
1 The role of event characteristics and situational appraisals in the prediction of employee adjustment to change and change implementation success

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Organizational change is typically activated by a relevant environmental shift that, once recognized by the organization, leads to an intentionally generated response (Porras and Silvers, 1991). In this respect, organizational change is intended to alter key organizational variables that then have an impact on the members of the organization and their work-related behaviors. Similarly, Van de Ven and Poole (1995) described change as an empirical observation of difference in form or state over time in an organizational entity. The entity may be a product or service, an individual's job, a work group, or the overall strategy for an organization. Thus organizational change can be viewed as a critical event, which has the potential to evoke stress reactions and other negative consequences in employees. In this respect, employees are confronted with a unique set of workplace stressors resulting from a changing work environment. As organizational change by its very nature is not linear, the most frequent psychological state resulting from organizational change is that of uncertainty (see Ashford, 1988; Begley, 1998; Callan, 1993; Carnall, 1986; Gemmil and Smith, 1985; Jick, 1985; Nelson *et al.*, 1995; Olson and Tetrick, 1988; Sagie and Koslowsky, 1994; Schweiger and Ivancevich, 1985; Sverke *et al.*, 1997).

Employees are likely to experience uncertainty about many different facets of their job during times of organizational change. For instance, Shaw *et al.*, (1993) argue that role stress is likely to result from uncertainty associated with organizational change. Role conflict may be particularly prevalent during organizational change as the expectations of the new organization may be in direct contrast to the expectations of the old organization. Similarly role ambiguity may occur when the expectations applicable to the old organization have not been replaced by clear expectations set by the new organization. Employees also may experience role overload when too many tasks are assigned in a given time period or when new job duties go beyond employees' current knowledge, skills and abilities. In addition to experiencing uncertainty over the nature of present and future job responsibilities, employees may perceive organizational change as a major source of threat to their personal career paths and financial well-being (Callan, 1993). Employees also may experience the loss of many intangible features associated with their work environment, such as power and prestige, and a sense of community at work (Ashford, 1988; Callan, 1993; Greenhalgh and Rosenblatt, 1984; Kanter, 1983). Given that the experience of organizational change and the uncertainty it creates is likely to be a stressful event for many employees, the primary aim of this chapter is to highlight how a stress and coping perspective provides a useful theoretical framework for understanding of how

4 *Conceptualization and theoretical framework*

organizational change can be managed to facilitate employee adjustment and better change implementation success.

Role of information provision during organizational change

In light of the previous discussion, one of the managerial challenges facing organizations is the effective implementation of organizational change programs that minimize feelings of uncertainty and associated threat. As discussed by Milliken (1987), uncertainty in the work context points to the crucial need for the provision of information. Indeed Sutton and Kahn (1986) argue that, when profound organizational change is imminent, employees go through a process of sense making in which they need information to help them establish a sense of prediction (for example, the time frame for organizational change) and understanding (for example, the need for organizational change). Thus feelings of workplace uncertainty can be reduced by providing employees with timely and accurate information concerning the organizational change process, through either formal or informal communication channels (see also Ashford, 1988). In the context of organizational change, there is a growing body of research examining the role of a range of information-related constructs as predictors of employee adjustment. Generally studies of this nature have shown that better reactions to organizational change (in terms of reduced anxiety and heightened satisfaction and commitment) are observed when employees are provided with realistic communications about various features of the organizational change process (for example, Brockner *et al.*, 1990; Miller and Monge, 1985; Schweiger and DeNisi, 1991).

Role of employee participation during organizational change

Another change management strategy that is important for determining employee adjustment during times of organizational change is employee participation. Although workplace interventions designed to increase levels of employee participation can take a variety of forms, the employee participation construct traditionally has been defined as the amount of involvement employees have in the decision-making processes of the organization. Employee participation is one potential strategy that helps to create a sense of personal control among employees. In this respect, involvement in decision-making processes gives employees the opportunity to adopt direct behavioral efforts to control significant work-related events, thereby achieving desired outcomes. Empirical evidence attesting to the importance of employee participation during times of organizational change also has spanned several decades of research. For example, Korunka *et al.* (1995) found that employees who perceived high levels of participation during the implementation of new technologies in their workplace reported lower levels of psychosomatic health complaints and job dissatisfaction than those employees who perceived low levels of involvement throughout the change process. Sagie and Koslowsky (1994) also found that employee participation in decisions concerning the organizational change process (for example, mode of implementation) was related to a variety of positive change outcomes, including job satisfaction (see also Sagie and Koslowsky, 1996).

