The Effects of Organizational Learning Culture and Job Satisfaction on Motivation to Transfer Learning and Turnover Intention

Toby Marshall Egan, Baiyin Yang, Kenneth R. Bartlett

Although organizational learning theory and practice have been clarified by practitioners and scholars over the past several years, there is much to be explored regarding interactions between organizational learning culture and employee learning and performance outcomes. This study examined the relationship of organizational learning culture, job satisfaction, and organizational outcome variables with a sample of information technology (IT) employees in the United States. It found that learning organizational culture is associated with IT employee job satisfaction and motivation to transfer learning. Turnover intention was found to be negatively influenced by organizational learning culture and job satisfaction. Suggestions for future study of learning organizational culture in association with job satisfaction and performance-related outcomes are discussed.

With the current expansion of the global economy and the fast-changing evolution of technology and innovation, organizations are facing an ongoing need for employee learning and development. As knowledge increasingly becomes a key factor for productivity, it has also become a currency for competitive success. Understanding factors that contribute to organizational learning and the transfer of knowledge to the workplace environment are essential to

Note: The work reported here was supported under the National Research Center for Career and Technical Education program, PR/Award VO51A990006 administered by the Office of Vocational and Adult Education, U.S. Department of Education. However, the contents do not necessarily represent the positions or policies of the Office of Vocational and Adult Education or the U.S. Department of Education, and endorsement by the federal government should not be assumed.

Human Resource Development Quarterly, vol. 15, no. 3, Fall 2004

human resource development (HRD) (Swanson & Holton, 2001). The culture and environment of an organization can influence the types and numbers of learning-related events and employee job satisfaction as well as employee motivation to transmit newly acquired knowledge to the workplace context.

In the context of organizational environment, the interaction among organizational learning culture, job satisfaction, motivation to transfer learning, and turnover intention has not been explored extensively. Of particular interest to HRD is the potential impact on motivation and satisfaction emerging from workplace environments that have characteristics strongly associated with an organizational learning culture construct. A better understanding regarding organizational learning culture, job satisfaction, motivation to transfer learning, and turnover intention would provide HRD scholars and practitioners with additional information regarding perceived factors that contribute to learning, job satisfaction, and important outcomes with demonstrated links to performance. Although motivation to transfer learning has been emphasized by scholars as important to the success of organizational learning, performance, and investment, the current research on motivation to transfer is limited (Salas & Cannon-Bowers, 2001).

HRD has extended beyond a narrow concentration on training to include organizational and systems-level issues that influence the development of broad skill sets, abilities, and knowledge associated with learning in technical, social, and interpersonal areas (Kuchinke, 1996). This broadening perspective regarding HRD has led, in part, to a focus on learning organization culture. Researchers are in the relatively early stages of exploring learning organization constructs and developing measurement approaches (Watkins & Marsick, 2003). These early studies and adoption of learning organization principles in practice have led to growing interest regarding interactions between organizational learning culture and organizational outcomes. Yet the extent to which an organizational learning culture and employee job satisfaction influence motivation to transfer learning and turnover intention has not been explored despite its potential importance to business performance.

The purpose of this study is to investigate the relationship among organizational learning culture, job satisfaction, motivation to transfer learning to the workplace setting, and turnover intentions. More specifically, the following research questions guided the study:

- Does organizational learning culture have a positive impact on employees' job satisfaction?
- What are the influences of organizational learning culture and job satisfaction on employees' motivation to transfer learning?
- What are the influences of organizational learning culture and job satisfaction on employees' turnover intention?

Significance of the Study

In recent years, HRD has been focusing on ways in which organizations can promote learning (Watkins & Marsick, 2003). It has been theorized that systematic approaches to learning in organizations are tied to corporate performance and survival and therefore of value. Related discussions have established the need to understand further the factors associated with organizational learning environments as critical to ongoing organizational success and as a key contribution from the field of HRD. Therefore, additional insight into how organizations can create and improve workplace environments, as well as recognition of the potential impacts of such environments on employees, is crucial for practice, research, and theory building. Such employee attitudes include satisfaction, motivation, and retention as they relate to overall learning and development (Kontoghiorghes, 2001).

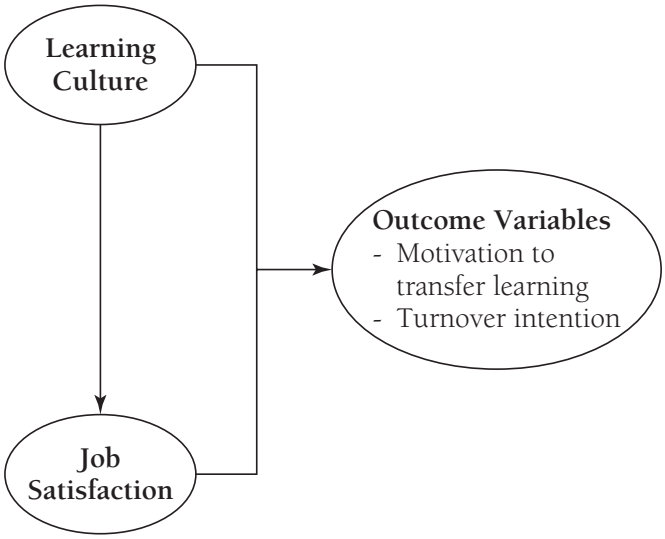
Although ongoing research is still required, employee attitudes have been found to interact with environmental factors that influence job satisfaction and turnover intention (Gaertner, 2000; Mobley, 1977). Employee motivation to transfer learning appears also to be influenced by organizational learning environments (Kontoghiorghes, 2001). An inverse relationship between turnover intention and job satisfaction has been established (Sablynski, Lee, Mitchell, Burton, & Holtom, 2002). Despite these related findings, no available studies have explored interactions among all of these variables. A better understanding of these relationships will contribute to theory and practice in HRD and provide further insight into the influence of organizational learning culture on employee learning, perceptions, and performance-related actions.

