and hygiene factors associated with dissatisfaction. Hygiene factors (e.g. salary, company and administrative policies, fringe benefits, physical working conditions, employee status, and job security) were not examined in this study because these factors were almost the same for all of the participants who were all employed by the same organization. Instead, motivation factors including: achievement; recognition; the nature of work itself; responsibility; advancement; job satisfaction; and organizational and work commitment were considered in the study as work related factors that were expected to vary among the participants.

Achievement concerns success in challenging work completed though exertion, skill, and perseverance. Achievement is related to personal characteristics and background and the associated competitive drive to meet standards of excellence (Williamson, Burnett, & Bartol, 2009). Achievement includes personal satisfaction from completing a job, solving problems, and seeing results and fulfilling an internal need for appreciation and respect concerned with an individual's level of esteem (Maslow, 1954; Gawel, 1997).

Recognition means being accepted or acknowledged. Those who achieve the recognition of others tend to feel confident in their abilities while those who lack self-esteem and the recognition of others can develop feelings of inferiority and negative reactions such as blaming and criticism (Ruthakoon & Ogunlana, 2003).

Work Itself is the actual content of the job or what employees do (Bassett-Jones & Lloyd, 2005; Pelit, Ozturk, & Arslanturk, 2010). It involves employees' feelings about their work tasks including whether those tasks are too easy or too difficult or interesting or boring (Herzberg, Mausner, & Snyderman, 1959; Wellens, 1970). Work should be interesting, encourage creativity and innovation, and engage the employee's capabilities (Lawrence & Jordan, 2009). Work Itself is assessed by the extent to which an individual feels that his or her work tasks are challenging and interesting.

TABLE 1

An Overview of Related Studies

Reference	Context	Project Focus	Variables
Brahm & Kunze (2012)	Virtual teams	The role of trust climate in virtual team.	Virtual distance, Trust, Motivation, Performance
Mukherjee, Hanlon, Kedia, & Srivastava (2012)	Virtual teams	Organizational identification among global virtual team members.	Performance
Altindis (2011)	Job motivation	Job motivation and organizational commitment	Organizational commitment, Motivation
Aydogdu & Asikgil (2011)	Organizational commitment	The relationship among job satisfaction, organizational commitment and turnover intention	Organizational commitment, Work itself
Mihhailova, Oun, & Turk (2011)	Virtual organization	Virtual work usage and challenges in different service sector branches	Virtual distance, Job satisfaction, Motivation
Teck-Hong & Waheed (2011)	Herzberg's two-factor theory	Herzberg's motivation-hygiene theory and job satisfaction	Motivation, Job satisfaction
Barney & Elias (2010)	Virtual organizations	Flex-time as a moderator of the job stress-work motivation relationship	Virtual distance, Job stress, Motivation
Cohen & Shamai (2010)	Individual values	The relationship between individual values, psychological well-being, and organizational commitment	Organizational commitment, Achievement
Ebeid (2010)	Corporate social responsibility	Corporate social responsibility and its relation to organizational commitment	Organizational commitment, Responsibility
Bjarnason (2009)	Social recognition	The impact of social recognition on organizational commitment, intent to stay, service effort, and service	Organizational commitment, Recognition
Bjorn & Ngwenyama (2009)	Virtual teams	Identify key factors in effectiveness and failure in virtual team.	Virtual team performance
Michael, Court, & Petal (2009)	Job stress	Job stress and organizational commitment among mentoring	Organizational commitment, Job stress
Chen, Ross, & Huang (2008)	Location-based privacy, trust, justice, and job	Privacy, trust, and justice considerations for location-based mobile telecommunication services.	Virtual distance, Motivation, Job satisfaction
Haines, Saba, & Choquette (2008)	International assignments	Intrinsic motivation for an international assignment	Work commitment, Motivation
Nemiro, Beyerlein, Bradley, & Beyerlein	Virtual teams	Critical factors for virtual team success	Virtual distance, Work commitment, Job
Sobel-Lojeski & Reilly (2008)	Virtual distance	Making virtual distance work in the digital age.	Virtual distance, Motivation, Job satisfaction,
Falkenburg & Schyns (2007)	Job satisfaction	Work satisfaction, organizational commitment and withdrawal behaviors	Work commitment, Organizational commitment, Job satisfaction
Schmidt (2007)	Workplace training	The relationship between satisfaction with workplace training and overall job	Organizational commitment, Advancement
Wang (2007)	Job satisfaction	Learning, job satisfaction and commitment: a study of organizations in	Virtual distance, Work commitment, Job
Akkirman & Harries (2005)	Virtual organizations	Organizational communication satisfaction in the virtual workplace	Virtual distance, Communication, Motivation
Piccoli, Powell, & Ives (2004)	Virtual distance	Virtual teams: team control structure, work processes, and team effectiveness	Virtual distance, Communication, Motivation
Yingjun (2004)	Virtual organizations	Virtual organization and inter-organizational relationships	Virtual distance, Motivation, Job satisfaction
Ngamchokchaicharoen (2003)	Job satisfaction	The study of organizational commitment in Thailand	Organizational commitment
Ruthankoon & Ogunlana (2003)	Herzberg's two-factor theory	Testing Herzberg's two-factor theory in the Thai construction industry	Motivation, Job satisfaction

Responsibility refers to employees' control over their jobs including the level of responsibility and authority in relation to the job. Responsibility translates into self-regulation which represents "the self's" capacity to alter its behaviors in accordance with standards, ideals, or goals either stemming from internal or societal expectations (Herzberg et al., 1959; Bassett-Jones & Lloyd, 2005; Baumeister & Vohs, 2007).

Advancement is the degree to which an individual experiences new learning and growth in his or her carrier. When an employee constantly achieves the work task or target, advancement is then required as a motivation for the employee to continue to perform well and remain in the organization (Ruthakoon & Ogunlana, 2003). Advancement translates into the central dynamic of new learning leading to new expertise and upward change in status in the organization (Herzberg et al., 1959; Bassett-Jones & Lloyd, 2005).

