

Measurement of Perceived Organizational Readiness for Change in the Public Sector

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Using the act frequency approach we developed and operationalized two constructs: perceived organizational readiness for change and perceived organizational unreadiness for change. Using a sample drawn from five Canadian public sector organizations, it was found that perceived readiness for change can be conceptualized with three sub-constructs: commitment of senior managers to the change, competence of change agents, and support of the immediate manager. Perceived unreadiness for change had two sub-constructs: poor communication of change and adverse impact of change on work. Using structural equation modelling techniques, the measurement scales of all these constructs were tested for reliability and validity using job stress and perceived organizational support as outcome variables.

Although organizational change is considered unavoidable (Drucker, 1999) and its pace is said to be increasing (Gutsch, 1995), there are estimates that up to 70% of all major corporate changes fail (Washington and Hacker, 2005). For example, a series of studies show that close to 50% of mergers and acquisitions are not successful (Cartwright and Schoenberg, 2006). Van Dick, Ullrich and Tissington (2006) have observed that employees' negative reactions to the way these mergers are done often hinder this type of change. Furthermore, there is an argument that the key causal factor of unsuccessful change is employees' perception that the organization is not ready for the change and consequently lack of acceptance of the change (Armenakis, Harris and Mossholder, 1993). How can an organization know what practices to engage in that would persuade its members of its readiness for change?

This research set out to provide change agents with a practical diagnostic tool that can be used to assess how ready an organization is for change from the perspective of its members.

At the basis of this study lies the construct of perceived organizational readiness for change (PORC) which is defined as 'organizational members' beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization's capacity to successfully make those changes' (Armenakis, Harris and Mossholder, 1993, p. 681). In other words, we adopted a PORC meaning that denotes employees' belief that the organization not only can initiate a change but also engages in practices that will lead to its successful implementation. Announcement of a change initiative alone might not be sufficient to persuade employees that the organization is ready to implement the change. PORC can therefore be assessed at a point when a change is in progress rather than prior to its start or after it is already finished.

The construct of PORC is intuitively appealing, but the fact that it has not yet been

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operationalized limits its practical applicability. The research has largely neglected the link between successful change and employees' perspectives on the effectiveness and desirability of various organizational actions with respect to change. This study sought to fill this void. Specifically, the paper reports on the development of a measure that can be used to assess PORC in public sector organizations. Much of the research in the area of change management has not explicitly differentiated between public and private sectors. This is unfortunate as the last several decades have seen countless large-scale change endeavours in public sector organizations around the globe – many of which have failed (Corman and Burnes, 2001; Ferlie, Hartley and Martin, 2003). The embedded practices, jurisdictions, bureaucracy, frequently changing senior leadership, and complexity of reforms do not make the public sector conducive to change (Ferlie, Hartley and Martin, 2003; McNulty, 2003). Furthermore, the aging of the public service workforce and the need to rejuvenate and modernize public service suggest that the rate of change in this sector is not going to slow down. To be able to successfully implement it, change agents need to know what specific actions public sector organizations can take to obtain the buy-in of a critical mass of employees.

Theoretical framework and research questions

PORC

The concept of PORC has been widely used in the change management literature since the late 1970s. For example, Cunningham *et al.* (2002), Lehman, Greener and Simpson (2002) and Stewart (1994) all talk about the fact that an organization should have a certain readiness level in order to implement change. Armenakis, Harris and Mossholder (1993) extended our understanding of this construct by emphasizing the need to consider the perspective of those who are affected by the change when evaluating organizational readiness for change. Jansen (2000) went further by claiming that an organization's actual ability to introduce change successfully might best be understood by considering employees' perceptions rather than 'objective' measures of organizational readiness.

The existing research is inconsistent in using the term 'readiness for change'. Simon (1996) and Stewart (1994) used this term to denote the structural attributes of an organization, but Armenakis, Harris and Feild (1999) and Cunningham *et al.* (2002) explicitly referred to employee mindsets. On the other hand, such authors as Daley (1991) and Lehman, Greener and Simpson (2002) referred to both institutional and personal aspects of readiness without clearly separating them. Only Armenakis, Harris and Mossholder (1993) drew a distinction between the constructs of organizational and employee readiness for change and suggested a causal relationship between them.