A stress and coping approach to organizational change

In light of empirical support for the role of information provision and employee participation in determining adjustment for employees undergoing specific organizational

change events, an important avenue for future research is to examine the cognitive mechanisms through which such processes are related to employee adjustment. In this chapter, three studies that have examined the extent to which information provision and employee participation engender a sense of change-related self-efficacy and readiness for change among employees experiencing organizational change are reviewed. The cognitive-phenomenological model of stress and coping provides an appropriate theoretical framework for research of this nature (Lazarus and Folkman, 1984; Lazarus, 1990). This model proposes that an understanding of how individuals adjust to stressful life events requires a consideration of the dual role of event characteristics and coping resources in shaping one's appraisal of the situation. More recently Terry and Callan (2000) used this approach to develop a model of employee adjustment to organizational change. They proposed that the way in which organizational change is implemented represents the characteristics of the event that are likely to have a strong impact on subsequent stress and coping processes for employees. Key event characteristics include the effectiveness of the leadership provided, the extent to which the implementation process is consultative, and how much information is communicated to employees. Coping resources are relatively stable characteristics of employees' dispositions and refer to what is available to them when they develop their coping responses.

Next, to understand how employees adjust to organizational change, Terry and Callan noted that it is necessary to consider, not only event characteristics and coping resources, but also how employees cognitively construe the situation. This is referred to as 'situational appraisal' and consists of both primary appraisal and secondary appraisal processes. Primary appraisal reflects the individual's subjective judgment of the relevance of the situation to his or her level of well-being, whereas secondary appraisal reflects the individual's assessment of what can be done to manage the situation. Terry and Callan reviewed evidence to suggest that secondary appraisal comprises a number of judgments, related to appraisals of control, efficacy and uncertainty. Of particular interest in this chapter is the notion of an employee's expectancies of self-efficacy. Employees who appraise the impending organizational change as a situation in which they have the ability to cope with the demands of the situation are more likely to experience better adjustment. A number of interrelationships among event characteristics, coping resources and situational appraisals can be derived from this model to predict employee adjustment to change. In particular, event characteristics and coping resources are hypothesized to be directly related to situational appraisals of self-efficacy. In addition positive situational appraisals are expected to facilitate the use of more effective coping strategies and higher levels of employee adjustment.

Change-related self-efficacy

A key element in Bandura's (1977) theory of social learning, self-efficacy refers to an individual's belief in his or her capability to execute a course of action needed to meet the demands of a situation. Bandura noted that self-efficacy should not be conceptualized and measured in terms of generalized feelings of mastery but rather with reference to handling a specific situation or performing a specific behavior. Thus, in the context of organizational change, change-related self-efficacy can be defined as an employee's perceived ability to function well on the job, despite the demands of a changing work

environment (see Ashford, 1988; Wanberg and Banas, 2000). Employees who doubt their ability to respond to the demands of a specific organizational change event are likely to focus attention on their feelings of incompetence, which will be accompanied by feelings of psychological distress, and a failure to deal with the situation (Bandura, 1977). In contrast, employees who have high levels of change-related efficacy are unlikely to be distressed by feelings of inadequacy and, for this reason, are expected to persist in their efforts to manage the organizational change process.

Bandura (1977) identified several sources of information that may engender perceptions of self-efficacy. These include internal cues drawn from an individual's own state of physiological arousal, verbal persuasion aimed at convincing an individual of his or her capability to perform a task, vicarious experience by way of behavior modeling, and enactive mastery through repeated performance accomplishments. Although Bell and Staw (1989) argued that opportunities for more direct forms of employee involvement, such as participation in work-related decisions, are likely to be stronger determinants of self-efficacy expectations, they suggested that self-efficacy expectations also are likely to mediate the effects of information on employee adjustment. Some initial evidence in support of this proposition comes from research conducted in an experimental setting. For instance, Pond and Hay (1989) found that self-efficacy expectations increased for university students who received information designed to familiarize them with the type of job performed by customs inspectors prior to processing the paperwork for 16 import shipments. Earley (1986) also speculated that the influence of his strategic information manipulation on goal acceptance and subsequent task performance for employees working in two tire manufacturing companies would be through an enhancement of employees' self-efficacy expectations. However research of this nature has not been extended to applied settings undergoing specific organizational change initiatives. Thus, in this chapter, a series of studies are reviewed that have been undertaken to address specifically the extent to which information provision and employee participation create a belief among employees that they have the ability to meet the situational demands of organizational change (that is, change-related self-efficacy).

