**Cognitive beliefs and positive emotions about change: Relationships with employee
change readiness and change supportive behaviors**

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Cognitive beliefs and positive emotions about change: Relationships with employee change readiness and change supportive behaviors**Abstract**

Research has focused on individuals' beliefs about change when considering the antecedents of employee change readiness. Our study is unique as we identify beliefs *and* positive emotions about change as proximal antecedents of change readiness. In Study 1, a cross-sectional study of 252 government workers, measures of change beliefs, positive emotions about change, and change readiness were developed and tested. Study 1 examined relationships between these constructs. In Study 2, we collected data at two time points separated by three months from 199 employees. Study 2 examined the direct and indirect relationships among change beliefs, positive emotions about change, change readiness, and change supportive behaviors. Structural equation modeling results provided support for the validity of our measures. In both studies, cognitive beliefs about change and positive emotions about change were significantly associated with change readiness. Study 2 provided support for indirect and direct relationships between change beliefs and positive emotions and change behaviors. An implication of this research is that failure to consider positive emotions about change means ignoring a key source of variation in change readiness. Practically, results suggest a need to develop both change beliefs and positive emotions about change to enhance employees' change readiness and change supportive behaviors.

KEYWORDS: Attitudes to organizational change, employee change attitudes, employee change readiness, employee readiness for organizational change, change beliefs, positive emotions about change, change readiness measures, change supportive behaviors.

Cognitive beliefs and positive emotions about change: Relationships with employee change readiness and change supportive behaviors

Researchers have argued that “at the heart of events...and a main determinant of the extent to which any change can succeed, is how *change recipients* (italics in original) react to organizational change” (Oreg, Vakola, & Armenakis, 2011; p. 462). Our focus is on change recipients’ change attitudes and, in particular, on change readiness. Armenakis, Harris, and Mossholder (1993; p. 681) defined change readiness as an individual’s “beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization’s capacity to successfully undertake those changes”. Change readiness is one of the most commonly discussed change attitudes (Bouckennooghe, 2010). Despite this, Rafferty et al. identified a number of limitations of research in the area. In particular, while theoretical models of attitudes identify beliefs and emotions as the most proximal antecedents of attitudes (e.g., Ostrom, 1969), change researchers have focused on change beliefs and have ignored positive emotions about change. Another limitation of research is that there is little empirical evidence to suggest that change readiness influences important outcomes such as employee change supportive or resistant behaviors (Oreg et al., 2011).

This paper makes two theoretical contributions to the change literature. First, while attitude theory clearly suggests that an attitude is an evaluative integration of cognitions and affects experienced in relation to an object (Crites, Fabringar, & Petty, 1994; Ostrom, 1969), researchers have not yet considered whether change beliefs *and* positive emotions about change are the most proximal antecedents of change readiness. The failure to consider positive emotions about change as an antecedent of change readiness is an important limitation of existing research because previous studies may have yielded distorted results regarding the effects of the cognitive beliefs by not including positive emotions about change. In addition, empirical evidence suggests that the cognitive and affective antecedents of

attitudes exert at least partially non-redundant influences on attitudes (Lavine, Thomsen, Zanna, & Borgida, 1998). Therefore, failure to assess positive emotions about change means that researchers are ignoring an important source of variation in change readiness.

Second, based on theory that recognizes attitudes as a key driver of individuals' behaviors (Ajzen, 2001; Glasman & Albarracin, 2006), we identify change readiness as a predictor of employees' change supportive behaviors. While Armenakis et al. (1993) have argued that "readiness is the *cognitive* (italics in original) precursor of the *behaviors* of either resistance to, or support for, a change effort", relatively little empirical evidence supports this statement (Oreg et al., 2011). As such, we identify change readiness as a mediator of relationships among the change beliefs and positive emotions about change and change supportive behaviors. Finally, attitude researchers have argued that "in many situations, behavior is not based on a general evaluation, but is instead based more or less on the cognitive or affective component of the attitude (Millar & Tesser, 1989; p. 271). As a result, we also identify direct relationships between five change beliefs and positive emotions about change and change supportive behaviors. Figure 1 displays the proposed theoretical model. Below, we first examine the five change beliefs that have been identified as antecedents of change readiness. Next, we discuss positive emotions about change and explore why these emotions are likely to act as an antecedent of change readiness.

 INSERT FIGURE 1 ABOUT HERE

Change beliefs

Armenakis and his colleagues (Armenakis & Harris, 2002; Armenakis, Harris, Cole, Fillmer, & Self, 2007; Armenakis et al., 1993) identified five cognitive beliefs as critical targets of any communication efforts about change. Rafferty et al. (2013) explicitly identified these beliefs as the most proximal antecedents of the change readiness attitude. Early definitions of *discrepancy* (Armenakis & Harris, 2002; Armenakis et al., 1993) identified this

belief as reflecting a perceived need for change. Later discussion (Armenakis, Bernerth, Pitts, & Walker, 2007; Armenakis, Harris, & Feild, 1999) acknowledged that a sense of discrepancy emerges from a recognition that there is a difference between the current state and a desired future state. In contrast, Holt, Armenakis, Harris, and Feild (2007) suggest that discrepancy involves a recognition that change is based on legitimate reasons. In summary, a number of different aspects of the discrepancy belief have been identified and we include these different aspects in our definition of this construct. Thus, we define discrepancy as a belief that change is based on legitimate reasons and is needed to address a deficiency in the current state relative to a desired future state.

The second change belief that has been identified is *appropriateness*. Armenakis et al. (1999) defined this as an individual's belief that a change is an appropriate response to organizational issues and this definition has been consistently adopted in later works (Armenakis et al., 2007; Armenakis & Harris, 2002). The third belief is *change self-efficacy*. Armenakis and Harris argue that efficacy refers to an individual's perceived capability to implement a change initiative. Change self-efficacy has been consistently defined as an individual's confidence that s/he has the capability to implement a change (Armenakis & Harris, 2002; Holt, Armenakis, Feild, et al., 2007; Holt, Armenakis, Harris, & Feild, 2007).

Principal support refers to the provision of support from a range of organizational leaders including formal and informal leaders (Armenakis et al., 1999) or change agents and opinion leaders (Armenakis et al., 2007). A review of research reveals, however, that both formal organizational leaders and one's peers can influence change attitudes and reactions to change (Balogun & Johnson, 2004; Lam & Schaubroeck, 2000; Sonenshein, 2010; Sonenshein & Dholakia, 2012). Therefore, we argue that it is important to recognize different sources of support. Thus, we define principal support as an individual's belief that support is

provided by formal organizational leaders such as senior leaders and immediate supervisors as well as one's peers.

The *valence* belief has been consistently defined as an individual's belief that change has intrinsic and extrinsic benefits (Armenakis et al., 1999; Armenakis & Harris, 2002). Holt, Armenakis, Harris, et al. (2007) also argued that personal valence addresses the perceived benefits of a change for an individual. In contrast, organizational valence captures employees' perceptions of the benefits that change will bring for the company as a whole. As the predominant focus of research has been on personal valence, we focus on this construct and define it as the belief that change is perceived to be personally advantageous for an individual.

Affective component of change readiness

Attitude researchers have defined the affective aspect of an attitude as the "emotions and drives that are engendered by a specific attitude object" (Breckler & Wiggins, 1989; p. 254). Rafferty et al. (2013) argued that the affective component of change readiness should be assessed by discrete emotion items that capture an individual's positive emotions concerning a specific change event. Harris and Gresch (2010) identified pleasure about change, or the affective evaluative state reflecting the hedonistic, self-oriented value of a stimulus, as the core aspect of emotion relevant to change. Liu and Perrewe (2005) focused on discrete positive emotions that occur in response change including happiness, excitement, and pride. Similarly, on the basis of interviews with staff experiencing change, Kiefer (2002) reported that employees experienced a number of positive emotions about change including enjoyment, pleasure, delight, curiosity, enthusiasm, and pride.