The literature is further limited by the fact that most studies have viewed change from a single perspective, usually that of the change agents (which often, but not necessarily, are managers) only, or not specifying whose point of view is being considered (i.e. employee or managerial). The introduction of the concept of PORC (Armenakis, Harris and Mossholder, 1993) has finally addressed this issue on a theoretical level (but without empirical examination) by viewing change from the perspective of those who are affected by the change.

Organizational context: possible antecedents of organizational readiness for change

Our review of the literature provided support for the idea that the organizational context might influence the extent to which employees perceived that their organization was ready for change. In their empirically rigorous study, Eby *et al.* (2000) found that certain antecedents (i.e. flexible policies and procedures, and trust in peers) significantly contributed to the prediction of what the authors explicitly called 'perceived organizational readiness for change'. Lehman, Greener and Simpson (2002) developed an instrument to assess organizational readiness for change which included a broad spectrum of items relating to motivation for change, personality attributes of leaders and staff, institutional resources and organizational climate. Furthermore, some authors have offered change agents practical and simple guidelines (i.e. untested and unvalidated measures) for assessing organizational readiness for change. They have suggested such contextual elements as organizational structure, strategy, systems, policies and procedures, technology,

Table 1. Research methodology

Step 1	Selection of research sites and interviews with the change agents to identify the major change initiatives that the respective organizations have attempted in the last two years
Step 2	Interviews with a sample of organizational members at all research sites to identify organizational actions typifying perceived organizational readiness/unreadiness to change (Stage I of the AFA)
Step 3	Administration of the first survey to a subsample of employees at all sites. This survey was used to determine prototypicality of the nominated acts (Stage II of the AFA)
Step 4	Analysis of Stage II data to develop measures of perceived organizational readiness/unreadiness for change
Step 5	Administration of the second survey which included the newly developed measures, demographics and the outcome variables needed to validate the measures (Stage III of the AFA)
Step 6	Statistical analysis of the survey data to validate the newly developed measures and answer the research questions

leadership style, and managerial practices (Jones and Bearley, 1986; Trahan and Burke, 1996) as they are allegedly associated with organizational readiness for change. Finally, a number of studies have linked various aspects of the organizational context to successful change implementation that may also pertain to organizational readiness for change. Potentially relevant contextual factors include, among other things, leadership at all organizational levels (e.g. Kavanagh and Ashkanasy, 2006), open and honest communication between managers and employees (e.g. Armenakis and Harris, 2002; Quirke, 1996), supportive organizational and management practices (e.g. APEX, 1999; De Jonge *et al.*, 2001; Hutchinson and Garstka, 1996), meaningful involvement of employees in the change process (Conner, 1992, 1998; Dunphy, 2000; Kanter, Stein and Jick, 1992), and human resource systems (e.g. Conner, 1998; Quirke, 1996; Smith, 1996).

Our review of the literature showed that there was a need to identify organizational actions that made employees perceive that their organization was or was not ready for change. Accordingly we sought answers for the following research questions.

Research Question 1: What organizational actions are associated with employees' perceptions of organizational readiness for change?

Research Question 2: What organizational actions are associated with employees' perceptions of organizational unreadiness for change?

We believed it was important to capture items related to both readiness and unreadiness to change. Our rationale is based on the findings of Weems, Onwuegbuzie and Lustig (2003) that suggest that many individuals have differential response patterns on positively and negatively

worded questions in response scales. In other words, negatively worded questions, for some respondents, do not form the other end of the continuum from the positively worded questions. Furthermore, scale reliabilities have been found to suffer when positively and negatively worded items are included in the same scale (Barnette, 2000; Weems, Onwuegbuzie and Lustig, 2003). Thus, we believed it was important to capture attitudes to change through both positive and negative items in separate scales.

Method

This study consisted of six steps as shown in Table 1. Key details on each of these stages are provided below.

Identification of research sites

The measures were developed using data from five public sector organizations that had initiated transformational change in the two years prior to this research. Before the research began, we interviewed two to three change agents in every organization to gather background information. It should be noted that in this study the term 'change agents' denotes organizational members with the mandate to implement change irrespective of their position. Changes that had been undertaken by these departments included a shift in the strategic direction toward a higher degree of transparency, a shift from a command and control management style to one that was based on employee empowerment, a change in reporting relationships, and two organizational restructuring efforts.

