Does meaning-making help during organizational change?

Development and validation of a new scale

Machteld van den Heuvel and Evangelia Demerouti

Department of Social and Organizational Psychology, Utrecht University, Utrecht, The Netherlands

Bert H.J. Schreurs

Centre for Corporate Sustainability, Hogeschool-Universiteit Brussel, Belgium

Arnold B. Bakker

Institute of Psychology, Erasmus University Rotterdam, Rotterdam, The Netherlands, and

Wilmar B. Schaufeli

Department of Social and Organizational Psychology, Utrecht University, Utrecht, The Netherlands

Abstract

Purpose – The purpose of this paper is first, to test the validity of a new scale measuring the construct of meaning-making, defined as the ability to integrate challenging or ambiguous situations into a framework of personal meaning using conscious, value-based reflection. Second, to explore whether meaning-making is distinct from other personal resources (self-efficacy, optimism, mastery, meaning in life), and coping (positive reinterpretation, acceptance). Third, to explore whether meaning-making facilitates work engagement, willingness to change, and performance during organizational change.

Design/methodology/approach – Cross-sectional survey-data were collected from 238 employees in a variety of both public and private organizations.

Findings – Confirmatory factor analyses showed that meaning-making can be distinguished from other personal resources, coping and meaning in life. Regression analyses showed that meaning-making is positively related to in-role performance and willingness to change, but not to work engagement, thereby partly supporting the hypotheses.

Originality/value – The paper focuses on meaning-making that has not yet been studied empirically in organizational change settings. It shows that the new construct of psychological meaning-making is related to valuable employee outcomes including in-role performance and willingness to change. Meaning-making explains variance over and above other personal resources such as self-efficacy, optimism, mastery, coping and meaning in life.

Keywords Organizational change, Resources, Motivation (psychology), Employees

Paper type Research paper

People are motivated to make meaning of what happens in their environments (Baumeister and Vohs, 2002; Frankl, 1963). The individual ability to find meaning has become increasingly important in work settings. Because of globalization, technological developments, reengineering and numerous other changes, the

complexity of work and organizational life has increased rapidly. As a result employees are seeking value, support and meaning in their lives, not only through activities outside work, but also on the job (Cash and Gray, 2000).

In the present study, we conceive meaning-making as the ability to integrate challenging or ambiguous situations into a framework of personal meaning using value-based reflection. Such a conceptualization of meaning-making is relevant for work settings where employees are expected to deal with change, ambiguity and uncertainty on an ongoing basis. The main aim of the present study is to introduce a new measure of meaning-making. We investigate the added value of this new construct in predicting work engagement and performance during change. In order to do this, we test the factorial validity of meaning-making by examining its relationship with first of all, meaning in life (i.e. perceived meaning in life), second, personal resources (i.e. self-efficacy, optimism, and mastery) and finally, coping (i.e. positive reinterpretation and acceptance). These constructs show resemblance to meaning-making as they have been shown to facilitate resilience in dealing with challenging or ambiguous situations.

Theoretical framework: the concept of meaning

The recent focus in psychology on positive experiences (Seligman, 2002) sparked a renewed interest in psychological meaning (Auhagen, 2000; Morgan and Farsides, 2007; Steger *et al.*, 2006). Many researchers have acknowledged the importance of being able to experience meaning for optimal human functioning (e.g. Frankl, 1963; Jahoda, 1958; Maslow, 1968; Rogers, 1961). This study links insights from the existing work on meaning in life (Reker and Chamberlain, 2000; Steger *et al.*, 2006; Wong and Fry, 1998) meaning at work (May *et al.*, 2004; Wrzesniewski and Dutton, 2001, Wrzesniewski *et al.*, 2003) and sensemaking (Weber and Manning, 2001; Weick, 1995; Wrzesniewski *et al.*, 2003). The ability to find meaning has been shown to correlate with psychological well-being (Shek, 1992). Finding meaning predicts physical health (Taylor *et al.*, 2000), better adjustment to disease, less depression and more positive well-being (Helgeson *et al.*, 2006). Meaning in a work context serves as mechanism through which employees feel energized about their work (Spreitzer *et al.*, 1997). It is an outcome of societal influences, work environment and personal characteristics (James and James, 1989; May *et al.*, 2004; MOW International Research Team, 1987; Spreitzer, 1995). Experiencing meaning at work is suggested to mediate the relation between job characteristics and work engagement (May *et al.*, 2004) and the relation between transformational leadership and psychological well-being (Arnold *et al.*, 2007). Other studies show that meaning at work predicts high commitment and energy (Kanter, 1983), managerial effectiveness and innovative behavior, (Spreitzer, 1995), personal growth and work motivation (Spreitzer, 1995) and job satisfaction (Wrzesniewski *et al.*, 1997).

