EMPLOYEE ENGAGEMENT AND JOB SATISFACTION IN THE INFORMATION TECHNOLOGY INDUSTRY¹

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Summary.—Employee engagement has been identified as being important to employee productivity and performance. Measures of employee engagement and job satisfaction in the context of information technology (IT) were developed to explore how employee engagement affects perceived job satisfaction. In a sample of IT professionals (N=159), controlling for age, sex, job tenure, and marital status, employee engagement had a significant and positive correlation with job satisfaction.

In the context of the software services industry, the problems of attrition and job satisfaction are important. Given increasing demand for skilled manpower, coupled with problems of attrition, information technology (IT) firms focus on effective management of their human resources. To identify variables associated with lower attrition and increasing job satisfaction, job satisfaction in the services sector has been examined (e.g., Burke, 1996). Research has identified employees' engagement as a variable related to several organizational and individual outcomes. Kahn (1990) defined engagement as "the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively and emotionally during role performances" (p. 694). Langelaan, Bakker, van Doornen, and Schaufeli (2006) examined employee engagement in relation to personality characteristics of low neuroticism, high extraversion, and high mobility. While past research has unearthed various facets of employee engagement, its relationship with job satisfaction has been shown to have mixed results, with some studies reporting engagement to be a significant factor, while others have a weak relationship. Thus, the present study sought to identify key aspects of employee engagement and their links with job satisfaction in the context of the IT industry in India because of the emergence of India as a preferred source of global IT services.

Schaufeli, Salanova, Gonzalez-Roma, and Bakker (2002) expanded the definition of engagement by describing it "as a positive, fulfilling, work-

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related state of mind that is characterized by vigor, dedication, and absorption" (p. 75). In explaining how one company developed and implemented an engagement strategy to raise productivity of employees, Catteeuw, Flynn, and Vonderhorst (2007) defined employee engagement as the extent "to which employees are satisfied with their jobs, feel valued, and experience collaboration and trust. Engaged employees will stay with the company longer and continually find smarter, more effective ways to add value to the organization. The end value is a high-performing company where people are flourishing and productivity is increased and sustained" (p. 152). Thus, the construct as examined in previous research comprises a variety of aspects.

The construct of job satisfaction has been one of the most widely researched factors in organizational behavior. Research focusing on job satisfaction has identified attitudinal, affective, and dispositional aspects or correlates. In an early study, Locke (1969) described job satisfaction to be a pleasurable or positive emotional state resulting from the appraisal of one's job or job experience. Job satisfaction has also been known as extrinsic satisfaction, social satisfaction, and intrinsic satisfaction (Schnake, 1983). As an attitudinal variable, job satisfaction encompasses the cognitive and affective responses of individuals and their workplace needs and necessities (Biswas & Varma, 2007) or a positive or negative evaluative judgment that the individual makes about one's job or job situation (e.g., Weiss, 2002). Dispositional aspects of job satisfaction were examined by Judge, Heller, and Mount (2002), who found that neuroticism, extraversion, and conscientiousness factors in the five-factor model of personality had significant correlations with job satisfaction. Research has consistently demonstrated that job satisfaction is linked to profitability and organizational performance (e.g., Ostroff, 1992), and that it is a central factor in explaining employee turnover (e.g., Hulin, Roznowski, & Hachiya, 1985) and intention to guit (Blau, 1993); Tett and Meyer's (1993) meta-analysis showed a mean correlation of -.58 between job satisfaction and intention to quit.

It is important to examine in depth the employee's role and its relation with job satisfaction. Studies focusing on job satisfaction in the Indian IT industry remain limited. This industry is experiencing enormous growth and difficulty retaining highly skilled employees, and thus may be an excellent context to study job satisfaction and its relationship with engagement, paving the way for improvements in employee retention. The present study is an effort to develop a measure of employee engagement for employees in Indian IT. The need for the study stemmed from one organization's motivation to examine engagement and job satisfaction within the organization. For this purpose, issues were identified from within the organization, instead of using established measures. The final items were

kept general so that the survey could be administered to employees at all levels of the organization. Drawing insights from research on employee engagement and individual job outcomes, it was expected that in this industry, a measure of employee engagement would be strongly and positively associated with job satisfaction as a criterion variable. The development of the two scales was motivated by the need for a scale on employee engagement and job satisfaction in the Indian context, incorporating actionable items for supervisors and managers who could use the scale to enhance employee engagement in their organization. The nature of employee engagement as an actionable construct, distinct from the theoretical construct of job satisfaction, has been noted in research (see Harter, Schmidt, & Hayes, 2002). The scale on job satisfaction has been developed, incorporating key elements of job satisfaction as reported by the participants in this study.