Readiness for change

An additional dimension on which events can be appraised, and one that is likely to be relevant to the context of organizational change, is the notion of readiness for change. Indeed several researchers have recently turned their attention to the notion of readiness for change as an aspect of the change situation that is considered by employees (Eby *et al.*, 2000; Yousef, 2000). Readiness for change can be defined as the extent to which employees hold positive views about the need for organizational change (that is, change acceptance) as well as the extent to which employees believe that such changes are likely to have positive implications for themselves and the organization (Miller *et al.*, 1994; see also Armenakis *et al.*, 1999; Armenakis *et al.*, 1993). As Armenakis *et al.* have noted, readiness for change is the cognitive precursor to employee behaviors that either support or resist a specific organizational change event. Armenakis *et al.* also went on to speculate that a variety of change management strategies (such as persuasive communication) are important for building up readiness for change perceptions. Similarly, drawing on theories of psychological ownership, Dirks *et al.* (1996) proposed that employees are more likely to

promote organizational change when conditions are created that allow them to maintain a sense of control and involvement.

Theoretical propositions of this nature have received some empirical attention in the organizational change literature. For instance, Miller *et al.* (1994) examined the predictive utility of several information-related variables (for example, amount of general information, amount of change-related information, quality of change-related information) as predictors of readiness for change for 168 employees in a national insurance company that was about to introduce team-based methods of working. Results indicated that quality of change-related information was the strongest precursor to readiness for change perceptions. Although anxiety levels were assessed in this study, the mediating role of readiness for change in the relationship between the informational environment and employee adjustment was not explored. More recently Wanberg and Banas (2000) found that pre-implementation measures of several context-specific variables (which included information and participation) were predictive of readiness for change (assessed two months later) for 130 employees working in a public housing association undergoing large-scale restructuring. There also was some evidence to suggest that readiness for change was related to the delayed measures of work irritation, job satisfaction and turnover intentions. Given that information and participation were not predictive of the employee adjustment measures in this study, tests for a mediational relationship between the context-specific variables, readiness for change and employee adjustment were not possible. In the review of studies that follows, the extent to which readiness for change mediates the relationship between effective change management strategies (that is, information provision and employee participation) and employee adjustment to organizational change is examined.

Introduction of a new pay scheme in a corporatized public utility

Aims of the study

In a preliminary test of the mediating role of situational appraisals in the relationship between event characteristics and employee adjustment in the context of organizational change, Jimmieson and Griffiths (2001) examined the extent to which positive change management strategies (that is, information provision and employee participation) led to appraisals that are specific to the organizational change event (that is, change-related self-efficacy and readiness for change), thereby heightening levels of employee adjustment (that is psychological well-being and job satisfaction). These propositions were tested for a group of senior managers experiencing the introduction of a new pay scheme. Specifically it was hypothesized that both information provision and employee participation would be indirectly related to better psychological well-being and job satisfaction, via their positive effects on change-related self-efficacy. In addition, it was anticipated that senior managers who felt that they received information about the impending changes and were able to participate in related decision making would report higher levels of readiness for change which, in turn, would predict levels of psychological well-being and job satisfaction.

Organizational context and sample

Participants in this study were senior managers employed in a corporatized public utility responsible for water and waste management in Sydney, Australia. This organization was undergoing changes in relation to a new pay scheme that would directly link the payment

of annual bonuses to the performance of their business unit. Given that pay transitions send strong messages to employees about strategic shifts in the organization and the consequences for their immediate job responsibilities, several authors have highlighted the importance of creating change readiness among employees in this context (for example Marquardt and Meehan, 1995; Saunier and Gallo, 1994; Zingheim and Schuster, 1995).

Questionnaires were sent to 199 senior managers. A total of 167 employees provided data, an acceptable response rate of 84 per cent. Employees ranged in age from 27 to 65 years, with a mean of 47 years ($SD = 7.20$). Education levels included secondary school qualifications (4 per cent), TAFE qualifications at either the certificate (14 per cent) or diploma (4 per cent) level, as well as trade qualifications (1 per cent). The majority of participants had some form of tertiary education, either at the undergraduate (31 per cent) or postgraduate (40 per cent) level. Total remuneration packages ranged from \$70 000 to \$157 600, with a mean of \$92 246 ($SD = \$17 220$). The senior managers in this sample were represented throughout a variety of business units providing either professional (20 per cent) or technical (70 per cent) services.