In addition, Ulrich, Halbrook, Meder, Stuchlik, and Thorpe (1991) found that decreases in turnover led to increases in organizational performance and a reduction in costs associated with losses of firm- and job-specific knowledge, hiring, and retraining of replacement employees. Reduced turnover shrinks associated indirect costs such as lower new employee productivity, additional time needed by managers in support of new employees, and diminished productivity of established employees as they serve as mentors to new employees (Cascio, 2000). Understanding whether organizational learning culture influences the individual variables explored in this study will also help to determine whether learning environments are important investments that contribute not only to employee learning and performance, but to lower costs associated with turnover or decreases in employee motivation. Such insights are important to the development of HRD theory and practice.

Theoretical Framework

The theoretical framework that guided this study is shown in Figure 1. We reasoned that organizational learning culture can enhance employees' job satisfaction and that both of these variables influence the organizational outcome variables

Figure 1. Conceptual Model of the Effects of Learning Culture and Job Satisfaction



of motivation to transfer learning and turnover intention. In the following section, we identify evidence from the literature to support the theoretical framework that guided this study.

Literature Review

This section presents the theory of organizational learning culture as one of the key constructs of this study and discusses the relationships of organizational learning culture, job satisfaction, and the outcome variables under investigation.

Organizational Learning Culture. Organizations that have prioritized learning and development have found increases in employees' job satisfaction, productivity, and profitability (Watkins & Marsick, 2003). For the purposes of this article, organizational learning culture will describe both the structural and process dimensions of learning within an organizational context. This definition is consistent with the construct and measures forwarded by Watkins and Marsick (1993, 2003) and used in this study. Watkins and Marsick (1993, 2003) suggested that the learning organization concept has seven distinct but interconnected dimensions, which are associated with people and structure. A learning organization is viewed as one that has capacity for integrating people and structure to move an organization in the direction of continuous learning and change.

The analytic framework of the learning organization developed by Watkins and Marsick (1993, 2003) serves as the theoretical basis for this study. This framework has several important features. It provides a lucid and broad definition of the construct of learning organization, defines the construct from

an organizational culture standpoint, and provides sufficient measurement domain. In addition, this model not only identifies underlying learning organization dimensions, but also integrates such dimensions in a theoretical framework that specifies interdependent relationships. Örtenblad (2002) reviewed twelve perspectives of learning organization and revealed that Watkins and Marsick's approach (1993) is the only theoretical framework that covers most idea areas of the concept in the literature. Due to its analytical and conceptual development, Watkins and Marsick's frame is effective for use in this study.

Job Satisfaction. The conceptual model presented in Figure 1 suggests a direct impact of organizational learning culture on employees' perceived job satisfaction. It is posited that both organizational learning culture and job satisfaction can be used to predict outcome variables such as employees' motivation to transfer learning and turnover intention. Job satisfaction is typically defined as an employee's affective reactions to a job based on comparing desired outcomes with actual outcomes (Cranny, Smith, & Stone, 1992). Job satisfaction is generally recognized as a multifaceted construct that includes both intrinsic and extrinsic job elements (Howard & Frick, 1996). Porter and Steers (1973) argued that the extent of employee job satisfaction reflected the cumulative level of met worker expectations. That is, employees expect their job to provide a mix of features (such as pay, promotion, or autonomy) for which each employee has certain preferential values. The range and importance of these preferences vary across individuals, but when the accumulation of unmet expectations becomes sufficiently large, there is less job satisfaction and greater probability of withdrawal behavior (Pearson, 1991). Indeed, some interest in job satisfaction is focused primarily on its impact on employee commitment, absenteeism, intentions to quit, and actual turnover (Agho, Mueller, & Price, 1993).

However, across studies, the proportion of variance in turnover behavior explained by levels of satisfaction may be smaller than originally thought (Hom & Griffieth, 1991; Lee, Mitchell, Holtom, McDaniel, & Hill, 1999). A two-year longitudinal study showed that employees who changed jobs and moved into a new occupation had higher levels of work satisfaction in the new job than employees who did not change jobs at all (Wright & Bonett, 1992). In particular, satisfaction with the facets of meaningful work and promotion opportunities were significant predictors of intentions to leave an organization.

Aspects of the work situation have been shown to be determinants of job satisfaction (Arvey, Carter, & Buerkley, 1991). Sometimes facet measures are averaged together for an overall measure of satisfaction (Wright & Bonett, 1992). Some studies have used measures of both global and specific job facet satisfaction because specific facet satisfaction measures may better reflect change in relevant situational factors, whereas a global measure may more likely reflect individual differences than responses to specific items (Witt & Nye, 1992). Organ and Near (1985) noted that most satisfaction measures asked respondents to compare facets of their jobs to some referent (a cognitive process) and did not really ask for judgments about their feelings and emotions.

There appear to be few studies of job satisfaction associated with characteristics suggested by learning organization theory. Bussing, Bissels, Fuchs, and Perrar (1999) identified a connection between dimensions of job satisfaction and employee engagement in problem solving. However, the qualitative nature of this study does not provide generalized support for the identified findings. Fraser, Kick, and Kim (2002) argued that a viable theory of job satisfaction in the modern workplace must support the validity of reported employee perceptions, which spring from an organizational culture. Research suggests that job satisfaction, as a work-related outcome, is determined by organizational culture and structure. Kim (2002) suggested that participative management that incorporates effective supervisory communication can increase employees' job satisfaction. Wagner and LePine (1999) conducted a meta-analysis and revealed significant impacts of job participation and work performance on job satisfaction. Daniels and Bailey (1999) concluded that participative decision making enhances the level of job satisfaction directly, regardless of strategy development processes. Eylon and Bamberger (2000) found that empowerment had a significant impact on job satisfaction and performance. Leadership behaviors related to inspiring teamwork, challenging tradition, enabling others, setting examples, and rewarding high performance have been found to have significant effects on role clarity, self-efficacy, and job satisfaction (Gaertner, 2000). In a study of organizational culture and climate, Johnson and McIntye (1998) found that the measures of culture most strongly related to job satisfaction were empowerment, involvement, and recognition. These measures reflect clearly the learning culture advocated by theorists of the learning organization (Watkins & Marsick, 1993, 2003). Although these studies have examined impacts of individual dimensions related to organizational learning, the influence of the full range of learning organization culture on job satisfaction is not known.