In this research, we adopt Liu and Perrewe's (2005) and Kiefer's (2002) focus on specific positive emotions about change. In particular, we identify joy and interest as important aspects of individuals' positive emotional experience during change (George &

Jones, 1996; Kiefer, 2002; Liu & Perrewe, 2005). Fredrickson (2001) discusses joy and interest emotion families. An emotion family indicates that joy, for example, does not reflect a single affective state but rather a family of related states. Joy is often used interchangeably with the terms happiness and exhilaration and captures higher arousal positive emotions (Fredrickson, 1998). Frijda (1986; p. 89) argued that joy results in an action tendency called free activation, which involves an “aimless, unasked-for readiness to engage in whatever interaction presents itself”. In contrast, the interest emotion family encompasses intrigue, excitement, and wonder and shares conceptual space with challenge and intrinsic motivation (Fredrickson, 1998). Izard (1991) argues that interest is the most prevalent motivational condition for the day-to-day functioning of normal human beings and is a very important in the development of skills and competencies. Experientially, interest is the feeling of being engaged, caught up, or fascinated or curious. Interest results in action tendency of wanting to investigate, become involved in, or expand the self by incorporating new information and having new experiences with the person or object that stimulated the interest (Izard, 1991). In summary, we argue that joy and interest represent core aspects of employees’ positive emotional responses to organizational change. When developing hypotheses, we focus on the broad factor assessing employees’ positive emotional responses to change, which encompasses the joy and interest emotion families.

Relationships between the cognitive beliefs and positive emotions and change readiness

Theory on the structure of attitudes (Ostrom, 1969) identifies cognitive beliefs about an attitude object *and* affective reactions to an attitude object as antecedents of the overall evaluative judgment that is an attitude. A number of empirical studies have demonstrated that both cognition and affect are associated with the overall attitude evaluation (Abelson, Kinder, Peters, & Fiske, 1982; Breckler, 1984; Breckler & Wiggins, 1989; Ostrom, 1969; Weiss, Nicholas, & Daus, 1999). Abelson et al. reported that both cognitions and affect were

associated with a preference for political candidates, with affective responses most strongly associated with this preference. Breckler and Wiggins reported that both cognition and affect were associated with a global evaluation of attitude toward blood donation. In the organizational behavior area, Weiss et al. have reported that both beliefs and affect are antecedents of job satisfaction.

Armenakis and his colleagues' work (Armenakis & Harris, 2002; Armenakis et al., 2007; Armenakis et al., 1993) provides strong theoretical support for the proposed relationships between the five cognitive beliefs and change readiness. In addition, based on attitude theory (Ostrom, 1969), we also test the hypothesis that employees' positive emotions about change are an antecedent of change readiness. We argue that positive emotions are likely to be associated with change readiness due to their links to approach based forms of action readiness (Frijda, Kuipers, & ter Schure, 1989), which involve an "individual's readiness or unreadiness to engage in interaction with the environment" (Frijda et al., 1989: p. 213). Thus, we propose:

Hypotheses 1a-1e: Each of the five change beliefs will display unique positive relationships with change readiness.

Hypothesis 1f: Change positive emotions will display a unique positive relationship with change readiness.

Study 1 Method

Study 1 focuses on developing measures to assess change beliefs, change positive emotions, and change readiness. In addition, we also test the first part of the proposed research model in that we examine whether change beliefs and positive emotions about change are antecedents of change readiness.

Participants and Procedure

We surveyed white-collar workers from two local government councils in Australia. At the time of this study, local government councils were experiencing considerable change due to a review implemented by the state government. The government identified 65 separate recommendations highlighting the need to implement large-scale changes to achieve outcomes such as strengthening strategic capacity and achieving structural reforms including council amalgamations and boundary changes (Independent Local Government Review Panel, 2013). Each council engaged in an independent consideration of their processes and practices in order to determine how best to respond to the review. For example, one of the councils had implemented a “sustainability review program” in order to meet changing service needs. This internal review identified a number of work force changes that would need to be implemented to increase strategic capacity including modifying service levels and staff numbers, redeploying staff, outsourcing service provision, and changing employee workloads.

Of the 832 employees invited to participate in the survey, 252 (response rate 30.03%) provided a response. One hundred and four males (41.3%) and 134 females (53.2%) completed the survey. Fourteen (5.6%) participants did not provide a response regarding their gender. The average age of respondents was 45.02 years ($SD = 11.71$).

Respondents were provided with a list of change initiatives that their council was implementing and were asked to identify and then discuss the organizational change(s) that were most relevant to them in an open-ended question. Two hundred and seven employees responded to this question, and a number of respondents identified that they were experiencing more than one change so that 290 changes were identified. While 45 respondents did not provide a response to this question, discussion with the HR departments of both councils made it clear that changes were affecting all work groups in both organizations. As such, we retained data from all employees. Respondents were instructed to

“Please consider your experience with this specific change(s) when responding to this survey”.

The first author and a senior research assistant independently reviewed responses to the open-ended question and identified a number of broad categories of changes including: restructuring ($n = 122$, 42.1%), office relocation ($n = 69$, 23.8%), workload changes ($n = 21$, 7.2%), changes in service provision to the public ($n = 17$, 5.9%), staffing changes ($n = 10$, 3.4%), and changes to the way work is done ($n = 8$, 2.8%). Twenty-four respondents (8.3%) reported a combination of changes (e.g., service and staffing changes). Eleven respondents reported experiencing adjustments to job tasks (3.8%). Eight respondents (2.8%) reported a range of additional changes that did not clearly fit into the other categories.

Measures of the cognitive components of change readiness

When identifying items to assess the five cognitive beliefs, we were guided by Hinkin's (1998; p. 105) argument that the “key to successful item generation is the development of a well-articulated foundation that would indicate the domain for the new measure”. The domain of the cognitive beliefs was specified through our review of definitions of the change beliefs. We drew on a pool of 49 items developed by Armenakis et al. (2007) and Holt, Armenakis, Feild, et al. (2007) to assess change beliefs. We selected items that aligned with the theoretical definitions that we proposed for each of the change beliefs. We eliminated items that were very similar to each other and retained items that we considered to reflect the construct definitions that we developed. As a result of this process, we identified 17 items to assess the five change beliefs (all items are available in Table S1 in the online supplementary materials). A 1-7 Likert scale ranging from 1 “strongly disagree” to 7 “strongly agree” was used when assessing the change beliefs.

Discrepancy. Four items assessed discrepancy ($\alpha = .94$). An example item is ‘This organizational change needs to be implemented to improve our operations’ (Armenakis et al.,

2007).

Appropriateness. Three items assessed this construct ($\alpha = .96$). An example item is “When I think about this change I realize it is appropriate for our organization” (Armenakis et al., 2007).

Change self-efficacy. Four items assessed this construct ($\alpha = .89$). An example item is “When we implement this change, I can handle it with ease” (Holt, Armenakis, Feild, et al., 2007).

Principal support. Three items assessed principal support ($\alpha = .77$). An example item is “The majority of my respected peers are dedicated to making this change work” (Armenakis et al., 2007).

Valence. Many items assessing personal valence focus on *specific* outcomes of change such as enhanced feelings of accomplishment or higher pay (Armenakis et al., 2007). We wanted to ensure the measure was applicable to a broad range of change events and therefore eliminated items focused on specific outcomes. We retained one item developed by Armenakis et al. “This change will benefit me” and developed two additional items to assess the valence of change ($\alpha = .94$).