Метнор

Sample

The sample of 159 IT employees in India included 112 men and 47 women, all employed by one company. Their mean age was 26.5 yr. (SD=4.5). A majority of the sample (n=120) was single; 39 employees were married. The mean tenure of respondents with the firm was 2 yr. They represented various areas in the organization: nine employees in assistant management, two individuals in top management, 55 in technical training, nine in administration, 53 in project management, and 31 in team leadership.

Measures

Employee engagement.-Extant measures of employee engagement (e.g., Towers Perrin Global Workforce Study, 2006) were referred to in developing this scale. However, these measures were generic, whereas a more context-specific measure of employee engagement applicable to employees in the Indian IT industry was desired. To examine IT employees' engagement, a 14-item scale incorporating various aspects associated with employees' engagement was developed. The complete survey was administered in English, as it is the language of business communication in India. Based on a review of existing measures of employee engagement, the authors felt it appropriate to develop a scale that is more industry-focused, and actionable. For example, in their study on employee engagement, Schaufeli, et al. (2002) defined engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (p. 74). The items in this study were thus developed to define the psychological aspects of the construct of employee engagement. However, to examine whether employee engagement has any effect on an individual's job satisfaction, it is important to contextualize employee engagement in the individual's organizational setting, role demands, job challenges, and other key organizational and job-related attributes that play a role in whether employees feel engaged or involved on the job. For this purpose, the existing measures are limited as they address the psychological aspects of employee engagement, while the more context-specific characteristics of the individual's job itself are not included in defining engagement. Developing a measure that reflects the organizational context of employee engagement would enable management to develop strategies aimed at enhancing employee engagement at work, thus reflecting the actionable nature of the measure developed in this study. This aspect of the earlier definitions of employee engagement led us to develop a new measure for this study.

Initially, an item pool was developed based on unstructured interviews of 15 IT professionals (*M* age=28.2 yr., *SD*=4.3), focusing on exploring the construct of employee engagement. Following Kahn (1990), interview data were analyzed to identify key themes related to employee engagement, which were then used to develop survey items. The survey items were developed based on each of the themes identified in the unstructured interviews. The themes focused on the various factors that define employee engagement in an organization, such as the role of management, employee participation, role of the manager and supervisor, learning opportunities, and mentoring support. Based on these key themes, suitable items were developed to define employee engagement. Thus, the survey items represented the interview themes focusing on employee engagement as narrated by the employees. The items were to be rated by respondents on a 5-point Likert-type scale, using anchors of 1: Strongly disagree and 5: Strongly agree.

The 14 items thus developed were then tested in a pilot survey of 30 graduate students enrolled in a management program in an Indian institute. Comprehension of the items was not found to be an issue since the students did not raise any doubts with respect to their understanding of the survey items. The results of the pilot survey were found to be acceptable in terms of their content validity, with conceptual similarities with other established measures. The convergent validity of the scale was ascertained by taking job satisfaction as the criterion—the correlation between employee engagement and job satisfaction was found to be .81. An exploratory factor analysis with Oblimin rotation of the pilot data revealed a two-factor structure for the employee engagement scale with 3 items loading on the second factor, namely, "My company provides me enough opportunities to work in different types of projects and also take up challenging roles," "I have ample scope for innovation in my present

role," and "I am aware of and aligned with the business goals set for the company by the senior leadership." Based on the semantic similarity of the items, the second factor was labeled "Employee Participation." Reliability of the Employee Engagement factor was .80, and that of the employee participation scale was .84. Thus, the final survey was administered to IT professionals.