Motivation to Transfer Learning. Motivation to transfer learning is one of the key concepts in the HRD literature. It can be described as trainees' desire to use the knowledge and skills mastered in training or associated learning activities on the job (Noe & Schmitt, 1986). According to Noe (1986), trainees' attitudes, interests, values, and expectations can influence training effectiveness. Noe hypothesized that motivation to transfer is a moderator for the relationship between learning and behavior change. It was additionally hypothesized that motivation to transfer is influenced by perceptions of work group support and task constraints. Motivation to transfer involves the drive or inspiration of an individual to reassign knowledge gained from formal or informal learning to a job-specific context. However, very few identified studies have focused directly on motivation to transfer (Seyler, Holton, Bates, Burnett, & Carvalho, 1998).

Studies have examined the association between the learning climate of an organization and employees' motivation to transfer learning. Baldwin, Magjuka, and Loher (1991) found that trainees reported stronger transfer

intentions when engaged in learning activities in which follow-up from their manager was anticipated or when employees were involved in training that was mandatory. Baumgartel and Jeanpierre (1972) found that managers who believed a training program was beneficial in providing the development of skills and techniques related directly to their jobs were more likely to attempt to transfer knowledge. Huczynski and Lewis (1980) found important issues associated with transfer of training, including organizational climate, particularly manager support of the perceived relevance of the training to work-related practices, and with voluntary participation in the learning activity. They concluded from their study that issues important to whether trainees use their training included whether training participants initiated participation in training, the extent to which training participants believed training would provide positive on-the-job benefit, and the motivational climate of the organization. Baumgartel and Jeanpierre's study of managerial training (1972) found that participants were more likely to attempt to use the training if they perceived it as clearly relevant to work-related activities. Organizational climate was found to be the most important factor bearing on efforts to apply new knowledge in the actual job setting.

Other studies also support the impacts of environmental factors on the motivation to transfer learning. Facteau, Dobbins, Russell, Ladd, and Kudisch (1995) developed a training model that incorporated the effects of employee attitudes and overall beliefs about training on pretraining motivation and perceived training transfer. Kontoghiorghes (2001) found that environmental factors such as a motivating job, opportunities for advancement, and rewards for teamwork were predictors for motivation to transfer. In addition, the expectation of using new knowledge, growth opportunities, job importance, and organization commitment was found to correlate significantly with motivation to transfer. Seyler, Holton, Bates, Burnett, and Carvalho (1998) examined several factors influencing motivation to transfer. The most significant finding to emerge from the study was that environmental factors (specifically, the utility of that which was learned, peer support, supervisor sanctions, and supervisor support) explained a large amount (over one-fourth) of the variance in motivation to transfer.

Although a growing number of studies have investigated the predicting factors for motivation to transfer learning, none has studied the phenomenon from the perspective of organizational learning culture. Moreover, few studies used environmental or distal measures to explore predictors of motivation to transfer. Instead, motivation to transfer has been explored largely within the pre- and posttraining context. This has prompted a call for studies to explore the impacts of learning environment variables on motivation to transfer learning (Kontoghiorghes, 2001).

Turnover Intention. According to Trevor (2001), most major voluntary turnover models are descendants of the March and Simon (1958) model. Because of the practical implications and potential for impact productivity,

employee turnover has been examined by researchers in multiple disciplines for some time, often exploring the inverse relationship to job satisfaction (Sturman, Trevor, Boudreau, & Gerhart, 2003). Muchinsky and Morrow (1980) estimated the number of turnover-related studies to be between fifteen hundred and two thousand. There is no indication that there has been a decrease in the study of turnover in the past twenty-four years (Trevor, 2001). Although studies have not been well integrated in the literature, HRD-related fields have explored turnover and turnover intention in association with job satisfaction, organizational commitment, personality, aptitude, intelligence, governmental policies, and rates of unemployment (Hatcher, 1999; Sturman et al., 2003).

For the purposes of this study, turnover intention is defined as a conscious and deliberate willingness to leave the organization (Tett & Meyer, 1993). Those who worked early in the development of the behavioral intentions literature (Fishbein & Ajzen, 1975) developed a reasoned action model that identified the best single predictor of individual behavior to be a measure of reported intention to perform that behavior. Highlighting turnover intention as a key element in the modeling of employee turnover behavior, scholars have determined that behavioral intentions are the single best predictor of turnover (Abrams, Ando, & Hinkle, 1998; Lee & Mowday, 1987; Michaels & Spector, 1982). Overall, turnover intention has emerged as the strongest precursor to turnover.

Job satisfaction has been found to have an inverse relationship to turnover intention (Muchinsky & Morrow, 1980; Trevor, 2001). The relationships between turnover intention, commitment, and satisfaction have been supported in several additional studies (Bluedorn, 1982; Hollenbeck & Williams, 1986; Tett & Meyer, 1993). Despite these findings, little examination has been made of the impact of organizational learning culture or learning environment on turnover intention.

Method

A survey research method was used to investigate the relationships among organizational learning culture, job satisfaction, motivation to transfer learning, and intention to turnover. A self-administered Web-based survey was used to collect individual-level perception data from employees in a single industry. The use of an employee survey was deemed appropriate to address the proposed research questions.

Sample and Procedure. The focus of this study was employees in standalone information technology (IT) departments, which are more often associated with large organizations. For the purpose of this study, a large business was defined as a firm with five hundred or more employees in all of its industries or business locations in which the firm operates (U.S. Small Business Administration, 2001). Organizational size was thought to influence the role and prominence of IT. In addition, it was estimated that larger organizations were more likely to dedicate resources and HRD professionals to the systematic

consideration of organizational learning culture and practices (Watkins & Marsick, 1993).