The research design required three data collection stages. In all three stages, individual

members at all organizational levels were invited to participate through organization-wide communiqués. Along with the invitation, participants were briefed on the nature of the interview, purpose of the study, and confidentiality of individual responses.

Act frequency approach (AFA)

The AFA is a research technique combining qualitative and quantitative approaches to develop behaviourally based composite measures. It was introduced by Buss and Craik and was originally used for studying personality dispositions or a 'tendency of individuals to behave in certain ways' (1980, p. 379). Details about the technique can also be found in Buss and Craik (1981, 1983). Since then, the AFA has been successfully applied beyond the domain of personality traits to explore such organizational behaviours as person–job fit (Allen, 1993), supervisor support (Bhar, 1995), mentoring (Russell, 2001) and organizational support for revolutionary change (Szamosi, 1999). The applicability of the technique to the study of organizational behaviours supports the use of the AFA in this research to develop the measure of PORC. Critiques of the technique can be found in Block (1989), Cooper, Dyke and Kay (1990), Dyke (1990) and Moser (1989). Details on how the three stages of AFA were applied in this study are given below.

Stage I: Act nomination. The major goal of Stage I was to catalogue as many unique organizational actions as possible associated with perceived organizational readiness/unreadiness for change. This goal was accomplished through the use of personal interviews with 88 individuals working for three government departments. Volunteers were contacted by phone or email to schedule an interview. In this interview respondents were asked to nominate organizational behaviours typical of their readiness and unreadiness for change. To generate these two lists of behaviours, we asked the following two questions: What kinds of things do organizations do that would lead you to think that they are ready/capable of change? and What kinds of things do organizations do that would lead you to think that they are not ready/capable of change?

Respondents were asked to focus on specific and tangible organization actions. We tape recorded the interviews with the permission of the respondents. We also made every effort to avoid any leading questions and/or comments (Cooper and Schindler, 1998; Denzin, 1989). When the interviews did not yield anything new, the domain was considered saturated and the interview stage completed (Strauss, 1987). The two lists of behaviours were then edited for redundancies, vague actions and non-act statements.

Stage II: Identification of prototypical acts. For the purpose of measure development, it was essential to retain only those behavioural acts which were considered as typical by the vast majority of the raters. Identification of prototypical behaviours was done using a web-based survey that included the two revised lists of behaviours. A random sample of 178 public servants working in four departments were asked to use a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree) to indicate the extent to which they agreed that each of the actions nominated in Stage I typified either an organization that was ready for change (e.g. 'Change is driven by a vision that everybody understands') or an organization that was not ready for change (e.g. 'The reasons for change are not well explained'). The survey also collected key demographic information: respondents' gender and job type. The Stage II sample was representative of the overall demographic composition of the four organizations in terms of gender and job type.

The nominated acts then had to be reduced to a 'manageable' number (i.e. one that does not produce an undue response burden) where 'manageable' was operationally defined to be 5–20 items. Although the literature does not offer steadfast rules in this respect, we applied four steps based on precedents. In the total sample, we (1) identified all items with means above 5.0, (2) retained the top quartile of items if the number of items with means above 5.0 exceeded 20, and (3) if the number of items still exceeded 20, examined the differences between adjacent means (starting with the lowest mean score) and chose the break point where the difference was the largest (i.e. the degree of consensus

diminished). Items scoring below this cut-off were dropped from further analysis.

These three steps were performed using four subsamples: men, women, managers and non-managers. Items that were prototypical for one of these groups but not for the total sample were identified and put back into the measure. The final output of this stage was two sets of questions addressing (1) PORC and (2) perceived organizational unreadiness for change.

Stage III: The final survey. The validity and reliability of the proposed measures of PORC and perceived organizational unreadiness for change were tested by means of a second web-based survey. Respondents were asked to indicate, using a five-point Likert scale, the extent to which they agreed that each of these 40 actions was taking place in their organization. Higher scores reflected a greater perception that the organization was ready or not ready for change.

