Readiness for Organizational Change: The Systematic Development of a Scale

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Readiness for Organizational Change

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Using a systematic item-development framework as a guide (i.e., item development, questionnaire administration, item reduction, scale evaluation, and replication), this article discusses the development and evaluation of an instrument that can be used to gauge readiness for organizational change at an individual level. In all, more than 900 organizational members from the public and private sector participated in the different phases of study, with the questionnaire being tested in two separate organizations. The results suggest that readiness for change is a multidimensional construct influenced by beliefs among employees that (a) they are capable of implementing a proposed change (i.e., change-specific efficacy), (b) the proposed change is appropriate for the organization (i.e., appropriateness), (c) the leaders are committed to the proposed change (i.e., management support), and (d) the proposed change is beneficial to organizational members (i.e., personal valence).

Keywords: *readiness for change; scale development; attitudes toward change*

Lewin (1947) argued that during an individual's progression through change, the three stages of unfreezing, moving, and refreezing are experienced. Based on this

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idea, researchers have tried to outline a set of actions that could be taken by change agents to reduce resistance and move organizations and individuals through these stages. For instance, Coch and French (1948) demonstrated the effect various forms of employee participation had on productivity and satisfaction during times of change. They found the greater the extent of participation (i.e., none, participation by representation, and total participation), the more satisfied employees were and the quicker they met new production goals. Others have been spurred by these early efforts to offer further insights into how resistance to change could be reduced (cf. Kotter, 1995; Kotter & Schlesinger, 1979; Lawrence, 1954).

Building on this foundation, Armenakis, Harris, and Mossholder (1993) proposed a model for creating readiness and proposed that readiness was a precursor of resistance and adoption behaviors. One step in their model was assessment. This step is intended to determine just how ready for change employees are before organizational changes are implemented. This assessment enables leaders to identify gaps that may exist between their own expectations about the change initiative and those of other members. If significant gaps are observed and no action taken to close those gaps, resistance would be expected, and therefore, change implementation would be threatened.

Assessment of readiness can be conducted using both qualitative (e.g., observation and interview techniques) and quantitative (i.e., questionnaire techniques) methods. Although qualitative methods provide incredibly rich change-specific information (e.g., Isabella, 1990), quantitative methods are an appropriate supplement, offering unique advantages to managers, organizational development consultants, and researchers in certain settings. For instance, a well-focused quantitative assessment can be an efficient means to garner change-related information in large global firms because these quantitative instruments can be distributed widely in relatively short periods of time. Furthermore, after a quantitative instrument has been administered, the extent to which the readiness assessment is reliable and valid can be determined. Because of the time and effort that is expended on implementing

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organizational changes, the reliability and validity of quantitative readiness assessments cannot be overemphasized. Based on this idea, the primary purpose of this article is to propose a quantitative measure of readiness at the individual level that satisfies rigorous psychometric properties (cf. American Psychological Association [APA], 1995), measuring readiness for systemwide changes that affect many facets of organizations.

Theoretical Framework

Readiness is arguably one of the most important factors involved in employees' initial support for change initiatives (Armenakis et al., 1993; Armenakis, Harris, & Feild, 1999). Although the concept of readiness may have been first introduced by Jacobson (1957), the foundation for readiness as a unique construct has been embedded within several theoretical models of the process through which change unfolds. Van de Ven and Poole (1995) synthesized change theories across several disciplines, giving researchers, managers, and organizational development professionals a theoretical means to better understand the phenomenon. Organizational leaders often introduce purposeful, systemwide changes in an effort to realize specified goals (termed *teleological change* by Van de Ven & Poole, 1995). However, as these purposeful changes are introduced, differences and conflicts between the organizational leaders and members may be confronted. For change to occur in the direction that leadership desires, conflicts must be resolved such that organizational members' beliefs and cognitions align with those of the leaders (termed *dialectical change* by Van de Ven & Poole, 1995). In essence, a state of readiness must be created.

Therefore, it is not surprising that the assessment of readiness prior to the introduction of change has been encouraged and several instruments have been developed to fulfill that purpose (Cunningham et al., 2002; Jones, Jimmieson, & Griffiths, 2005; Weeks, Roberts, Chonko, & Jones, 2004). These existing instruments appear to measure readiness from one of several perspectives, namely, change process, change content, change context, and individual attributes (Holt, Armenakis, Harris, & Feild, in press). The change process refers to the steps followed during implementation. One dimension of change process can be the extent to which employee participation is permitted. A second perspective is the organizational change content, which refers to the particular initiative that is being introduced (and its characteristics). Content typically is directed toward administrative, procedural, technological, or structural characteristics of the organization. The third perspective is organizational context. Context consists of the conditions and environment within which employees function. For example, a learning organization is one in which employees are likely to embrace continuous change. The fourth and final perspective is the individual attributes of employees. Because of the differences between individuals, some employees are more inclined to favor organizational changes than others may be.

Although it is beyond the scope of this article to offer a comprehensive review of readiness instruments, Holt et al. (in press) reviewed 32 instruments that measure readiness quantitatively. They concluded that there was considerable opportunity for improvement because the available instruments lack evidence of validity and reliability.

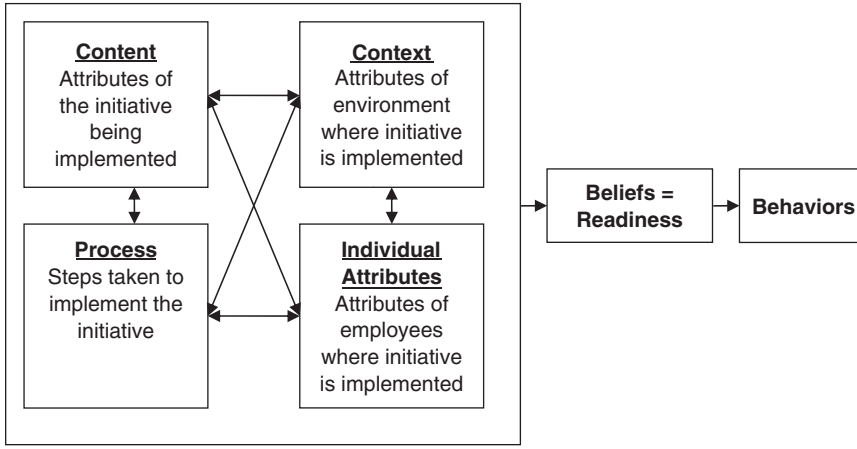

FIGURE 1: The Relationship Between Content, Process, Context, and Individual Attributes With Readiness