Measure of positive emotions about change

Our theoretical analysis that joy and interest would be appropriate measures of positive emotions experienced in response to change was supported by the results of early pilot testing¹. We included seven positive emotion items (Fredrickson, 1998) to assess this construct. A 1-7 Likert scale ranging from 1 “strongly disagree” to 7 “strongly agree” was used. The items were prefaced by “At the current time, I feel [...] about change”. Joy was assessed using elated, happy, exhilarated and glad. Interest was assessed using excited,

¹ The pilot testing involved administration of items assessing emotion families to the HR teams from the two organizations participating in Study 1. This testing revealed that employees often reported experiencing emotions from the joy and interest emotion families when describing their emotional reactions to change.

challenged, and curious. The positive emotions about change scale had an alpha of .90.

Subsequent analyses reported in the results support aggregation of joy and interest into a single positive emotion about change factor.

Measure of the overall evaluation of change readiness

Giner-Sorolla (2004; p. 762) suggests that an overall attitude evaluation refers to “the general judgment of whether an object is good or bad”. We identified a number of measures that incorporated items assessing the general judgment that change is positive and that appeared to tap into the judgment that an individual is prepared or ready for change including measures of change readiness (Bouckennooghe, Devos, & Van Den Broeck, 2009; Cunningham et al., 2002; Eby, Adams, Russell, & Gaby, 2000), attitude to change (Jimmieson, Peach, & White, 2008; Lau & Woodman, 1995), openness to change (Axtell et al., 2002; Devos, Buelens, & Bouckennooghe, 2007; D. G. Fox, Ellison, & Keith, 1988; Groves, 2005; Kwahk & Kim, 2008; Madsen, Miller, & John, 2005; Miller, Johnson, & Grau, 1994), and commitment to change (Fedor, Caldwell, & Herold, 2006; Herold, Caldwell, & Liu, 2008; Herscovitch & Meyer, 2002). We eliminated items that assessed cognitive beliefs, emotions about change, behavioral intentions or change behaviors. This resulted in the identification of five items that focused on an individual’s evaluation that they were prepared or ready for change ($\alpha = .93$; items are available in Table S1 in the online supplementary materials). A 1-7 Likert scale ranging from 1 “strongly disagree” to 7 “strongly agree” was used when assessing change readiness. An example item included “I am ready for this organizational change” (Eby et al., 2000).

Study 1 Results and Discussion

Overview of analyses

We estimated a series of confirmatory factor analyses (CFA) to examine the relations of the observed measures to their posited underlying constructs. Structural equation modeling

(SEM) was used to test Hypotheses 1a-1f. The coefficients obtained from SEM are appropriate for testing such hypotheses as they tell us about the effect of a predictor over and above the other predictors that are included simultaneously in the model (i.e., its unique effect or incremental importance). Additionally, relative weights analysis (RWA; see Tonidandel & LeBreton, 2011) was conducted as part of supplementary analyses using the RWA Web tool (<http://relativeimportance.davidson.edu/>). RWA indicates the overall importance of a predictor relative to the other predictors by deriving weights that decompose the overall model R^2 across the set of predictors (i.e., the sum of the weights equals the model R^2). The resulting weight for each predictor captures the overall contribution of the predictor – in isolation and in combination with other predictors. Moreover, the weights can be directly compared to each other, and the differences can be tested for statistical significance.

Descriptive Statistics

Descriptive statistics and the zero-order correlations are presented in Table 1.

 INSERT TABLE 1 HERE

Measurement models

We first estimated the hypothesized 7-factor measurement model² that included all of the items assessing cognitive beliefs, positive emotions about change, and change readiness. This model was not a good fit to the data, $\chi^2(356) = 1060.52, p < .001$; RMSEA = .09, SRMR = .05, CFI = .91, NNFI = .90. In this model, the item “we need to improve our performance by implementing an organizational change” (discrepancy item 2) had a factor loading less than .3 on the hypothesized factor. In addition, “elated” (emotion item 4) had a high correlated error with “exhilarated” (emotion item 2). Finally, the item “I would consider

² We also tested the measurement models for each individual substantive construct in Study 1 and Study 2 in separate confirmatory factor analyses (CFAs). All of these models indicated good fit as assessed by the fit indices. Due to space considerations we do not report these results although these analyses are available from the first author.

myself open to this change” (change readiness item 2) had a high correlated error with the item “I am ready for this organizational change (change readiness item 3). After considering the factor loadings of the items, we removed discrepancy item 2, positive emotion item 4, and change readiness item 2. We then estimated the 7-factor model again with the reduced set of items. The reduced-item 7-factor model was a good fit to the data, $\chi^2(278) = 571.15, p < .001$; RMSEA = .06, SRMR = .04, CFI = .96, NNFI = .95. As such, these three items were removed from all subsequent analyses.

Next, we contrasted a series of alternative measurement models (e.g. 6-factor model) with the hypothesized 7-factor model. The hypothesized 7-factor model was a significantly better fit to the data compared to the other models³. We also contrasted the hypothesized 7-factor model with an 8-factor model that distinguished two separate positive emotion factors. The 8-factor model was a good fit to the data, $\chi^2(271) = 563.39, p < .001$; RMSEA = .07, SRMR = .05, CFI = .96, NNFI = .95. Comparison of the 8- and 7-factor models revealed that there was no significant difference between the two models, $\Delta\chi^2(7) = 7.76, n.s.$ As such, the more parsimonious model, the hypothesized 7-factor model, was selected as the best fit to the data, $\chi^2(278) = 571.15, p < .001$; RMSEA = .06, SRMR = .04, CFI = .96, NNFI = .95. All of the model parameters in the hypothesized 7-factor model loaded significantly onto the appropriate latent factor ($p < .001$), and these factors explained substantial amounts of item variance (R^2 ranged from .11 to .96). These results provide initial support for the validity of our measures of change beliefs, positive emotions about change, and change readiness.

Structural model

The hypothesized 7-factor structural model was a good fit to the data, $\chi^2(271) = 571.15, p < .001$; RMSEA = .06, SRMR = .04, CFI = .96, NNFI = .95⁴. This model accounted

³ These model comparisons are available from the first author.

⁴ We also conducted analyses for all measurement and structural models including theoretically important control variables (trait positive affectivity, employees' perceptions of transformational change, the frequency of

for 87% of the variance in change readiness. This model is used to test hypotheses and the results are displayed in Figure 2. Discrepancy was significantly positively associated with change readiness, $\beta = .11, p < .05$. In contrast, appropriateness was not uniquely associated with change readiness, $\beta = .05, n.s.$ Change self-efficacy was significantly uniquely associated with change readiness, $\beta = .08, p < .05$ as was principal support, $\beta = .12, p < .01$. Valence was not significantly associated with change readiness, $\beta = .01, n.s.$ Positive emotions about change was significantly associated with change readiness, $\beta = .68, p < .001$.

 INSERT FIGURE 2 ABOUT HERE

Supplementary analysis: Relative weights analysis

Relative weights analysis (see Table S3 in the online supplementary materials) revealed that the percentage of variance in change readiness accounted for by the predictors as a set was 77.1%. The highest proportion of variance was attributed to the effect of positive emotions about change (.24), followed by valence (.15) and appropriateness (.12), with discrepancy, self-efficacy and principal support each accounting for .09 of the variance. Each of these weights was statistically significant. The proportion of variance accounted for by positive emotions about change was statistically significantly higher than that accounted for by each of the five beliefs considered alone.

Study 2

One of the primary reasons that attitudes have received so much attention is because they have been shown to predict individuals' behavior (Glasman & Albarracin, 2006). Fazio (1986) argued that attitudes guide behavior because when an individual encounters an attitude object, her/his attention guides perceptions of the object in the immediate situation. These perceptions may then prompt attitude consistent behavior. Empirically, there is support for

change, and change history). Inclusion of the control variables resulted in minimal changes in the results. As such, as recommended by Becker (2005) we do not include the control measures in analyses in Studies 1 or 2.

the attitude-behavior link (e.g., Glasman & Albarracin, 2006). Below, we develop arguments in support of relationships between change readiness and change supportive behaviors.