The survey included a measure of job stress to help us validate our change constructs. The use of job stress to validate our measures is supported by research linking transformational change to uncertainty, job insecurity, role conflict, ambiguity and overload (e.g. Duck, 1993; Kotter and Cohen, 2002; Strelbel, 1996), factors that have also been linked to job stress (e.g. Ashford, 1988; Babin and Boles, 1996; Pool, 1999). The job-induced tension subscale of House and Rizzo's anxiety-stress scale was used to operationalize job stress (Cook *et al.*, 1981). They defined job-induced anxiety and stress as 'tension and pressures growing out of job requirements, including possible outcomes in terms of feelings or physical symptoms' (House and Rizzo, 1972, p. 481). Higher scores reflected greater job stress. Murphy (2000) reported a Cronbach's alpha of 0.85 in use of this scale.

Perceived organizational support (POS) was included to help assess predictive validity of the new measures. This construct measures the extent to which employees perceive that their organization values their contribution and cares about their well-being (Eisenberger, Fasolo and Davis-LaMastro, 1990). The use of POS to validate the new measures is supported by Eby *et al.*'s (2000) work. In our study, POS was measured using the shortened nine-item version of the Survey of Perceived Organizational Support developed by

Eisenberger *et al.* (1986). Higher scores on this five-point Likert scale reflected higher POS. This measure of POS has been used in a number of studies (e.g. Eisenberger, Fasolo and Davis-LaMastro, 1990; Szamosi, 1999; Wayne, Shore and Liden, 1997) and has demonstrated high internal consistency, with Cronbach alphas ranging from 0.74 to 0.95.

Stage III data were used in this study to examine our measures of perceived organizational readiness/unreadiness for change as well as to explore the validity and reliability of these measures. Details on how these objectives were met are provided below.

Developing factor-based subscales. Our first step was to look at the factor structure of our measures with the intent of identifying subfactors. To accomplish this we conducted a principal components analysis with a varimax rotation. We then examined the factors with eigenvalues greater than 1. For each factor, an item was retained if it loaded at 0.6 or greater on this factor and did not have any cross-loadings on other factors greater than 0.4, a procedure similar to that used by Howell, Shea and Higgins (2005).

Assessing subscales. We then used AMOS to conduct a confirmatory factor analysis (CFA) on the subscales identified in the previous exploratory analysis. In assessing the CFA, we looked at individual item reliability, internal consistency, convergent validity, discriminant validity and unidimensionality. For individual item reliability we used the usual rule of thumb that items should have loadings greater than 0.7 (Barclay, Higgins and Thompson, 1995) so that a construct explains at least 50% of the variance of an item. We used the Fornell and Larcker (1981) measure of internal scale consistency, following the guideline that scores should be greater than 0.7. Cronbach's alpha was also reported as a measure of internal consistency. For convergent validity, we used the measure of average variance extracted, again developed by Fornell and Larcker (1981). Convergent validity is assumed to be present if the construct has an average variance extracted of 0.5 or greater. To assess discriminant validity, we used the procedure suggested by Anderson and Gerbing (1988) which involves running a series of CFAs with the covariance

between pairs of constructs set to one (i.e. in essence modelling a complete lack of discriminant validity). Each CFA is then compared to a baseline model where all covariances are free to vary. The baseline model and the constrained models (one for each pair of constructs) are compared by subtracting the chi-squared values and determining the significance of the difference (Anderson and Gerbing, 1988; Gefen, Straub and Boudreau, 2000). If the difference is significant, we deem the baseline model to be superior to the constrained model, an indication of adequate discriminant validity. For unidimensionality we used the procedure suggested by Segars (1997). This involved assessing the modification indices to look for violations in the product rules for internal and external consistency. A large modification index (i.e. values greater than 5) between measurement items within and between constructs would be indicative of problems with unidimensionality. The final factors were given names that best reflected the substance of the variables constituting them (Rummel, 1970).

For the measure to have predictive validity, POS should be positively related to the readiness scale and negatively to the unreadiness scale (Eby *et al.*, 2000; Eisenberger, Fasolo and Davis-LaMastro, 1990; Wayne, Shore and Liden, 1997). The theory (e.g. Judson, 1991; Michael and Lawson, 2000) also indicates that job stress might be negatively related to the readiness scale and positively related to the unreadiness scale. Predictive validity was assessed by analysing a structural model with the subscales as exogenous constructs and job stress and POS as endogenous constructs. Significant paths between the exogenous and endogenous constructs would provide support for the predictive validity of the subscales. This structural equation analysis was also undertaken using AMOS.