The 159 respondents in the main sample also provided demographic information such as age, sex, marital status, job title, level in the organizational hierarchy, years with the company, and previous work experience. The scale was conceptually similar to other scales of employee engagement, thus ensuring adequate face and content validity. Following previous studies (e.g., Law, Wong, & Song, 2004), the criterion validity of the employee engagement scale was established by taking job satisfaction as a criterion. The correlation between these measures should be positive and strong: in a meta-analysis of employee engagement and job satisfaction, Harter, *et al.*, (2002) reported a correlation of .77 between employee engagement and overall job satisfaction. In this study, the correlation between employee engagement and overall job satisfaction was .84, ensuring adequate criterion validity for this study.

To examine the factor structure of the scale in the final sample, an exploratory factor analysis with Oblimin rotation was applied. Similar to the pilot study, a two-factor solution was obtained, namely employee engagement and employee participation, comprising three items. So, the employee engagement scale comprised an additional distinct construct, not a priori hypothesized in this study. This construct has been labeled Employee Participation. The factor structure was further verified by randomly splitting the sample in half. Exploratory factor analysis for the first half confirmed the two-factor structure of the employee engagement construct. A confirmatory factor analysis was carried out on the second half of the sample to verify that the items loaded on the two identified constructs. The results displayed adequate fit and supported a two-factor structure for the scale. Thus, analysis proceeded. Cronbach alpha for employee engagement was .91 and for the employee participation scale was .71. The results of the factor analysis for the employee engagement scale are presented in Table 1.

Job satisfaction in IT.—IT employees' job satisfaction was measured using a 5-item scale, which was developed for the purpose of this study incorporating key elements of employee job satisfaction. The job satisfaction scale was tested for face and content validity during the scale development process by a panel of experts from academia and industry who examined the scale for appropriateness of the items in measuring job satisfaction. The scale was also compared to other existing measures of job

TABLE 1				
FACTOR LOADINGS FOR EMPLOYEE	Engagement Scale			

Item No.	Factor Loadings			
	Employee Engagement	Employee Participation		
1	.89	14		
2	.84	17		
3	.78	01		
4	.72	02		
5	.66	.05		
6	.66	.06		
7	.64	.18		
8	.63	.19		
9	.57	.27		
10	.55	.23		
11	.53	.36		
12	04	.88		
13	.05	.78		
14	.15	.55		
Eigenvalue	7.05	1.01		
% Variance Explained	50.4	7.3		

Note. — Extraction method: Principal Component Analysis; Rotation method: Oblimin with Kaiser normalization.

satisfaction, such as the widely used Minnesota Satisfaction Questionnaire (Dineen, Noe, Shaw, Duffy, & Wiethoff, 2007) and was deemed fit for measuring employee job satisfaction in this study. The scale developed for this study measures satisfaction with key aspects of the job such as pay, recognition, support, quality of work environment, and overall satisfaction. These aspects are also covered as part of the Minnesota Satisfaction Questionnaire, which evaluates employee satisfaction with various facets of the job such as satisfaction with pay, working conditions, praise, etc. (see Arvey, Bouchard, Segal, & Abraham, 1989, for details). The job satisfaction measure developed in this study was tailored to suit the context of the IT industry, where satisfaction with pay, recognition, management, etc., were identified to be key themes in the initial unstructured interviews.

The process of scale development was similar to that followed for the employee engagement scale: open-ended unstructured interviews of 15 IT professionals (M age=28.2 yr., SD=4.3) were done to explore various facets of job satisfaction. Following Kahn (1990), interview data were analyzed to identify key themes related to job satisfaction, which were then used to develop survey items. The survey items were developed based on each of the themes identified in the unstructured interviews. The themes focused on the various factors that define job satisfaction in an organization, such as satisfaction with rewards and recognition, organizational support, physical work environment, etc. Based on these key themes,

suitable items were developed to define job satisfaction. Thus the survey items represented the interview themes focusing on job satisfaction as narrated by the employees.