Job Satisfaction represents a pleasurable emotional state resulting from how one feels and what he thinks about his job (Locke, 1976; Vroom, 1982; Siegal & Lane, 1987; Lee, Joo, & Johnson, 2009). Three conceptual frameworks may be used to describe job satisfaction: content theory; process theory; and situational theory (Worrell, 2004). Content theory explains job satisfaction in terms of the employee's achievement of self-actualization based on a five-tier model of human needs (Maslow, 1954). Process theory focuses on how well the job satisfies the employee's expectations and values while situational theory explains job satisfaction in terms of the characteristics of the organization. In this study a predominant process approach was adopted whereby job satisfaction represented a pleasurable emotional state resulting from a combination of psychological, physiological, and environmental circumstances that caused a person to feel that they were satisfied with their job (Hoppock, 1935; Yousef, 2000; Lee et al., 2009). It represents a set of factors that cause a feeling of internal satisfaction and it is closely linked to an individual's behavior in the work place (Davis, 1985; Armstrong, 2006).

Work Commitment represents the desire of an employee to remain with his or her particular job because of the job itself (Loscocco & Roschelle, 1991; Cohen, 1993). Work commitment represents the willingness of an employee to increase his or her job performance believing that the work will help to achieve his or her goals and values (Porter Steers, Mowday, & Boulian, 1974). Affective organizational commitment is the desire to remain as a member of an organization (Sheldon, 1971; Buchanan, 1974; Colquitt et al., 2009). Affective organizational commitment is included in this study because it is the form of commitment that is most often measured by organizations and occurs when an employee has satisfaction with his or her: work; colleagues; and work environment. Variations in affective organizational commitment have been explained by age, perceived fairness, organizational tenure, and perceived organizational support (Hawkins, 1998) and many studies have reported associations between affective commitment and absenteeism, poor performance, and turnover (Mowday, Steers, & Porter, 1982; Mathieu & Zajac, 1990; Meyer & Allen 1997). Rhoades, Eisenberger, and Armeli (2001) have suggested that the structural features of the organization and personal characteristics of employees may have less association with affective commitment compared with work experiences such as organizational rewards, procedural justice, and supervisor support. Employees who have high affective commitment are those who will go beyond the call of duty for the good of the organization (Robinson & Bennett, 2000; Boles, Madupalli, Rutherford, & Wood, 2007; Al-bdour, Nasruddin, & Lin, 2010).

Personal Characteristics

Personal characteristics of employees (gender, age, level of education, and work position) that were included in this study have been identified in previous studies as being related to virtual distance and work related factors (Siegal & Lane, 1982; Chen et al., 2008; Cohen & Shamani, 2010).

FRAMEWORK

Hypotheses

Table 2 shows the research hypotheses to be tested in the study. They are based on findings from previous studies with examples referenced in Table 2.

TABLE 2

Hypotheses

Research Hypothesis	Reference
H1: The eight Work Related Factors (Achievement, Recognition, Work Itself, Responsibility, Advancement, Job Satisfaction, Organizational Commitment, and Work Commitment) are significantly associated with each other.	Sobel-Lojeski and Reilly, 2008; Colquitt et al., 2009; Johnson et al., 2009; Lawrence & Jordan, 2009; Al-bdour et al., 2010
H2: The four Personal Characteristics (Gender, Age, Education, and Work Position) are significantly associated with each other.	Chen et al., 2008; Cohen & Shamani, 2010
H3: There are significant associations between each of the four Personal Characteristics (Gender, Age, Education, and Work Position) and each of the eight Work Related Factors (Achievement, Recognition, Work Itself, Responsibility, Advancement, Job Satisfaction, Organizational Commitment, and Work Commitment).	Sobel-Lojeski and Reilly, 2008; Chen et al., 2008; Cohen & Shamani, 2010
H4: Virtual Distance is significantly associated with each of the eight Work Related Factors (Achievement, Recognition, Work Itself, Responsibility, Advancement, Job Satisfaction, Organizational Commitment, and Work Commitment).	Anderson & Shane, 2002; Prasad & Akhilesh, 2002; Peters & Manz, 2007; Sobel-Lojeski and Reilly, 2008; Bjorn & Ngwenyama, 2009
H5: Virtual Distance is significantly associated with each of the four Personal Characteristics (Gender, Age, Education, and Work Position).	Chen et al., 2008; Cohen & Shamani, 2010

Note: The term significant refers to statistical significance at a level of 0.05 or less; associations are measured using chi-squared and correlation coefficients; and the nature of the association has not been specified because differences were found in previous studies. However, if the association is found to be significant then its nature is specified in the findings.

Methodology

The research was designed as a field study: partly basic and applied; partly descriptive and explanatory; and cross-sectional in time. The study was conducted in the context of a multinational telecommunications company formed from a merger between two companies in 2008. The company operates in 150 countries with product patterns which are combinations of large standardization quantities, personalized custom products, and outsourcing.

The target population was the 620 company employees located in either Thailand or Indonesia who worked in positions described as: engineers; managers; team assistants; human resource personnel; trainers; financial controllers; and solution providers. All of these employees worked in a virtual environment separated from other members of their work team by physical distance determined by their work functional level as

described above. Using a precision of 5 percent and a 95 percent confidence interval the minimum sample size for the study was determined to be 240.

The study questionnaire was designed with two sections: Section A addressed the four variables concerned with personal characteristics (gender, age, education, and work position); and Section B addressed nine variables which represented the eight work related factors and work functional level. The questions were developed with the assistance of a focus group of 20 representatives of the target population. Suggested modifications were included and the revised version was used in a pilot study with a sample of 20 respondents. All modifications were incorporated into the final version of the questionnaire. (See the Appendix for notations indicating the labels used for variables and the measurement scales.)

The list of 620 company employees in the target population was used as a sampling frame to randomly select 300 participants. The questionnaire was distributed in hard copy with a cover letter introducing the purpose of the study, instructions for its completion and return, and a contact address for enquiries. After following up missing responses a sample of 253 (84 percent) completed questionnaires was obtained.

Variable Descriptions

Table 3 presents operational definitions with references and methods of measurement with references to existing measuring instruments for the variables in the research hypotheses in Table 2. In the table, each of the variables for the work related factors is a latent variable with indicators measured using 5-point Likert scales which were treated as interval scale variables. Virtual distance (work functional level), age, and education were ordinal level variables which were converted to interval scale variables using the measuring scales shown in the questionnaire.