Results

Description of Stage III survey sample

The Stage III survey was completed by a random sample of 742 respondents who worked for four of the participating departments. Surveys that were incomplete ($n = 159$) were excluded from the analysis. The demographics of the 583 respondents retained in the sample was as follows: 59% were women, 43% held managerial

jobs and 57% held non-managerial jobs, 29% were under 35 years of age, 64% were between 36 and 55, and 7% were 56 and older, and 44% had worked with the current organization for less than five years, 36% had worked for 5–20 years and 20% for more than 20 years. The sample was well distributed with respect to the demographic variables of interest. It is also representative of the public sector with respect to gender, age, years of service and job type.

Nomination of behavioural acts

The interviews generated two lists of organizational actions: 253 behaviours describing how organizations that employees perceive to be ready for change acted, and 172 behaviours describing perceptions of organizations not being ready for change. After editing, these respective lists contained 100 and 68 unique organizational actions respectively.

Identification of prototypical organizational actions

Twenty of the 100 nominated readiness items had means of 5.0 or greater. With the gender and job type subsamples, we also had to apply the second data reduction step which involved selecting the top quartile of items. One action was rated as highly prototypical by women but not by men. This item was added to the proposed measure. The final list thus contained 21 items.

Forty-five of the 68 nominated unreadiness items received ratings of 5.0 or higher. After the second reduction step, 17 items in the top quartile were retained. With the gender and job type subsamples, we also had to apply the third step of reduction. Managers had rated two actions as more typical than non-managers. They were added to the measure. The final set contained 19 items.

Development of factor-based subscales

Readiness subscales. When a principal components analysis with a varimax rotation was applied, three factors emerged (see Table 2). The three, as yet unnamed, factors were then subjected to a CFA using AMOS. The first CFA revealed that several items were unreliable (i.e. had loadings less than 0.7). These items were

Table 2. Stage III: Factor loadings of perceived organizational readiness and unreadiness items (based on CFA)

Behaviours describing organizational readiness and unreadiness for change	Mean	SD	1	2	3	4	5
<i>Commitment of senior management to the change (1)</i>							
Senior management is decisive with respect to organizational goals, priorities and strategies concerning the change	5.13	2.18	0.80				
Leaders themselves have bought into the change and promote it by behaving in a manner consistent with the change	5.22	2.06	0.78				
Senior management defines the course of change and stays the course for several years	5.01	2.00	0.71				
There is a champion of change at the most senior level of the organization	5.36	1.84	0.70				
<i>Competence of change agents (2)</i>							
Change agents have done research to select the right type of change that addresses the underlying causes of organizational problems rather than just symptoms	5.09	1.88		0.82			
Change agents provide valid arguments to justify the change	5.07	2.01		0.85			
Change agents have considered different options of change implementation	5.16	1.60		0.68			
Change agents are competent to answer employee questions about the change	5.18	2.01		0.81			
<i>Support of immediate manager (3)</i>							
Managers are held accountable for passing information on the change to their staff	4.99	2.13			0.72		
Managers acknowledge the impact the change may have on their staff	5.13	1.89			0.76		
The immediate supervisors encourage their staff to participate in the change process	5.18	2.00			0.64		
<i>Poor communication of change (4)</i>							
The outcomes and benefits of the change are not well explained	5.69	1.41				0.94	
The reasons for the change are not well explained	5.49	1.58				0.91	
There is no vision for the change that everybody in the organization understands	5.63	1.50				0.80	
<i>Adverse impact of the change on work (5)</i>							
The change process does not involve the phasing out of old duties, and the employee is expected to do both the old and the new duties	5.73	1.54					0.86
Workloads do not permit people to get involved in the change initiatives	5.55	1.58					0.77
People are discouraged from saying 'no' to work – even when the assigned task is not a priority	5.44	1.46					0.71
Average variance extracted			0.57	0.63	0.51	0.72	0.52
Fornell and Larcker's internal consistency coefficient			0.89	0.87	0.75	0.89	0.76
Cronbach's alpha			0.88	0.88	0.75	0.88	0.75

dropped and the analysis was re-run. The second CFA revealed an adequate model fit. Chi-squared was 107.7 with 41 degrees of freedom. The ratio of chi-squared to degrees of freedom was acceptable at 2.6 (Chin and Todd, 1995). The comparative fit index was acceptable at 0.978 (scores above 0.9 are considered good). The root mean squared error of approximation (RMSEA) at 0.053 was slightly higher than the generally accepted upper limit of 0.05. The goodness of fit (0.968) and adjusted goodness of fit (0.949) indices met the desired threshold of 0.9.