The population for this study was all IT workers in large U.S. companies. The sample for the study was drawn from ReferenceUSA, an on-line database that provides information on more than 12 million U.S. businesses. A total of 3,336 firms throughout the United States from the database had five hundred or more employees and therefore met the selection criteria. They were sent a letter describing the study and inviting participation. We received fifty confirmations from organizations agreeing to participate. These fifty consenting organizations represent the volunteer sample for this study. All IT employees at these organizations were invited to participate in this study. At the conclusion of the study period, 245 completed surveys from IT employees were received from thirteen firms (26 percent). The data collection process did not allow for a determination regarding the percentage of employee respondents from within the participating organizations. In order to address potential nonresponse bias, a follow-up with several HR executives determined that the gender and years of work experience of respondents were roughly equal to the larger population of the firm.

Use of Web Survey. A Web survey was used primarily for ease of use and speed of response. Additional benefits with this still evolving data collection method also include flexibility in design and layout, the ability for large-scale samples, and reduced costs (Weible & Wallace, 1998). With the recent proliferation of Web surveys, there remain a number of issues surrounding this form of data collection (Dillman, 1999). Perhaps the major issue is that of coverage, given that many sample populations have varied access, exposure, and usage patterns associated with e-mail and Internet. The well-accepted lower response rates for Web surveys (Mehta & Sivadas, 1995) are not well understood. Four key factors, in addition to the question of Internet access, may be (1) the manner in which the invitation to participate occurs, (2) the ability of prospective respondents to preview the questions to determine interest, (3) the existence and frequency of open-ended questions, and (4) perceived survey burden (Best, Krueger, Hubbard & Smith, 2001). The participation rate for this study was determined to be unknowable: the total numbers of IT workers in the respective organizations, the total number invited, and the total number receiving invitations were not included in the design of the study at the request of the participating firms.

Demographics. The majority of respondents had at least some college or formal training, with nearly half of the 245 respondents having been awarded postsecondary degrees. The level of experience in the IT industry was bimodally distributed, with 24 percent of respondents having one to three years of experience and 37 percent having twenty-five or more years of experience. The distribution of respondent tenure in their respective organizations was also bimodal, with 45.1 percent having been with their organization for between one and three years and 37.1 percent having been with their respective companies for twenty-five years or more.

Measures. This section provides the initial selection of measurement items and the process of identifying final measures through an item analysis process. Internal consistency reliability estimates are provided. Unless noted otherwise, all measures are scored so that a high score represents higher levels of the construct. Table 1 presents descriptive statistics (means and standard deviations) and zero-order correlations among all measures included in the final data analysis.

Organizational Learning Culture. We assessed organizational learning culture with the Dimensions of Learning Organization Questionnaire (DLOQ) developed by Watkins and Marsick (1993, 2003). The seven dimensions in the DLOQ are measured by forty-three items on a six-point Likert-type scale. Respondents are asked to determine the extent to which each of the questions reflects their organization in the aspects of learning culture (1 = almost never; 6 = almost always). Although the DLOQ is a relatively new instrument, it has been validated in several recent empirical studies (Ellinger, Ellinger, Yang, & Howton, 2002; Watkins & Marsick, 2003; Yang, 2003). These studies suggest that the DLOQ has acceptable reliability estimates, and the seven-dimension structure fits the empirical data reasonably well.

We used an abbreviated form of the DLOQ that contained twenty-one measurement items—three for each of the seven dimensions (Yang, 2003). Confirmatory factor analysis (CFA) revealed an adequate fit between the seven-dimension structure and the current data ($\chi^2(165) = 437.18$, $p < .01$; RMR = .04, RMSEA = .08, GFI = .86, TLI = .91, IFI = .93, CFI = .93). The reliability estimates for the seven dimensions are .71, .83, .83, .74, .86, .83, and .90, respectively, and the overall twenty-one-item scale reliability estimate (Cronbach alpha) reached as high as .95. Nevertheless, the interdimensional correlations were substantial (ranging from .58 to .79) and create a possible multicollinearity issue if all of these seven dimensions were included in the analysis as predictor variables. Consequently, we followed Yang's guideline (2003) and selected one representative item for each of the dimensions. As a result, seven items corresponding to the seven dimensions of learning organization were used to assess the construct of learning culture, with a reliability estimate of .89. In effect, this treats organizational learning culture as a single construct.

Job Satisfaction. We assessed job satisfaction with the three items related to job satisfaction from the Michigan Organizational Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1979). Respondents were asked to indicate their level of agreement on a seven-point Likert-type scale (1 = strongly disagree to 7 = strongly agree). The measurement items are: (1) "All in all, I am satisfied with my job," (2) "In general, I don't like my job" [reverse coded], and (3) "In general, I like working here." Coefficient alpha for job satisfaction was moderate at .70, which is not too far removed from the .77 reported by the authors of the scale (Cammann et al., 1979).

Motivation to Transfer Learning. Ten items were used to assess motivation to transfer learning. These ten items included an existing set of items with

Table 1. Means, Standard Deviations, and Intercorrelations Among Measurement Items

Measurement Items	*N*	*Mean*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1. DLOQ I—Continuous Learning	245	3.23	1.44	—																
2. DLOQ II—Inquiry and Dialogue	244	3.58	1.44	.51	—															
3. DLOQ III—Team Learning	244	3.75	1.25	.38	.60	—														
4. DLOQ IV—Embedded System	244	3.35	1.38	.50	.49	.42	—													
5. DLOQ V—System Connection	245	3.68	1.35	.67	.59	.48	.53	—												
6. DLOQ VI—Empowerment	243	3.49	1.28	.49	.49	.38	.49	.60	—											
7. DLOQ VII—Provide Leadership	244	3.54	1.35	.59	.61	.56	.44	.67	.55	—										
8. Job Satisfaction I	245	5.27	1.62	.40	.46	.28	.34	.50	.39	.50	—									
9. Job Satisfaction II	245	3.98	1.32	.22	.23	.12	.21	.29	.22	.18	.35	—								
10. Job Satisfaction III	245	5.68	1.28	.29	.39	.30	.30	.38	.35	.41	.66	.28	—							
11. Motivation to Transfer Learning I	245	4.47	.77	.14	.02	−.05	.12	.13	.16	.12	.14	.09	.10	—						
12. Motivation to Transfer Learning II	245	4.06	.86	.11	.14	.20	.10	.18	.18	.21	.25	.01	.18	.45	—					
13. Motivation to Transfer Learning III	245	3.97	.87	.18	.09	.13	.16	.16	.11	.18	.22	.01	.14	.47	.77	—				
14. Motivation to Transfer Learning IV	244	4.55	.76	.21	.16	.15	.13	.26	.19	.23	.17	.16	.11	.57	.39	.43	—			
15. Motivation to Transfer Learning V	244	4.05	.83	.26	.21	.31	.22	.32	.22	.25	.21	.14	.17	.39	.43	.47	.59	—		
16. Turnover Intention I	244	2.63	1.30	−.07	−.08	−.01	−.01	−.03	.07	−.01	−.07	−.12	−.05	.02	.05	.10	−.03	−.01	—	
17. Turnover Intention II	245	1.98	1.15	−.30	−.22	−.19	−.15	−.24	−.14	−.24	−.30	−.14	−.26	−.27	−.19	−.14	−.33	−.31	.36	—
18. Turnover Intention III	245	2.35	1.26	−.13	−.14	−.12	−.18	−.25	−.13	−.16	−.32	−.13	−.37	−.07	−.04	−.02	−.15	−.16	.48	.40