Measures

Perceptions of information provision were measured with three items designed to assess the extent to which employees felt they had been provided with sufficient information about the organizational changes. Perceptions of employee participation were measured with three items designed to assess the extent to which senior managers felt they had been given opportunities to influence the implementation process for the new pay scheme. Levels of change-related self-efficacy were measured with three items asking staff to make generalized judgments of self-mastery about the organizational changes. Readiness for change was operationalized as the extent to which senior managers were feeling positive about, and supportive of, the proposed changes to the pay scheme (see Miller *et al.*, 1994). Levels of psychological well-being were measured with the 12-item version of the General Health Questionnaire (GHQ) (Goldberg, 1972). Job satisfaction was assessed with four items adapted from the scale developed by Caplan *et al.*, (1980). Each item was designed to assess individuals' global level of satisfaction with their job.

Findings and discussion

To test the proposed model, structural equation modeling (SEM) was performed using LISREL 8.3 (Jöreskog and Sörbom, 2000). The null model that tests the hypothesis that the constructs are unrelated to one another was rejected, $\chi^2(14) = 142.29, p < 0.001$. Next the proposed model was tested. The proposed model provided an adequate fit to the data, $\chi^2(6) = 14.60, p < 0.05$; RMR = 0.07; NNFI = 0.88; CFI (Bentler, 1990) = 0.95; GFI = 0.97; AGFI = 0.89. A chi-square difference test indicated a significant improvement in fit between the null model and the proposed model. To rule out the possibility of main effect relationships between information provision and employee participation with the outcomes variables of psychological well-being and job satisfaction, a further model was tested. While this alternative model provided an adequate fit to the data, $\chi^2(2) = 5.22, p > 0.05$; RMR = 0.03; CFI (*ibid.*) = 0.98; NNFI = 0.85; GFI = 0.99; AGFI = 0.88, the direct effect paths were not significant. Therefore the proposed model was retained. Post hoc modifications were undertaken on the proposed model in an attempt to develop a

better fitting model. Using the Wald test, two paths were deleted. These paths were employee participation to change-related self-efficacy, and change-related self-efficacy to psychological well-being, each of which produced minimal change in the chi-square value. The resulting final model fitted the data well, $\chi^2(8) = 14.86, p < 0.05$, RMR = 0.05; CFI (ibid.) = 0.96; NNFI = 0.91; GFI = 0.97; AGFI = 0.91.

The results from the final model indicated that change-related self-efficacy mediated the positive relationship between information provision and job satisfaction (standardized coefficient for indirect effect = 0.13, $p < 0.01$). However these results were not replicated in the prediction of psychological well-being. Inconsistent with expectations, employee participation was not a predictor of change-related efficacy. Thus it appeared that the provision of information during times of organizational change had a stronger impact on employees self-efficacy beliefs than opportunities for change-related decision making. Although this pattern of results is somewhat inconsistent with theories of self-efficacy that typically suggest that more active ways of involving employees in organizational processes are likely to have the most salient impact on self-efficacy perceptions (see Bell and Staw, 1989), it does point towards some important practical implications. In this respect, strategies for providing accurate and timely information during times of organizational change are potentially more easily implemented than interventions designed to afford employees greater participation, especially if the change event is largely not under the control of employees.

Perceptions of readiness of change were found to play an important role in the final model. Senior managers who perceived high levels of information provision reported higher levels of readiness for change which, in turn, were related to better psychological well-being (standardized coefficient for indirect effect = 0.12, $p < 0.01$) and job satisfaction (standardized coefficient for indirect effect = 0.13, $p < 0.01$). In addition, respondents who felt that they had had opportunities to participate in the implementation process reported higher levels of psychological well-being (standardized coefficient for indirect effect = 0.09, $p < 0.01$) and job satisfaction (standardized coefficient for indirect effect = 0.06, $p < 0.05$), an effect that was mediated via change readiness perceptions. Overall these findings contribute to recent research that has begun to examine the antecedents and consequences of employees readiness for change perceptions (Eby *et al.*, 2000; Wanberg and Banas, 2000; Yousef, 2000).

Introduction of multi-disciplinary work teams in midwifery hospitals

Aims of the study

In an attempt to replicate the pattern of findings reported in the study conducted by Jimmieson and Griffiths (2001), an additional test of the mediating role of situational appraisals in the relationship between positive change management strategies and levels of employee adjustment to organizational change was conducted with a group of nurses undergoing a process of job redesign that involved a move to team-based methods of working (see Jimmieson, 2002). A similar set of hypotheses were examined involving the relationship among event characteristics (that is, information provision and employee participation), situational appraisals (that is, efficacy and readiness) and employee adjustment. Given the situationally specific nature of self-efficacy, this study made a distinction between the broader construct of change-related self-efficacy and a more specific form of

self-efficacy related to the nature of the changes taking place in the organizations who participated in the research. Given that the hospitals were introducing team-based methods of working, a measure of team-related self-efficacy was developed for use in this study. The extent to which information provision and employee participation helped to develop employees' confidence about working in teams was examined, in addition to the broader construct of change-related self-efficacy. Lastly the range of employee adjustment measures considered in this particular study was extended to include organizational commitment and (low) turnover intentions.