This three-factor model was then tested for discriminant validity. The chi-squareds for the three constrained models (note that each correlation was set to 1 in turn) were 138.6, 181.8 and 151.7 respectively on 42 degrees of freedom. The differences in chi-squared from the unconstrained model (i.e. 30.9, 74.1, 44.0) were significant at

$p < 0.001$ indicating that our model showed adequate discriminant validity.

As a final step we compared the three-factor model with a one-factor model where all the items from the three factors were combined into one global factor. The one-factor model had a chi-squared of 479.6 on 44 degrees of freedom. The difference in chi-squareds between the one-factor and three-factor model was 371.9 on 3 degrees of freedom ($p < 0.001$). Clearly, the three-factor model was superior.

Details on each of these subscales are given below.

Factor: Commitment of senior management to the change (Commitment). This factor included four items that all dealt with how senior management acted during transformational change. In organizations that employees believed to be ready

for change there was a champion of change at the most senior level, a senior management team who was decisive with respect to organizational goals, priorities and strategies concerning change, who defined the course of change and did not digress from it and who supported the change, and leaders who demonstrated their commitment to change through their behaviours. Cronbach's alpha for this scale was 0.88. Fornell and Larcker's internal consistency measure was 0.87 and the average variance extracted was 0.63. The scale was deemed reliable.

Factor: Competence of change agents (Agents). All four items loading on this factor were related to the actions and behaviours of those who had been charged with implementing the change-change agents. Public servants thought their department was ready for change when change agents had done research to select the right types of change, considered different options with respect to implementing the change, had provided valid arguments to justify the change, and could answer employee questions about the change. Cronbach's alpha for this scale was 0.88. Fornell and Larcker's internal consistency measure was 0.83 and the average variance extracted was 0.55. The scale was deemed reliable.

Factor: Support of immediate manager (Support). The three items which loaded on this factor all pertained to the support employees received from their immediate manager during the change process. Employees perceived their organization to be ready for change when their immediate manager encouraged their staff to participate in the change initiatives, acknowledged the impact of the change on people, and shared information provided from upper management on the change. Cronbach's alpha for this scale was 0.75. Fornell and Larcker's internal consistency measure was 0.75 and the average variance extracted was 0.51. As with the previous two scales, we were satisfied that reliability was achieved.

The predictive validity of the three factors was established by adding paths to both Job Stress and POS. Significant paths were found between Commitment and POS ($B = 0.354$, $p < 0.001$), Commitment and Job Stress ($B = -0.173$, $p < 0.05$), Support and POS ($B = 0.405$, $p < 0.001$) and Support and Job Stress

($B = -0.259$, $p < 0.001$). The paths between Agents and POS ($B = 0.022$, n.s.) and Agents and Job Stress ($B = 0.027$, n.s.) were not significant. Possibly the competence of change agents is associated with more pragmatic outcomes than POS and job stress. Nevertheless, overall, the significant paths validate the new measurement subscales. The model explained 50.0% of the variance in POS and 13.8% of the variance in Job Stress. This analysis provides an answer to Research Question 1 about organizational actions that are associated with employees' perceptions of organizational readiness for change.

Unreadiness subscales. The initial principal components analysis of the 19 unreadiness items resulted in two common factors (see Table 2). Loadings of ten items were below 0.6, and they were removed from the measure. In the subsequent CFA, three more items were dropped because they exhibited high modification indices (i.e. lack of unidimensionality). The resulting model had an excellent fit. Chi-squared was 10.0 on 9 degrees of freedom ($p > 0.05$). The ratio of chi-squared to degrees of freedom was 1.1. The comparative fit index was 0.999, RMSEA was 0.014, the goodness of fit was 0.994 and adjusted goodness of fit was 0.987.

