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Resistance to Change: Developing an Individual Differences Measure

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The Resistance to Change Scale was designed to measure an individual's dispositional inclination to resist changes. In Study 1, exploratory analyses indicated 4 reliable factors: Routine Seeking, Emotional Reaction to Imposed Change, Cognitive Rigidity, and Short-Term Focus. Studies 2, 3, and 4 confirmed this structure and demonstrated the scale's convergent and discriminant validities. Studies 5, 6, and 7 demonstrated the concurrent and predictive validities of the scale in 3 distinct contexts. The scale can be used to account for the individual-difference component of resistance to change and to predict reactions to specific change.

Most modern industrial societies value the person who is willing and able to initiate and respond positively to change, and yet, organizations that attempt to initiate such changes are often stymied by individuals or groups within the organization who resist the changes. Often the reasons for the resistance are not far to seek: The benefits to the organization are not necessarily consonant with—and are often antithetical to—the interests of the individuals being asked to make the change (e.g., Coch & French, 1948; Tichy, 1983; Zaltman & Duncan, 1977; Zander, 1950). Nevertheless, some individuals seem to resist even changes that are consonant with their interests. Who are these people? What are the personality characteristics that drive such resistances? The research described in this article sought to answer these questions.

In particular, this article describes the development of a scale—the Resistance to Change Scale—designed to tap an individual's tendency to resist or avoid making changes, to devalue change generally, and to find change aversive across diverse contexts and types of change. It was anticipated that resistance to change would be a multidimensional disposition that comprises behavioral, cognitive, and affective components (cf. Piderit, 2000).

Most approaches to resistance to change have focused on situational antecedents (e.g., Coch & French, 1948; Tichy, 1983; Zander, 1950). Only recently have studies begun to explore concepts that are related to resistance to change from an individual difference perspective. For example, self-discipline, an orientation toward creative achievement, and a lack of defensive rigidity were suggested to reflect people's adaptability to change on the basis of their contribution to the maintenance of high performance when moving from a well-defined to an ill-defined laboratory task and from high school to college (Mumford, Baughman, Threlfall, & Uhlman, 1993).

Judge, Thoresen, Pucik, and Welbourne (1999) linked several other traits to a work-oriented concept of coping with change. This was measured with a 12-item scale that tapped employees' evaluations of a need for changes in the organization, perceptions regarding their ability to cope with such changes, and their perceptions of themselves as initiators of change. Personality traits were combined to create two factors: the Positive Self-Concept factor and the Risk Tolerance factor. The Positive Self-Concept factor comprises locus of control, generalized self-efficacy, self-esteem, and positive affectivity. Previous research (Judge, Locke, & Durham, 1997; Judge, Locke, Durham, & Kluger, 1998) has found this factor to reflect an individual's core evaluations of the self and the ability to cope with difficult or stressful situations. The Risk Tolerance factor comprises openness to experience, tolerance for ambiguity, and risk aversion. Both factors predicted managers' coping with change. A similar study by Wanberg and Banas (2000) reported that self-esteem, optimism, and perceived control—interpreted as measures of psychological resilience—predicted employees' willingness to accept changes at work.

All these studies used assessment instruments that had been designed for other purposes and that are only indirectly related to an individual's inclination to resist change. In contrast, the present research was designed to formulate a conception of a generalized disposition to resist change and to develop an instrument that would assess this disposition directly. The starting point was a review of the literature on resistance to change, with particular attention to sources of resistance that appeared to derive from an individual's personality. Six such sources were identified: (a) reluctance to lose control, (b) cognitive rigidity, (c) lack of psychological resilience, (d) intolerance to the adjustment period involved in change, (e) preference for low levels of stimulation and novelty, and (f) reluctance to give up old habits.

1. *Reluctance to lose control*. Some researchers have emphasized loss of control as the primary cause of resistance (Conner, 1992). Individuals may resist changes because they feel that control over their life situation is taken away from them with changes that are imposed on them rather than being self-initiated. Organizational studies that advocate employee involvement and participation in organizational decision making (e.g., Coch & French,

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1948; Sagie & Koslowsky, 2000) as a means of overcoming resistance to change focus on this source of resistance.

2. *Cognitive rigidity.* Among researchers who have examined the cognitive processes underlying people's responses to organizational change (Bartunek, Lacey, & Wood, 1992; Bartunek & Moch, 1987; Lau & Woodman, 1995), some have suggested that the trait of dogmatism (Rokeach, 1960) might predict an individual's approach to change (Fox, 1999). Dogmatic individuals are characterized by rigidity and closed-mindedness and therefore might be less willing and able to adjust to new situations. Although one empirical study failed to find support for this hypothesis (Lau & Woodman, 1995), it still seems likely that some form of cognitive rigidity would be implicated in an individual's resistance to change.

3. *Lack of psychological resilience*. Other researchers suggest that change is a stressor, and therefore resilience should predict an individual's ability to cope with change (e.g., Ashforth & Lee, 1990; Judge et al., 1999). As noted above, resilient individuals were in fact more willing to participate in an organizational change (Wanberg & Banas, 2000) and exhibited improved coping with change (Judge et al., 1999). It may also be that less resilient individuals are more reluctant to make changes because to do so is to admit that past practices were faulty, and therefore change entails a loss of face (e.g., Kanter, 1985; Zaltman & Duncan, 1977).

4. *Intolerance to the adjustment period involved in change.* A distinct aspect of individuals' psychological resilience is their ability to adjust to new situations. Some researchers have suggested that people resist change because it often involves more work in the short term (Kanter, 1985). New tasks require learning and adjustment, and it may be that some individuals are more willing and able to endure this adjustment period. Others who may support a particular change in principle may still resist it because of their reluctance to undergo the required adjustment period.

5. *Preference for low levels of stimulation and novelty*. A number of studies established a distinction between adaptive individuals, who are best at performing within a well-defined and familiar framework, and innovators, who are better at finding novel solutions outside the given framework (Kirton, 1980, 1989). One study found that innovative individuals generally exhibit a greater need for novel stimuli (Goldsmith, 1984). It is thus reasonable to expect that people who resist change would exhibit a weaker need for novelty. In addition, because change often involves an increase in stimulation, those who prefer lower levels of stimulation may resist change.

6. *Reluctance to give up old habits*. Several organizational theorists discuss reluctance to give up old habits as a common characteristic of resistance to change (e.g., Tichy, 1983; Watson, 1971). Some have explained this reluctance by arguing that "familiarity breeds comfort" (Harrison, 1968; Harrison & Zajonc, 1970). When individuals encounter new stimuli, familiar responses may be incompatible with the situation, thus producing stress, which then becomes associated with the new stimulus.

These several sources of resistance to change were used in Study 1—an exploratory study—to generate initial items for the Resistance to Change Scale. Studies 2, 3, and 4 follow to describe the scale's structure validation and to establish convergent and discriminant validities. Studies 5, 6, and 7 then establish the concurrent and predictive validities of the scale.