In sum, two instruments satisfied the standards established by APA (1995). One, the Lay of the Land Survey (Burke, Coruzzi, & Church, 1996), captured readiness by assessing organizational members' general perceptions of the environment where change was occurring without considering a specific initiative. The other, the University of Rhode Island Change Assessment (McConnaughy, Prochaska, & Velicer, 1983), did assess readiness for specific initiatives; however, it was designed for changes that were not organizationally relevant, such as individual efforts to stop smoking or lose weight. Whereas this instrument has been adapted for use in an organizational setting (Cunningham et al., 2002), it too lacked systematic tests of validity.

Despite the shortcomings, Holt et al. (in press) suggest that these instruments have collectively suggested a comprehensive measurement model that comprises four factors grounded in the measurement perspectives observed in the existing instruments, namely, the change content, change process, internal context, and individual characteristics (see Figure 1). In turn, readiness for change was defined as a comprehensive attitude that is influenced simultaneously by the content (i.e., what is being changed), the process (i.e., how the change is being implemented), the context (i.e., circumstances under which the change is occurring), and the individuals (i.e., characteristics of those being asked to change) involved. Furthermore, readiness collectively reflects the extent to which an individual or individuals are cognitively and emotionally inclined to accept, embrace, and adopt a particular plan to purposefully alter the status quo. Figure 1 depicts the relationship between these four elements and the beliefs among organizational members. Although this model is not explicitly tested in our effort, it does provide a conceptual framework to guide the development of a comprehensive readiness measure, suggesting that a general set of beliefs shape readiness and provide the foundation for resistance or adoptive behaviors.

METHODOLOGICAL OVERVIEW

Based on this, we reasoned that there was an opportunity to build on the insights of the diverse research and develop an organizationally relevant, change-specific instrument, thereby providing managers, organizational development consultants, and researchers an instrument that might best match their needs. Hinkin (1998) provided a framework to guide the development of a psychometrically sound survey instrument. The procedure we followed comprises five steps, namely, (a) item development, (b) questionnaire administration, (c) item reduction, (d) scale evaluation, and (e) replication with an independent sample. In all, more than 900 practicing organizational managers participated in this study. The participants were selected to elicit feedback from a wide range of educational (i.e., participants ranged from high school graduates to those with graduate degrees), functional (e.g., human resource management, engineering, flight operations, and education), and organizational backgrounds (i.e., public and private sector). Diversity was emphasized because researchers have suggested that common factors that emerge from heterogeneous samples tend to provide a more general and complete understanding of a phenomenon (e.g., Sutton, 1987).

Step 1 — Item Development

Inductive development of the content domain. Hinkin (1998) suggested that survey items should be developed by specifying the content domain, developing items to assess that domain, and determining the extent to which items measure the specified domain. Because of the many instruments available and the differences observed, available instruments along with 131 books, articles, studies, reports, and papers that addressed the concept of readiness were consulted to inductively refine the content domain of readiness (contact the authors for a list of these documents). To supplement this review, we asked 75 managers from public- and private-sector organizations to describe their experiences with recent organizational changes (i.e., critical incidents approach). These descriptions were gathered using two methods. First, a series of semistructured interviews was conducted with senior- to middle-level managers (n = 15). Second, a sample of middle- to lower-level managers (n = 60) completed an open-ended questionnaire. Content analysis of the literature, interviews, and open-ended questionnaires yielded 33 themes important to the concept of readiness.

Identification of most significant themes. A sample of 291 lower-level to midlevel managers reviewed the list of 33 readiness themes that emerged. Participants indicated the extent to which they felt each of these themes affected an individual's readiness for change, using six response options (i.e., 1 = *extremely negative impact on readiness for change* to 6 = *extremely positive impact on readiness for change*). We analyzed the responses and identified the themes that had the highest mean ratings with standard deviations less than or equal to 1.0. We found five themes that satisfied these criteria. The themes were as follows: (a) confident that you are capable

of making the change; (b) confident that the change will benefit the employee personally; (c) recognition that the organization's leadership supports the change; (d) confident that the change will lead to long-term benefits for the organization; and (e) recognition of the need for change. We labeled these themes as (a) self-efficacy, (b) personal valence, (c) senior leader support, (d) organizational valence, and (e) discrepancy. More important, these themes aligned with the readiness model presented where content (i.e., organizational valence), process (i.e., management support), context (i.e., discrepancy), and individual attributes (i.e., self-efficacy and personal valence) were represented.

Item Development

The five most critical themes, referred to as readiness factors, were formally defined, and 59 items that reflected each (11 to 12 items per factor) were written and evaluated through two formal tests. A summary of the factor definitions, items, and results of the content adequacy tests is provided in Table 1.

Content Adequacy Test I. The first test was conducted using the procedures detailed by Schriesheim, Powers, Scandura, Gardiner, and Lankau (1993), where participants identified the readiness factors (along with a "none of the above" category) that each of the 59 statements represented. Twenty-six military officers beginning a graduate program in engineering management participated; they were mostly male ($n = 23$) with an average age of 26.7 years ($SD = 3.4$).

The data were analyzed using two methods. First, items were retained if 60% of the points assigned were in the appropriate category (cf. Bolino & Turnley, 1999). Eighteen of the original 59 items failed to meet this criterion. Three of these 18 items, in fact, did not represent the intended factors. For instance, one item intended to reflect an individual's personal valence ("I am concerned with the risks associated with this change") had only 24.1% of the total points in this category, whereas 27.8% of the points were in the organizational valence category. Perhaps participants felt the item referred to the organization's risk, whereas others felt the item referred to personal risks.