RESULTS

Among the sample of 253 questionnaires there were no missing values for any of the measures and a check on the accuracy of data entry using a random sample of 10 percent (26) of the questionnaires did not reveal any errors. There were 15 questionnaires which contained at least one outlier value for a variable listed in Table 3 (i.e. a value three or more standard deviations from the mean) and these questionnaires were removed leaving a final satisfactory sample size of 238.

Tables A1 and A2 in the Appendix display satisfactory results for the construct validity and the internal consistency reliability, respectively, of the measures of the indicators for the latent variables representing the work related factors. Based on such results, a single interval scale measure for each of these eight latent variables was computed for each of the 238 respondents as the mean of their responses for the indicators.

Table 4 displays descriptive statistics associated with each of the eight work related factors, virtual distance, and the four personal characteristics. The table reveals that:

(1) The values of skewness and kurtosis for the work related factors are within acceptable limits of three and seven, respectively, as recommended by Kline (2005) for data analysis (e.g. t-tests and correlation coefficients).

(2) Those working at the level of multi-clusters accounted for the largest proportion (35 percent) of respondents followed by 30 percent working across a single cluster while the remainder was working almost equally across a single country or at a global level.

(3) Most participants were males (69 percent) which reflected the 65 percent of males in the population of 620. The average age of respondents was 39 years with 89 percent in the age range 31 to 50 years. Half held a bachelor's degree. A further 44 percent had a master's degree and the remaining six percent had a diploma. Most were managers (32 percent), solution providers (25 percent), or engineers (24 percent).

Overall, the respondents were considered to have personal attributes and work experience that were appropriate to ensure the validity and reliability of their responses to the questionnaire items.

Table 5 presents the results of the analysis of the associations among the four personal characteristics, virtual distance, and the eight work related factors using responses from all of the 238 respondents and separately the responses from the 164 males, and the 74 females. Associations were measured using Pearson correlation coefficients except for those involving the nominal scale variables work position and gender where associations were measured using chi-squared statistics. In all cases a 0.05 level of statistical significance was used to determine significant associations. From the table, it is seen that considering all of the 238 respondents:

(1) Work position had statistically significant associations with two personal characteristics (gender and age), virtual distance, and two work related factors (work itself and responsibility). These five significant associations with work position were analyzed further in the cross tabulations shown in Table 6 where the nature of an association is evident among the differences between the observed and expected frequency counts.

(2) Apart from work position, gender also had statistically significant associations with age and virtual distance and the cross tabulations of gender with these two variables are displayed in Table 7.

T-tests were used to examine differences between males and females for the mean values of the work related factors, virtual distance, age, and education. Results showed that there were no statistically significant differences (p-value < 0.05) between the means for males and females for any of the eight work related factors or the variable, education. However, in this particular organization on average the males (40 years) were significantly older than the females (37 years) and the mean value for virtual distance for males (2.55 on a scale of 1 - 4) was significantly greater than the mean value for females (2.26 scale of 1 - 4) (p-value < 0.05). These significant differences due to gender were compatible with the significant associations between gender and age, and gender and virtual distance displayed in Table 7 above.

T-tests were used to examine differences between the mean values for the eight work related factors and the value of three on their measuring scales which represented a neutral attitude to, or opinion about, the issue that was addressed by the questionnaire item. The mean values of all of the eight work related factors were statistically significantly greater than the neutral value of three (p-value < 0.05) and additional t-tests revealed that this was also true separately for both the male and the female respondents.

TABLE 3

Variable Descriptions

Variable (Label)	Definition	Reference	Method of Measurement	Measuring Instrument
Work Related Factor				
Achievement (ACH)	The extent to which an individual needs appreciation and respect in his or her work	Lawrence & Jordan, 2009	Four indicators	Ruthakoon & Ogunlana, 2003
Recognition (REC)	The degree to which an individual feels accepted and recognized by co-workers and	Lawrence & Jordan, 2009	Four indicators	Lawrence & Jordan, 2009
Work Itself (WOI)	The extent to which an individual feels that his or her work tasks are challenging	Pelit et al., 2010	Four indicators	Pelit et al., 2010
Responsibility (RES)	The degree to which an individual is given the freedom to make decisions in	Ruthakoon & Ogunlana, 2003	Four indicators	Ruthakoon & Ogunlana, 2003
Advancement (ADV)	The degree to which an individual experiences new learning and growth in his or	Herzberg, 1959; Bassett-Jones & Lloyd, 2005	Four indicators	Ruthakoon & Ogunlana, 2003
Job Satisfaction (JS)	The degree to which employees feel satisfaction with their job.	Lawler & Porter, 1967; Locke, 1976; Rogers et al.,	Six indicators	Lawler & Porter, 1967
Work Commitment (WC)	The degree to which an individual has the desire to remain with his or her particular job because of job	Loscocco & Roschelle, 1991; Cohen, 1993	Six indicators	Fink, 1992
Organization Commitment (OC)	The degree to which an individual wishes to be a member of the organization.	Sheldon, 1971; Buchanan, 1974; Colquitt et al., 2009	Six indicators	Fink, 1992; Sharma & Bajpai, 2010
Virtual Distance (Work Functional Level)				
Virtual Distance (VD)	The extent to which an individual is physically separated from the other members of their work team	Evans & Newnham, 1998; Sobel-Lojeski & Reilly,	Four ordinal categories	Ruthakoon & Ogunlana, 2003
Personal Characteristics				
Gender (G)	Male or female.	Cohen & Shamani, 2010	two nominal categories	Siegal & Lane, 1982; Chen et al., 2008
Age (A)	Age in years.	Chen et al., 2008	Four ordinal categories	Chen et al., 2008; Siegal &
Education (E)	Diploma, bachelor, master, or doctoral level of education.	Cohen and Shamani, 2010	Four ordinal categories	Siegal & Lane, 1982; Cohen &
Work Position (WP)	The eight categories of employment position recognized in the	Chen et al., 2008	Eight nominal categories	Siegal & Lane, 1982; Chen et al., 2008

TABLE 4

Descriptive Statistics

Measurement	Frequency	Percent	Mean	Standard Deviation	Skewness	Kurtosis
Work Related Factor						
Achievement			4.47	0.528	-1.011	0.088
Recognition			3.88	0.705	-0.57	0.397
Work Itself			3.95	0.626	-0.252	-0.330
Responsibility			4.47	0.516	-0.833	-0.015
Advancement			3.35	0.884	-0.547	-0.157
Job Satisfaction			3.43	0.832	-0.736	0.201
Work Commitment			3.68	0.569	0.123	-0.343
Organization			3.54	0.637	-0.085	-0.101
Virtual Distance						
Country	46	19.3				
Cluster	72	30.3				
Multi-Clusters	84	35.3				
Global	36	15.1				
Gender						
Male	164	68.9				
Female	74	31.1				
Age						
21-30 years	24	10.1				
31-40 years	105	44.1				
41-50 years	106	44.5				
Over 50 years	3	1.3				
Education						
Diploma	15	6.3				
Bachelor	119	50.0				
Master	104	43.7				
Work Position						
Engineer	58	24.4				
Manager	77	32.4				
Team Assistant	9	3.8				
Human Resources	1	0.4				
Trainer	20	8.4				
Financial Controller	7	2.9				
Sales/Account	7	2.9				
Solution Provider	59	24.8				

Note: $N = 238$.