This two-factor model was then tested for discriminant validity. The constrained model had a chi-squared of 79.2. The difference in chi-squareds (69.2) was significant at $p < 0.001$ indicating that the unconstrained model was superior.

As a final step we compared the two-factor model with a one-factor model where all the items were combined into one global factor. The one-factor model had a chi-squared of 221.3 on 10 degrees of freedom. The difference in chi-squareds between the one-factor and two-factor model was 211.3 on 1 degree of freedom ($p < 0.001$). Clearly, the two-factor model was superior.

Details on each of these subscales are given below.

Factor: Poor communication of change (Poor Communication). The three items included in this factor provide a list of what can be considered the worst practices in terms of communicating change. Public servants believed the organization

Table 3. Correlation matrix of perceived readiness/unreadiness subscales

	Mean	SD	Commitment of senior management	Competence of change agents	Support of immediate manager	Poor communication	Adverse impact on work
Commitment of senior management	3.15	0.92	1				
Competence of change agents	3.02	0.82	0.791	1			
Support of immediate manager	3.31	0.87	0.645	0.692	1		
Poor communication	3.34	0.97	-0.751	-0.690	-0.610	1	
Adverse impact on work	3.69	0.84	-0.597	-0.564	-0.524	0.638	1

All correlation coefficients significant at $\alpha \leq 0.001$ (two-tailed).

was not ready to implement change successfully when employees were not provided a vision for the change, the reasons behind the change or the expected outcomes and benefits of the change. Cronbach's alpha for this scale was 0.88. Fornell and Larcker's internal consistency measure was 0.89 and the average variance extracted was 0.72. The scale was deemed reliable.

Factor: Adverse impact of the change on work (Adverse Impact). This factor included five items associated with the negative effects organizational change was perceived to have on people's work. Public servants saw their organization as not being ready for change when new duties were added on top of the old ones, people were discouraged from saying 'no' to work, and their workloads increased. Cronbach's alpha for this scale was 0.75. Fornell and Larcker's internal consistency measure was 0.76 and the average variance extracted was 0.52. Again, this scale was deemed reliable.

The predictive validity of the two factors was established by adding paths to both Job Stress and POS. Significant paths were found between Poor Communication and POS ($B = -0.412$, $p < 0.001$), Adverse Impact and POS ($B = -0.230$, $p < 0.001$) and Adverse Impact and Job Stress ($B = 0.422$, $p < 0.001$), as expected. The path between Poor Communication and Job Stress ($B = 0.018$, n.s.) was not significant suggesting that lack of information does not contribute that much to job stress. Overall, the significant paths validate the new measurement subscales. The model explained 34.4% of the variance in POS and 18.8% of the variance in Job Stress. This analysis provides an answer to Research Question 2 about organizational actions that are associated with employees' perceptions of organizational unreadiness for change.

As a final step we included all five subscales in a model predicting POS and Job Stress. The question to be addressed here was whether it is sufficient to use just the positively worded scale (i.e. readiness) or the negatively worded scale (i.e. unreadiness) or whether both should be used. Using all five subscales, the model explained 50.1% of the variance in POS and 20.3% of the variance in Job Stress. Clearly, the readiness scale did not require any additional negatively worded questions to help it predict POS. However, for stress, the perceived readiness scale only predicted 13.8% of the variance, much lower than the 20.3% predicted when using both scales. This suggests that it depends on the ultimate dependent variable being used whether both positively and negatively worded items should be used. Our analysis suggests that both scales should be used in assessing readiness for change.

Means and standard deviations for each of the five subscales are shown in Table 3 along with the correlation matrix of the five subscales (three for perceived readiness, two for perceived unreadiness). These data provide further support for the need to examine both perceived readiness and perceived unreadiness items as the correlations indicate the scales are not measuring the same thing.