After the 18 items were eliminated, the data were analyzed using a unique factor analytic approach described by Schriesheim et al. (1993). Using a conservative standard (cf. Ford, MacCallum, & Tait, 1986), only items that (a) had loadings of at least .60 (in absolute terms) on the intended factor and (b) had no other loadings greater than .30 (in absolute terms) were considered meaningful. Although all of the items met the loading criterion of .60, 1 item ("this change represents a departure from our organization's values") cross-loaded on an unintended factor and was deleted.

Content Adequacy Test II. Even though the initial test indicated that the majority of the items reflected the intended readiness factors, revisions were made. Specifically, participants had problems distinguishing the items designed to measure discrepancy and organizational valence. Thus, four additional items were written to represent the discrepancy factor rather than modify the factor definitions. These included (a) "this

TABLE 1
Item Pool Subjected to Content Adequacy Tests

Statements
Change self-efficacy [termed *change confidence* on the questionnaires] refers to the extent to which one feels that he or she has or does not have the skills and is or is not able to execute the tasks and activities that are associated with the implementation of the prospective change.
13. My past experiences make me confident I will be able to perform successfully after this change is made.
19. There are some tasks that will be required when we change; I don't think I can do well.
27. I have the skills that are needed to make this change work.
37. When we implement this change, I feel I can handle it with ease.
22. When I set my mind to it, I can learn everything that will be required when this change is adopted.
30. I am intimidated by all the tasks I will have to learn because of this change.
42. When I heard about this change, I thought it suited my skills perfectly.
20. I do not anticipate any problems adjusting to the work I will have when this change is adopted.
14. After this change is implemented, I am confident I will be able to do my job.
I expect to succeed after this change is implemented.[a]
I am too set in my ways to implement this change.[a]
The organization will provide me with the training necessary to successfully implement this change.[a]
Discrepancy [termed *need for change* on the questionnaires] refers to the extent to which one feels that there are or are not legitimate reasons and needs for the prospective change.
38. There are legitimate reasons for us to make this change.[b]
40. There are a number of rational reasons for this change to be made.
44. No one has explained why this change must be made.[b]
4. It doesn't make much sense for us to initiate this change.
2. This change is clearly needed.[b]
32. The time we are spending on this change should be spent on something else.
25. I think we are implementing this change just because we can.
23. I think there are real business needs that make change necessary.[b,c]
I don't understand how this change will make things better than the way it is now.[a]
As far as I am concerned, our organization doesn't have a problem that will be addressed by this change.[a]
I am suspicious of the reasons this particular change is being implemented.[a]
This change came about after a sound evaluation of the organization's current circumstances.[a]
It is critical for us to move in the direction we are moving with this change.[a]
Personal valence [termed *personally beneficial* on the questionnaires] refers to the extent to which one feels that he or she will or will not benefit from the implementation of the prospective change.
26. When we implement this change, I can envision financial benefits coming my way.
41. This change will disrupt many of the personal relationships I have developed.
12. The prospective change will give me new career opportunities.
9. When this change is implemented, I don't believe there is anything for me to gain.
15. My future in this job will be limited because of this change.
1. In the long run, I feel it will be worthwhile for me if the organization adopts this change.
17. I am worried I will lose some of my status in the organization when this change is implemented.
8. This change makes my job easier.
21. The effort required to implement this change is rather small when compared to the benefits I will see from it.
This change makes me question my future employment with this organization.[a]
People at my level of the organization will not see any benefits from this change.[a]
I am concerned with the risks associated with this change.[a]

TABLE 1 (continued)

Statements
Organizational valence [termed *organizationally beneficial* on the questionnaires] refers to the extent to which one feels that the organization will or will not benefit from the implementation of the prospective change.
5. I think the organization will benefit from this change.
3. Our organization is going to be more productive when we implement this change.
10. When we adopt this change, we will be better equipped to meet our customers' needs.
16. This change will improve our organization's overall efficiency.
36. Our organization will lose some valuable assets when we adopt this change.
28. This change matches the priorities of our organization.
35. This change replaces outdated aspects of the organization while building on the positive attributes of the organization.[d]
6. This change will be an improvement over our current practices.[d]
I understand how this change helps our organization get where it is trying to go.[a]
This change is a "quick fix" for larger organizational problems.[a]
I am skeptical of the promise that things will be better for the organization after we change.[a]
This change represents a departure from our organization's values.[e]
Senior leadership support [the same term was used on the questionnaires] refers to the extent to which one feels that the organization's leadership and management are or are not committed to and support or do not support implementation of the prospective change.
7. Management has sent a clear signal this organization is going to change.
24. I believe management has done a great job in bringing about this change.
31. The senior leaders have served as role models for this change.
33. Our organization's top decision makers have put all their support behind this change effort.
29. This organization's most senior leader is committed to this change.
39. Every senior manager has stressed the importance of this change.
43. Our senior leaders have encouraged all of us to embrace this change.
11. The organization's senior leader has not been personally involved with the implementation of this change.
18. I am sure that our senior leaders will change their mind before we actually implement this change.
34. I think we are spending a lot of time on this change when the senior managers don't even want it implemented.
Experienced managers have given me little guidance that explains what is expected after this change is adopted.[a]
Everyone appears to support this change.[a]

NOTE: Numbering is based on the questionnaire that was administered during the final content adequacy test—those without numbers had been eliminated prior to that test.
a. Item was deleted after the first content adequacy assessment because less than 60% of the participants classified the items in the intended category.
b. Item was added to the item pool after the first content adequacy assessment.
c. Item was deleted after the second content adequacy assessment based on the substantive-validity coefficients.
d. Item was deleted after the second content adequacy assessment based on the proportions of substantive agreement.
e. Item was deleted after the first content adequacy assessment based on the Q-factor analysis results.

change is clearly needed"; (b) "there are legitimate reasons for us to make this change"; (c) "I think there are real business needs that make change necessary"; and (d) "no one has explained why this change must be made" (see Table 1).