Organizational setting and sample

The change context for this research was three maternity hospitals in Australia, each of which was about to introduce a new model of maternity care based on the principle of continuity of care. One of the major vehicles for achieving this initiative was the implementation of multidisciplinary work teams each of which would be responsible for the care of a designated group of women and their families throughout all three phases of maternity care (antenatal care, labour and birth, and postnatal care). Thus the team-based method of working had significant implications for the roles and responsibilities of staff, most of whom were about to undertake intensive training to prepare them for the multi faceted nature of this more holistic approach to midwifery care. Completed questionnaires were received from 281 midwifery nurses (representing a response rate of 78 per cent) across each of the three hospitals. As to be expected, the majority of the respondents were females ($n = 269$). Age ranged from 23 to 65 years ($M = 40.68$, $SD = 9.35$). Both full-time (36 per cent) and part-time (63 per cent) employees were represented in the sample.

Measures

Perceptions of information provision were measured with five items designed to assess the extent to which employees felt they had been provided with sufficient information about the organizational changes. Perceptions of employee participation were measured with five items designed to assess the extent to which nurses felt they had been given opportunities to influence the way in which the organizational changes were implemented. Levels of change-related self-efficacy were measured with five items asking nurses how confident they felt in their ability to deal with the changes planned for their workplace. Team-related self-efficacy was measured with ten items designed to assess the extent to which employees felt confident in their ability to carry out a variety of teamwork requirements. Items were developed using the taxonomy of knowledge, skills and abilities (KSAs) required for successful teamwork developed by Stevens and Campion (1994). Items reflected KSAs of both an interpersonal nature (for example, conflict resolution) and a self-management nature (for example, goal-setting and performance management). Levels of readiness for change were measured with 11 items designed to assess the extent to which nurses were feeling supportive of the organizational changes (adapted from items developed by Miller *et al.*, 1994).

Four indicators of employee adjustment were assessed in this study. Psychological well-being was measured with the GHQ-12 (Goldberg, 1972) which asked respondents how their health had been, in general, over the last few weeks. Job satisfaction was measured with five items designed to assess individuals' global level of satisfaction with their job (Caplan *et al.*, 1980). Levels of organizational commitment were assessed with four items

designed to measure the extent to which employees identified with the values of their organization (Allen and Meyer, 1990). Lastly, (low) turnover intentions were assessed with three items asking employees if they seriously intended to seek a job, transfer, resign from their job or enter a different occupation during the next three months (Mobley, 1977).

Findings and discussion

Four sets of hierarchical multiple regression analyses were performed to examine the main and mediating effects of the focal variables on each of the dependent variables. Given that age was found to be positively correlated with three of the indicators of employee adjustment, the effects of age were statistically controlled on the first step of the analyses. Other demographic variables (such as organizational type, job status and tenure) were found to be unrelated to the variables and were therefore not included in subsequent analyses. Entry of the event characteristics (that is, information provision and employee participation) into the second step of the hierarchical multiple regression analyses accounted for a significant increment of variance in psychological well-being, $R^2_{ch.} = 0.06, p < 0.01$, job satisfaction, $R^2_{ch.} = 0.10, p < 0.01$, organizational commitment, $R^2_{ch.} = 0.06, p < 0.01$ and (low) turnover intentions, $R^2_{ch.} = 0.04, p < 0.01$. There was evidence to suggest that information provision emerged as a significant positive predictor of psychological well-being, job satisfaction, and (low) turnover intentions, whereas employee participation was only predictive of organizational commitment.

Entry of the situational appraisals (that is, the efficacy variables and readiness for change) at the third also accounted for an additional increment of variance in psychological well-being, $R^2_{ch.} = 0.08, p < 0.01$, job satisfaction, $R^2_{ch.} = 0.04, p < 0.01$, organizational commitment, $R^2_{ch.} = 0.03, p < 0.05$, and (low) turnover intentions, $R^2_{ch.} = 0.06, p < 0.01$. Perceptions of change-related self-efficacy were found to be positively related to levels of psychological well-being (but not the other indicators of employee adjustment assessed in this study). Team-related self-efficacy was not significantly related to any of the employee adjustment measures. However there was consistent support for the proposal that readiness for change would be related to better employee adjustment. Nurses who reported that they felt a sense of change readiness also reported higher levels of psychological well-being, job satisfaction, organizational commitment and (low) turnover intentions.