Study 1: Building the Resistance to Change Scale

Method

For each of the sources of resistance mentioned above, 4–10 items were generated. In addition, four items were written to tap an individual's general attitude toward change (e.g., "generally, change is good," "I generally dislike changes"), yielding an initial pool of 48 items. Five independent reviewers, experienced in the scale-development process, examined the initial item pool to identify ambiguous wording, double-barreled items, and redundant items. As a result, 6 items were discarded, 2 were rephrased, and 2 new items were generated, reducing the pool to 44. These were formatted as 6-point Likert scales, which ranged from 1 (*strongly disagree*) to 6 (*strongly agree*).

Sampling was based on the "snowball" method. Volunteers were solicited by the author to participate in the study and were encouraged to recruit their acquaintances to participate as well. The scale was administered to 102 women, 122 men, and 2 respondents who did not identify their gender. The respondents' age ranged from 18 to 67 years ($M = 31$, $SD = 13.5$). Fifty-seven percent of the respondents identified themselves as students. No significant differences were found in the mean item scores or in the factor structures of the different groups (i.e., men vs. women, students vs. nonstudents, and different age groups).

Analyses and Results

Prior to conducting the factor analysis, the interitem correlation matrix was examined. Any item that correlated at less than .4 with all other items was deleted from the analyses (Hinkin, 1998). Eleven items were discarded for this reason.

An exploratory factor analysis was conducted on the data using a principle components analysis with an oblique rotation.[1] After the successive deletion of items that either did not load significantly on any factor or loaded highly on more than one factor, a four-factor solution was obtained. These factors were maintained based on the obtained Scree plot, the Keiser–Guttman criterion, and the theoretical meaningfulness of the factors. The results of this analysis are presented in Table 1.

The first factor contained eight items that pertained to the incorporation of routines into one's life (e.g., "I prefer having a stable routine to experiencing changes in my life"). This factor included items from both the "preference for low levels of stimulation and novelty" and the "reluctance to give up old habits" dimensions.

The second factor contained six items that reflect emotional reactions to imposed change (e.g., "When things don't go according to plans it stresses me out," "When I am informed of a change of plans, I tense up a bit"). This factor combined items from the "psychological resilience" and "reluctance to lose control" dimensions.

The third factor consisted of four items that reflect a short-term focus when addressing change (e.g., "Often, I feel a bit uncom-

[1] Nunnally and Bernstein (1994) recommended the use of the principal-components extraction method for factor analytic procedures with more than 20 variables. The oblique rotation was selected because trait dimensions are theoretically expected to correlate with one another. For comparison, the analyses were also conducted using a varimax rotation and the principle axis extraction method, with both varimax and promax rotations. Although factors were sometimes ordered differently, these analyses produced equivalent structures.

Table 1
Resistance to Change Factor Loadings for the Final Item Pool Exploratory Factor Analysis in Study 1

Item	Factor (F) loadings			
	F1	F2	F3	F4
Routine Seeking—eigenvalue of 8.9, 38.7% variance explained				
I'd rather be bored than surprised.	.829[a]			
Generally, change is good.[b, c]	.826			
I'll take a routine day over a day full of unexpected events any time.	.761			
Whenever my life forms a stable routine, I look for ways to change it.[c]	.686			
I prefer having a stable routine to experiencing changes in my life.[b]	.569			
I generally consider changes to be a negative thing.	.503			
I like to do the same old things rather than try new and different ones.	.496			
I like to experience novelty and change in my daily routine.[b, c]	.490			
Emotional Reaction—eigenvalue of 1.9, 8% variance explained				
If I were to be informed that there's going to be a significant change regarding the way things are done at work, I would probably feel stressed.		.902		
If I were to be informed that there is going to be a change in one of my assignments at work, prior to knowing what the change actually is, it would probably stress me out.[b]		.862		
When I am informed of a change of plans, I tense up a bit.		.699		
When things don't go according to plans, it stresses me out.		.675		
If my boss changed the criteria for evaluating employees, it would probably make me feel uncomfortable even if I thought I'd do just as well without having to do any extra work.		.639		
If in the middle of the work year, I were to be informed that there's going to be a change in the schedule of deadlines, prior to knowing what the change actually is, I would probably presume that the change is for the worse.[b]		.633		
Short-Term focus—eigenvalue of 1.3, 5.6% variance explained				
Changing plans seems like a real hassle to me.			.749	
When someone pressures me to change something, I tend to resist it even if I think the change may ultimately benefit me.			.680	
Once I've made plans, I'm not likely to change them.			.444	
Often, I feel a bit uncomfortable even about changes that may potentially improve my life.			.418	
Cognitive Rigidity—eigenvalue of 1.2, 5% variance explained				
I don't change my mind easily.				.740
I often change my mind.[c]				.711
My views are very consistent over time.				.668

[a] Loadings lower than .3 are not listed. [b] These items were ultimately eliminated at the reliability-analysis phase to remove redundancy. These items did not appear to add substantial theoretical content and were highly correlated with the remaining subscale items. [c] These items were reverse coded prior to running the analysis.

fortable even about changes that may potentially improve my life," "When someone pressures me to change something, I tend to resist it even if I think the change may ultimately benefit me"). The focus here appears to be on the immediate inconvenience or adverse effects of the change. The items can be viewed as involving an irrational component in that they all reflect resistance that arises in spite of one's awareness to the potential long-term benefits involved in the change. The items of this factor were originally generated for the "intolerance for the adjustment involved in change," and "reluctance to lose control" categories.

The fourth factor reflected the suggested cognitive rigidity dimension. This factor contained three items that address the ease and frequency with which individuals change their minds (e.g., "I don't change my mind easily").

The four factors explain just over 57% of the variance. When five factors were extracted, 62% of the variance was explained, but the added factor was both statistically and theoretically very similar to the third factor in the four-factor solution just described ($r = .48$).

Interfactor correlations are presented in Table 2. The fact that prior to the rotation, all of the items loaded significantly on the first factor and that the factors are not independent supports the assumption that these are all dimensions of the same trait.

Total scale's reliability coefficient alpha (Cronbach's) was .92. Alphas for the Routine Seeking subscale, the Emotional Reaction subscale, and the Short-Term Focus subscale were all acceptable (.89, .86, and .71, respectively). The alpha for the Cognitive

Table 2
Resistance to Change Subscale Intercorrelations in Study 1

Factor	1	2	3	4
1. Routine Seeking	—			
2. Emotional Reaction	.65	—		
3. Short-Term Focus	.57	.52	—	
4. Cognitive Rigidity	.23	.11	.21	—

Note. All correlations are significant at $p < .01$.

Rigidity subscale, which contained only three items, was marginally acceptable (.68).

To remove redundancy, three items were removed from the Routine Seeking subscale, and two were removed from the Emotional Reaction subscales. These items did not add substantial theoretical content to the subscale and were highly correlated with other items on their subscales. The alpha coefficients of the reduced Routine Seeking and the Emotional Reaction subscales were .81 and .82, respectively.