A new sample of 88 judges evaluated this set of 44 items using the approach described by Anderson and Gerbing (1991). The data were analyzed by first computing the proportion of participants that categorized the item as intended. As recommended (Bolino & Turnley, 1999; Schriesheim & Hinkin, 1990), items with a proportion of agreement greater than .70 were retained. Two items designed to tap organizational valence failed to meet this criterion. For instance, 1 item was correctly categorized by only 68% of the participants ("this change replaces outdated aspects of the organization, while building on the positive attributes of the organization"). Second, substantive-validity coefficients (SVCs) were computed (Anderson & Gerbing, 1991) to statistically assess the extent to which the item assessed another, unintended factor. The SVC of one item that was designed to gauge discrepancy was not statistically significant ($p < .01$) and eliminated ("I think there are real business needs that make change necessary"). Despite the final deletions, each readiness factor had at least 6 items remaining, and no additional items were written before the questionnaire was administered (Hinkin, 1998).

Step 2 — Questionnaire Administration

Using the items that were deemed appropriate, a questionnaire was developed that included the readiness items as well as items from known scales. The responses to the readiness items were used in Step 3, Initial Item Reduction. After Step 3 was complete, the data from the readiness items and known scales were used in Step 4, Scale Evaluation (cf. Hinkin, 1998). The known scales are described as Step 4 is outlined. All readiness items were phrased in such a way that participants expressed their level of agreement with each item using a 7-point response format ranging from 1 = *strongly disagree* to 7 = *strongly agree*.

Organizational setting. The questionnaire was administered in a government organization that had a $300 million budget and was responsible for developing and fielding information systems for the Department of Defense. The organization's senior leadership with the help of an external consultant had gone through a detailed analysis of key customers' requirements and identified core business functions to support those. Through this analysis, a series of leadership objectives was developed to better align their operations with those requirements and functions. One of these leadership objectives, termed *organize for success*, outlined a new organization structure that clarified lines of authority and eliminated duplicate functions.

Sample. Six weeks prior to the implementation of the new structure, 264 employees of this organization (53% response rate) completed the questionnaire. Of these, males represented 59% of the sample, and the age of the average participant was 47.6. An array of job titles was represented, ranging from illustrator to quality assurance. However, computer analysts and programmers represented the largest portion of the sample. In addition, participants indicated that 2.9 organizational levels, on average, separated their position from the organization's most senior leader.

Step 3 — Initial Item Reduction

Interitem correlations. Hinkin (1998) suggested that scales be refined initially using interitem correlations and exploratory factor analysis. Items could be eliminated from the initial pool with little or no loss in sampling of the content domain when interitem correlations between items exceed .7, avoiding too much redundancy and artificially inflated estimates of internal consistency (e.g., Boyle, 1991). Based on this criterion, four items were deleted.

Factor analysis. Factor analysis was conducted using the methods prescribed by Conway and Huffcutt (2003), Ford et al., (1986), and Hinkin (1998). Thus, the items were factor analyzed using the principle axis method and an orthogonal rotation (cases-to-item ratio was about 7:1). Six factors initially emerged using the eigenvalue criterion in conjunction with a scree plot; however, 12 items exhibited loadings (factor loading less than .4, cross-loading greater than .35, or factor loading on main factor less than two times that of other factors) that warranted their removal. The remaining items were factor analyzed; factors were extracted, and loadings were evaluated using the same procedure. Four factors emerged accounting for 62.7% of the variance. Table 2 shows the results from this analysis along with the original classification of the items (an oblique rotation yielded a similar factor structure, explaining the same amount of variance).

The results for the first factor were more complex than expected. In all, 10 items loaded on this factor. Four of the items were intended to measure the extent to which members felt that a change was needed (i.e., discrepancy), representing the participants' perceptions regarding the legitimacy of a change. Three of the items were designed to measure the extent to which members felt the change would be beneficial to the organization (i.e., organizational valence), focusing on the change's benefits, gained efficiency, and goal congruence. The idea that these items tended to cluster onto a single factor was not a complete surprise. The results from the content adequacy tests suggested that participants had problems distinguishing between discrepancy and organizational valence. The results from this factor analysis reinforced this result, indicating that participants in a field setting tend to view these ideas (discrepancy and organizational valence) as a unitary construct. Thus, Factor 1 was labeled *appropriateness*.

Factor 2, termed *management support*, contained six items originally intended to measure this construct. This factor represented the extent to which organizational members felt senior leaders supported the change. Factor 3, termed *change efficacy*, contained six of the original change efficacy items and reflected the extent to which organizational members felt confident that they would perform well and be successful. The consistency of the items and the magnitude of the loadings provided strong empirical support that these two categories may be influential to an individual's readiness.

The final factor, Factor 4, labeled *personal valence*, included three items originally intended to measure whether the change was perceived to be personally beneficial. Clearly, with only three of the items originally intended to measure this idea

TABLE 2
Results of Factor Analysis

Questionnaire Item[a]	*Original Readiness Factor*	*I*	*II*	*III*	*IV*
Factor 1: Appropriateness					
5. I think that the organization will benefit from this change.	OV	.95	–.13	–.02	–.07
4. It doesn't make much sense for us to initiate this change.	D	.90	–.07	.04	–.03
37. There are legitimate reasons for us to make this change.	D	.84	–.11	.03	–.19
16. This change will improve our organization's overall efficiency.	OV	.83	.00	.03	.00
39. There are a number of rational reasons for this change to be made.	D	.81	.03	.01	.05
1. In the long run, I feel it will be worthwhile for me if the organization adopts this change.	PV	.80	.00	–.29	.16
7. This change makes my job easier.	PV	.78	.12	.05	–.10
9. When this change is implemented, I don't believe there is anything for me to gain.	PV	.77	–.02	.05	.06
32. The time we are spending on this change should be spent on something else.	D	.71	.04	.06	.09
28. This change matches the priorities of our organization.	OV	.64	.17	.05	.10
Factor 2: Management Support					
42. Our senior leaders have encouraged all of us to embrace this change.	SLS	–.13	.94	–.06	.01
33. Our organization's top decision makers have put all their support behind this change effort.	SLS	–.07	.89	–.01	–.04
38. Every senior manager has stressed the importance of this change.	SLS	.05	.86	–.10	–.11
29. This organization's most senior leader is committed to this change.	SLS	.13	.68	–.01	.06

TABLE 2 (continued)