Note: For $|r| > .13$, $p < .05$; for $|r| > .16$, $p < .01$; for $|r| > .22$, $p < .001$.

high reliability established in previous studies—alphas at .80 or above (Machin & Fogerty, 1997; Noe, 1986; Seyler et al., 1998). Modifications and additions to the motivation to transfer items available were made. Although the ten-item scale had an acceptable reliability estimate (alpha = .82), not all items performed equally well in terms of item-total correlation. Consequently we selected five items based on the results of item analysis, and these five items constituted a reliable scale for the construct of motivation to transfer learning (alpha = .83). All five items selected were used in previous studies—three by Noe and two by Machin and Fogerty. An example of one item is, "At work, I am motivated to apply new knowledge."

Turnover Intention. Turnover intention was measured with three items adapted from Irving, Coleman, and Cooper (1997). Each item used a five-point response scale that ranged from 1 (strongly disagree) to 5 (strongly agree). These items are: (1) "I intend to change job within this firm in the foreseeable future," (2) "I intend to see work in a profession other than IT in the foreseeable future," and (3) "I intend to seek IT related work at another firm in the foreseeable future." Coefficient alpha for intention to turnover was .68, a little lower than the .73 reported by Irving et al. (1997) but nevertheless within marginally acceptable limits.

Data Analysis. Structural equation modeling (SEM) was used to explore the relationships between variables under examination. SEM is a multivariate statistical analysis tool that provides researchers with a thorough method for the examination and quantification of theories (Jöreskog & Sörbom, 1996a). It enables researchers to explicitly examine measurement error and tests of both direct and indirect structural hypotheses. Both endogenous variables (underlying dependent variables) and exogenous variables (external predictors) can be explored. There are numerous measures or indexes used to determine the fit of the model under examination. The results from data analyzed are compared with established standards for estimated fit to determine the strength of the findings as compared to the proposed model being tested. A solid SEM model provides explanation for the observed covariance structure.

Model Specification. We estimated the hypothesized structural equation model (see Figure 1) using Jöreskog and Sörbom's LISREL 8 program (1996a). Input for the LISREL program consisted of an 18 × 18 covariance matrix generated by PRELIS 2 (Jöreskog & Sörbom, 1996b). The latent variables used in the analysis were organizational learning culture, job satisfaction, motivation to transfer learning, and turnover intention. Two structural equation models were examined as outlined in Figure 1: one for the motivation to transfer learning as endogenous variable (latent dependent variable) and the other for the intention to turnover.

Model Evaluation. To evaluate the overall fit of the data to the model, we report chi-square statistics along with several other different types of fit indexes. We selected three incremental fit indexes: Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), Incremental Fit Index (IFI; Bollen, 1989a), and

Comparative Fit Index (CFI; Bentler, 1990). Two other residual types of fit indexes were also evaluated: Jöreskog and Sörbom's (1996a) root mean squared residuals (RMR) and Steiger's (1990) root mean square error of approximation (RMSEA). All three incremental indexes are based on a comparison of the fit of the hypothesized model to the fit of the null baseline model. Each of the incremental fit indexes ranges from zero to 1.0, with a value greater than .90 indicating an adequate model-data fit.

The Tucker-Lewis index differs from the other two fit indexes in that it is unlikely to be influenced by sample size and model complexity. The RMR measures the average of the fitted residuals, and the RMSEA reflects the closeness of the fit between the model and population. These two indexes concern the degree to which the covariance matrix implied by the model match the observed one, and an optimal fit is indicated by a value of zero. Values of such indexes less than .08 reflect reasonably well-fitting models (Browne & Cudeck, 1993).