Discussion

The purpose of this study was to establish the existence of a disposition to resist change and to reveal its underlying structure. The analyses yielded a 16-item scale with four factors: (a) Routine Seeking, (b) Emotional Reaction to Imposed Change, (c) Short-Term Focus, and (d) Cognitive Rigidity. These factors can be conceptualized as reflecting behavioral, affective, and cognitive aspects of resistance to change, respectively.[2]

The behavioral dimension consists of people's inclination to adopt routines. The affective dimension comprises two components: First, the Emotional Reaction factor reflects the amount of stress and uneasiness the individual experiences when confronted with change. Second, the extent to which individuals are distracted by the short-term inconveniences involved in change, such that they refrain from choosing a rationally valued long-term benefit, also reflects an affective reaction to change.[3] The cognitive dimension is represented by the Cognitive Rigidity factor, which taps the frequency and ease with which people change their minds. The existence of moderate-to-high intercorrelations among factors reflects the existence of a general disposition to resist change.

Studies 2, 3, and 4: Confirming the Factor Structure of the Resistance to Change Scale and Establishing its Convergent and Discriminant Validities

The purpose of Studies 2 and 3 was to confirm the factor structure of the Resistance to Change Scale and to establish its convergent and discriminant validities (Cronbach & Meehl, 1955). Study 4 further probed the scale's discriminant validity by assessing the relationship between resistance to change and cognitive ability.

Study 2: Validating the Resistance to Change Scale's Structure

Because the Cognitive Rigidity subscale obtained in Study 1 contained only three items and yielded only marginally acceptable reliability, an additional item was written for this dimension: "Once I've come to a conclusion, I'm not likely to change my mind." An additional item was also written for the Short-Term Focus subscale to improve its reliability as well: "I sometimes find myself avoiding changes that I know will be good for me."

Method

One hundred ninety-seven employees from three of Cornell University's colleges filled out the Resistance to Change Scale. Faculty and staff members were contacted via e-mail and were asked to fill out an electronic version of the questionnaire. Sixty-eight percent of respondents were women, 32% were men; 69% were staff employees, 31% were faculty members. The mean age was 42 years ($SD = 11.5$). The response rate was 27%. As in Study 1, there were no significant gender, age, or occupational differences in mean item scores or in the scale factor structures.

Results and Discussion

In order to validate the scale structure obtained in Study 1, a confirmatory factor analysis was applied to the data. A second-order latent factor represented the general resistance to change disposition, and four first-order latent factors each represented one of the Resistance to Change facets identified in Study 1. All four first-order factors loaded significantly on the second-order factor ($p < .01$). Item standardized regression weight estimates are presented in Table 3. All but one of the items loaded significantly on their expected factor. This four-factor model presented good fit (Hu & Bentler, 1999) to the data, $\chi^2(104, N = 197) = 135.64$, $p < .01$ (Tucker–Lewis Index [TLI] = .958, comparative fit index [CFI] = .968, root-mean-square error of approximation [RMSEA] = .039) and thus validated the trait structure obtained in Study 1.

The alpha coefficient obtained for the full Resistance to Change Scale was .87. Subscale alphas were .75 for the routine seeking facet, .71 for the emotional reaction facet, .71 for the short-term thinking facet, and .69 for the cognitive rigidity facet.

Study 3: Personality Correlates of the Resistance to Change Scale and a Reconfirmation of its Structure

Several traits have been linked to a work-oriented construct of coping with change (Judge et al., 1999). As noted, the various traits considered in the Judge et al. (1999) study were reduced to two factors: Risk Tolerance (which comprises tolerance for ambiguity, risk aversion, and openness to experience), and Positive Self-Concept (which comprises self-esteem, generalized self-efficacy, positive affectivity, and locus of control). Both factors were related to individuals' scores on a coping-with-change scale.

On the basis of Judge et al.'s findings, openness to experience, tolerance for ambiguity and risk aversion were measured in this study and were expected to yield significant correlations with the Resistance to Change Scale. Specifically, individuals who are less open to experiences, who are less tolerant of ambiguity, and who are more risk-averse are expected to exhibit higher resistance to change. Generalized self-efficacy, self-esteem, and locus of control were also measured in this study and were expected to present significant yet weaker correlations with resistance to change because these traits are related to people's perceptions regarding their ability to cope in general and not necessarily to their particular attitude toward change. Because research suggests that dogmatism is related to employees' willingness to cooperate with change (e.g., Fox, 1999), it, too, was measured in this study and was also expected to correlate with resistance to change.

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[2] Although this resembles Piderit's (2000) tripartite conceptualization of resistance to change, in our study resistance to change was conceptualized as a disposition rather than an attitude toward a particular organizational change.

[3] The value of maintaining the distinction between these two affective factors was tested in Study 2, in which a three-factor model was found to be of lower fit than the four-factor model.

Table 3
Estimated Standardized Regression Weights for the Four-Factor Model Confirmatory Factor Analysis in Study 2

Factor/item	Estimate
Routine Seeking	.809[a]
I generally consider changes to be a negative thing.	.747
I'll take a routine day over a day full of unexpected events any time.	.679
I like to do the same old things rather than try new and different ones.	.626
Whenever my life forms a stable routine, I look for ways to change it.	.539
I'd rather be bored than surprised.	.475
Emotional Reaction	.910[a]
If I were to be informed that there's going to be a significant change regarding the way things are done at work, I would probably feel stressed.	.715
When I am informed of a change of plans, I tense up a bit.	.692
When things don't go according to plans, it stresses me out.	.663
If my boss changed the criteria for evaluating employees, it would probably make me feel uncomfortable even if I thought I'd do just as well without having to do any extra work.	.414
Short-Term Thinking	1.210[a]
Changing plans seems like a real hassle to me.	.665
Often, I feel a bit uncomfortable even about changes that may potentially improve my life.	.494
When someone pressures me to change something, I tend to resist it even if I think the change may ultimately benefit me.	.460
I sometimes find myself avoiding changes that I know will be good for me.	.381
Once I've made plans, I'm not likely to change them.	.141[b]
Cognitive Rigidity	.540[a]
I often change my mind.	.831
Once I've come to a conclusion, I'm not likely to change my mind.	.569
I don't change my mind easily.	.556
My views are very consistent over time.	.291

[a] Estimates for first-order factor loadings on the second-order Resistance to Change factor. [b] This was the only nonsignificant loading. The item was not used in subsequent studies. All other loadings were significant at $p < .001$.

Considering that several of the Resistance to Change Scale items were designed to reflect resistance to change that is due to a preference for low levels of stimulation, Zuckerman's (1994a; 1968) Sensation-Seeking Scale was expected to show a strong negative correlation with resistance to change, in particular with the Resistance to Change routine-seeking dimension. Individuals who are high on routine seeking are, in a sense, expressing a desire for low levels of stimulation and would thus be expected to score low on sensation seeking.

In addition to these traits, it would also be interesting to assess the relationships between resistance to change and each of the Big Five (Digman, 1990) personality dimensions. In addition to openness to experience, neuroticism—which is negatively related to Judge et al.'s (1999) Positive Self-Concept factor—was also hypothesized to correlate with resistance to change. Individuals who are less stable emotionally (i.e., higher on neuroticism) are expected to have less faith in their abilities to deal with change and are therefore more likely to feel threatened by it and resist it (see also Mumford et al., 1993). There is also a reason to believe that resistance to change would be indirectly related to extraversion. Both extraverted and sensation-seeking individuals are characterized as dynamic and active, hence extraversion may be related to resistance to change through its link to sensation seeking. The two other Big Five dimensions (i.e., conscientiousness and agreeableness) were not expected to correlate with resistance to change.