Questionnaire Item[a]	*Original Readiness Factor*	*I*	*II*	*III*	*IV*
34. I think we are spending a lot of time on this change when the senior managers don't even want it implemented.	SLS	.06	.67	.02	.10
6. Management has sent a clear signal this organization is going to change.	SLS	–.09	.65	.19	–.07
Factor 3: Change Efficacy					
20. I do not anticipate any problems adjusting to the work I will have when this change is adopted.	CSE	–.07	–.04	.85	–.02
19. There are some tasks that will be required when we change that I don't think I can do well.	CSE	.11	–.08	.78	–.12
36. When we implement this change, I feel I can handle it with ease.	CSE	–.05	.01	.71	.06
27. I have the skills that are needed to make this change work.	CSE	–.18	–.07	.71	.27
22. When I set my mind to it, I can learn everything that will be required when this change is adopted.	CSE	.12	.14	.64	–.07
13. My past experiences make me confident that I will be able to perform successfully after this change is made.	CSE	.20	.12	.51	–.02
Factor 4: Personally Beneficial					
17. I am worried I will lose some of my status in the organization when this change is implemented.	PV	–.03	–.08	.01	.88
40. This change will disrupt many of the personal relationships I have developed.	PV	–.05	–.03	.02	.76
15. My future in this job will be limited because of this change.	PV	.21	.12	.06	.53
Eigenvalues		9.63	2.36	2.07	1.25
Percentage of total variance		38.51	9.44	8.26	4.99

NOTE: $N = 264$. D = discrepancy; OV = organizational valence; PV = personal valence; SLS = senior leadership support; CSE = change self-efficacy.
a. Item numbers based on original questionnaire.

loading meaningfully on a distinguishable factor and another item loading on an unintended factor, participants may have a more limited conceptualization of personal valence than we had hypothesized as we developed items. In fact, an examination of the content suggests that this factor reflected concerns about relationships, status, and opportunities while more job-related concerns loaded with another factor, a result that was not entirely surprising considering the change under study was a reorganization.

Estimates of internal consistency. Estimates of internal consistency were computed for each factor. Coefficient alphas were .94 for appropriateness, .87 for management support, .82 for change efficacy, and .66 for the personal valence score. Although the internal consistency of the Personal Valence scale did not meet the standard of .70 that has been suggested (Nunnally, 1978), the standard of .70 was relaxed because of the exploratory nature of the scale.

Step 4 — Scale Evaluation

Hinkin (1998) recommended that construct and predictive validity of new scales be evaluated beyond the evidence provided through factor analysis. Therefore, known scales designed to measure personality and contextual variables were administered along with the readiness factors so that convergent validity, the extent to which new scales share variance with other known scales, could be explored. Theoretically, variables were included because there appeared to be a theoretical relationship between a particular variable and readiness for change (e.g., Wanberg & Banas, 2000). Practically, the variables were selected because reliable and valid measures of these concepts were available. Also, predictive ability of the scales was examined by testing the ability of the readiness factors to (a) distinguish between known groups of participants and nonparticipants and (b) predict three attitudinal job outcomes commonly studied in change research: job satisfaction, affective commitment, and turnover intentions. Moreover, the ability of the readiness factors to explain incremental variance in predicting these criteria (job satisfaction, affective commitment, and turnover intentions) was tested after controlling for (a) demographic characteristics, (b) personality traits, and (c) culture characteristics.

Convergent Validity

Personality factors. Although great care was taken to develop items that would reduce to the intended factors, the inductive scale development procedures we used meant that we were not sure what readiness-for-change factors would emerge. Not knowing what factors would emerge meant that we could only speculate as to the known scales that should be included to establish some initial level of convergent validity when the readiness-for-change items were administered in a field setting. However, the recent literature exploring organizational change has suggested a number of personality factors and facets of an organization's culture that could be expected to correlate with readiness-for-change factors (cf. Wanberg & Banas, 2000).

Measures of an individual's locus of control (using the seven-item Internal Mastery Scale developed by Pearlin, Lieberman, Menaghan, & Mullan, 1981, α = .77), negative affect (using the 10-item Negative Affect Schedule developed by Watson, Clark, & Tellegen, 1988, α = .86), rebelliousness (using the 11-item scale developed by Hong & Faedda, 1996, α = .85), and general attitudes toward change (using the five items developed by Trumbo, 1961, α = .73) were included. Locus of control and general attitudes toward change were expected to be positively related to the readiness factors, whereas negative affect and rebelliousness were thought to be negatively related to the readiness factors.

Organizational culture. Consistent with the idea that people's personalities influence readiness, there is a considerable body of literature that suggests that the situation or context also influences readiness. Gopalakrishnan and Damanpour (2000) found certain contextual factors such as size and product scope influenced the speed with which changes were adopted. Others have explored the context by examining the perceptions of the employees who are affected by the changes (Wanberg & Banas, 2000). Consistent with this latter notion, we measured the perceptions members had of the organization's communication climate (measured with the four-item scale developed by Miller, Johnson, & Grau, 1994, α = .73) and perceived ability of management (measured with a six-item scale developed by Mayer & Davis, 1999, α = .94). Both of these organizational elements were expected to be positively related to the readiness factors.

Convergent validity results. Means, standard deviations, correlations, and estimates of reliability are provided in Table 3. These results indicated that the readiness factors were correlated with each other (mean r = .46, $p < .05$). In addition, the correlations between the variables gave some evidence of convergent validity. As expected, locus of control and general attitudes toward change were positively related to each of the readiness factors, whereas negative affect and rebelliousness were negatively related to each of the readiness factors. Additionally, perceptions of the communications climate and managements' ability were both positively related to the readiness-for-change factors.