TABLE 5

Associations among Variables

		Personal Characteristics				Virtual Distance	Work Related Factors						
		WP	G	A	E	VD	ACH	REC	WOI	RES	ADV	JS	WC
Panel A: All Respondents													
Personal Characteristics	G	**35.8** (7)	_										
	A	**128.4**	**8.5** (3)	1.00									
	E	22.8	4.6 (2)	0.06	1.00								
Virtual Distance	VD	**424.9**	**19.5**	***0.22***	*0.03*	1.00							
Work Related Factors	AC	14.8	2.7 (2)	0.01	0.04	0.07	1.00						
	RE	28.5	2.1 (3)	0.01	*0.06*	*0.08*	**0.56**	1.00					
	WO	**38.6**	3.2 (3)	*0.06*	0.03	**0.20**	**0.40**	**0.24**	1.00				
	RE	**43.4**	0.8 (2)	0.09	0.11	0.07	**0.55**	**0.44**	**0.33**	1.00			
	AD	33.2	7.4 (4)	*0.07*	0.01	**0.13**	**0.18**	**0.12**	**0.55**	**0.14**	1.00		
	JS	22.0	3.4 (4)	***0.13***	0.02	0.02	**0.23**	**0.14**	**0.40**	**0.21**	**0.37**	1.00	
	WC	24.2	3.1 (3)	*0.05*	*0.04*	0.04	**0.38**	**0.34**	**0.35**	**0.46**	**0.36**	**0.24**	1.00
	OC	24.3	2.4 (3)	0.01	*0.11*	0.15	**0.33**	**0.26**	**0.32**	**0.38**	**0.28**	**0.31**	**0.60**
Panel B: Male Respondents													
Personal Characteristics	G												
	A	**118.4**		1.00									
	E	13.4		0.02	1.00								
Virtual Distance	VD	**296.2**		***0.18***	0.04	1.00							
Work Related Factors	AC	20.3		*0.08*	*0.06*	0.07	1.00						
	RE	28.5		*0.10*	*0.09*	*0.08*	**0.55**	1.00					
	WO	21.0		*0.10*	0.04	**0.23**	**0.38**	**0.25**	1.00				
	RE	**28.5**		0.04	0.11	0.06	**0.49**	**0.35**	**0.33**	1.00			
	AD	29.7		*0.01*	0.02	**0.30**	**0.14**	**0.13**	**0.47**	**0.13**	1.00		
	JS	16.2		***0.21***	0.04	*0.06*	**0.25**	**0.20**	**0.32**	**0.29**	**0.25**	1.00	
	WC	16.8		*0.05*	*0.01*	*0.06*	**0.34**	**0.29**	**0.34**	**0.46**	**0.36**	**0.25**	1.00
	OC	12.8		*0.00*	0.16	0.10	**0.31**	**0.25**	**0.32**	**0.40**	**0.22**	**0.34**	**0.58**
Panel C: Female Respondents													
Personal Characteristics	G												
	A	**34.0**		1.00									
	E	15.4		0.04	1.00								
Virtual Distance	VD	**135.4**		***0.43***	*0.01*	1.00							
Work Related Factors	AC	7.6 (12)		0.20	0.20	0.07	1.00						
	RE	13.6		0.28	*0.00*	*0.05*	**0.58**	1.00					
	WO	23.8		*0.05*	0.01	**0.32**	**0.45**	**0.23**	1.00				
	RE	19.3		0.19	0.11	0.09	**0.68**	**0.67**	**0.33**	1.00			
	AD	26.0		*0.17*	*0.00*	**0.37**	**0.27**	**0.28**	**0.69**	**0.26**	1.00		
	JS	25.2		***0.23***	*0.03*	0.14	**0.28**	**0.21**	**0.54**	**0.26**	**0.58**	1.00	
	WC	19.4		*0.03*	*0.07*	0.11	**0.49**	**0.47**	**0.40**	**0.46**	**0.36**	**0.22**	1.00
	OC	20.7		*0.01*	*0.06*	0.10	**0.38**	**0.28**	**0.32**	**0.36**	**0.36**	**0.25**	**0.66**

Note: See Table 3 for a description of each measurement.