To summarize, resistance to change was expected to correlate with tolerance for ambiguity, risk aversion, openness to experience, dogmatism, and sensation seeking. Weaker correlations were expected with self-esteem, generalized self-efficacy, locus of control, neuroticism, and extraversion.

Method

Participants and procedure. One hundred thirty-four undergraduates who were enrolled in introductory courses in organizational behavior and human resources management filled out the study's questionnaires. Students were offered $5 each in return for their participation in the study. Of the respondents, 54% were women and 46% were men, and the mean age was 19.5 years ($SD = 1.4$). The response rate was 34%.

Measures. Resistance to change was measured using the Resistance to Change Scale established in the previous two studies. The alpha coefficient for the scale was .87. Alphas for routine seeking, emotional reaction, short-term focus, and cognitive rigidity were .74, .75, .74, and .84, respectively.

Risk aversion was measured using Slovic's (1972) four-item scale (e.g., "I prefer a low-risk/high-security job with a steady salary over a job that offers high risks and high rewards," "I view risk on a job as a situation to be avoided at all costs"). The measure has been used in organizational research and has exhibited high reliability (Gomez-Mejia & Balkin, 1989; Judge et al., 1999). Its reliability alpha coefficient in the present study was .79.

Locus of control was measured using Levenson's (1981) internality scale. Like Rotter's (1966) original scale, this scale measures the extent to which people believe in their personal control over their own lives (internal locus of control) versus the belief that external factors are responsible for the outcomes in one's life. The Levenson eight-item internality scale has been shown to overcome some of the problems involved in the use of Rotter's scale (e.g., high social desirability; cf. Lefcourt, 1991). The scale's alpha was .64.

Table 4
Descriptive Statistics and Correlations Between Resistance to Change (RTC) and Subscales and Personality Traits in Study 3 (N = 134)

Variable	*M*	*SD*	1	2	3	4	5
1. RTC	3.36	0.59	—				
2. Routine seeking	3.03	0.64	.74**	—			
3. Emotional reaction	3.58	0.83	.80**	.45**	—		
4. Short-term focus	3.06	0.89	.74**	.51**	.59**	—	
5. Cognitive rigidity	3.49	0.95	.63**	.21*	.30**	.17	—
6. Sensation seeking	9.38	4.48	−.48**	−.58**	−.40**	−.27**	−.15
7. Generalized self-efficacy	4.79	0.73	−.07	−.26**	−.01	−.23**	.22*
8. Risk aversion	3.13	0.85	.47**	.46**	.47**	.38**	.10
9. Dogmatism	3.17	0.53	.28**	.13	.22*	.27**	.21*
10. Self-esteem	4.82	0.76	−.17	−.27**	−.15	−.32**	.17
11. Locus of control	3.93	0.68	.11	−.07	.15	.02	.19*
12. Tolerance for ambiguity	3.63	0.65	−.42**	−.56**	−.37**	−.34**	−.00
13. Extraversion	6.13	1.38	−.16	−.29**	−.11	−.22*	.11
14. Agreeableness	6.90	1.12	−.07	.06	−.02	−.11	−.12
15. Conscientiousness	6.76	1.33	.12	.09	.10	−.02	.14
16. Openness to Experience	6.87	0.99	−.19*	−.21*	−.15	−.14	−.06
17. Neuroticism	5.04	1.29	.28**	.26**	.33**	.33**	−.04

* $p < .05$. ** $p < .01$.

Dogmatism was measured using the Short-Form Dogmatism Scale developed by Troldahl and Powell (1965). The short form uses 20 items from Rokeach's (1960) original scale that have been shown to maintain the reliability and validity of the measuring instrument. Example items are "In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted" and "My blood boils whenever a person stubbornly refuses to admit he's wrong." The scale's alpha coefficient in this study was .79.

Tolerance for ambiguity was assessed using the seven-item Tolerance for Ambiguity Scale developed by Lorsch and Morse (1974). The scale includes items such as "A really satisfying life is a life of problems. When one is solved, one moves on to the next problem" and "It's satisfying to know pretty much what is going to happen on the job from day to day." In the present study, the scale's alpha coefficient was .77.

Generalized self-efficacy was measured using Chen, Gully, and Eden's (2001) New General Self-Efficacy Scale. In their study, the scale was shown to have high reliability and higher construct validity in comparison with previously established general self-efficacy scales. The scale consists of eight items (e.g., "I will be able to achieve most of the goals that I have set for myself," "When facing difficult tasks, I am certain that I will accomplish them"). The alpha coefficient for the scale in the present study was .93.

Self-esteem was measured with Rosenberg's (1965) 10-item scale. The scale is the most commonly used measure of self-esteem, and considerable empirical data support its validity (Blascovich & Tomaka, 1991). Example items include "I feel that I have a number of good qualities" and "I take a positive attitude toward myself." The scale's alpha coefficient obtained in this study was .90.

Sensation-seeking was measured using the Impulsive Sensation Seeking Scale (ImpSS) from the Zuckerman–Kuhlman Personality Questionnaire (Zuckerman, Kuhlman, Joireman, & Teta, 1993). In Zuckerman et al.'s (1993) study, items concerning the two traits (i.e., impulsivity and sensation seeking) emerged as one factor and was in line with his previous research on the relationship between the two constructs (Zuckerman, 1994b). Zuckerman concluded that the ImpSS measures the general sensation-seeking tendency. The scale contains 19 items and uses a true–false response format. It has good psychometric properties (e.g., high reliability, zero correlation with social desirability and acquiescence scales) (Zuckerman, 1994a), and its reliability coefficient (Kuder–Richardson coefficient [KR20]) in the present study was .84.[4]

The Big Five (openness to experience, neuroticism, agreeableness, extraversion, and conscientiousness) were measured with Saucier's (1994) Big-Five Mini-Markers. Measurements of extraversion, agreeableness, and conscientiousness were used in an exploratory manner given that no specific predictions were raised regarding their relationship with resistance to change. Saucier's Mini-Markers consist of 40 adjectives (e.g., creative, intellectual, rude; eight for each of the Big Five dimensions) in response to which subjects are asked to indicate how accurately or inaccurately the adjectives describe them. The response scale is a 9-point Likert scale running from 1 (*extremely inaccurate*) to 9 (*extremely accurate*). Subscale reliabilities in the present study were .78 for openness to experience, .84 for agreeableness, .79 for neuroticism, .87 for extraversion, and .84 for conscientiousness.

Results

Structure validation. First, a confirmatory factor analysis was applied to the resistance-to-change data to revalidate the scale's structure. All first-order latent factors (i.e., subscale factors) loaded significantly on the second-order latent factor (i.e., the full Resistance to Change factor) and all items loaded significantly on their expected factor. The fit of the data to the four-factor model proposed in Studies 1 and 2 was good, $\chi^2(104, N = 134) = 132.36$, $p < .01$ (CFI = .964, TLI = .953, RMSEA = .045).