Differences Between Known Groups

Participation is generally believed to increase the acceptance of proposed changes. This outcome may occur through a number of mechanisms. First, those who participate in planning and implementing change often have the opportunity to influence the change. Those with this direct influence tend to become affectively committed to the change effort and support the change overtly (Miller & Monge, 1985). Second, those who participate often have greater access to change-related information than those who do not. This access to information makes it possible for participants to better understand the justification for change and its ultimate objectives. Therefore, it was reasonable to expect those who actually participated in the development of the new organizational structure to be more ready for change than

TABLE 3

Descriptive Statistics and Correlation Matrix for Sample 1 and Sample 2

	Initial Sample		*Correlations*													*Replication Sample*	
Dimension	M	SD	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	M	SD
Demographic variables																		
1. Age	47.6	8.7	—	.12	.02	–.03	–.07	–.03	–.06	.16	—	–.11	.02	–.20*	.02	.09	47.01	8.2
2. Gender	0.6	0.5	.14*	—	.23*	.03	–.13	.04	–.12	–.14	—	–.09	.09	–.13	–.11	–.08	.57	0.5
3. Education	2.6	1.3	.02	.25*	—	–.05	.15	–.07	.05	–.05	—	.11	.12	.22*	–.11	.03	3.62	1.73
4. Organizational level	2.9	1.6	–.01	.03	–.01	—	–.19*	.08	.05	.01	—	.02	.00	–.07	–.04	–.04	3.00	1.62
Readiness-for-change factors																		
5. Appropriateness	4.5	1.2	–.08	.06	.10	–.23*	—	.35*	.53*	.49*	—	.34*	–.16*	.24*	.49*	.58*	4.0	1.4
6. Management support	5.3	1.1	–.03	–.02	–.04	–.22*	.48*	—	.30*	.32*	—	.15*	–.22*	.05	.43*	.41*	4.9	1.4
7. Change efficacy	5.3	1.0	–.04	.08	–.01	–.16*	.47*	.40*	—	.53*	—	.46*	–.13*	.27*	.51*	.50*	4.8	1.1
8. Personally beneficial	4.9	1.2	–.06	–.11	.03	–.15*	.47*	.42*	.54*	—	—	.41*	–.20*	.22*	.46*	.47*	4.8	1.3
Personality variables																		
9. Negative affecta	1.6	0.5	–.14*	.00	–.06	.13	–.07	–.14*	–.24*	–.14*	—	—	—	—	—	—	—	—
10. Locus of control	5.4	0.9	.00	.01	.06	–.06	.26*	.35*	.46*	.37*	–.44*	—	–.41*	.46*	.25*	.30*	5.2	0.93
11. Rebelliousness	2.9	0.8	–.19*	.04	.00	.11	–.19*	–.36*	–.29*	–.37*	.32*	–.48*	—	–.27*	–.28*	–.39	2.9	0.83
12. General attitude toward change	4.7	1.3	.02	–.13*	.17*	–.18*	.32*	.22*	.34*	.40*	–.34*	.49*	–.44*	—	.10	.12	4.3	1.2
Contextual variables																		
13. Communications climate	4.0	1.2	.07	–.07	.06	–.12	.38*	.48*	.34*	.43*	–.17*	.49*		–.44	—	.58*	4.1	1.15
14. Perceived management ability	4.7	1.3	.00	–.09	–.03	–.18*	.55*	.68*	.46*	.50*	–.19*	.35*		–.40	–.40	—	—	—

NOTE: Correlation coefficients along the lower diagonal represent those from the first field test ($N = 202$ to 262); those along the upper diagonal are from the replication sample ($N = 221$ to 227).

a. Negative affect was not measured in the second organization.

*$p < .05$.

those who did not participate in the change. That is, participants in the planning of a change initiative should score higher on a valid measure of readiness for change than nonparticipants (cf, Coch & French, 1948).

An organization representative identified those who participated in the planning of the change. In all, 50 people were identified. Of these, 43 (86%) participants completed the questionnaire. Participation was a categorical variable coded as a 0 = *nonparticipant* or 1 = *participant*.

Results of known-groups analysis. A one-way MANOVA was conducted to test whether participants reported higher mean readiness than nonparticipants. The results indicated that participation was related to readiness, $F(4, 216) = 4.17$, $p < .01$. To further explore the differences between participants and nonparticipants on each readiness factor, a series of univariate ANOVAs was conducted. In all cases, participants, as expected, reported higher mean scores on the readiness factors than nonparticipants. Thus, the readiness scales effectively discriminated between groups that were expected to have differing levels of readiness.

Predictive and Incremental Validity

Of the 264 employees that completed the first questionnaire, 156 (59%) completed an abbreviated version of the original questionnaire 7 months later. This questionnaire included the three-item scale of job satisfaction (Cammann, Fichman, Jenkins, & Klesh, 1983; $\alpha = .83$), the six-item scale of affective commitment (Allen & Meyer, 1990; $\alpha = .86$), and the three-item scale of turnover intentions (Cammann et al., 1983; $\alpha = .88$). No significant differences (using *t* tests) were detected in the mean of organizational level, gender, or age between those who responded to only the Time 1 questionnaire ($n = 108$) and those who responded to both the Time 1 and Time 2 questionnaires ($n = 156$).

Predictive validity results. We hypothesized that the readiness-for-change factors would be related to job satisfaction, affective commitment, and turnover intentions when these factors were measured well after the change was implemented. Using regression, the readiness-for-change factors collectively explained 23% ($F = 9.24$, $p < .01$), 17% ($F = 8.18$, $p < .01$), and 10% ($F = 3.59$, $p < .01$) of the variation in the organizational members' job satisfaction, affective commitment, and turnover intentions, respectively. Although each of the readiness-for-change factors was not related to each of the attitudinal outcomes when all of the readiness factors were included in the regression models (i.e., management support [mean $\beta = .11$, $p > .05$] and personal valence [mean $\beta = .06$, $p > .05$] were not related to any of the attitudinal outcome variables), the relationships that did emerge were in the expected directions. That is, appropriateness was positively related to job satisfaction ($\beta = .27$, $p < .01$) and affective commitment ($\beta = .26$, $p < .01$), whereas change efficacy was positively related to job satisfaction ($\beta = .25$, $p < .01$) and affective commitment ($\beta = .21$, $p < .05$).

Incremental validity results. To test the incremental predictive validity of the readiness factors, hierarchical multiple regression was used. Each of the demographic

characteristics, personality variables, and contextual variables were entered first to predict the attitudinal outcomes; then, the readiness factors were added to the equations to ascertain any increase in explained variance. This analysis indicated that the addition of the readiness factors in Step 2 increased the explained variance of job satisfaction (when readiness-for-change factors were entered, $\Delta R^2 = .08$, $p < .05$) and affective commitment (when readiness-for-change factors were entered $\Delta R^2 = .08$, $p < .05$). The readiness-for-change factors did not explain a significant amount of variation in turnover intentions over the demographic characteristics, personality variables, and contextual variables (when readiness-for-change factors were entered $\Delta R^2 = .04$, $p > .05$).