Change readiness and change supportive behaviors

Theorists have argued that change attitudes predict employees' change resistant and supportive behaviors (e.g., Armenakis & Harris, 2002). Lines (2005) argued that positive attitudes toward change result in behaviors that are focused, persistent, and effortful in their attempts to support and facilitate the implementation of change. Herscovitch and Meyer (2002) identified three types of behaviors that vary in the amount of discretionary effort that an employee expends in support of an organizational change. In particular, these authors argue that the minimum level of support that can be demonstrated during change is *compliance* with instructions and directions in regard to change. Compliance does not involve any discretionary effort in support of change. In contrast, *cooperation* and *championing* involve varying degrees of discretionary effort in support of the change. Employees who *cooperate* with change engage in "behaviors that involve going along with the spirit of change and require modest sacrifices" (Herscovitch & Meyer, 2002; p. 476). Employees may also choose to *champion* change efforts, which occurs when employees undertake "behaviors that require considerable personal sacrifice or are intended to promote the change to others inside or outside the organization" (Herscovitch & Meyer, 2002; p. 476). Championing efforts represent the highest level of discretionary effort and therefore the highest level of behavioral support for change. Herscovitch and Meyer reported that affective commitment to change was positively associated with all three change behaviors, but was most strongly associated with championing, followed by cooperation, and then compliance. We propose that:

Hypothesis 2: Change readiness will be positively associated with change compliance, change cooperation, and change championing.

The effects of change beliefs and positive emotions about change on change readiness and change supportive behaviors

We argue that the indirect effects of change beliefs and positive emotions about change on change supportive behaviors will occur by influencing an individual's motivational state of change readiness. However, we also propose that change beliefs and positive emotions about change will display direct effects on change supportive behaviors. That is, we suggest that beliefs and emotions also can influence change behavior via non-motivational mechanisms, such as, for example, when high self-efficacy enhances an individual's *capacity* to engage in change supportive behaviors, or support from leaders provides an *opportunity* to behave in a particular way (see Blumberg & Pringle, 1982). Furthermore, even in the absence of a state of readiness, individuals may engage in change supportive behaviors if they believe, for example, that doing so will yield benefits (valence) or that implementing change is perceived as the right thing to do (appropriateness) given organizational circumstances. Below, we describe in more detail the expected direct and indirect effects between the change beliefs and positive emotions, change readiness and change supportive behaviors.

Discrepancy. A common element in practitioner-focused models of change implementation is the importance of convincing change recipients that there is a need for change in order to obtain behavioral support for change (Beer, Eisenstat, & Spector, 1990; Kotter, 1995; Nadler & Tushman, 1995). Developing beliefs about discrepancy is necessary to create a sense of urgency (Kotter, 1995), which may enhance motivation for change in the form of change readiness, and ultimately, change supportive behaviors.

Appropriateness. A key aspect of successful change is developing a consensus that a change vision, which details solutions to pressing issues, is "right" (Beer et al., 1990; Morin et al., 2015). When employees report that a change is appropriate for the organization and

suits the problem the company is dealing with, even in the absence of a personal sense of readiness for change, individuals will likely feel a sense of obligation to support change. Thus, we argue that when change recipients' believe that a change is appropriate then this will enhance the likelihood that they will behaviorally support change.

Change self-efficacy. We identify two reasons why change self-efficacy should be associated with change supportive behaviors. First, Vroom's (1964) expectancy theory suggests that individuals will exert more effort when implementing a change when they believe that it will lead to a desirable objective (i.e., the expectancy belief). We suggest that individuals who have higher expectancy beliefs will engage in higher levels of effort to achieve change. Second, we also identify change self-efficacy as a psychological resource. We argue that when an employee reports a high level of change self-efficacy then they will be more likely to engage in change supportive behaviors as they have a greater capacity to utilize their pool of resources during change.

Principal support. Research suggests that the opportunities available in an individual's work environment are an important influence on their performance (Blumberg & Pringle, 1982). We suggest that the availability of social support in an individual's environment is an important coping resource that provides employees with access to additional opportunities in the workplace in stressful times (Lazarus & Folkman, 1984). We argue that when employees' report that their top leaders, immediate supervisor, and work colleagues provide support for change then individuals will perceive that opportunities to engage in change supportive behaviors are enhanced, resulting in the display of more change supportive behaviors.

Valence. A number of theorists have identified valence about change as an important influence on individuals' reactions to change (Armenakis & Harris, 2002; Fedor et al., 2006; Morin et al., 2015; Yuan & Woodman, 2007). For example, Yuan and Woodman argue that

employee expectations about the outcomes of a change event will determine the amount of effort that employees devote to a change effort. We argue that when employees expect change to result in positive outcomes this will translate into more effort directed towards achieving change. That is, we expect valence beliefs to influence employees' motivation to perform change supportive behaviors through change readiness.

Positive emotions about change. Research reveals a number of reasons why positive emotions experienced in relation to change will be likely to promote change supportive behaviors. Frijda (1986) suggests that joy results in an action tendency called free activation, which involves a readiness to engage in whatever interaction presents itself and in part readiness to engage in enjoyments. Izard (1977) proposed that the momentary-thought action tendency produced by interest is exploration, where individuals seek to increase their knowledge of and experience with the target of interest. We argue that when an individual experiences positive emotions in response to change this enhances the extent to which employees seek to gather knowledge of and experience with change, which will translate into change supportive behaviors.

In summary, in the above section we have identified change readiness as a motivational state that drives people to behaviorally support change. Thus, it is proposed that:

Hypothesis 3: There will be significant indirect relationships between the cognitive beliefs about change and positive emotions about change and the three change supportive behaviors via change readiness.

In addition, we also have identified that the change beliefs and positive emotions will have direct effects on change supportive behaviors. Therefore, it is proposed that:

Hypothesis 4: Discrepancy will have a positive direct effect on all three change supportive behaviors.

Hypothesis 5: Appropriateness will have a positive direct effect on all three change supportive behaviors.

Hypothesis 6: Change self-efficacy will have a positive direct effect on all three change supportive behaviors.

Hypothesis 7: Principal support will have a positive direct effect on change supportive behaviors.

Hypothesis 8: Valence will have a positive direct effect on change supportive behaviors.

Hypothesis 9: Change positive emotions will have a positive direct effect on all three change supportive behaviors.

Study 2 Method

In Study 2, we again examine whether change beliefs and positive emotions about change are antecedents of change readiness. We also examine direct and indirect relationships between change beliefs, change positive emotions, change readiness, and change supportive behaviors.

Procedure and participants

Participants were recruited via email using Research Now, an online market research service that provides survey panel recruitment services. Invitations targeted adult employees who were employed full-time and who were currently experiencing change or who were just about to experience an organizational change. Eligible participants were directed to an online survey, which had a unique identification number that allowed the respondent to be tracked over two surveys. Respondents received \$2.50 (Australian) for a completed survey at Time 1 (T1) and \$5 at Time 2 (T2).

We asked respondents to describe an organizational change that they were currently experiencing in an open-ended question at the beginning of the survey. Respondents were then asked to complete the remaining survey questions considering the organizational

change(s) that they described. Five hundred and ninety nine employees completed a survey. Data from 137 respondents were removed because they spent less than ten minutes on the survey (average survey completion time was approximately 20 minutes) or they did not provide a valid description of an organizational change. Thus, data from 462 respondents (226 males and 236 females) were retained at T1. These participants were invited to take part in a second survey three months later (T2). Participants who were not working at the same organization as when they completed the Time 1 survey were removed from the survey process prior to survey completion at T2. We received 275 responses (response rate 59.5%) from individuals who were working in the same organization that they were employed in at T1. However, data from 76 respondents were removed because they completed the survey in less than 10 minutes and/or did not provide a valid description of the organizational change event that they were experiencing. Thus, data from 199 individuals were retained at T2⁵.