Convergent and discriminant validities. Table 4 shows means and standard deviations of study variables along with correlations between Resistance to Change and its subscales and the other personality traits measured in the study.

As expected, the highest correlates of resistance to change were sensation seeking ($r = -.48$, $p < .01$), risk aversion ($r = .47$, $p < .01$), and tolerance for ambiguity ($r = -.42$, $p < .01$). Participants who were high in sensation seeking, were not risk averse, and scored high on tolerance for ambiguity generally scored low on

[4] Because the items of this scale have only two response categories (true vs. false), the Kuder–Richardson coefficient—which is the appropriate index for dichotomous data—was computed rather than Cronbach's alpha.

resistance to change. In particular, among the resistance-to-change facets, sensation seeking and tolerance for ambiguity were most strongly related to the routine seeking dimension ($r = -.58$ and $-.56$, respectively, $p < .01$); risk aversion was similarly related to both the emotional reaction and the routine seeking dimensions ($r = .47$ and .46, respectively, $p < .01$).

Weaker, yet significant, relationships were exhibited between resistance to change and dogmatism ($r = .28$, $p < .01$), neuroticism ($r = .28$, $p < .01$), and openness to experience ($r = -.19$, $p < .05$). Neuroticism was most strongly related to the emotional reaction ($r = .33$, $p < .01$) and short-term focus ($r = .33$, $p < .01$) dimensions. Dogmatism exhibited its highest correlation with the short-term focus facet ($r = .27$, $p < .01$), and significant, yet somewhat lower, correlations with routine-seeking ($r = .22$, $p < .05$) and cognitive rigidity ($r = .21$, $p < .05$). Again, as expected, individuals who were high on dogmatism and neuroticism and who were low on openness to experience were more likely to score high on resistance to change.

Except for neuroticism, none of the traits with which resistance to change was expected to show weaker relationships yielded significant correlations. However, some of the Resistance to Change subscales exhibited significant and theoretically meaningful relationships with these traits. Self-esteem exhibited low-to-moderate negative correlations with the Short-Term Focus and Routine Seeking subscales ($r = -.32$ and $-.27$, respectively, $p < .01$).

Both extraversion and generalized self-efficacy exhibited a low yet significant negative correlation with routine seeking ($r = -.29$ and $-.26$, respectively, $p < .01$) and with short-term focus ($r = -.22$, $p < .01$ and $r = -.23$, $p < .05$). It is interesting to note that generalized self-efficacy had a low, yet significant positive correlation with the cognitive rigidity facet. This may be explained by the fact that people who have greater faith in their abilities (i.e., high on generalized self-efficacy) are also more likely to rigidly hold on to their views. In line with this proposition, cognitive rigidity was the only dimension to exhibit a significant relationship with the locus of control scale, and this relationship, too, was in the direction that individuals with an internal locus of control (i.e., who have a greater sense of personal control over their lives) exhibit increased cognitive rigidity.

Discussion

This study provided evidence for the construct validity of the resistance-to-change construct. As expected, resistance to change was associated with traits such as sensation seeking, tolerance for ambiguity, and risk aversion. Anticipated relationships were also found with openness to experience, dogmatism, neuroticism, and extraversion. In addition, the fact that correlations were only moderate and were substantially lower than the scales' reliabilities provides evidence for the construct's discriminant validity (Campbell & Fiske, 1959).

Although study variables were all assessed with the same paper-and-pencil method, it is reasonable to assume that the impact of such a method bias would primarily be to elevate all of the intervariable correlations. The patterns of relationships would not have been affected. Moreover, the fact that several variables did not correlate with resistance to change, in spite of the existence of a single method for collecting data, goes to further alleviate concerns regarding the impact of a monomethod bias.

The study also reconfirmed the four-factor structure of the scale. The existence of significant intersubscale correlations and the fact that all subscale factors load significantly on the second order general Resistance to Change factor, indicate that the subscales all represent facets of the same overarching disposition. The fact that conceptually relevant personality traits exhibit varying correlations with the different subscales demonstrates the value of maintaining the distinction between the different facets.

Study 4: Resistance to Change and Cognitive Ability

Method

Cognitive ability was assessed with the Wonderlic Personnel Test (Wonderlic, 1999), which is a well validated and commonly used index of general cognitive ability. Eighty-nine undergraduates from Cornell University took the Wonderlic Personnel Test and filled out the Resistance to Change Scale in return for extra credit in a course or a $5 cash reward. Sixty-two percent of participants were women, 38% were men, and the mean age was 19.6 years ($SD = .89$).

Results and Discussion

Resistance to change alpha coefficients were: .88 for the total resistance-to-change score and .82, .78, .78, and .78 for the Routine Seeking, Emotional Reaction, Short Term Focus, and Cognitive Rigidity subscales, respectively. Descriptive statistics and correlations between study variables are presented in Table 5.

A power analysis indicated that the study's sample size ($N = 89$) was large enough to identify a correlation of .28 or larger (Murphy & Myors, 1998). As can be seen in Table 5, neither the

Table 5
Descriptive Statistics and Correlations Between Variables in Study 4 (N = 89)

Variable	*M*	*SD*	1	2	3	4	5	6
1. Resistance to change	3.19	0.63	—					
2. Routine seeking	2.91	0.84	.85**	—				
3. Emotional reaction	3.57	0.89	.79**	.54**	—			
4. Short-term focus	3.15	0.81	.76**	.57**	.59**	—		
5. Cognitive rigidity	3.22	0.86	.56**	.33**	.23**	.12	—	
6. Cognitive ability (WPT)	31.64	5.18	.18	.17	.17	.13	.03	—

Note. WPT = Wonderlic Personnel Test.
** $p < .01$.

total resistance-to-change score nor any of the subscales were significantly related to scores on the Wonderlic Personnel Test. Therefore, any relationship that may exist between resistance-to-change and cognitive ability is likely to be small.

Studies 5, 6, and 7: Establishing the Scale's Concurrent and Predictive Validities

The purpose of the following three studies was to assess relationships between individuals' scores on the Resistance to Change Scale and their responses to change in a variety of contexts.

Study 5: Predicting Voluntary Change

The setting for this study involved undergraduates at the beginning of the semester shortly after students have had the opportunity to make changes to their course schedules. It was expected that respondents who score high on the Resistance to Change Scale would be less likely to report making changes to their academic schedules. As further evidence for the validity of the construct, resistance to change was expected to be the strongest predictor of schedule changes in comparison with conceptually related traits.

Method

Participants and procedure. Forty-four undergraduates who were enrolled in a variety of psychology courses participated in the study in return for extra credit toward the fulfillment of course requirements. Seventy-three percent of participants were women, 27% were men, and the mean age was 20 years ($SD = 1.2$).

Participants filled out study questionnaires that contained the Resistance to Change Scale as well as a set of related personality scales. Following this, respondents were asked to fill out a separate Enrollment Procedures Questionnaire that contained questions regarding changes they may have made in their course schedules at the beginning of the semester. Before the semester begins, most students reserve spaces in classes by preenrolling.[5] Once the semester starts, a "changing period" of several weeks begins in which students may add or drop courses from their schedules. The Enrollment Procedures Questionnaire asked about these additions or deletions of courses.