These analyses also permitted an examination of the extent to which the event characteristics exerted a positive indirect effect on employee adjustment, via their effects on employees' situational appraisals of efficacy and readiness. To provide evidence of a mediating model, it is necessary to demonstrate that the observed positive main effects of information provision are no longer significant when the effects of the mediating variables (that is, change-related self-efficacy, team-related self-efficacy and readiness for change) are controlled on the subsequent step (see Baron and Kenny, 1986). Entry of the situational appraisals into the third step of the hierarchical multiple regression analyses provided some support for this proposition. When these variables were in the equation, the observed positive main effect of information provision was no longer significant when predicting psychological well-being and (low) turnover intentions. Closer examination of the results revealed that change-related self-efficacy mediated the positive relationship between information provision and psychological well-being. Readiness for change also mediated the effects of information provision on both psychological well-being and (low)

turnover intentions. This pattern of findings was further supported in follow-up analyses in which the situational appraisals were entered into the equation prior to the event characteristics. After the effects of change-related self-efficacy and readiness for change were controlled, information provision failed to add significantly to scores in psychological well-being and (low) turnover intentions.

Several methodological limitations of the studies just presented should be considered when interpreting the results reported in this research. In particular the reliance on contemporaneous self-report data from a single source is problematic because temporal relationships specified in the theoretical framework presented in this study cannot be established. Furthermore significant relationships may reflect the confounding influence of common method variance, thereby resulting in spuriously high intercorrelations (Bagozzi and Yi, 1990; Glick *et al.*, 1986; Williams *et al.*, 1989). Thus there is a need to employ longitudinal research designs that can help to clarify the extent to which change management strategies and employees' appraisals of the change event have any long-term implications for well-being. It is also important to extend the range of outcome variables typically assessed in this type of organizational change research to include variables related to change implementation success. Clearly measures of success will be dependent on the nature of the specific organizational change taking place. In the next study, involving the introduction of a new information system, the extent to which reshaping capabilities (that promote information provision and employee participation) created change readiness perceptions among employees just prior to the change implementation were examined. The extent to which change readiness at Time 1 (T1) was predictive of user satisfaction and system usage at Time 2 (T2) also was explored.

Introduction of a new information system in a state government department

Aims of the study

In this final study it was hypothesized that employees who report high, rather than low, levels of organizational reshaping capabilities within their workplace would also perceive heightened levels of readiness for change which, in turn, would be predictive of change implementation (see Jones *et al.*, 2002). Based on the findings of the two studies just presented, it was argued that readiness for change is an important mediating variable to consider in understanding employee adjustment to organizational change and, similarly, would be a relevant concept to consider in relation to implementation outcomes. Given that the change event involved the implementation of a new information system, change implementation success was operationalized as user satisfaction and system usage, both of which are key indicators of successful information system implementation (Guimaraes *et al.*, 1992; Pinto, 1994; Santhanam *et al.*, 2000). User satisfaction is defined by Ives *et al.*, (1983) as the extent to which users believe the system meets their needs and is probably the most widely used measure of success in this context (DeLone and McLean, 1992). System usage is defined by Lee *et al.*, (1995) as the amount of effort expended by users interacting with the information system or, more simplistically, the amount of time per day spent utilizing the system. Together user satisfaction and system usage provide a more complete picture of success than if either measure was utilized alone. The first is based on beliefs and attitudes, whereas the second is based on behaviors (Haines and Petit, 1997).

In this last study, a different approach was taken to the measurement of employees' perceptions of the way in which organizational change was managed in their workplace. In this respect, this study examined the extent to which employees who rated their workplace as having adequate organizational capabilities relevant to the management of change (that is reshaping capabilities) also reported higher levels of change readiness and, subsequently, better user satisfaction and system usage. The capabilities required for successful change have been specifically addressed by Turner and Crawford (1998), who proposed a taxonomy of reshaping capabilities that consisted of engagement, development and performance management capabilities. Engagement is based on informing and involving organizational members in an attempt to encourage a sense of motivation and commitment to the goals and objectives of the organization. These capabilities are similar to the notions of information provision and employee participation considered in the previous two studies. Development involves developing all resources and systems needed to achieve the organization's future directions, whereas proactively managing the factors that drive the organization's performance to ensure it consistently and effectively achieves the intended change is referred to as 'performance management'.