TABLE 6

Cross Tabulations of Work Position

		Work Position								
		Engineer	Manager	Team Assistant	Human Resource	Trainer	Financial Controlle	Sales/Account Manager	Solution Provider	Total
					Panel A: Gender					
Male	Observed	46	62	0	1	13	2	4	36	164
	Expected	40	53	6	1	14	5	5	41	164
Female	Observed	12	15	9	0	7	5	3	23	74
	Expected	18	24	3	0	6	2	2	18	74
					Panel B: Age (years)					
21-30	Observed	20	0	1	0	0	1	0	2	24
	Expected	6	8	1	0	2	1	1	6	24
31-40	Observed	32	23	5	1	10	6	0	28	105
	Expected	26	34	4	0	9	3	3	26	105
41-50	Observed	6	54	3	0	7	0	7	29	106
	Expected	26	34	4	0	9	3	3	26	106
Over 50	Observed	0	0	0	0	3	0	0	0	3
	Expected	1	1	0	0	0	0	0	1	3
					Panel C: Virtual Distance					
Country	Observed	0	0	0	0	0	0	0	46	46
	Expected	11	15	2	0	4	1	1	11	46
Cluster	Observed	0	15	9	1	20	7	7	13	72
	Expected	18	23	3	0	6	2	2	18	72
Multi-Clusters	Observed	22	62	0	0	0	0	0	0	84
	Expected	21	27	3	0	7	3	3	21	84
Global	Observed	36	0	0	0	0	0	0	0	36
	Expected	9	12	1	0	3	1	1	9	36
					Panel D: Work Itself					
Disagree	Observed	0	1	0	0	0	0	0	2	3
	Expected	1	1	0	0	0	0	0	1	3
Neutral	Observed	6	21	1	0	4	4	1	9	46
	Expected	11	15	2	0	4	1	1	11	46
Agree	Observed	26	35	8	1	14	3	3	38	128
	Expected	31	41	5	1	11	4	4	32	128
Strongly Agree	Observed	26	20	0	0	2	0	3	10	61
	Expected	15	20	2	0	5	2	2	15	61
					Panel E: Responsibility					
Neutral	Observed	0	1	0	0	0	0	2	1	4
	Expected	1	1	0	0	0	0	0	1	4
Agree	Observed	13	24	4	1	7	5	2	22	78
	Expected	19	25	3	0	7	2	2	19	78
Strongly Agree	Observed	45	52	5	0	13	2	3	36	156
	Expected	38	51	6	1	13	5	5	39	156

TABLE 7

Cross Tabulations of Gender

		Gender		
		Male	Female	Total
Panel A: Age (years)				
21-30	Observed	14	10	24
	Expected	17	8	24
31-40	Observed	65	40	105
	Expected	72	33	105
41-50	Observed	82	24	106
	Expected	73	33	106
Over 50	Observed	3	0	3
	Expected	2	1	3
Panel B: Virtual Distance				
Country	Observed	32	14	46
	Expected	32	14	46
Cluster	Observed	36	36	72
	Expected	50	22	72
Multi-Clusters	Observed	69	15	84
	Expected	58	26	84
Global	Observed	27	9	36
	Expected	25	11	36

DISCUSSION

The results have implications on each of the hypotheses presented in Table 2 as follows.

Significant Associations among Work Related Factors (Hypothesis H1)

The hypothesis H1 (see Table 2) was supported for all of the respondents and separately for the male and the female respondents. From Table 5 it is seen that all of these work related factors were significantly and positively correlated with each other. This is compatible with findings in previous studies and justifies the common use of these eight factors in the overall assessment of work environments.

T-tests showed that all of the respondents had very positive responses to all of the eight work related factors. Their needs for challenging and interesting work, a sense of achievement, responsibility for their work, recognition from others, and advancement in their work positions were very well satisfied and their levels of job satisfaction and work and organizational commitment were high. These significantly positive associations among the eight work related factors have also been observed among the previous studies identified in Table 2.

Significant Associations among Personal Characteristics (Hypothesis H2)

The hypothesis H2 was supported with respect to gender, age, and work position among all of the respondents and separately among the male and female respondents. Education was not significantly associated with any of the other three personal

characteristics (Table 5) and as discussed below it also was not significantly associated with work related factors (as stated in hypothesis H3) or virtual distance (as stated in hypothesis H5). These findings may be due to the homogeneous nature of the respondents with respect to their level of education whereby 94 percent had either a bachelor's or master's degree as their highest level of education (Table 4). In organizations where there is a wider range of levels of education among employees, associations with education may be significant.

From Table 6 it is seen that in this organization males are more likely than females to be engineers or managers but females are more likely than males to be financial controllers and solution providers. Those in human resources, trainer, and sales or account manager positions are equally likely to be males or females. The most likely ages for: engineers were 21-40 years; managers, and sales or account managers were 41-50 years; trainers and financial controllers were 31-40 years; and solution providers were 31-50 years. However, team assistants and human resource personnel were not concentrated in any particular age category. From Table 7 it is seen that males were most likely to be 41-50 years of age and females were most likely to be 31-40 years of age and a t-test showed that on average the males (40 years) were significantly older than the females (37 years).

For this sample of 238 employees who work in virtual environments in this particular international telecommunications company the findings for hypothesis H2 are in general agreement with those reported in previous studies involving different types of organizations (e.g. Chen et al., 2008; Cohen & Shamani, 2010).

Significant Associations between Personal Characteristics and Work Related Factors (Hypothesis H3)

The hypothesis H3 was only partly supported. As seen from Table 5 there were only three significant associations. Age was significantly negatively correlated with job satisfaction, and work position was significantly associated with responsibility and work itself. Previous studies shown in Table 2 which were conducted in different organizations have often reported additional significant associations between personal characteristics (e.g. age, gender, and education) and these work related factors but these were not evident in this study probably because in this international organization legal antidiscrimination requirements related in particular to age and gender are strictly observed.

Even though on average all participants were very satisfied with their jobs the old participants, regardless of whether they were males or females, were likely to have lower levels of job satisfaction than the young. This is evident in Table 6 where older employees (age 41-50 years), mainly managers or solution providers, were satisfied with their jobs but not as much as younger employees (age 31-40 years), who were mainly engineers, solution providers, or managers. Perhaps the older employees felt that their work activities had become mundane, less novel, and not as challenging and interesting while younger employees found work tasks novel, more interesting, and more challenging.

From Table 5, for all of the respondents and separately for the males but not the females, there was a significant association between work position and the extent to which they had freedom to make decisions concerned with their work (responsibility). From Table 6, 99 percent of the respondents indicated that they had either a high (33 percent) or very high (66 percent) level of responsibility in their work and among this 99 percent of the respondents 32 percent were managers, 25 percent were engineers,

and 25 percent were solution providers. The remaining one percent (only four respondents: one manager; two sales or account managers; and one solution provider) expressed a neutral response to responsibility. Even though in Table 5 the association between work position and responsibility was not significant for the females a t-test showed that there was no significant difference between the mean values for males and females with respect to their levels of responsibility and in both cases the mean values indicated a significantly high level of responsibility. Consequently, there was no strong evidence to suggest that there was any noticeable difference between males and females regarding the extent to which they had freedom to make decisions related to their work.