Measures. The Resistance to Change Scale and the other personality measures were the same as those used in Study 3. The Enrollment Procedures Questionnaire asked whether the students had preenrolled for courses, and if so, whether they had added or dropped any courses from their schedule during the changing period.

Results and Discussion

Table 6 shows means and standard deviations of study variables along with correlations between resistance to change and the schedule change variable and the other personality traits measured in the study. Resistance to Change Scale reliabilities were as follows: .81 for the total Resistance to Change score, and .78, .79, .73, and .81 for the Routine Seeking, Emotional Reaction, Short-Term Focus, and Cognitive Rigidity subscales, respectively. Because the dependent variable in this study was dichotomous (have made or have not made schedule changes), logistic regression analyses were used to determine the relationship between resistance to change and the various personality traits and the change behavior.

As predicted, respondents who scored high on resistance to change were less likely to have changed their academic schedules ($B = -2.645$, $SE = 1.164$, $p = .02$; -2 log likelihood = 28.940); $\chi^2(1, N = 44) = 7.366$, $p < .01$. Similar logistic regression analyses were conducted for the other personality variables in the study, and none of them approached significance ($p > .15$ for all variables).

When testing the predictive power of the specific Resistance to Change subscales, the cognitive rigidity facet showed a significant improvement over the null model ($B = -1.239$, $SE = .626$, $p = .05$; -2 log likelihood = 31.433); $\chi^2(1, N = 44) = 4.873$, $p = .03$, and the Short-Term Focus subscale showed a marginally significant improvement over the null model ($B = -1.231$, $SE = .628$, $p = .05$; -2 log likelihood = 31.687); $\chi^2(1, N = 44) = 4.619$, $p = .03$.

This study provides initial support for the concurrent validity of the Resistance to Change Scale. Resistance to change was the only personality trait that significantly predicted students' choice to make or not to make changes in their course schedules. Students who were dispositionally inclined to resist changes were less likely to report making changes to their schedules. In particular, the Cognitive Rigidity and Short-Term Focus subscales were the more relevant among the four subscales for predicting this specific type of resistance-to-change behavior. This finding implies that the main factors that lead students to maintain their original schedules (i.e., those high on resistance to change) were their cognitive disinclination to change their minds and their focus on the short-term inconvenience of conducting the change rather than on its potential long-term benefits (e.g., enjoying a more interesting course).

Because the change addressed in this study is self-initiated, it makes sense that the Emotional Reaction to Imposed Change subscale did not contribute to the predictive power of resistance to change. Similarly, the change does not involve a change in routines because the course changing period takes place before students have had a chance to grow accustomed to their preenrollment schedule. Therefore, it is not surprising that the Routine Seeking subscale was also not a significant predictor.

Study 6: Predicting Resistance to Innovation

The purpose of this study was to test whether the Resistance to Change Scale could predict people's resistance to try out new products. Three years ago, Cornell University introduced to its faculty members the option of using CourseInfo—a template for creating course Web sites. Until that time, professors in most of the school's colleges either had no course Web sites or they constructed one on their own. CourseInfo offers great versatility in the creation of Web sites and provides many useful administrative and interactive communication features that would not be available otherwise. It was expected that faculty members who are more resistant to change would be less likely, or take more time, to adopt this new service. Because, as in Study 5, this study also involves a voluntary change, one that does not have substantial implications

[5] Forty-eight students initially participated in the study; however, four of them did not preenroll. Therefore, only data from the remaining 44 participants were used in the analyses.

Table 6
Descriptive Statistics and Correlations Between Resistance to Change (RTC) and Schedule Change and Personality Traits in Study 5 (N = 44)

Variable	*M*	*SD*	1	2	3	4	5	6
1. RTC	3.08	0.47	—					
2. Routine seeking	2.88	0.62	.71**	—				
3. Emotional reaction	3.35	0.85	.65**	.30*	—			
4. Short-term focus	2.99	0.75	.69**	.24	.45**	—		
5. Cognitive rigidity	3.19	0.75	.55**	.18	−.01	.19	—	
6. Schedule change	0.72	0.39	−.42**	−.30	−.15	−.34*	−.36*	—
7. Sensation seeking	8.36	4.09	−.52**	−.69**	−.26	−.17	−.16	.30
8. Generalized self-efficacy	4.58	0.77	.24	.11	.28	.36*	−.08	−.23
9. Risk aversion	2.99	0.84	.58**	.46**	.62**	.30*	.14	−.26
10. Dogmatism	3.00	0.41	.28	.13	0.00	.37*	.24	−.19
11. Self-esteem	4.65	0.58	.09	−.10	−.02	.06	.29	−.04
12. Locus of control	3.89	0.66	.25	.08	−.06	.28	.36*	−.13
13. Tolerance for ambiguity	3.57	0.59	−.45**	−.58**	−.33*	−.12	−.07	.22
14. Extraversion	5.75	1.59	−.13	−.20	.01	−.09	−.03	.24
15. Agreeableness	7.16	1.12	−.07	−.15	.03	−.01	−.03	.22
16. Conscientiousness	6.48	1.70	.21	.20	.21	.05	.23	−.07
17. Openness to Experience	6.68	0.94	−.21	−.23	−.39**	−.01	.09	.04
18. Neuroticism	4.86	1.05	−.17	.06	.04	−.23	−.32*	.11

* $p < .05$. ** $p < .01$.

on one's daily routines, the Emotional Reaction and Routine Seeking subscales seem less relevant for predicting the particular outcome of this study (i.e., adopting a new product). Because the main reason for avoiding the use of CourseInfo appears to be the hassle involved in learning how to use the new service, the short-term thinking was expected to be the strongest contributor to the scale's predictive power.

Method

Sixty-seven faculty members from eight departments at Cornell University filled out a questionnaire with the Resistance to Change scale and answered a number of questions regarding their use of course Web sites. Of these, only 47 faculty members had been at the university for more than 3 years (before the introduction of the CourseInfo service), and therefore only their responses were included in the analyses. Sixty-two percent of participants were men, 38% were women, and the average tenure at the university was 16 years ($SD = 9.5$). The response rate was 27%.

Results and Discussion

Resistance to Change Scale reliabilities were as follows: .82 for the complete scale, .68 for the Routine Seeking subscale, .78 for the Emotional Reaction subscale, .76 for the Short-Term Thinking subscale, and .76 for the Cognitive Rigidity subscale. Table 7 presents descriptive statistics and correlations between study variables.

A logistic regression analysis showed that the higher the professors' resistance-to-change score, the less likely were they to be using the CourseInfo Web sites ($B = -1.531$, $SE = .720$, $p = .03$; -2 log likelihood = 59.734); $\chi^2(1, N = 47) = 5.401$, $p = .02$. A linear regression analysis demonstrated that resistance to change also significantly predicted the amount of time after the introduction of the service it took professors to start using CourseInfo ($B = -.88$, $SE = .403$, $p = .03$), with higher resistance-to-change scores predicting more time prior to adoption.