In the present study, we build on the process model proposed by Wrzesniewski *et al.* (2003), which outlines how interpersonal sensemaking results in meaning at work. They define "work meaning" as employees' understanding of the content and value of the work as a result of continuous sensemaking. Meaning at work in this model predicts employees' efforts to alter or create work content and social contexts to make it more meaningful. In our conceptualization, meaning-making is the ability to link work meaning to meaning in life. It allows individuals to evaluate and reflect on work meanings in light of personal values and life goals. This is in line with classic work

that shows that work satisfaction is dependent on perceived personal meaningfulness and fulfillment of one's personal work values (Herzberg, 1966; Locke, 1976).

Meaning and organizational change
Meaning has proven to be an important factor in dealing with changing life circumstances (Linley and Joseph, 2004; Reker *et al.*, 1987; Tedeschi and Calhoun, 1996). In the same line, meaning-making is important when work or organizations change, both in terms of understanding the content of the change and in terms of the impact on employees personal values and goals (Weber and Manning, 2001; Weick, 1995). The pace of organizational change is high, whether strategic, technological, cultural, regulatory or due to economic crisis. Increasingly, this poses demands on employees to be proactive, resilient, and self-managing (Korunka *et al.*, 1993; Weick and Quinn, 1999). Some go as far as suggesting that managing change is no longer possible, and the only focus should be on facilitating the internalization of the change by individual employees (O'Hara and Sayers, 1996). Despite the extensive research on implementation of organizational change, the need for further research to expand our understanding of why people resist or support change is still needed (Armenakis and Harris, 2009; Bouckenooghe, 2009; Bovey and Hede, 2001). When employees make meaning, they are able to understand what is happening around them, and able to link the changes in their work environment to their own personal goals and values. If employees' work activities clash with their personal values, they will not feel empowered, in terms of increased intrinsic task motivation (Thomas and Velthouse, 1990). Moreover, studies have shown that it is important for employees to be able to make sense of the change (Weber and Manning, 2001; Weick, 1995). In addition, being in a psychological state of doubt about what the change means, leads to higher turnover intentions and reduced job satisfaction (Rafferty and Griffin, 2006). We think that if employees are able to attach personal meaning to changes at work, they will be more open to change. The reality of organizational life is that often multiple changes are overlapping; therefore, we will not focus on the impact of a discrete change at work (Herold *et al.*, 2007; Weick and Quinn, 1999). Rather, we investigate whether meaning-making in continuous change contexts contributes to work engagement, willingness to change and performance.

Meaning-making
In line with Wrzesniewski *et al.* (2003), we view employees as active construers of meaning. We suggest this construction happens through the individual meaning-making process of interpretation and reflection. Our view is in line with other theories that view individuals as self-regulating, active agents (Bandura, 1989; Bell and Staw, 1989; Wrzesniewski and Dutton, 2001). In line with this view (what do people do to create meaning?) we focus on whether or not people engage in meaning-making, which may facilitate successful implementation of change. In doing so, they regulate their own experience and well-being. We define meaning-making as the ability to integrate challenging or ambiguous situations into a framework of personal meaning using conscious, value-based reflection.