The matched sample of 199 respondents included 101 (50.8%) male and 98 (49.2%) female employees. Average employee age was 42.2 years ($SD = 11.09$) and average organizational tenure was 8.15 years ($SD = 8.46$). The majority of respondents were employed in a full time position ($n = 150, 75.4\%$) and reported working in clerical, sales, or service positions ($n = 62, 31.2\%$), followed by respondents working as professionals ($n = 42, 21.2\%$), managers or administrators ($n = 39, 19.6\%$), or associate professionals (e.g., police officer, chef; $n = 20, 10.1\%$).

The first author and a senior research assistant coded the change descriptions provided at T1 for respondents retained in the study. Of the 199 change descriptions provided, 129 (64.8%) involved an organizational restructure, 33 change descriptions involved changes to the way in which work is done (16.6%), 23 descriptions involved staffing changes (11.6%),

⁵ We compared the respondents who provided a response at both time points with those who only responded at T1. The only significant difference between these groups was that employees who responded at both time points were significantly older (42.2 years versus 38.4 years) than those who only responded at T1, $t = -3.64, p < .001$.

six relocation changes were discussed (3.0%), and two service changes (1.0%). One change description (0.5%) could not clearly be placed into any of the preceding categories.

Time 1 Measures

Change beliefs and emotions and change readiness. Change beliefs were assessed using the reduced item set that emerged from Study 1. All scales including discrepancy ($\alpha = .92$), appropriateness ($\alpha = .95$), change self-efficacy ($\alpha = .93$), principal support ($\alpha = .77$), valence ($\alpha = .94$), change positive emotions ($\alpha = .92$), and change readiness ($\alpha = .92$) displayed acceptable internal reliabilities. Scales were assessed using a 1-7 Likert scale where 1 referred to “strongly disagree” and 7 referred to “strongly agree”.

Time 2 Measures

Behavioral support for change. Change behaviors were assessed using Herscovitch and Meyer’s (2002) measures. Response options ranged from 1 “strongly disagree” to 7 “strongly agree”. Three items assessed compliance (e.g., “I have complied with my organization’s directives regarding the change”, $\alpha = .92$). Behavioral cooperation was assessed with eight items (e.g., “I engage in change-related behaviors that seem difficult in the short-term but are likely to have long-term benefits”, $\alpha = .89$). Behavioral championing was assessed using six items (e.g., “I try to overcome co-workers’ resistance toward the change”, $\alpha = .93$).

Study 2 Results and Discussion

Descriptive statistics

Table 2 displays the descriptive statistics and correlations among the study variables in Study 2.

 INSERT TABLE 2

Measurement models

Change beliefs and emotions and change readiness. We contrasted the same

alternative measurement models as in Study 1. The hypothesized 7-factor model was a good fit to the data, $\chi^2(278) = 761.56, p < .001$; RMSEA = .08, SRMR = .05, CFI = .94, NNFI = .95 and was a significantly better fit to the data than a series of alternative models⁶. All of the model parameters loaded significantly onto their hypothesized latent factor at $p < .001$ and these factors explained substantial amounts of item variance (R^2 ranged from .21 to .94). These results provide additional evidence to support the validity of the measures assessing change beliefs, positive emotions about change, and change readiness.

Path analysis model

Due to the large number of relationships to be estimated and the relatively small sample size, we estimated a path analysis model to test hypotheses. In these analyses, we corrected for unreliability in the observed variables⁷. We used the reliability estimates of each observed measure to adjust the variances of the measures in the path model (Cole & Preacher, 2014). The hypothesized model is a saturated model, which is a just-identified model where the number of free parameters exactly equals the number of known values (i.e., this is a model with zero degrees of freedom). As such, no fit indices are provided in this model. The saturated model accounted for 82% of the variance in change readiness, 27% of the variance in compliance, 30% of the variance in cooperation, and 40% of the variance in championing. The results from this model are used to test hypotheses. The results are presented in Figure 3.

Relationships between change beliefs and emotions and change readiness

(Hypotheses 1a-1f). Results indicated that discrepancy, $\beta = .53, p < .001$, appropriateness, $\beta = .50, p < .001$, change self-efficacy, $\beta = .33, p < .001$, principal support, $\beta = .14, p < .001$, valence, $\beta = .38, p < .001$, and change positive emotions were significantly associated with change readiness, $\beta = .06, p < .001$.

⁶ Contact the first author to review the alternative measurement models.

⁷ Additional details related to the reasons for correcting for unreliability in observed variables is provided in the online supplementary materials. We also provide a comparison of the reliability corrected versus uncorrected results in the supplementary materials (see Table S2).

INSERT FIGURE 3 ABOUT HERE

Relationships between change readiness and change behaviors (Hypothesis 2). T1 change readiness was significantly associated with T2 compliance, $\beta = .12, p < .001$, T2 cooperation, $\beta = .10, p < .001$, and T2 championing, $\beta = .10, p < .001$.

Indirect effects of change beliefs and emotions on change supportive behaviors via change readiness (Hypothesis 3). The indirect effects were tested using PROCESS (Hayes, 2012) for each independent variable after controlling for all of the other change beliefs and positive emotions about change. PROCESS is not able to correct for unreliability. Bias corrected (BC) 95% confidence interval estimates were obtained for the indirect effect in the simple mediator models based on 10,000 bootstrap samples. Table 3 displays the results of the tests of the indirect effects.

INSERT TABLE 3 ABOUT HERE

There was a significant indirect relationship between T1 appropriateness, T1 change readiness, and T2 cooperation (.10, 95% CI: .0474, .1736) and T2 championing (.08, 95% CI: .0302, .1432). T1 change self-efficacy was significantly indirectly associated with T2 cooperation (.05, 95% CI: .0124, .0992) and T2 championing (.04, 95% CI: .0076, .0852). The indirect relationships between T1 valence, T1 change readiness, and T2 cooperation (.04, 95% CI: .0021, .0885), and T2 championing (.03, 95% CI: .0015, .0767) were significant. Finally, the indirect relationships between T1 positive emotions about change and T2 cooperation (.18, 95% CI: .097, .286), and T2 championing (.14, 95% CI: .0475, .2552) were significant.

Direct effects of change beliefs and emotions on change behaviors (Hypotheses 4-9). Discrepancy was not significantly uniquely associated with T2 compliance, $\beta = .23, n.s.$, but was significantly associated with T2 cooperation, $\beta = .24, p < .001$, and T2 championing, $\beta =$

.39, $p < .001$. T1 appropriateness was significantly associated with T2 compliance, $\beta = .45$, $p < .001$, T2 cooperation, $\beta = .30$, $p < .001$, and T2 championing, $\beta = .35$, $p < .001$. In contrast, T1 change self-efficacy was not significantly associated with T2 compliance, $\beta = -.05$, *n.s.*, or T2 cooperation, $\beta = .07$, *n.s.*, or T2 championing, $\beta = .08$, *n.s.* T1 principal support was not significantly associated with T2 compliance, $\beta = .03$, *n.s.*, T2 cooperation, $\beta = .02$, *n.s.* or T2 championing, $\beta = .02$, *n.s.* T1 valence was significantly associated with T2 compliance, $\beta = .49$, $p < .001$ and T2 cooperation, $\beta = .15$, $p < .01$ but was not significantly associated with T2 championing, $\beta = .09$, *n.s.* T1 change positive emotions were significantly associated with T2 compliance, $\beta = .12$, $p < .001$, T2 cooperation, $\beta = .04$, $p < .001$, and T2 championing, $\beta = .02$, $p < .05$.