Table 7
Descriptive Statistics and Correlations Between Variables in Study 6 (N = 47)

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Resistance to change	3.00	0.51	—						
2. Routine seeking	2.63	0.65	.74**	—					
3. Emotional reaction	3.28	0.75	.67**	.28	—				
4. Short-term focus	2.77	0.79	.79**	.43**	.48**	—			
5. Cognitive rigidity	3.42	0.75	.62**	.32*	.13	.33*	—		
6. Tenure	16.34	9.54	−.07	.03	−.15	−.13	.01	—	
7. Time using CourseInfo[a]	1.34	1.40	−.31*	−.15	−.10	−.34*	−.30*	.15	—

[a] This variable contained four categories: 0 = not using CourseInfo, 1 = less than 1 year, 2 = between 1 year and 2 years, and 3 = more than 2 years.
* $p < .05$. ** $p < .01$.

When testing the predictive power of the specific Resistance to Change subscales, as predicted, the Short-Term Thinking subscale significantly predicted whether professors used CourseInfo (B = −.927, *SE* = .429, *p* = .03; −2 log likelihood = 59.754); $\chi^2(1, N = 47) = 5.381$, *p* = .02, and the time it took them to try it out (B = −.608, *SE* = .248, *p* = .02). The Cognitive Rigidity subscale was marginally significant in predicting the amount of time it took professors to use CourseInfo sites (B = −.586, *SE* = .299, *p* = .06).

This study thus provides additional support for the concurrent validity of the Resistance to Change Scale. Professors who exhibited higher levels of resistance to change were less likely to try out a new system for designing course Web sites. Among those who did adopt the new system, higher levels of resistance were associated with a longer wait time before starting to use the system. The analyses of relationships between Resistance to Change subscales and professors' product-adoption behavior confirmed that it would take those who are oriented toward the short-term inconvenience involved in change and who are more cognitively rigid longer before they would try out a new product, if they would try it at all.

Study 7: Predicting Reactions to Imposed Change

The previous two studies demonstrated that the Resistance to Change Scale predicts people's inclination versus disinclination to initiate voluntary changes. The purpose of Study 7 was to test the predictive ability of the Resistance to Change scale in the context of imposed change. The study involved the office relocation of 98 university staff members, faculty members, and graduate students from one of Cornell University's colleges. Some moved to temporary offices, whereas others moved to their permanent new offices. Those who are dispositionally inclined to resist changes—as measured by the Resistance to Change Scale—were expected to react more negatively to the change and report increased stress and a decreased motivation and ability to work in light of the office move. Because the move involved a substantial change in people's routines and because of its imposed nature, the Routine Seeking subscale and the two affective subscales (i.e., the Emotional Reaction and the Short-Term Focus subscales) were expected to contribute most strongly to the predictive power of the Resistance to Change Scale.

Method

Procedure. The employees and graduate students involved in the move were asked to fill out questionnaires on two occasions: first, as the move started to take place—a small number of days before or after relocating to their new offices—and a second time, 1 month later. At Time 1, the Resistance to Change Scale was presented first, following which were the questions about people's reactions to the office move. At Time 2, the order of the questionnaires was reversed.

Measures. The Resistance to Change Scale was administered along with a second questionnaire with questions about people's affective response to the move, questions about their cognitive evaluation of the move, and several questions about various aspects of their functioning at work (see Appendix). A principle axis factor analysis with an oblique rotation suggested that the questions about functioning fell into three categories: avoiding work from the office, work effectiveness, and work relationships.

Participants. Forty-eight of those moving filled out questionnaires at Time 1. Fifteen participants were graduate students, 9 were faculty members, and the remaining 24 were staff employees. Fifty-eight percent were women, 42% were men, and the average age was 40 years (*SD* = 10). The overall participation rate was 49%. Time 2 involved 43 participants, 20 of whom also participated at Time 1. Eighteen participants were graduate students, 10 were faculty members, and 15 were staff employees. Sixty-five percent of participants were women, 35% were men, and the average age was 38 years (*SD* = 11). The participation rate was 44%.

Results

Scale alpha coefficients at Time 1 were: .91 for the total resistance-to-change score and .80, .87, .84, and .86 for the Routine Seeking, Emotional Reaction, Short-Term Focus, and Cognitive Rigidity subscales, respectively. At Time 2, the alphas were: .93 for the total score and .79, .86, .87, and .77 for the four subscales. The correlation between Time 1 and Time 2 resistance-to-change scores was calculated to form an index of the Scale's test–retest reliability, which was .91. Descriptive statistics and correlations between study variables at Time 1 and Time 2 are presented in Tables 8 and 9, respectively.

In a regression analysis, the resistance-to-change score at Time 1 significantly predicted people's affective reactions to the move (B = .52, *SE* =.16, *p* < .01) and their functioning at work at the time of the move (B = .42, *SE* = .16, *p* < .01), but not their cognitive evaluation of the move. This was the case even when

Table 8
Descriptive Statistics and Correlations Between Variables in Study 7 at Time 1 (N = 48)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Resistance to change	3.09	0.70	—											
2. Routine seeking	2.74	0.77	.88**	—										
3. Emotional reaction	3.48	0.93	.85**	.66**	—									
4. Short-term focus	2.93	0.91	.83**	.71**	.70**	—								
5. Cognitive rigidity	3.37	0.88	.62**	.43**	.37**	.22	—							
6. Affective reaction	3.00	0.82	.45**	.38**	.40**	.48**	.15	—						
7. Cognitive evaluation	3.29	1.16	−.01	−.07	−.08	−.11	.17	.37*	—					
8. Total work functioning	2.70	0.77	.39**	.40**	.35*	.41**	.05	.68**	.20	—				
9. Avoiding office	2.86	1.16	−.02	.04	−.03	.06	−.16	.27	.26	.55**	—			
10. Work effectiveness	2.91	1.12	.41**	.40**	.37*	.45**	.09	.60**	.08	.86**	.15	—		
11. Social relationships	2.14	0.80	.40**	.38**	.41**	.31*	.19	.63**	.09	.74**	.15	.60**	—	
12. Age	40.40	10.68	.17	.00	.09	.11	.33*	−.06	−.35*	−.18	−.27	−.08	−.02	—

* *p* < .05. ** *p* < .01.

Table 9
Descriptive Statistics and Correlations Between Variables in Study 7 at Time 2 (N = 43)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Resistance to change	3.17	0.61	—										
2. Routine seeking	2.87	0.71	.80**	—									
3. Emotional reaction	3.53	0.90	.87**	.62**	—								
4. Short-term focus	2.98	0.83	.84**	.55**	.74**	—							
5. Cognitive rigidity	3.42	0.76	.48**	.16	.18	.20	—						
6. Affective reaction	3.01	0.95	−.09	−.00	−.01	−.06	−.14	—					
7. Cognitive evaluation	3.25	1.14	.09	−.09	.17	.10	.17	.25	—				
8. Total work functioning	2.86	1.01	.37*	.42**	.38*	.34*	.00	.48**	.18	—			
9. Avoiding office	3.04	1.29	.08	.20	.07	−.05	.01	.56**	.25	.65**	—		
10. Work effectiveness	3.15	1.31	.32*	.30*	.37*	.36*	−.05	.38*	.23	.90**	.32*	—	
11. Social relationships	2.26	0.98	.29	.28	.27	.39*	−.03	.56**	.12	.79**	.29	.70**	—

* $p < .05$. ** $p < .01$.

controlling for the move's destination (permanent vs. temporary offices). When regressing the move reaction variables onto the Resistance to Change subscales, all subscales were significant except for the Cognitive Rigidity subscale. When using the resistance-to-change score to predict the three work-functioning subcategories, the resistance-to-change score was significant for the work effectiveness (B = .66, *SE* = .22, $p < .01$) and work relationships (B = .55, *SE* = .16, $p < .01$) categories, but not for the "Avoiding work from the office" category.