The five items thus developed were tested in a pilot survey of 30 graduate students enrolled in a management program in an Indian institute. Comprehension of the items was not found to be a problem as respondents did not raise any doubts with respect to their understanding of the survey items. The results of the pilot survey were found to be acceptable in terms of their reliability (α =.81) and face and content validity, and thus the final survey was administered to IT professionals. Cronbach alpha was .84 for the final scale, indicating high internal consistency and reliability of the items in the scale. An exploratory factor analysis with Oblimin rotation was conducted for the job satisfaction scale and a single factor structure was identified. Thus the five items measuring job satisfaction were deemed fit for measuring job satisfaction in this study. The results of the factor analysis for the job satisfaction scale are presented in Table 2. Items were also rated in a 5-point scale format, as was the employees' engagement scale.

TABLE 2
FACTOR LOADINGS FOR JOB SATISFACTION SCALE

Item No.	Job Satisfaction	
1	.78	
2	.79	
3	.67	
4	.76	
5	.87	
Eigenvalue	3.05	
% Variance Explained	61.1	

Note.—Extraction method: Principal Component Analysis; Rotation method: Oblimin with Kaiser normalization.

The complete scales for employee engagement and job satisfaction are presented in the Appendix (p. 770).

Procedure

Approval from top management of the organization was sought prior to the administration of the survey. After the scales were finalized, based on the pilot survey findings, the final scale was developed for administration to employees in the organization. The final survey administration was done about 3 mo. after the pilot test. The survey was administered based on the availability of the employee, when he or she did not have other appointments. Individual administration was preferred in order to avoid any group-level effects for the survey. The survey items were presented in random order to avoid respondent bias toward the survey. Responses

were anonymous and confidential and the assurance of no right or wrong answers was given to the respondents prior to the survey. A total of 300 survey forms was sent to all employees in the organization, from which 159 usable responses were obtained, a response rate of about 53%. Survey forms with missing data or incomplete forms were discarded. Only survey forms with complete responses were retained for analysis. Employees were informed that the survey sought their feedback regarding their experience with the organization in the recent past. The true aim of the study, i.e., examining employee engagement and job satisfaction, was revealed after the study was over. A brief report on the findings was presented to the organization upon request.

RESULTS

To assess the relationship between employee engagement and job satisfaction, a Pearson correlation between the scores was calculated, showing a strong relationship as expected (r = .84, p < .01). In this study, although the construct of employee participation emerged as a second factor, the correlation was calculated between the total score on engagement and job satisfaction, since the employee participation construct needed further validation in future research. To control for other factors, the relationship was explored further using multiple regression analysis, with job satisfaction as the dependent variable and employee engagement as the independent variable. Demographic factors were controlled: age, sex, tenure, and marital status, as shown in Table 3. Employee engagement still had a positive and significant relationship with job satisfaction (R² = .70, p < .01). Demographic factors of age, sex, tenure with the company, and marital status did not appear to influence job satisfaction.

TABLE 3
Results of the Multiple Regression Analysis of Employee Engagement and Job Satisfaction

	Dependent Variable	Standardized β	t	р
Employee Engagement	Job Satisfaction	0.81	17.48	.001
Age		0.03	0.49	.62
Sex		-0.01	-0.22	.83
Tenure		-0.08	-1.50	.12
Marital Status		0.04	0.82	.41
		$R = .84$ $R^2 = .70$	Adjusted $R^2 = .70$.70

Common Method Variance

Five of the pilot study participants took part in the final study, limiting learning bias. In addition, there was a time gap of about 3 mo. between pilot study and final administration of the survey. Lindell and Whitney's recommendation (2001) is that common methods variance can