From Table 5, for all of the respondents but not separately for the males and the females, there was a significant association between work position and the extent to which employees felt that their work tasks were challenging and interesting (work itself). From Table 6 it is seen that 79 percent of the respondents indicated that their work tasks were highly (54 percent) or very highly (26 percent) challenging and interesting and these respondents worked mainly as: managers (29 percent); engineers (28 percent); and solution providers (25 percent). Even though the associations between work position and responsibility were not significant separately for either the males or the females a t-test showed that there was no significant difference between the means for males and females for work itself and the mean values indicated a significantly high level of challenging and interesting work tasks for both groups. Consequently, there was no suggestion that there was any noticeable difference between males and females related to the extent to which their work tasks were challenging and interesting.

Significant Associations with Virtual Distance (Hypotheses H4 and H5)

Significant associations with virtual distance were the primary concern of this study and they were stated explicitly in Table 2 as H4 and H5. As displayed in Table 5, the hypothesis H4 was partly supported and only work itself and advancement were found to be significantly correlated with virtual distance and the correlations were positive. The hypothesis H5 was supported except for associations involving education, as discussed earlier. The findings for hypothesis H5 are generally in accordance with associations reported in previous studies shown in Table 2. With respect to hypothesis H4, additional significant associations between virtual distance and the work related factors have been reported in previous studies identified in Table 2. However, many of these findings have suggested that virtual distance may have a negative impact on many of these work related factors. On the contrary, this study has found that virtual distance does not have a significant correlation with six of the eight work related factors and it has a significantly positive correlation with other two of these factors (work itself and advancement).

In relation to hypothesis H4, employees who worked at longer (shorter) distances from the other members of their work team indicated that their work tasks presented higher (lower) levels of challenge and interest (work itself) and greater (lesser) opportunities for learning and growth in their careers (advancement). Also, these significant positive correlations between virtual distance and work itself, and virtual distance and advancement, were true separately for the males and the females. However, t-tests showed that among all of the respondents as well as the males and the females separately, regardless of the virtual distance between employees, on average

the levels of challenge and interest in their work (work itself) and the opportunities for learning and growth in their careers (advancement) were high.

In relation to hypothesis H5, a t-test showed that virtual distance for the males was significantly greater than for the females. In particular, from Table 7 it is seen that at the higher multi-cluster and global levels of virtual distance the males account for 82 percent and 75 percent of the employees, respectively. More of the males (42 percent) work at multi-cluster level than any other level and more of the females (49 percent) work at the lower cluster level than any of the other levels.

From Table 5, the age of employees was significantly negatively correlated with virtual distance. In this company, employees who worked at large distances from their work teams needed to adjust their working hours from normal working hours in order to communicate with other team members who were located mainly in different time zones. This was not appealing to older employees, who preferred to work at times closer to normal working hours, and so in this company at the time of this study it was considered appropriate wherever possible in terms of the employees' work position for younger employees in junior stages of their employment to work in teams that were more geographically and temporally dispersed and required unusual working hours.

From Table 5 the association between work position and virtual distance was significant for all of the respondents and separately for the males and the females. In particular, from Table 6, 19 percent of the employees worked at the country level and all of these worked as solution providers. Cluster level employees accounted for 30 percent of the employees and 67 percent of these worked as: trainers (28 percent); managers (21 percent); and solution providers (18 percent). Multi-cluster level accounted for the largest proportion of employees (35 percent) and they were either managers (74 percent) or engineers (26 Percent). Only 15 percent of the employees worked at the global level and they were all engineers. Most managers (81 percent) worked at the multi-cluster level; most engineers (62 percent) worked at the global level; and most solution providers (78 percent) worked at the country level. All of the 20 trainers in the study worked at the cluster level and so did all of the small number of employees in the other five work positions (team assistant (nine), human resources (one), financial controller (seven), and sales or account Manager (seven)). These findings reflect the different types of work positions in this company and the need for those positions operate at different functional levels. For example, it was apparent that engineers needed to work across multi-cluster and global levels while solution providers needed to work at a more localized country level.

CONCLUSION

This study aimed to examine associations derived from previous studies among and between: personal characteristics of employees (gender, age, education, and work position); work related factors relevant to motivation; and virtual distance represented by an employee's work functional level. The employees in the sample for this study were selected from the same international telecommunications company and they varied with respect to gender, age, work position, level, of education, and the virtual distance between them and their work teams. The significant associations are summarized and illustrated in Figure 1.