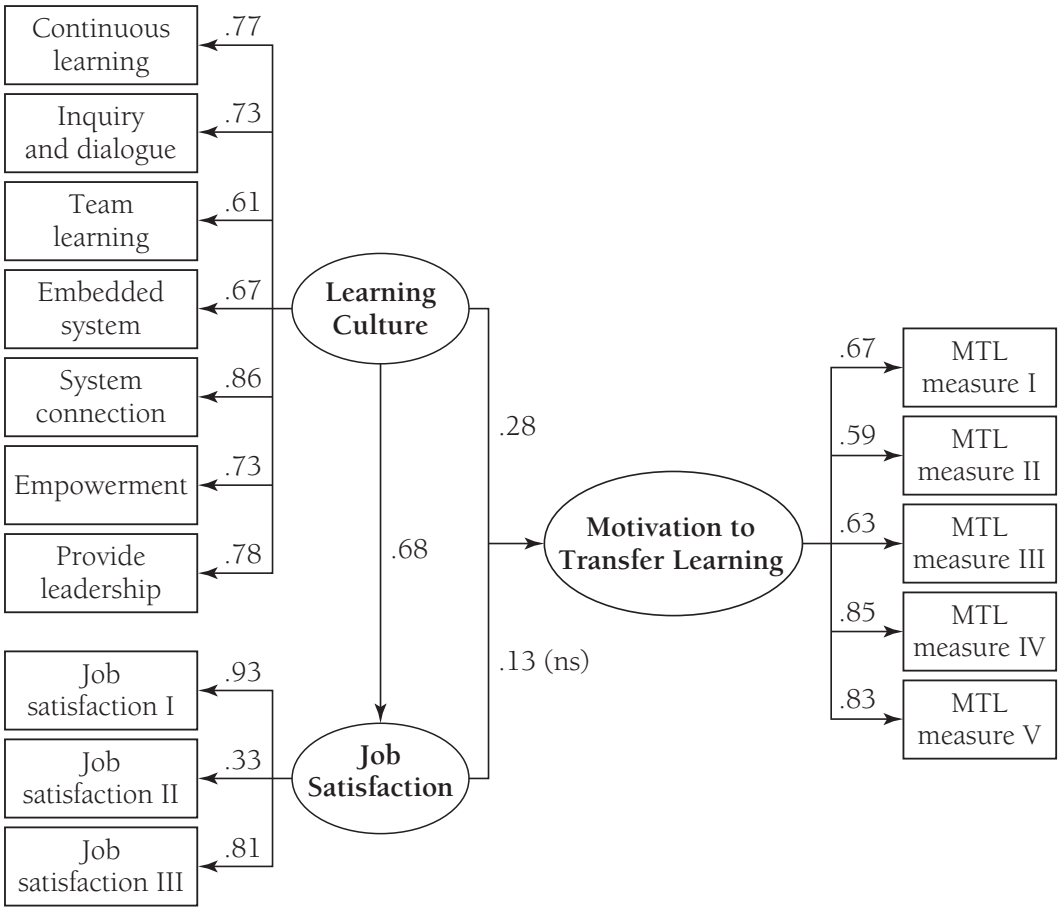
In addition to the fit indexes, we report the parameter estimates with their associated significance levels for the hypothesized model. This is done for the interest of identifying adequate measurement items for the constructs included in the study. We also report squared multiple correlations for key endogenous variables in order to identify the predictive power for the hypothesized conceptual model. The squared multiple correlations for a latent variable indicate the percentage of variations of that construct that can be explained by the proposed model.

Missing Data. As can be seen in Table 1, there were few missing cases in the data collected for this study. In order to maintain a favorable ratio of participants to the number of estimated parameters, we imputed missing data with PRELIS 2. This is a commonly used approach to handle missing values by replacement with the person mean within the scale or item mean from the sample. However, such substitution methods may cause spurious changes in the inter-item correlations (and therefore reliability) for the produced scale (Downey & King, 1998). The PRELIS 2 program uses an imputation method that substitutes missing values with real values. The value to be substituted for the missing value for a case is identified from another case that has a similar response pattern (Jöreskog & Sörbom, 1996b). This method has become popular and tends to increase accuracy (Roth, 1994).

Results

Structural Model for Motivation to Transfer Learning. Figure 2 presents the estimates of both measurement and structural parts of the hypothesized model for motivation to transfer learning. The overall chi-square for the model was 231.18 with 82 degrees of freedom and a p value less than .01. The value of the three incremental fit indexes revealed an adequate fit of the model to the data (TLI = .91, IFI = .93, CFI = .93), and the hypothesized model had a relatively

Figure 2. Parameter Estimates for a Structural Equation Model of Motivation to Transfer Learning



small amount of residuals (RMR = .051, RMSEA = .086). Therefore, it can be concluded that the structural model represented in Figure 2 tends to fit the data reasonably well. The squared multiple correlation for the construct of motivation to transfer learning was .15, indicating that 15 percent of the variations of the construct were accounted for by the proposed model.

In structural equation models, ellipses are normally used to represent constructs (latent variables), and a line with one arrow between two constructs indicates the influence of one construct on the other. The number near the line is the statistic that denotes standardized path coefficients (SPC), which can be viewed as a standardized regression coefficient for one latent variable in relation to another when the effects of all other variables are partialed out. The results of this study suggest that organizational learning culture had significantly positive contributions to both job satisfaction (SPC = .68, $p < .01$) and motivation to transfer learning (SPC = .28, $p < .01$). Although job satisfaction had a positive correlation with motivation to transfer learning, its impact was not statistically significant (SPC = .13, $p = .10$). The square multiple correlation for the construct of job satisfaction was .46, showing that nearly half

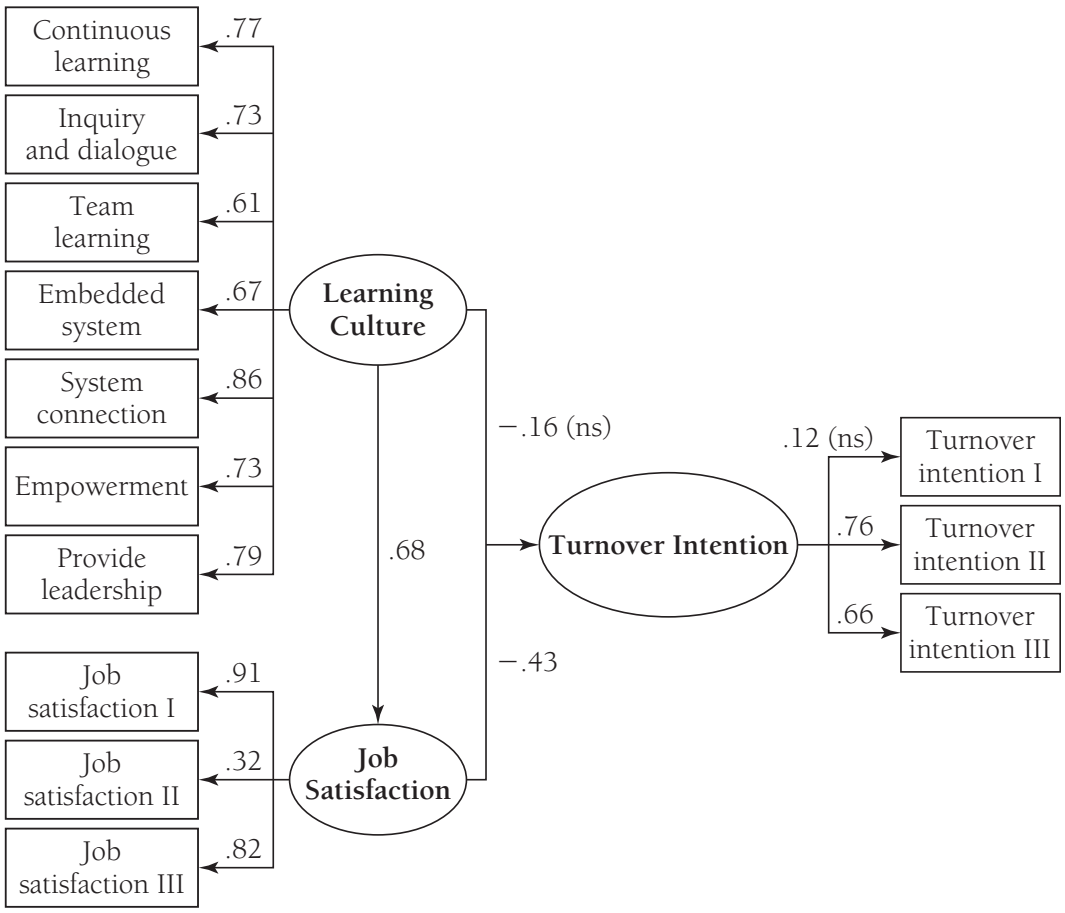
of the variance of job satisfaction could be explained by organizational learning culture. In sum, the results of the structural equation analysis suggest that organizational learning culture is a valid construct in predicting employees' job satisfaction and motivation to transfer learning.