Supplementary analysis: Relative weights analysis

The results of the relative weights analysis in Study 2 were similar to those obtained in Study 1. Specifically, the percentage of variance in change readiness accounted for by the predictors as a set was 84.8%, and the proportion accounted for by positive emotions about change (.24) was significantly higher than that accounted for by appropriateness (.18), valence (.15), discrepancy (.11), self-efficacy (.10), and principal support (.09) individually. When the change behaviors were included as outcomes, these predictors and change readiness accounted for 28.7%, 33.1%, and 48.1% of the variance in compliance, cooperation, and championing, respectively (see Table S3 in the online supplementary materials for full results). For compliance, the highest proportion of variance was attributed to the effects of self-efficacy (.11) and principal support (.06). For cooperation, the highest proportion of variance was attributed to change readiness (.08), self-efficacy (.06), principal support (.06), and valence (.05). For championing, the highest proportion of variance was attributed to change readiness (.09), valence (.08), principal support (.08), self-efficacy (.07), and positive emotions about change (.05).

General Discussion

While practitioners have identified emotions as a central element of organizational change experiences and have argued that it is important to manage emotions during change (e.g., Kotter & Cohen, 2002), empirical research has not yet systematically examined whether this is the case in relation to change attitudes. The findings from both the traditional and supplementary (relative weights) analyses in the present study provide consistent support for the importance of both change beliefs and positive emotions about change as antecedents of change readiness. In both studies we found that discrepancy, change self-efficacy, principal support, and change positive emotions were uniquely positively associated with change readiness. In contrast, appropriateness and valence were uniquely associated with change readiness in one of the two studies. Overall, these results provide empirical support for the theoretical argument that both cognitions *and* positive emotions about change are direct antecedents of the overall evaluation of change readiness. Theoretically, these findings are important because they suggest that current conceptualizations of change readiness are deficient in that they do not recognize that employees' positive emotional responses to change are a critical antecedent of this change attitude. Our research suggests that change readiness is indeed a cognitive and emotional construct, which requires that researchers consider both antecedents when defining and assessing change readiness.

Our research revealed that change readiness was directly associated with change supportive behaviors, which is in line with social psychological models that predict attitude-behavior consistency (Fazio, 1986; Glasman & Albarracin, 2006). Previous research on change commitment (Herscovitch & Meyer, 2002) has suggested that change attitudes may be stronger predictors of more discretionary change supportive behaviors. In Study 2, the proposed model accounted for 27% of the variance in compliance, 30% of the variance in cooperation, and 40% of the variance in championing. These results provide some support for

the argument that change readiness is a better predictor of more discretionary change behaviors. However, future research should continue to investigate this issue.

Results of Study 2 also revealed that there were significant indirect relationships among the change beliefs and positive emotions about change, change readiness, and the three change supportive behaviors. In particular, there were significant indirect relationships between appropriateness, change self-efficacy, valence, and change positive emotions, change readiness, and change supportive behaviors. This is an important set of results because it confirms a central theoretical tenet underlying researchers' interest in change readiness. That is, change readiness is a critical mediating factor between a number of employees' beliefs and positive emotional responses to change and employees' behavioral support for change (Armenakis et al., 1993).

The findings of the relative weights analysis largely corroborate the more traditional analyses. All of the change beliefs and positive emotions about change accounted for significant amounts of variance in overall change readiness in both studies. Moreover, positive emotion about change was relatively more important for predicting change readiness than any single one of the five change cognitions. In this regard, it is important to note that we are not making the claim that emotions about change are more important than cognitions about change in general, as the set of five cognitive beliefs together account for the majority of the predictable variance in change readiness. Rather, our results verify the relative importance of positive emotions when compared one-on-one with each of the different types of cognitive beliefs. We also acknowledge the differences between the standard analyses, which are designed to assess incremental importance, and relative weights analyses, which is designed to assess relative importance (see LeBreton, Hargis, Oswald, & Ployhart, 2007). We can conclude from the standard analyses that each of the six predictors we examined independently and additively contributes to change readiness, and that a focus by

practitioners on all six antecedents of change readiness will improve the prediction and development of change readiness (compared to a focus on a subset of these antecedents). In contrast, relative weights analysis suggests that practitioners will in general gain more (with respect to predicting or developing change readiness) from their focus on change positive emotions compared to their focus on any one of the single cognitive beliefs. The relative weights analysis corroborates this by demonstrating significant levels of relative importance for all six predictors with respect to predicting change readiness.

An interesting theoretical issue that arises from a consideration of this study is whether it is appropriate to administer items assessing change readiness as we have done or whether it is sufficient to measure the change beliefs and positive emotions about change scales and then statistically estimate a second-order latent change readiness factor. We suggest that both approaches may be useful depending on the goal of research. Theoretically, we expect that directly measuring change readiness versus estimating a second-order latent factor on the basis of the cognitive beliefs and positive emotions about change items assess the same construct. However, a disadvantage of estimating a second-order latent factor is that it would not then be possible to explore relationships between the second-order latent factor and the first-order factors (the cognitive beliefs and positive emotions) and outcomes such as change supportive behaviors. If researchers or change agents are interested in the unique effects of the change beliefs and positive emotions and change readiness on outcomes then it is preferable to actually measure the change beliefs, positive emotions about change, and change readiness.

Practical implications

An important practical implication that emerges from this study is that in order to develop change readiness, managers and change agents need to focus on providing opportunities to experience feelings of joy and interest in response to change. Fox and

Amichai-Hamburger (2001) argue that, while leaders seem to perceive the emotional reactions of their employees to change as one of the burdens that they must endure, emotions are in fact a potential tool for securing the willingness and commitment of employees in change processes. Our study provides empirical support for this argument in relation to change readiness.

The question remains as to how to build positive employee emotional responses to change so as to enhance employee change readiness. While Kotter and Cohen (2002) broadly address how to incorporate emotions into their 8-stage model of change, other authors also have identified a range of more specific strategies to influence employees' emotions during change. For example, Fox and Amichai-Hamburger (2001) suggest that when seeking to influence individuals' emotional responses, leaders should consider using pictures, colors, music, and atmosphere. However, more traditional approaches to change such as participative decision-making (Armenakis et al., 1999) can be implemented in such a way so as to target both cognitive beliefs and emotional responses to change. For example, as a part of participative decision-making processes an organization could encourage discussion of the positive emotions that emerge from the participation process and from increasing understanding of the change process.

Barsade and O'Neill (2016) also identify a number of strategies that can be used to cultivate a particular emotional culture. First, these authors argue that it is important to build on what employees already feel. This can be done by scheduling time for meditation or providing a mindfulness app that reminds people to breathe, relax, or laugh. Second, there is a need to model the emotions that you want your employees to display. So, if you want your employees to be interested or positively challenged by change activities then leaders need to model these emotions and accompanying behaviors. Third, Barsade and O'Neill encourage

employees to make a focused effort to feel a certain way (deep acting) as research suggests that this then translates into experiencing this emotion.

Future research

A number of areas for future research emerge from our studies. First, it is interesting to consider that when we were developing arguments in support of the direct and indirect relationships between the change beliefs and positive emotions and change behaviors we identified a variety of other potential mediating mechanisms in addition to change readiness. For example, we identified two mediating mechanisms that may explain the relationships between change self-efficacy and change supportive behaviors (i.e., higher expectancy beliefs and an enhanced capacity to utilize psychological resources). While higher expectancy beliefs may contribute to the motivational state of change readiness, we expect that an enhanced capacity to utilize psychological resources will contribute to an individual's ability to engage in change supportive behaviors. In contrast, we identified the action tendencies of free activation and exploration as mediating relationships between positive emotions about change and change supportive behaviors. Overall, this analysis suggests that there are a variety of potential additional mediating mechanisms that future research can explore in order to further elucidate the processes through which change beliefs and emotions result in change supportive behaviors. In addition, another interesting area for future study concerns examining whether individuals first experience emotional reactions to change and then develop change beliefs or whether employees first develop beliefs about change which then lead to emotional reactions to change.