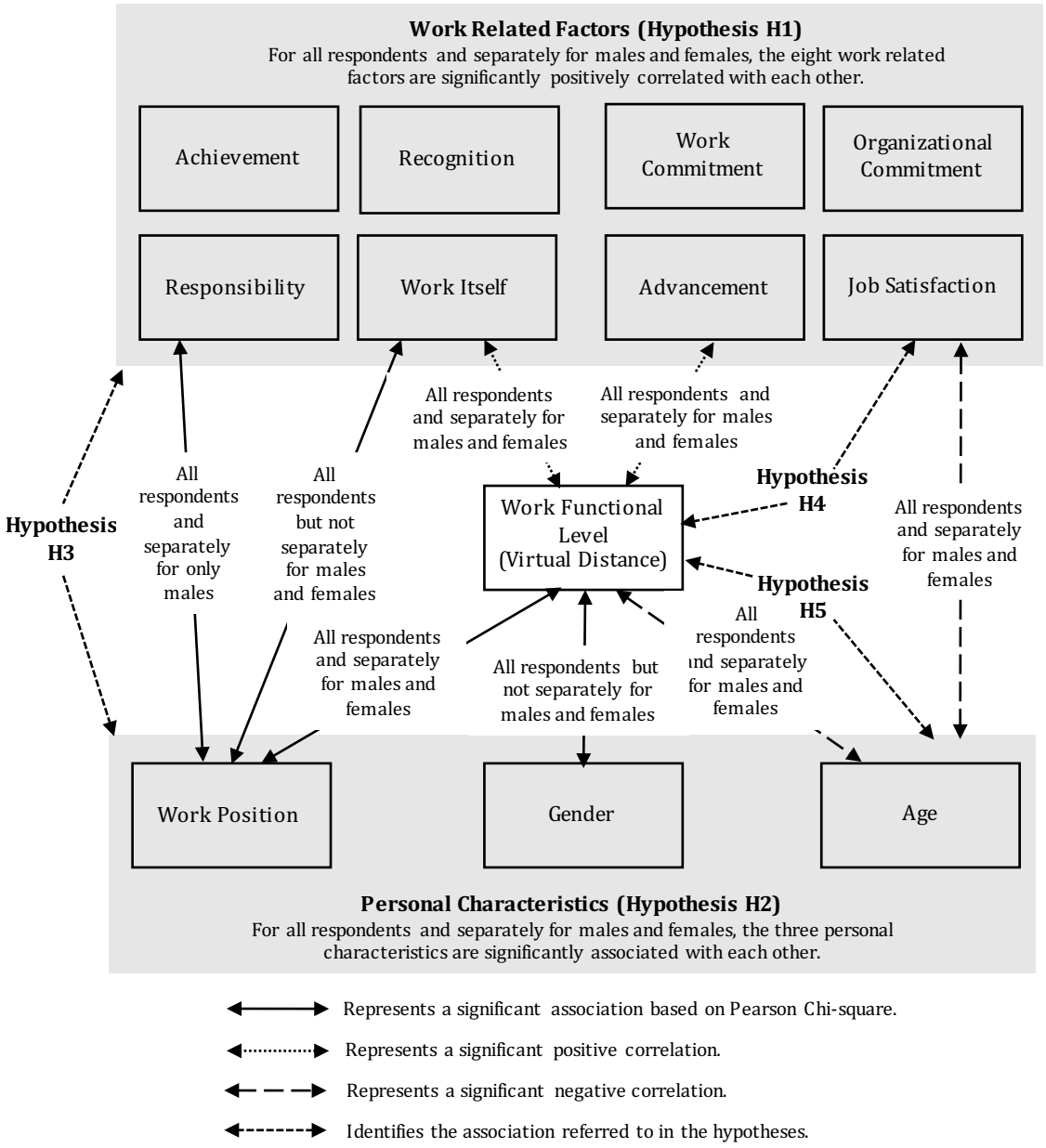

FIGURE 1

Summary of Significant Associations

Many of the significant associations in Figure 1 confirm those reported in previous studies. However, the findings related to the associations between virtual distance and the work related factors are noteworthy. In this international telecommunications company virtual distance does not have a significant association with six of the eight work related factors. For the other two factors there is evidence of a positive association between virtual distance and employees' perceptions that their work tasks are challenging and interesting (work itself) and provide new learning experiences and the opportunity for growth in their careers (advancement). Furthermore, these eight work related factors are commonly used to assess the "health" of a work environment and on average employees rated these factors very favorably, especially the key factors of job satisfaction and organizational and work commitment. Their work environments are very "healthy" regardless of the virtual distance between work team members and it

was clear that this organization has managed the virtual work environments for these employees very satisfactorily. This may be so because this organization has particular expertise in communication technologies and systems with the result that any potential negative affects due to the distance between employees were minimized because of the expert support and the design and performance of the communication technologies used across the work teams.

Other significant associations shown in Figure 1 are likely to be peculiar to activities of this company and may not be of direct relevance to other different organizations. For example, the associations among and between personal characteristics and virtual distance reflect the nature and the distribution of the work skills and knowledge associated with the various work positions that are required for this company's activities. Although these associations are significant in this organization, which is handling virtual distance between team members very successfully, it is not suggested that other organizations should aim to create the same associations expecting that the outcome will be a successful virtual work environment. Instead, these findings which are based on this organization as a case study suggest factors that need to be examined and managed in a virtual work environment in accordance with the purpose and strategies of the organization.

There were limitations on the study which affected the external validity of the findings and further studies need to address these limitations. For example, the employees were selected from only one organization with particular expertise in communication technologies; they were mainly managers, engineers, or solution providers; they were mainly males; and almost all had either a bachelor's or master's degree level of education. However, despite these limitations it is argued that in this study important variables and associations among them have been identified which contribute to increasing theoretical and practical understandings of virtual work environments. In particular, the findings have contributed to this particular company's understanding and evaluation of its virtual work environment.

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APPENDIX

The questionnaire has been abbreviated and shows the labels for variables and indicators as well as the measuring scales used (in the parentheses).

Section A: Personal Information

1. Gender (G): Male (1); Female (2)
2. Age (A): 21 – 30 years old (25.5); 31 – 40 years old (35.5); 41 – 50 years old (45.5); over 50 years old (55.5)
3. Education (E): Diploma (12); Bachelor's Degree (16); Master Degree (18); Doctoral Degree (22)
4. Work Position (W): Engineer (any field) (1); Manager (2); Team Assistant (3); Human Resources (4); Trainer (5); Financial and Controller (6); Sale/Account Manager (7); Solution Provider (e.g. Solution Manager, Solution Consultant) (8)

Section B: Work Information

1. Work Functional Level (WL): Country (1); Cluster (2); Multi-Clusters (3); Global (4)
2. Respondents indicated their level of agreement with the following statements using the 5-point measuring scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

   Achievement (ACH)

   - I am proud of myself when I completed the task. (EM8)
   - I feel I have contributed the quality work to the company. (EM9)
   - I have competency to complete the task. (EM10)
   - My job gives me accomplishment. (EM11)

   Recognition (REC)

   - I am aware that company recognized the value of my work. (EM12)
   - I am important to my team. (EM13)
   - I am important to my manager. (EM14)
   - I gain the respect from my team. (EM15)

Work Itself (WOI)

- My job is challenging. (EM16)
- I enjoy doing my job. (EM17)
- My job enhanced my knowledge. (EM18)
- I love my job. (EM19)

Responsibility (RES)

- I have responsibility to my work. (EM20)
- My manager gives me the ownership of my work. (EM21)
- I am confident and know what to do when a problem occurs. (EM22)
- I know well how my job contributes to my company. (EM23)

Advancement (ADV)

- I am doing this job because it helps me develop my career. (EM24)
- My job increases my competency. (EM25)
- My job provides me an opportunity to be promoted. (EM26)
- I got promotion response on my performance. (EM27)

Job Satisfaction (JS)

- I am satisfied with the pay I received. (JS28)
- I am satisfied with my colleague. (JS29)
- I am satisfied with my manager. (JS30)
- I am satisfied with office's working environment. (JS31)
- I am satisfied with company financial. (JS32)
- I am satisfied with my job. (JS33)

Work Commitment (WC)

- I become absorbed in my work to the point where I shut out everything else. (WC34)
- I take pride in the quality of my own work. (WC35)
- My workday rarely drags or seems endless. (WC36)
- I think about what happens to my work even after I leave my department. (WC37)
- I am normally able to concentrate on my work (WC38)
- My work is a major source of need satisfaction in my life. (WC39)