In structural diagrams, indicators (or measurement items) of the latent variable are represented by rectangles, and the associations between indicators and latent variables are represented by single-headed lines. These associations represent the factor loadings of the indicators, and the strengths of such association indicate the adequacy of the measurement model. The results of the structural equation modeling for motivation to transfer learning revealed that all seven dimensions had significant and homogeneous loadings on the construct of learning culture (factor loadings ranged from .61 to .86) and that five selected measurement items had significant loadings on the construct of motivation to transfer learning (factor loadings ranged from .59 to .85). However, three items included for the measurement of job satisfaction failed to show parallel loadings. Specifically, items 2 and 3 tended to be adequate measures for the construct of job satisfaction (loadings were .93 and .81, respectively), while item 2 had marginal factor loading (.33). In other words, item 2 as a manifest variable did not adequately reflect the construct of job satisfaction. This was probably due to its negative wording. In order to avoid model identification problem (Bollen, 1989b), we have included this item for the final model because three measurement items are normally needed for each construct.

Structural Model for Turnover Intention. Turning to intention to turnover as the endogenous variable, Figure 3 presents the estimates of both measurement and structural parts of the hypothesized model. The overall chi-square for the model was 135.65, with 59 degrees of freedom and a p value less than .01. The value of the three incremental fit indexes revealed an adequate fit of the model to the data (TLI = .93, IFI = .95, CFI = .95), and the hypothesized model had a relatively small number of residuals (RMR = .043, RMSEA = .073). Therefore, the results of structural equation modeling revealed that the structural model represented in Figure 3 tends to fit the data very well. The squared multiple correlations for the construct of intention to turnover was .31, indicating that nearly one-third of the variations of the construct were accounted for by the proposed model.

The standardized path coefficients revealed in the analysis suggested that each of the hypothesized paths was in the expected direction. Specifically, organizational learning culture had a significantly positive influence on job satisfaction (SPC = .68, $p < .01$), confirming the result revealed in the previous model. Both learning culture and job satisfaction were found to be negatively associated with employee turnover intention, but magnitudes of the impacts varied. The direct impact of learning culture on turnover intention was moderate and just reached the predetermined significance level (SPC = −.16, p = .05), and the effect of job satisfaction on turnover intention was very strong (SPC = −.43, $p < .01$). That is, learning culture had a substantial impact on

Figure 3. Parameter Estimates for a Structural Equation Model of Turnover Intention



job satisfaction, which in turn affected turnover intention significantly. Nevertheless, learning culture had a relatively weak direct impact on turnover intention. Thus, the impact of organizational learning culture on turnover intention was linked indirectly through job satisfaction. Therefore, it can be concluded that learning culture was a valid construct in predicting employees' turnover intention and that the effect of learning culture was largely mediated by job satisfaction.

With regard to the measurement part of the structural model for turnover intention, factor loadings of the items for the constructs of learning culture and job satisfaction were very close to those revealed in the model, where motivation to transfer learning was treated as the endogenous variable. Specifically, all seven dimensions significantly loaded on the construct of organizational learning culture (loadings ranged from .61 to .86), and three measurement items significantly loaded on the construct of job satisfaction (loadings ranged from .32 to .91). However, the second measurement item for job satisfaction appeared to be a less adequate measure.

Among three measurement items for the construct of turnover intention, two items (the second and third ones) significantly loaded on the construct (loadings were .76 and .66) and are thus regarded as adequate indicators for the latent variable. However, the loading on the first measurement item ("I intend to change jobs within this firm in the foreseeable future") was not significant (.12). Conceptually, this item indicated employees' intention to change from their current position to another new job within the organization and thus failed to reflect employees' actual turnover intention of leaving the organization where they were then employed. For the purpose of model identification, we have included this item based on the consideration of mild positive correlation with two other measurement items. In sum, the results of the measurement part of the model revealed that the majority of the measurement items were adequate.

Discussion

This study developed and tested a conceptual model of the joint effects of organizational learning culture and job satisfaction on two outcome variables: motivation to transfer learning and turnover intention. Overall, the results of structural equation modeling analyses were consistent with the hypotheses. Organizational learning culture is a valid construct in predicting job satisfaction and two outcome variables: motivation to transfer learning and turnover intention. By testing two structural models, we developed a detailed understanding of how learning culture and job satisfaction may directly or indirectly influence these two outcome variables. This study suggests that job satisfaction is associated with organizational learning culture and that although these constructs are highly correlated, they tend to be conceptually distinct. The discriminate validity of these two concepts is evident. Associated measurement items have adequately loaded on their respective constructs, and the correlation between the two constructs tends to be moderately high. The findings of this study suggest that organizational learning culture and job satisfaction are important in determining employees' motivation to transfer learning and turnover intention.