Miller and Chen (1994) claimed that successful change implementation will be the result of the development of reshaping capabilities. Indeed, in an analysis of 243 cases of organizational change, Turner and Crawford (1998) found that, as the strength of reshaping capabilities rises, so too do the rates of change implementation success, leading them to conclude that reshaping capabilities are needed whenever organizational change is needed. However the potential to draw strong conclusions about these findings is limited, given that few studies have examined the direct relationship between reshaping capabilities and change implementation success. Furthermore no studies to date have examined the extent to which reshaping capabilities help to foster a sense of readiness for change among employees. Indeed, as shown in the previous two studies, readiness for change perceptions may be the mediating variable that helps to explain the positive relationship between reshaping capabilities and a range of change-related outcomes for both the employee and the organization.

Organizational context and sample

This study involved a state government department in Queensland, Australia about to implement an end-user information system. The end-user information system was an extension of the existing Human Resource Information System (HRIS) that was implemented a year earlier, with the implementation of the HRIS affecting only the data entry personnel at that time. The implementation of the end-user information system would now affect all employees within the organization, as they would need to access the system for viewing payroll information, requesting annual leave and applying for training courses. The outcome of implementing a new information system is not just a change in technology, but also a change in structures, duties, tasks and personnel. In addition Bjorn-Anderson (1988) and Hirschheim and Newman (1988) claim that managers and users of information systems often remain resistant throughout the implementation process, despite the disappearance of most technical barriers. Understanding and creating the workplace conditions under which employees embrace such challenges remains a high-priority research issue (Vankatesh and Davis, 2000).

Questionnaires were posted to all employees in the pilot group ($N = 580$) via the organization's internal dispatch system. Employees were asked to return the questionnaire directly to the researchers in the reply-paid envelope provided. Despite a range of tactics to maximize response rates, only 156 employees provided data at T1, providing a response rate of 27 per cent. Ninety-eight employees returned the T2 questionnaire. However employees who completed both the T1 and T2 questionnaires amounted to 43 per cent of the T1 sample ($n = 67$). Analyses were performed only for employees who provided data at both points in time. The T2 sample consisted of a relatively equal proportion of male (41 per cent) and female (57 per cent) respondents; 2 per cent of employees failed to specify their gender. Employees ranged in age from 20 to 65 years, with a mean of 37 years ($SD = 11.08$). The majority of participants were either administrative officers (58 per cent) or professional officers (38 per cent), whereas 4 per cent of employees occupied other roles in the organization.

Research design and measures

As just noted, a temporal research design was used in which employee perceptions of reshaping capabilities and readiness for change were measured just prior to the introduction of the new HRIS in the workplace. To measure reshaping capabilities, ten items were developed based on Turner and Crawford's (1998) taxonomy of engagement, development and performance management. Items were also selected from a similar scale developed by Waldersee *et al.* (2003). Readiness for change was measured with seven items designed to assess the extent to which employees were feeling positive about the implementation of the new HRIS (Miller *et al.*, 1994). The measures of user satisfaction and system usage were assessed in a second wave of data collection (at T2) once the implementation process had been finalized, approximately five weeks after the collection of the T1 data. At this point, employees had been using the new HRIS for a period of one month. Levels of user satisfaction were measured with the End-User Computing Satisfaction Instrument (Doll and Torkzadeh, 1988). Consisting of 34 items, exploratory factor analytic procedures resulted in four usable factors for use in this study: satisfaction with accuracy, content, formatting and user-friendliness. Measurement of system usage consisted of a single item (that is 'In a typical week, how many times do you utilize the system?').

Findings and discussion

Multiple hierarchical regression analyses were used to test the proposal that employees' perceptions of reshaping capabilities at T1 would be associated with higher levels of user satisfaction and system usage at T2, and that this relationship would be mediated by pre-implementation perceptions of change readiness. These analyses revealed support for this proposition in relation to system usage, but not for any of the dimensions of user satisfaction. At Step 1, T1 reshaping capabilities exerted a positive main effect on T2 system usage, $\beta = 0.28$; $p < 0.05$, $R^2 = 0.08$, $F(1, 63) = 5.29$, $p < 0.05$. At Step 2, T1 readiness for change accounted for a significant increment of variance, $R^2_{ch.} = 0.13$, $F(2, 62) = 8.11$, $p < 0.01$ and, as anticipated, was positively related to this dependent variable, $\beta = 0.38$; $p < 0.01$. In line with Baron and Kenny's (1986) procedures for testing mediating models, it was found that the positive main effect of T1 reshaping capabilities on T2 system usage was no longer significant when the effects of the mediating variable (that is,