Organization Commitment (OC)

- I feel pleased to learn about my organization's achievements. (OC40)
- I pay attention to how my organization is doing overall. (OC41)
- My organization's goals help me fulfill my own goals. (OC42)
- I have a clear sense of how my work contributes to the whole organization. (OC43)
- I often offer help to others even before finishing my own work. (OC44)
- I tend to get defensive when I hear negative comments about my organization. (OC45)

TABLE A1

Factor Analysis

		JS	OC	ADV	WC	REC	WOI	RES	ACH
Job Satisfaction (JS)	JS29	**0.909**	0.075	0.085	0.103	0.038	0.074	0.165	0.105
	JS32	**0.897**	0.131	0.091	0.075	0.060	0.119	-0.016	-0.007
	JS30	**0.867**	0.096	0.112	0.081	0.081	0.111	0.133	0.135
	JS31	**0.860**	0.151	0.231	-0.093	0.010	0.136	0.115	0.043
	JS28	**0.839**	0.135	0.186	0.065	0.009	0.205	-0.023	0.052
	JS33	**0.813**	0.052	0.184	0.092	0.033	0.305	0.038	0.118
Organizational Commitment (OC)	OC42	0.051	**0.819**	0.106	0.219	0.080	0.159	0.013	0.072
	OC41	0.118	**0.796**	0.160	0.208	0.096	0.100	0.149	0.138
	OC45	0.130	**0.745**	0.067	0.178	-0.121	0.242	0.137	0.060
	OC44	0.131	**0.737**	0.069	0.284	0.053	0.091	0.051	0.053
	OC40	0.077	**0.730**	0.041	0.241	0.148	-0.013	0.139	0.224
	OC43	0.146	**0.727**	0.092	0.205	0.227	0.005	0.331	0.081
Advancement (ADV)	EM26	0.140	0.068	**0.899**	0.078	-0.019	0.208	0.055	-0.018
	EM24	0.097	0.097	**0.876**	0.147	0.128	0.172	0.114	0.024
	EM27	0.122	0.120	**0.867**	0.114	0.032	0.219	-0.087	-0.041
	EM25	0.228	0.038	**0.818**	0.154	-0.032	0.284	0.032	0.177
Work Commitment (WC)	WC38	0.010	0.242	-0.013	**0.762**	0.157	0.078	0.127	0.018
	WC35	0.068	0.209	0.088	**0.715**	0.156	0.088	0.276	0.239
	WC37	-0.078	0.256	0.222	**0.710**	0.058	0.130	0.188	0.095
	WC36	0.083	0.188	0.253	**0.700**	0.009	0.056	0.203	0.060
	WC34	0.230	0.218	0.046	**0.700**	0.183	0.155	0.183	0.180
	WC39	0.032	0.221	0.204	**0.696**	0.132	0.094	-0.003	0.127
Recognition (REC)	EM13	0.008	0.066	-0.004	0.094	**0.891**	0.026	0.189	0.143
	EM14	-0.095	0.033	-0.040	0.065	**0.872**	-0.004	0.203	0.229
	EM15	0.124	0.138	0.059	0.133	**0.822**	0.061	0.184	0.232
	EM12	0.083	0.002	0.108	0.108	**0.772**	0.202	0.052	0.248
Work Itself (WOI)	EM19	0.213	0.123	0.122	0.080	0.160	**0.820**	0.061	-0.011
	EM18	0.098	-0.008	0.397	0.132	0.071	**0.780**	0.021	0.196
	EM17	0.183	0.114	0.221	0.035	0.124	**0.754**	0.130	0.203
	EM16	0.063	0.113	0.256	0.094	-0.078	**0.682**	0.196	0.180
Responsibility (RES)	EM23	0.102	0.018	0.057	0.141	0.271	0.032	**0.799**	0.134
	EM21	0.060	0.151	0.020	0.033	0.130	0.190	**0.793**	0.131
	EM20	0.062	0.084	-0.013	0.138	0.128	0.347	**0.721**	0.265
	EM22	-0.019	0.145	0.032	0.288	0.115	-0.129	**0.691**	0.334
Achievement (ACH)	EM8	0.121	0.086	-0.001	0.036	0.116	0.226	0.155	**0.822**
	EM10	0.048	0.144	-0.038	0.120	0.254	0.079	0.265	**0.751**
	EM9	-0.055	0.091	-0.065	0.129	0.334	0.002	0.267	**0.736**
	EM11	0.125	0.006	0.284	0.068	0.278	0.253	0.095	**0.662**

Total Variance Explained

	Initial Eigenvalues			Rotation Sums of Squared		
	Total	Percent of Variance	Cumulative Percent	Total	Percent of Variance	Cumulative Percent
JS	11.902	31.322	31.322	4.910	12.921	12.921
OC	4.956	13.042	44.364	4.023	10.586	23.507
ADV	3.400	8.949	53.312	3.761	9.898	33.405
WC	2.948	7.758	61.071	3.708	9.758	43.164
REC	1.824	4.800	65.870	3.506	9.225	52.389
WOI	1.656	4.358	70.228	3.210	8.446	60.835
RES	1.332	3.506	73.734	3.074	8.089	68.924
ACH	1.197	3.149	76.883	3.025	7.959	76.883

Note: (1) all of the latent variables have satisfactory construct validity with factor loadings for indicators greater than 0.4 in magnitude and the associated eigenvalues one or more (Straub et al., 2004). Only components with eigenvalues greater than or equal to one are shown; (2) Extraction Method: Principal Component Analysis; (3) Rotation Method: Equamax with Kaiser Normalization. Rotation converged in nine iterations; and (4) Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .887; Bartlett's Test of Sphericity: Approximate Chi-Square 7812.636, Degrees of Freedom 703, and Significance 0.000.

TABLE A2

Cronbach's Alpha Reliability Coefficients

	Alpha
Advancement	0.942**
Recognition	0.916**
Work Itself	0.872*
Responsibility	0.855*
Job Satisfaction	0.957**
Organizational Commitment	0.911**
Work Commitment	0.890*
Achievement	0.854*

Note: * indicates good reliability and ** indicates excellent reliability (George & Mallery, 2003).