Step 5 — Replication

Although the previous data provided some evidence that the readiness scales were valid and reliable, one study does not establish the validity of a new measure. Therefore, a questionnaire that included the readiness items along with other known scales designed to measure individual characteristics and specific contextual characteristics was administered in another organization.

Organizational setting and sample. The organization was similar to that in the first field administration in that it was responsible for information technology; however, this second organization was a private-sector firm. Also, the leadership of this organization was implementing a new organizational structure based on the recommendations of an external consultant. Although the details of this engagement were not made available to our research team, the change included an additional dimension in that two smaller, geographically separated organizations were being merged into a larger organization. Data were collected from 228 employees (46% response rate). On average, this sample was 47.0 years old.

Confirmatory factor analysis and internal consistency. In this replication study, a confirmatory factor analysis of the readiness items was conducted to further analyze the factor structure and provide additional evidence of the construct validity of the readiness scale. Using a procedure demonstrated by Sturman and Short (2000), the hypothesized four-factor model was tested and compared against alternative models that were logical and represented the data with fewer factors. The first alternative was the single factor model, which suggested that the readiness-for-change items could not be represented by multiple factors or dimensions. Next, a two-factor model was tested where the appropriateness, efficacy, and valence items were considered one factor, and management support remained as an independent factor. Two 3-factor models were tested. In one model, we combined the 10-item Appropriateness scale with the Efficacy scale for one factor, and personal valence and management support were considered Factors 2 and 3. In the second three-factor model, the 10-item Appropriateness scale was combined with the three personal valence items to form one factor while management support and efficacy constituted Factors 2 and 3. The three-factor model combining appropriateness and valence was considered the

most viable option because the content validity test and subsequent exploratory factor analysis suggested that participants had difficulty differentiating between personal and organizational benefits associated with the change, implying that two distinct dimensions may not exist.

Results from these analyses are summarized in Table 4. The results indicated that the 25 items could not be adequately represented well by a single factor (normed fit index [NFI] = .72; nonnormed fit index [NNFI] = .73; comparative fit idex [CFI] = .72; root mean squared error of approximation [RMSEA] = .19). In contrast, the four-factor model representing the four readiness-for-change factors that emerged in the exploratory analysis appeared to fit well (NFI = .96; NNFI = .96; CFI = .98; RMSEA = .08). That is, the values reported for the NFI, NNFI, and CFI exceeded .9, which is the typical cutoff score for these indices (where larger values indicate better fit), and the value of the RMSEA was .08, which is the typical cutoff value for this index (where smaller values indicate better fit), suggesting the four-factor model was more suitable.

The fit of the hypothesized model was compared to other less complex models where the data were represented by two and three factors. In each of these cases, the values reported for the NFI, NNFI, and CFI exceeded the .9 cutoff score. However, the RMSEA value for each of these models was greater than the .08 cutoff value. To compare these models more directly and determine the extent to which the four-factor model showed an improvement in fit over the other models, chi-square difference tests were performed. The proposed four-factor model was compared to a three-factor model. The three-factor model had the following structure: (a) Factor 1 combined the three personal valence items with the 10 appropriateness items, (b) Factor 2 consisted of the six management support items, and (c) Factor 3 consisted of the six efficacy items. A chi-square difference test indicated that the four-factor model had significantly better fit than the three-factor solution ($\Delta\chi^2 = 128.56$, $df = 4$, $p < .01$).

In sum, the analyses suggested that the 25 items remaining after the confirmatory factor analysis constituted an acceptable version of the readiness factors. Although the estimates of reliability were not as high in the second sample, the estimates of reliability were generally acceptable. Specifically, coefficient alphas were .80 for appropriateness, .79 for management support, .79 for change efficacy, and .65 for the personal valence score.

Convergent validity assessment. Personality and organizational factors were administered to this second sample as well. Means, standard deviations, correlations, and estimates of reliability are provided along the upper diagonal of Table 3. Consistent with previous findings, the results indicated that the readiness factors were correlated with each other (mean $r = .42$, $p < .05$). In addition, the correlations between the variables gave additional evidence of convergent validity. As expected, locus of control and general attitudes toward change were positively related to each of the readiness factors, whereas rebelliousness was negatively related to each of the readiness factors. Additionally, perceptions of the communications climate and managements' ability were both positively related to the readiness-for-change factors.

TABLE 4
Goodness-of-Fit Summary

Model	df	χ^2	*CFI*	*NFI*	*NNFI*	*RMSEA*	*90% Confidence Interval RMSEA*
Null	375	15,536	—	—	—	—	
Single-factor model	275	1,254.68	.93	.91	.90	.13	.127 to .140
Two-factor: combining appropriateness, efficacy, and valence	274	943.00	.95	.93	.92	.11	.107 to .120
Three-factor: combine appropriateness and efficacy	272	907.44	.95	.94	.93	.11	.103 to .117
Three-factor: combine appropriateness and valence	272	797.63	.96	.95	.95	.097	.091 to .104
Four-factor: hypothesized model	269	703.31**	.97	.95	.95	.083	.078 to .090

NOTE: $N = 228$. NFI = normed fit index; NNFI = nonnormed fit index; CFI = comparative fit index; RMSEA = root mean squared error of approximation.
**Model represents a significant improvement over less complex models, $p < .01$.

CONCLUSION

This study was designed to construct a new instrument that measures readiness at an individual level because change activities are initiated and carried out by individuals within organizations. That is, even the most collective activities that take place within organizations are often an amalgamation of the activities of individual organizational members; therefore, organizations will accept or reject change through the actions of their members (Armenakis et al., 1993; Armenakis et al., 1999). To fulfill this objective, we took a series of steps that were designed to (a) specify the content domain of the readiness construct by integrating the strengths of the existing instruments, change theory, and manager experiences; (b) develop items to measure that domain; and (c) determine the extent to which items measure that domain. Furthermore, we wanted to test the instrument in a field setting.