Another area of future research that should be considered is whether other change attitudes such as commitment to change (Herscovitch & Meyer, 2002) mediate relationships between change beliefs and emotions and change supportive and resistant behaviors. It would be useful to compare the strength of relationships between different change attitude

constructs and change behaviors to identify which of these constructs is the best predictor of change behaviors. It may be, for example, that different change attitudes are important at different stages of change. For example, early in a change process it may be that change readiness is an important mediator of relationships between change beliefs and emotions. At a later stage in change it may be that commitment to change becomes more important and therefore is a stronger mediator of relationships between beliefs and emotions and change behaviors⁸.

We would suggest that future research should assess beliefs and emotions and change readiness at multiple time points in order to elucidate the longitudinal relationships among these constructs. A longitudinal design also would be advantageous because it would allow researchers to control for initial levels of change supportive behaviors, allowing stronger conclusions to be made concerning the influence of the change beliefs and positive emotions and the overall evaluation of change readiness on later change supportive behaviors.

Strengths and limitations

This paper has a number of strengths including the collection of data from two samples. In addition, we also separated the measurement of the independent and dependent variables in Study 2 so as to reduce the influence of common method variance (Ostroff, Kinicki, & Clark, 2002). However, all of the data on change beliefs, positive emotions about change and change readiness were collected at a single time using a single method in both studies. As such, relationships among these constructs may have been impacted by common method variance. A third strength of this study was that we collected data in Study 2 from a wide range of individuals experiencing a wide range of changes. We argue that our research findings are more generalizable than if we only collected data from a single organization undertaking a small set of organizational changes.

⁸ We thank one of the anonymous reviewers for drawing our attention to this possibility.

This research also has a number of limitations. First, while we separated the measurement of the antecedents of change readiness and change readiness from the change behaviors, we cannot make definitive statements about the causal order of relationships. In order to do this, we would need to conduct a true longitudinal experiment where data were collected from all constructs at three or more points in time (Menard, 2002). Another potential limitation of the current research is the three month time frame between collection of the change beliefs and positive emotions about change. This may have been long enough to see modifications to the initial change beliefs and positive emotions so that more current measures of beliefs and positive emotions would display stronger relationships with change supportive behaviors. Another limitation was that in Study 2, 121 respondents (60.8%) reported that the change was in the process of being implemented. For the remaining 78 employees, who reported that change was in the planning stage or was just about to be implemented, it may have been more difficult for this group to report on the extent to which they engaged in change supportive behaviors. However, we conducted a post-hoc analysis and found that there was no significant difference in the change behaviors reported based on the stage of change implementation.

Conclusion

The results of this study suggest that current understandings of the change readiness construct are deficient in that they do not recognize that both cognitive beliefs about change and employees' positive emotional responses to change are critical antecedents of this change attitude. However, in two studies we found that both cognitive beliefs and positive emotions about change were important antecedents of change readiness. Results also support the mediating role of change readiness when predicting change supportive behaviors. Finally, change beliefs and positive emotions about change also were directly associated with the change supportive behaviors.

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Table 1
Descriptive statistics and zero-order correlations in Study 1

	Mean (SD)	Disc ^a	App ^b	CSE ^c	Psupp ^d	Val ^e	Positive emotions about change	Change Readiness
1. Discrepancy	4.90 (1.35)	(.94)						
2. Appropriateness	4.57 (1.60)	.71***	(.96)					
3. Change Self- efficacy	5.29 (1.07)	.34***	.51***	(.89)				
4. Principal Support	4.83 (1.28)	.35***	.53***	.34***	(.77)			
5. Valence	4.18 (1.56)	.39***	.68***	.48***	.57***	(.94)		
6. Positive emotions about change	3.97 (1.21)	.46***	.71***	.48***	.54***	.76***	(.90)	
7. Change readiness	4.70 (1.36)	.56***	.74***	.55***	.57***	.74***	.82***	(.93)

Note: N = 252. $p < .05$, $p < .01$, $p < .001$. ^a Disc = Discrepancy. ^b App = Appropriateness. ^c CSE = Change self-efficacy. ^d Psupp = Principal support. ^e Val = Valence. A 1-7 Likert scale ranging from “strongly disagree” to “strongly agree” was used to assess all scales in this study.

Table 2

Descriptive statistics and zero-order correlations among variables in Study 2

	Mean (SD)	T1 Disc ^a	T1 App ^b	T1 CSE ^c	T1 PS ^d	T1 Valence	T1 Positive emotions	T1 Change Readiness	T2 Comp ^e	T2 Coop ^f	T2 Champ ^g
1. T1 Discrepancy	4.79 (1.37)	(.92)									
2. T1 Appropriateness	4.57 (1.56)	.79***	(.95)		-						
3. T1 Change self-efficacy	5.00 (1.25)	.52***	.63***	(.93)							
4. T1 Principal support	4.69 (1.33)	.48***	.58***	.60***	(.77)						
5. T1 Valence	4.04 (1.61)	.53***	.70***	.57***	.63***	(.94)					
1. T1 Positive emotions about change	3.90 (1.44)	.51***	.71***	.56***	.57***	.80***	(.92)				
8. T1 Change readiness	4.23 (1.67)	.66***	.83***	.65***	.60***	.78***	.86***	(.92)			
9. T2 Compliance	5.42 (1.05)	.33***	.35***	.48***	.41***	.27***	.21**	.34***	(.92)		
10. T2 Cooperation	4.66 (1.03)	.35***	.39***	.45***	.45***	.45***	.39***	.51***	.60***	(.89)	
11. T2 Championing	4.44 (1.34)	.34***	.45***	.51***	.53***	.53***	.49***	.56***	.61***	.83***	(.93)

Note: N = 199. * $p < .05$, ** $p < .01$, *** $p < .001$. ^a T1 Disc = Time 1 Discrepancy; ^b T1 App = Time 1 Appropriateness; ^c T1 CSE = Time 1 Change self-efficacy; ^d T1 PS = Time 1 Principal support; ^e T2 Comp = Time 2 Compliance; ^f T2 Coop. = Time 2 Cooperation; ^g T2 Champ = Time 2 Championing. A 1-7 Likert scale ranging from “strongly disagree” to “strongly agree” was used to assess all scales in this study.

Table 3
Indirect effects in Study 2

	Point Estimate	Bootstrapping	
		BC 95% CI Lower ^a	BC 95% CI Upper ^b
1. T1 Discrepancy → T1 Readiness → T2 Compliance	.0132	-.0039	.0549
2. T1 Discrepancy → T1 Readiness → T2 Cooperation	.0331	-.0067	.0841
3. T1 Discrepancy → T1 Readiness → T2 Championing	.0258	-.003	.0747
4. T1 Appropriateness → T1 Readiness → T2 Compliance	.0399	-.0149	.1081
5. T1 Appropriateness → T1 Readiness → T2 Cooperation	.1003	.0474	.1736
6. T1 Appropriateness → T1 Readiness → T2 Championing	.0782	.0302	.1432
7. T1 Change Self-efficacy → T1 Readiness → T2 Compliance	.018	-.0035	.0635
8. T1 Change Self-efficacy → T1 Readiness → T2 Cooperation	.0468	.0124	.0992
9. T1 Change Self-efficacy → T1 Readiness → T2 Championing	.0363	.0076	.0852
10. T1 Principal Support → T1 Readiness → T2 Compliance	-.001	-.0275	.2251
11. T1 Principal Support → T1 Readiness → T2 Cooperation	-.002	-.0395	.0403
12. T1 Principal Support → T1 Readiness → T2 Championing	-.002	-.0356	.0301
13. T1 Valence → T1 Readiness → T2 Compliance	.0148	-.0039	.0670
14. T1 Valence → T1 Readiness → T2 Cooperation	.0368	.0021	.0885
15. T1 Valence → T1 Readiness → T2 Championing	.0286	.0015	.0767
16. T1 Change Positive Emotions → T1 Readiness → T2 Compliance	.0703	-.0285	.1795
17. T1 Change Positive Emotions → T1 Readiness → T2 Cooperation	.1784	.097	.286
18. T1 Change Positive Emotions → T1 Readiness → T2 Championing	.1387	.0475	.2552