readiness for change) were controlled on the subsequent step. Furthermore subsequent analyses in which T1 readiness for change was entered into the equation prior to T1 reshaping capabilities demonstrated that, once the effects of T1 readiness for change were controlled, employees' perceptions of T1 reshaping capabilities did not add significantly to the prediction of system usage. Therefore the results provided support for a mediated relationship between T1 reshaping capabilities and T2 system usage, via T1 readiness for change. Although T1 readiness for change was not found to mediate the relationship between T1 reshaping capabilities and user satisfaction, T1 readiness for change was found to exert a positive main effect on several of the dimensions of user satisfaction. Employees who felt positive about the impending organizational changes at T1 reported higher levels of satisfaction with the accuracy of the system, the system's formatting functions, and the user-friendly nature of the system at T2.

Overall this study presents some encouraging results of importance to the organizational change literature, and more specifically to the literature on the implementation of information technology. However these results should be interpreted with caution, owing to several issues. First, the limited sample size has the potential to jeopardize the generalizability of the results to the rest of the population. Although it was established that those who failed to respond at T2 were not significantly different from those who responded at both points in time, it is important to consider those employees who did not respond at all. Generalizability is further diminished as the results were derived from an investigation of employees in a single organization, more importantly, a public sector organization. Second, only five weeks elapsed between the collection of the T1 and T2 data. This was a relatively short period and may have captured initial impressions only. It would be valuable to measure user satisfaction and system usage again, perhaps six months after the implementation, in order to examine the long-term effects of culture and capabilities on satisfaction and usage. Third, the indicators of change implementation success were limited to self-report measures obtained from employees. Future research should incorporate more objective measures such as electronic records of system usage.

Conclusion

The series of studies reviewed in this chapter provides consistent evidence to suggest that the use of effective change management strategies facilitates positive change outcomes for employees because of their indirect effects on employees' levels of change-related self-efficacy and readiness for change. First, the results indicated that change-related self-efficacy mediated the relationship between information provision and psychological well-being for a group of senior managers undergoing changes to the way in which they were remunerated. Second, nurses who perceived that they had received sufficient information throughout the introduction of multidisciplinary work teams reported higher levels of job satisfaction, and this effect was mediated through enhanced levels of change-related self-efficacy. Given that perceptions of opportunity and threat derive significantly from personal perceptions of situational competence, these findings suggest that self-efficacy is likely to be influential in helping employees to view organizational change as an opportunity rather than as a threat (Krueger and Dickson, 1993). Interestingly, as noted earlier, information provision emerged as a stronger predictor of change-related self-efficacy than opportunities to participate in the implementation of organizational

change. This pattern of findings suggests that the provision of information may play an important compensatory role in determining adjustment among employees whose jobs are undergoing changes over which they may have little control or influence. Determining the extent to which the effects of information provision and employee participation are interactive in nature provides an avenue for future research.

In relation to readiness for change, results from the studies showed that information provision predicted change readiness which, in turn, was related to heightened levels of psychological well-being (see studies 1 and 2), job satisfaction (see study 1) and (low) turnover intentions (see study 2). In addition, readiness for change mediated the positive effects of employee participation on levels of employee adjustment (see study 1). In the study involving the implementation of a new information system, a pre-implementation measure of readiness of change mediated the positive effects of T1 reshaping capabilities (as rated by employees) on the amount of system usage at T2. In addition employees who perceived high levels of T1 readiness for change reported higher levels of satisfaction with the new HRIS one month after implementation. Overall these results highlight the importance of assessing the determinants of readiness for change as premature implementation may not produce intended outcomes simply because employees are not psychologically ready. This pattern of findings also reinforces the importance of undertaking pre-implementation assessments of readiness for change. Such assessments should help change agents to make specific choices about strategies and tactics that are needed to help foster employee enthusiasm for specific change events

In conclusion, it is suggested that a stress and coping perspective provides a useful framework for considering the direct and indirect relationships between event characteristics, situational appraisals and employee adjustment in the context of organizational change. Given the consistent evidence linking event characteristics and situational appraisals to employee adjustment, efforts that both counter the belief that the situation is threatening and help to foster a sense of psychological readiness should serve to maintain employee well-being during the very common experience of organizational change. In addition future research that explores the utility of stress-based models of employee adjustment to organizational change may help to clarify the psychological processes that act as precursors to more long-term outcomes that are indicative of change implementation success.

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