At Time 2, the resistance-to-change score significantly predicted participants' work effectiveness (B = .67, *SE* = .31, $p = .04$) and was marginally significant in predicting their work relationships (B =.49, *SE* = .26, $p = .07$) but did not predict their affective reaction to the move. Participants' work effectiveness (B = 1.19, *SE* = .33, $p < .01$) and work relationships (B = .93, *SE* = .36, $p = .02$) at Time 2 were also significantly predicted by the resistance-to-change score at Time 1.

No significant differences were found in the reactions of the different occupational groups, the different genders, or different age groups. Although the move's destination did not predict people's affective reactions or work functioning at Time 1 or at Time 2, it was significant at predicting people's cognitive evaluation of the move. Not surprisingly, employees and students who moved to their permanent offices tended to view the move more positively than did those who moved to temporary offices.

Discussion

As expected, the Resistance to Change Scale predicted people's affective reactions to the move as well as their functioning at work. Those who were dispositionally inclined to resist changes were more distraught by the change and reported an increased difficulty to work effectively. Evidently, even though resistant individuals' affective reactions to the change waned over time, they did not recover from the negative impact of the move on their functioning, even 1 month after moving. In support to the scale's predictive validity across contexts, even among those participants who moved into permanent new offices and provided a positive cognitive evaluation of the move, high–resistance-to-change individuals were still more upset about the move and had a more difficult time maintaining effective functioning, compared with nonresistant participants.

The fact that the Routine Seeking, Emotional Reaction, and Short-Term Focus subscales, but not the Cognitive Rigidity subscale, were significant predictors of people's reactions to the move, falls in line with the particular nature of the change and lends further support to the scale's validity.

Although the collection of data for both the Resistance to Change Scale and the reactions to the move in the same questionnaire may raise concerns of a monomethod bias, the fact that the Resistance to Change Scale did not predict participants' cognitive evaluation of the move and that not all subscales were significant at predicting reactions to the move suggests that the findings reflect genuine, nonartifactual relationships. Even more compelling in alleviating such concerns is the fact that participants' resistance-to-change score at Time 1 was significant at predicting their functioning at work 1 month later at Time 2.

General Discussion

The purpose of this project was to establish and validate a scale for the measurement of individual differences in resistance to change. The results of seven studies indicate a four-facet structure to the disposition: (a) routine seeking, (b) emotional reaction to imposed change, (c) short-term focus, and (d) cognitive rigidity. The structure was established in the first study and was validated on two additional, independent samples (in Studies 2 and 3). Studies 3 and 4 helped establish convergent and discriminant validities, and Studies 5–7 provided evidence for the scale's concurrent and predictive validities. In all seven studies, Resistance to Change and its subscales achieved satisfactory reliabilities.

The fact that the scale, which was not tailored to correspond to any specific type of change, predicted resistance behavior across a variety of settings, demonstrates its value in explaining resistances above and beyond any contextual causes. In addition, the fact that different Resistance to Change subscales were highlighted in different contexts, in accordance with their theoretical content, further demonstrates the validity of the scale and the breadth of its relevance.

As noted above, other research has recently advocated the measurement of traits, such as risk aversion, as predictors of employees' reactions to change (e.g., Judge et al., 1999). Contrary to measures of these traits, the Resistance to Change Scale was designed to assess directly the dispositional component that con-

tributes to people's reactions to change. On a practical level, assessing the dispositional aspect of resistance to change with the Resistance to Change Scale would be far more economical than using a broad range of measures, such as risk aversion, tolerance for ambiguity, and self-esteem, that each tap into a different aspect of resistance to change.

The findings described in this article have a number of implications. First, they complement work on the institutional determinants of resistance to change (e.g., Hannan & Freeman, 1984) and on the psychological processes underlying resistance (e.g., George & Jones, 2001) by bringing individual differences to this important domain of organizational behavior. Researchers interested in resistance to change and its interaction with other variables now have a tool for measuring the dispositional component of resistance. Moreover, by using the Resistance to Change Scale, even studies that are interested in the more macro, situational predictors of resistance could enhance their findings by controlling for the individual differences component.

The Resistance to Change Scale also has potential uses for personnel selection and training. The scale could be used simply to select change-resilient employees for those positions or assignments that inherently entail frequent changes. Furthermore, the scale may also be used to identify employees who could benefit from a training program in which strategies for coping with the upcoming change would be taught. Interventions can be designed and tailored for individual employees in accordance with the sources of resistance as suggested by the scale (e.g., short-term focus, emotional reaction to imposed change).

Another field for which the Resistance to Change Scale may be useful is that of consumer behavior. Consumers' resistance to try new products is considered a significant obstacle for most companies that attempt to introduce new products. Similar to the research on organizational change, the literature on consumer behavior has mainly considered situational antecedents of customer's resistance to try new products (e.g., Ram & Sheth, 1989). Among individual difference variables that have been considered are consumer demographics (e.g., Dickerson & Gentry, 1983; LaBay & Kinnear, 1981) or personality traits such as creativity (Hirschman, 1980) or optimum stimulation level (Raju, 1980) that were expected to relate to customer resistance to adopt new products. As has been shown in Study 6 in this article, the Resistance to Change Scale can be successful at predicting such disinclination to adopt new products.

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Appendix

Office-Move Reactions Questionnaire

Affective response to the office move
1. I'm worried about what things will be like after the move.
2. I'm overwhelmed by all the things that need to be done because of the move.
3. I try not to think about the move because when I do I get too stressed out.
4. I'm excited about the move.[a]
5. This whole move makes me kind of angry.
6. I'm really sad we're moving.

Cognitive evaluation of the move
7. I don't really think the move was necessary.
8. I'll be better off after the move, in comparison with my situation before.[a]
9. I think it is good that we're going through this move.[a]
10. The move will do us all good.[a]

Functioning

Avoiding work from the office
11. When possible, I try to work out of the office as much as I can these days.
12. I find myself trying to minimize the amount of time I spend in the office (longer coffee breaks, etc.).

Work effectiveness
13. Due to the move I tend to be very distracted these days.
14. I find that I'm not as efficient or productive as usual these days.
15. These days of the move I find it particularly difficult to motivate myself to do the things I know I should.

Work relationships
16. During this period I find that I am less tolerant to others.
17. My relationships with my co-workers are negatively influenced by this change.

[a] These items are reverse coded.

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