Discussion and conclusion

This study set out to empirically develop and validate a behaviourally based measure of PORC in the public sector. This new valid and reliable multidimensional measure with explicitly identified subscales clarifies what organizational actions public servants associate with organizational readiness and unreadiness for a transformational change. Moreover, the analysis

suggests that PORC could be best assessed using both readiness and unreadiness scales together rather than only one of them. From a theoretical perspective, the current work contributes to the public management research that has been recognized for its insufficient focus on theory building (Ferlie, Hartley and Martin, 2003). Having been conducted in five different public sector organizations, the present research claims to have quite a high degree of generalizability across the sector. This study also addresses the shortcoming of the existing measures of organizational readiness to change that do not seem to have taken into consideration the members' perspective on what needs to be measured in order to assess PORC. Furthermore, we elaborated on the meaning of the PORC construct by explicitly focusing on the perceptions of organizational context rather than external environment or characteristics of individuals and by stating that PORC can be measured when some change initiative is already under way.

From a practical point of view, the measure developed in this study allows organizations to quantify perceived readiness for change and to acquire a better understanding of specific organizational actions that require more attention. The findings imply that organizations that want to be perceived by their employees to be ready for change should pay close attention to the behaviours of their leaders, change agents, immediate supervisors at all levels, organizational practices around the change, and how these practices impact people's daily work (see Table 2 for the specific organizational actions associated with each of these perceptions). These findings are consistent with the literature that relates organizational readiness for change to the change leadership capability of senior management (e.g. Kavanagh and Ashkanasy, 2006; Trahan and Burke, 1996), day-to-day leadership provided by the change agents throughout the organization (e.g. Dawson, 2003; Stewart, 1994) and the role of immediate supervisors in shaping employees' perception of organizational change as they interact on a daily basis (e.g. Duck, 2001; Kotter and Cohen, 2002; Quirke, 1996). These findings also send an important message to organizations that immediate managers embody the organization's values around change, and that the behaviours exhibited by these individuals create the organization's image in the eyes of its

employees. All managers who have direct reports, therefore, need to be ready and well equipped to communicate change to their staff and provide the necessary support. As Dawson (2003) has noted, it is the organization's responsibility to prepare all those who supervise others to deal with change and involve them in designing and implementing this change.

Two forms of organizational actions are strongly associated with perceptions that the organization is not ready for change. Poor communication practices in particular appear to be detrimental in this respect. Again, the AFA methodology used in this research adds value as it tells us quite specifically what poor communication around change looks like. Organizations are judged to be not ready for change due to poor communication practices when employees perceive that the outcomes, benefits and reasons for the change are not well explained and when employees do not understand the vision behind the change. Poor communication has been identified as one of the reasons for the failure of change efforts and resistance to change (Quirke, 1996). In contrast, organizations that are ready for change have been associated with effective communication (Jones and Bearley, 1986; Stewart, 1994; Trahan and Burke, 1996).

Employees' perceptions with respect to organizational readiness for change are also affected by the impact the change is perceived to have on their work. Not phasing out the old duties when the new ones are assigned, discouraging people from saying 'no' to work, and heavy workloads that hinder employees from getting involved in the change initiative are all actions that this research would suggest may make employees believe the organization is not ready for change. The literature does not provide a direct link between the impact of the change on work and PORC, but observations of Brown and Duguid (1991) and Jellison (1993) that increased workloads and work practices that are seen by employees as adverse may trigger resistance to change suggest that such a link might exist. This study supports these authors and offers specific instances on how this perception arises.

Findings of this research also indicate that, when employees perceive that their organization is ready for change, they also experience lower job stress and tend to think that the organization is supportive. This implies that manipulation in one area is likely to produce results in the other.

There are also some limitations in this study that could be addressed in future research. The present research did not take into consideration the phases each organizational change goes through (Duck, 2001). Future research might examine the differences in employees' perceptions of organizational context depending on how long the change process had been under way and/or the organization's prior experience with respect to the implementation of transformational change. Examining organizational members' perceptions at a single point in time is another limitation of the study. The dynamics of perceptions over time could be explored with the help of a longitudinal study. Finally, more testing is necessary to validate the developed measure and to strengthen its generalizability. This measure was developed and tested within public sector departments undergoing transformational change. As notable differences have been observed between the environments and cultures of public and private sectors (Rainey, 2003), the measure cannot therefore be automatically assumed to apply to other types of organizations or other types of change. On the other hand, a broader application of the measure cannot be excluded completely as certain employee expectations might be universal regardless of the sector in which they work.

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