be tested by basing items on interviews of a pretest sample of potential respondents. Thus, employees who fit the profile of the final survey respondents were chosen for the pilot survey. Open-ended unstructured interviews were used to explore various facets of the employees' experiences on the job. None of the interview responses was reproduced verbatim as survey items. Podsakoff, MacKenzie, Lee, and Podsakoff (2003) have recommended psychologically separating the measurement of predictor and criterion. Following this suggestion, the scales have been presented in random order in the final survey. Common method variance was examined using Harman's single-factor test (Podsakoff, et al., 2003). Using this technique, all of the variables in the study are loaded into an exploratory factor analysis, and the unrotated factor solution is examined to decide the number of factors necessary to account for the variance among the variables. Common method variance is said to be present either if a single factor emerges from the factor analysis or one general factor accounts for the majority of the covariance among the measures. When the employee engagement and job satisfaction items were loaded together, three factors emerged in the unrotated factor solution, thus meeting the criterion set by the single-factor test. In other words, since three factors emerged from the analysis, with items for engagement, participation, and satisfaction, respectively, it was concluded that common method variance was not a major problem. The Harman single-factor test has been widely used as a measure of the extent of common method bias (e.g., Stam & Elfring, 2008).

Discussion

The present study was carried out among employees in the Indian IT industry in an attempt to develop measures of engagement and compare the scores with job satisfaction, taking into account job level and demographic variables. The scales developed for this study were found to have good internal consistency reliability. A significant Pearson correlation between employee engagement and job satisfaction was noted, as expected. Further multiple regression with employee job satisfaction as the dependent variable and employee engagement as the predictor confirmed that demographics had little influence on the relationship. Since it is well established by previous research, the strong, positive correlation between employee engagement and job satisfaction supports the conclusion that the scales have good criterion validity.

Unlike previous studies on job characteristics of IT professionals (e.g. Kouvonen, Toppinen-Tanner, Kivisto, Huuhtanen, & Kalimo, 2005), no significant effect of age was found on job satisfaction. This finding is interesting given that the participants' mean age was 26.5 yr., which suggests that younger employees may be less prone to job dissatisfaction as compared to their older counterparts in the study by Kouvonen, *et al.* (2005).

However, the standard deviation for age in this study was 4.5 yr., which indicates probable range restriction for the age variable. This point should be followed up in future studies.

Organizations could use the measures to focus on factors that promote employee engagement and job satisfaction, thus reducing turnover and enhancing overall profitability and performance. The study also contributes to extant research on employee engagement and job satisfaction by developing a reliable and valid measure for Indian IT employees, though the scales may be applicable to IT employees located elsewhere in the world, with suitable modifications for organizational, social, and cultural contexts.

This study was limited to one specific IT firm in India, and thus, generalizing of results to other organizations should be avoided until further research has been done. Research has identified many other factors that affect job satisfaction, which were not examined here. However, the scale is based on an inclusive definition of employee engagement, anchored in an organizational context, wherein the dimension of employee participation has been identified as a key factor. In this study, employee participation is not treated as a distinct construct, since it requires further validation. Future research could focus on examining the link between employee participation and engagement. Thus, this research offers a good starting point for researchers interested in examining the effect of employee engagement on job satisfaction in the complex and dynamic context of service organizations such as the IT industry.

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APPENDIX

EMPLOYEE ENGAGEMENT SCALE

Factor 1: Employee Engagement

- 1. My management regularly communicates the company's business goals and my role in achieving them.
- 2. I believe the company has built a good image for itself in the market.
- 3. Our management treats us with respect and dignity.
- 4. My company has good employee-friendly policies and is committed to our welfare.
- 5. My company encourages us to participate in strategic initiatives (business development, new product development, etc.).
- 6. Overall, people in this organization are inspired to give their very best.
- 7. My manager/supervisor provides me with timely and constructive feedback.
- 8. I am optimistic about my future success with the company.
- 9. The goals, values, and objectives of the organization have been clearly identified for me.
- 10. My company provides a good learning environment and invests in building our competencies.
- 11. I get enough mentoring support from my superiors.

Factor 2: Employee Participation

- 1. I am aware of and aligned with the business goals set for the company by the senior leadership.
- 2. My company provides me enough opportunities to work in different types of projects and also take up challenging roles.
- 3. I have ample scope for innovation in my present role.

Job Satisfaction Scale

- 1. I am satisfied with the frequency and sincerity of recognition for my contributions to the project/firm by my management.
- 2. I am satisfied with the logistic support provided by the company.
- 3. I am satisfied with the quality of physical work space, environment and location.
- 4. I am satisfied with the degree to which my compensation is linked to my own performance.
- 5. Overall, I am satisfied with my present employment.