Note: ^a BC 95% CI Lower = Bias corrected 95% confidence interval lower; ^b BC 95% CI Upper = Bias corrected 95% confidence interval upper

Figure 1

Proposed theoretical model

Figure 2

Study 1 latent variable structural equation model results

Figure 3

Study 2 path analysis results

Online Supplementary Materials

Table S1

Items Assessing Change Beliefs, Positive Emotions about Change, and Change Readiness

Construct	Item	Source
Discrepancy	1. This organizational change needs to be implemented to improve our operations	Armenakis, Bernerth, Pitts, & Walker (2007)
	2. We need to improve our performance by implementing an organizational change ^a	Armenakis, Bernerth, Pitts, & Walker (2007)
	3. There are legitimate reasons for us to make this change	Holt, Armenakis, Harris et al. (2007)
	4. There are a number of rational reasons for this change to be made	Holt, Armenakis, Harris et al. (2007)
Appropriateness	1. When I think about this change I realize it is appropriate for our organization	Armenakis, Bernerth, Pitts, & Walker (2007)
	2. This change is necessary	Holt, Armenakis, Harris et al. (2007)
	3. This change we are implementing is correct for our situation	Armenakis, Bernerth, Pitts, & Walker (2007)
Change Self-efficacy	1. I have the capability to implement the change that is initiated	Armenakis, Bernerth, Pitts, & Walker (2007)
	2. I can implement this change in my job	Armenakis, Bernerth, Pitts, & Walker (2007)

	3. When we implement this change, I feel I can implement it with ease	Holt, Armenakis, Harris et al. (2007)
	4. I have the skills that are needed to make this change work	Holt, Armenakis, Harris et al. (2007)
Principal support	1. The top leaders support this change	Armenakis, Bernerth, Pitts, & Walker (2007)
	2. The majority of my (respected) peers are dedicated to making this change work	Armenakis, Bernerth, Pitts, & Walker (2007)
	3. My immediate manager is in favor of this change	Armenakis, Bernerth, Pitts, & Walker (2007)
Valence	1. This change has important positive consequences for my future	Rafferty & Minbashian
	2. This change project will be advantageous for me	Rafferty & Minbashain
	3. This change will benefit me	Armenakis, Bernerth, Pitts, & Walker (2007)
Positive emotions about change	1. I am excited by this change	Rafferty & Minbashian
	2. I feel happy about this organizational change	Rafferty & Minbashian
	3. I feel exhilarated by this organizational change	Rafferty & Minbashian
	4. I feel elated by this organizational change ^a	Rafferty & Minbashian

	5. I feel glad that this organizational change is going to be implemented	Rafferty & Minbashian
	6. I feel curious about this organizational change	Rafferty & Minbashian
	7. I feel challenged by this organizational change	Rafferty & Minbashian
Change Readiness	2. I am fully supportive of this change	Fedor, Caldwell, and Herold (2006)
	3. I would consider myself open to this change ^a	Groves (2005)
	4. I am ready for this organizational change	Eby, Adams, & Russell (2000)
	5. I look forward to the changes	Miller, Johnson, & Grau (1994)
	6. I want to see this change happen	Lau & Woodman (1995)

Note: ^a Item removed based on analyses conducted in Study 1. All scales were assessed with a 1-7 Likert scale where 1 refers to “strongly disagree” and 7 refers to “strongly agree”.

Controlling for unreliability in observed variables when using path analysis

We utilized path analysis to analyze our data in Study 2 due to the relatively small sample size of this study ($n = 199$) compared to the number of parameters that would need to be estimated in a latent variable structural model. Recent methodological discussion has emphasized the importance of controlling for unreliability in observed or manifest variables when using path analysis (see Cole & Preacher, 2014). In particular, Cole and Preacher argue that when unreliability in observed or manifest variables is not corrected then: 1) virtually all path coefficients will be over or under-estimated, 2) even a little measurement error can cause valid models to appear invalid, 3) power diminishes reducing the chance of rejecting an invalid model, 4) differential measurement error in different parts of the model can change the substantive conclusions that derive from path analysis, and 5) all these problems become increasingly serious as models become more complex.

We compared the results obtained in Study 2 when we conducted path analysis without controlling for unreliability in the observed variables to the results when we did control for unreliability in the observed variables. We used reliability estimates of each observed measure to adjust the variances of the measures in the path model. Specifically, we used the formulae $(1 - \text{reliability of the measure}) * \text{sample variance}$ to adjust the variance of the observed variables for unreliability (Cole & Preacher, 2014).

Study 2: Comparison of models with and without reliability correction

Below, Table S2 displays the results of path analyses in Study 2 where we do not and do control for unreliability in the manifest variables. Path analyses were implemented using LISREL 9.3.

Table S2

Comparison of path analysis models in Study 2 with and without the correction for unreliability in the observed variables

	T1 Disc ^a	T1 App ^b	T1 CSE ^c	T1 PS ^d	T1 Val ^e	T1 PEC ^f	T1 CR ^g
1. T1 Change readiness	.53*** (.07)	.50*** (.33***)	.33*** (.12**)	.14*** (.02)	.38*** (.10)	.06*** (.41***)	
2. T2 Compliance	.23 (.16)	.45*** (-.07)	-.05 (.36***)	.03 (.18*)	.49*** (-.01)	.12*** (-.26*)	.25*** (.16**)
3. T2 Cooperation	.24*** (.10)	.30*** (-.27*)	.07 (.14)	.02 (.21*)	.15** (.17)	.04*** (-.19)	.10*** (.44**)
4. T2 Championing	.39*** (-.04)	.35*** (-.24*)	.08 (.17**)	.02 (.18*)	.09 (.26**)	.02* (.00)	.10*** (.35**)

Note: Figures in *brackets* are the results from the model where no corrections for unreliability in the observed

variables occurred. * $p < .05$, ** $p < .01$, *** $p < .001$. ^a T1 Disc = Time 1 Discrepancy, ^b T1 App = Time 1

Appropriateness; ^c T1 CSE = Time 1 Change self-efficacy; ^d T1 PS = Time 1 Principal support; ^e T1 Val. = Time

1 Valence, ^f PEC = Time 1 Positive emotions about change; ^g CR = Time 1 Change readiness.

Table S2 suggests that, correcting for unreliability in the observed variables when implementing path analysis made a substantial difference in the parameter estimates obtained. In some cases, there was a reversal of the sign of the relationship obtained after correcting for unreliability in the observed variables (e.g., the relationship between T1 appropriateness and T2 cooperation changed from $-.27, p < .05$ to $.30, p < .001$ after correcting for unreliability in

the observed variables). Overall, these analyses support the importance of controlling for unreliability in observed variables when conducting path analyses.

Table S3

Raw relative weights results for each independent variable in predicting each outcome in Studies 1 and 2

Predictors	Change Readiness: Study 1	Change Readiness: Study 2	Compliance: Study 2	Cooperation: Study 2	Championing: Study 2
Discrepancy	0.09*	0.11*	0.03*	0.03	0.02
Appropriateness	0.12*	0.18*	0.03*	0.03	0.03
Self-Efficacy	0.09*	0.10*	0.11*	0.06*	0.07*
Principal Support	0.09*	0.07*	0.06*	0.06*	0.08*
Valence	0.15*	0.15*	0.02	0.05*	0.08*
Positive Emotions	0.24*	0.24*	0.01	0.03	0.05*
Change Readiness			0.03*	0.08*	0.09*
Model R square	77.11%	84.79%	28.7%	33.1%	41.8%

Note: * $p < .05$