The literature and published readiness-for-change instruments were coupled with qualitatively analyzed interviews and open-ended questionnaires from public- and private-sector managers. This analysis indicated that the most influential readiness factors, isolated empirically, were (a) discrepancy (i.e., the belief that a change was necessary), (b) efficacy (i.e., the belief that the change could be implemented), (c) organizational valence (i.e., the belief that the change would be organizationally beneficial), (d) management support (i.e., the belief that the organizational leaders were committed to the change), and (e) personal valence (i.e., the belief that the change would be personally beneficial). These five factors were formally defined, items were written to measure each, and two independent samples determined the extent to which the items reflected their intended constructs.

Although the intended factor structure did not completely emerge (a point discussed later), the four scales that did emerge could be useful in an organizational setting. The factor structure was initially determined through exploratory methods in a public-sector organization and replicated with an independent sample, a private-sector organization, using confirmatory methods. The scales of Appropriateness, Management Support, and Change Efficacy exceeded the minimum reliability estimate of .7. The Personal Valence scale was slightly less than this cutoff criterion (.66 and .65 for the two organizations participating in the study). The scales also displayed convergent validity as evidenced by the correlations with personality and organizational variables (across two samples). Moreover, the measures distinguished between known groups (i.e., participants reported higher readiness than nonparticipants, as expected). Fourth, there was some evidence of predictive validity as demonstrated with the relationships between the readiness scales and three criteria (job satisfaction, affective commitment, and turnover intentions) measured 7 months after the change. Finally, the readiness factors displayed incremental validity in predicting these outcomes after controlling for the organizational members personality (i.e., locus of control and general attitudes toward change) and perceptions of the context (i.e., communications climate and perceived management ability). When we tested for incremental validity, we found that the readiness-for-change factors did not explain a significant amount of variation in turnover intentions. One possible explanation for this may be that the mean age of the respondents was about 47. It is quite likely that this change

may not have been unpopular enough for these respondents to anticipate terminating their employment.

In sum, there are several unique contributions made with this instrument and our process. First, we have followed a step-by-step process to develop our readiness measure. In doing this, we have provided some initial evidence of reliability and validity. Moreover, this provides a framework to evaluate other instruments that are currently available, facilitating wiser decisions as readiness is measured quantitatively (see Holt et al., in press). Next, and potentially most important, the instrument is organizationally relevant and informs action. That is, this instrument taps specific attitudes that give insights into the messages that must be delivered to effectively initiate and implement change, thereby providing managers, organizational development consultants, and researchers an instrument that might best match their needs.

Despite the substantial support for the scales developed, there are several areas of concern. One basic concern was that our instrument was only tested in two organizations, both undergoing structural changes. Thus, the generalizability of the results across change types may be limited because it is reasonable to expect people to react to different types of changes differently. On the other hand, our instrument was built by capturing a range of participants' experiences, where a wide range of educational (i.e., participants ranged from high school graduates to those with graduate degrees), functional (e.g., human resource management, engineering, flight operations, and education), and organizational backgrounds (i.e., public and private sector) were represented in our samples. This diversity offers some level of generalizability.

Another area of concern involves the extent to which the instrument is completely aligned with the readiness model presented. Specifically, the factors that were measured represented content (i.e., appropriateness), process (i.e., management support), and individual attributes (i.e., self-efficacy and personal valence). Nonetheless, participants did not make the same distinctions between perceptions of discrepancy, organizational valence, and personal valence, omitting a context element (i.e., discrepancy). Although the content validity assessments with the items indicated that these factors may be distinct, the results of the factor analysis suggested that there was considerable overlap in the constructs. So much so, the perceptions of discrepancy and organizational valence did not emerge as distinct factors in two separate samples. Therefore, there is a need for further refinements in these scales. At this point, we feel the refinements may be as simple as modifying the wording of the items. For example, one of the items intended to reflect personal valence was "I am concerned with the risks associated with this change." Recall that the participants in the Content Adequacy Test I were almost equal in assigning it to personal valence and organizational valence. Consequently, we discarded the item. A closer examination of the item revealed that the item did not specify personal or organizational risks. Some may have interpreted it as organizational risks and some as personal risks. Furthermore, some of the items that were intended to refer to discrepancy were incorrectly worded. Specifically, the item "this change is clearly needed" is about a specific change. Discrepancy should refer to *a* change, not *the* change. Organizational valence should include items that refer to the change having a benefit for the organization. Thus, the item "there are legitimate reasons for us to make this change" is

more organizational valence than it is discrepancy. So some refinements are needed in this instrument. After refinements are made, Hinkin's (1998) item development process can be fulfilled more completely. In particular, further testing of the instrument can be done to replicate the results and a confirmatory analysis of the scales conducted. Moreover, the predictive validity of the instrument warrants further attention. Although our known-groups analysis was based on empirical findings (i.e., readiness would differ among groups of participants and nonparticipants), we cannot be assured that the groups did not differ along other dimensions besides participation, introducing selection bias into the findings.

On a more positive note, we feel the instrument can also be used to evaluate an implemented organizational change. It would be useful to change agents to know how the employees feel about proposed changes. Knowing whether the employees (a) felt the change was appropriate, (b) believed management supported the change, (c) felt capable to making the change successful, and (d) believed the change was personally beneficial would alert them to needed attention about the change. Periodic assessment of these sentiments may provide the necessary information to take whatever actions may be needed to make the change successful. Furthermore, such an instrument could be used in conjunction with other instruments that focus on measuring some aspect of change. We feel this instrument would be complementary to an instrument that assessed commitment to organizational change (cf, Hersocovitch & Meyer, 2002). If the commitment to change is not acceptable, the reasons may be in the dimensions assessed by this instrument.

In closing, this article discusses the initial steps to develop a valid and reliable instrument to assess readiness. Although the results that were reported here should be regarded as a preliminary step in developing an instrument to assess readiness, the results were encouraging. Despite the encouraging results, this effort sets the stage for a considerable research agenda. It has provided a framework to further explore the specific factors that influence readiness and a basis to build reliable and valid scales to measure those factors. Moreover, this can serve as a framework to systematically assess facilitation strategies that can help leaders more effectively initiate and implement change.

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