The results of this study revealed that organizational learning culture had significant influences on both job satisfaction and motivation to transfer learning, and that the direct impact of job satisfaction on motivation to transfer learning was positive but not significant. It was also found that learning culture had an indirect impact on employees' turnover intention. However, this impact was mediated by job satisfaction. Perhaps one of the major theoretical implications of this study comes from the findings that confirm that organizational learning culture is a valid concept and that its associated measures, operationalized as the DLOQ, are valid and reliable. Although organizational learning culture and job satisfaction were highly correlated, they tend to be mutually exclusive in concept and measurement. Consequently, learning

culture should continue to be taken into consideration when studying organizational outcomes.

The importance of learning culture and related impacts on employee learning and performance are emerging as a hallmark for the field of HRD. Although future studies are needed to confirm and extend the findings of this study, these findings are in alignment with the emerging theory and research identifying positive contributions of organizational learning culture on employee and organizational success (Watkins & Marsick, 2003). Combined with the available literature on employee motivation, satisfaction, and turnover, we move closer to affirming the idea that efforts to support organizational learning cultures have positive benefits for employees. As mentioned earlier, increases in job satisfaction and reduction in turnover have been found to increase organizational productivity (Trevor, 2001). Our findings, along with those of Ellinger et al. (2002), extend the suggested benefits of organizational learning culture beyond firm-level performance to include positive implications at the employee level.

The results from this study provide HRD managers and researchers with some insight into the relationships between the variables studied and the potential for taking an applied approach to exploring learning organization dimensions (Watkins & Marsick, 1993, 2003). Such practices are outlined in the learning organization literature and could be evaluated to determine organizational success in improving the organizational learning culture, as well as providing contexts for future examination of workplace learning and performance. Fortunately, scholars and practitioners have described many of the practices associated with the support of a learning organization culture. Related literature, along with other HRD studies describing implementation associated with learning organization practices, can be beneficial in the development of organizational strategies associated with systems-level approaches to learning and in support of employee job satisfaction.

As the findings from this study suggest, there is emerging evidence that the practices examined here may lead to increased levels of motivation to transfer learning, which is an important element in supporting firm investment in learning activities and increased performance (Seyler et al., 1998). In addition, the losses associated with employee turnover may be averted and innovation increased through the support of an organizational learning culture (Sta. Maria, 2003). Turnover, job satisfaction, and motivation to transfer are especially important in competitive labor markets such as the IT industry (U.S. Department of Commerce, 1997, 1999). Both the high demand for IT employees and the dynamic changes occurring in the IT industry make the need for organizational strategies aimed at retention, learning, and development crucial to long-term success. Although there is much work to be done in aligning HRD literature with HRD practice, the pragmatic manner in which the variables for this study are described and operationalized make for positive potential connections for practice.

Although the findings of this study confirmed several of our research hypotheses and these findings have both theoretical and practical implications, several methodological limitations should be acknowledged. First, although our proposed structural models were conceptualized in terms of causal relations, this cross-sectional, correlational approach using the structural equation modeling technique does not allow for conclusions to be drawn on causal inference. For example, it was assumed that learning culture has an impact on job satisfaction instead of vice versa. The alternative assumption might be suitable if we accept the fact that high job satisfaction might cause some respondents to rate their organizations highly in the aspect of learning culture.

Structural equation modeling is a technique that has to be based on certain theoretical assumptions and cannot directly confirm or prove causal relations, although it can disconfirm a model in terms of data-model fit (Bollen, 1989b). Consequently, theoretical guidelines are necessary in the structural equation modeling, and we have accepted the theoretical framework of learning organization suggesting that learning culture brings about positive outcomes (Watkins & Marsick, 1993, 2003). Other research approaches are desirable in examining causal relations among organizational variables, such as experimental and longitudinal designs. Nonetheless, cross-sectional studies tend to provide an efficient and economical way to assess the utility of research hypotheses and conceptual models before engaging any other expensive research approaches. This is particularly true in the early stages of research in a substantive area.

Second, aspects of the research design, especially those inherent in nonexperimental studies, present additional limitations. The terms of participation from organizations agreeing to be part of the study eliminated the option of randomly selecting the sample. Not knowing the total number of IT workers in each organization or the number receiving the instrument raises questions regarding nonresponse bias (Dooley & Lindner, 2003). The fact that the sample for this study comes from participants in one profession may limit further the generalizability of the findings. More research using different sampling approaches and in other industries with different groups of employees is needed. In addition, all of the data were collected from self-reports using a Web-based survey instead of some more objective measures, such as observation and records. Like most other survey studies, this self-reporting approach might inflate the parameter estimates. Nevertheless, we are more interested in the predictive validity for the construct of organizational learning culture than the actual magnitude of its impact on other organizational variables. Perhaps it is a crucial first step to attest the importance of this newly created construct. Recent studies by Ellinger et al. (2002) are leading in examining the impact of learning culture on a set of objective measures of organizational performance.

Third, several scales included in this study had relatively low reliability estimates and thus constrained the findings of the study. For example, learning culture might have a direct significant impact on employees' turnover

intention in addition to its indirect influence through job satisfaction. However, the correlation between the two constructs was discounted when the measures were relatively less reliable. To understand better the relationship between organizational learning culture and organizational outcomes, new studies should be deployed. Suggested future work includes a longitudinal study that measures perceived organizational learning culture, critical incidents and employee motivation, and a comparative study examining differences and similarities between organizational learning culture dimensions between organizations and relevant outcomes. Continued efforts exploring the dynamics associated with interactions between organizational learning culture and employee satisfaction, learning, and performance are essential for the ongoing development of research and practice unique to HRD.

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Toby Marshall Egan is an assistant professor in human resource development at Texas A&M University, College Station, Texas.

Baiyin Yang is an associate professor in the Department of Work, Community, and Family Education at the University of Minnesota, St. Paul, Minnesota.

Kenneth R. Bartlett is an associate professor in the Department of Work, Community, and Family Education at the University of Minnesota, St. Paul, Minnesota.