A distinction can be made between the experience of meaning and the creation of meaning (or meaning-making). Experiencing meaning has been studied widely (e.g. Crumbaugh and Maholick, 1964; Steger *et al.*, 2006; Wong and Fry, 1998) and is

typically measured by asking people to what degree they perceive meaning. Meaning-making is captured by asking people to what degree they engage in value-based reflection and whether they manage to make meaning. We propose to make this distinction because we assume that meaning is fluid and needs to be constructed on an ongoing basis (Wrzesniewski *et al.*, 2003). In dynamic environments such as changing organizations, it is important to focus on the ability to consciously make meaning of ongoing change, rather than trying to capture perceived meaning as a "static" outcome. We are interested in the deliberate acts of meaning-making, by solely measuring the outcome (the experience) of meaning, we cannot know whether it was constructed by the individual in conscious awareness or automatically.

Moreover, it is important to clarify the difference between sensemaking in organizational change settings (e.g. Buchanan and Dawson, 2007; Gioia and Chittipeddi, 1991; Weick, 1995; Weick *et al.*, 2005) and psychological meaning-making. Sensemaking refers to an ongoing, "immediate" interpretative process that allows a person to label, categorize, and order the ongoing stream of events and experiences, in order to take adequate action (Weick, 1995). Meaning-making, on the other hand, pertains to the cognitive and behavioral abilities used in value-based reflection. Meaning-making is less automatic and immediate than sense-making and can only occur when primary interpretation processes (sensemaking) has taken place. It refers to conscious reflection on the impact of ambiguous or challenging events based on personal meanings, values, and goals. Meaning-making concerns the psychological process of in-depth, internal exploration of an issue of concern. "Challenging" indicates that meaning-making occurs when attention is triggered by an encountered situation, regardless of the positive or negative impact on the person.

Measurement of meaning-making

Besides the use of qualitative research methods, (e.g. Isaksen, 2000; Lips-Wiersma, 2003; Solomon, 2004), to our knowledge there are no quantitative measures of meaning-making in our conceptualization. There are, however, several measures for meaning in life, for example the Purpose in Life Test (Crumbaugh and Maholick, 1964), the Life Regard Index (Battista and Almond, 1973), the Life Attitude Profile (Reker *et al.*, 1987), and more recently the Meaning in Life Questionnaire (Steger *et al.*, 2006) and the Meaningful life Measure (Morgan and Farsides, 2007). Meaningful work has been measured with short scales (May *et al.*, 2004; Spreitzer, 1995). These scales mainly focus on measurement of the experience of meaning, and do not capture whether meaning made was a result of an automatic process or deliberate meaning-making in terms of reflection activities.

In order to capture meaning-making, we constructed a short scale (see the Appendix). The meaning-making scale was developed by focusing on the reflection process that precedes the experience of meaning. Items capture reflection activities, e.g. "I actively look for time to reflect on things that are happening" and "I actively focus on things that I find worthwhile". Inherently in this meaning-making process is the generalized result, that is, the feeling of leading a meaningful life or not (e.g. "I feel my life is meaningful"). In our conceptualization, the reflection activities and their result (i.e. meaningfulness achieved) together form the construct of meaning-making. We measure whether people reflect (using personal values and goals), and perceived

meaning in life. Meaning-making is tied to personal values, therefore it is related to meaning in life. Yet, it is different, because it focuses on the cognitive and behavioral aspects as well as the perceived meaningfulness, while meaning in life solely concerns the degree to which individuals find meaning or not. In this study, we evaluate the discriminant validity of the meaning-making scale vis-à-vis the Meaning in Life Questionnaire (MLQ-P, Steger *et al.*, 2006), which was recently found to be a reliable and valid measure of meaning in life. Specifically, we will examine these constructs are separate factors. We expect (*H1*) that items used to assess meaning-making and meaning in life will load on two separate factors, which would demonstrate the distinctiveness of meaning-making from meaning in life.

Meaning-making and other related constructs

Personal resources

Studies have shown that it is important to take into account micro-level, within-person factors that positively influence adaptation to organizational change (e.g. Armenakis and Bedeian, 1999; Cunningham *et al.*, 2002). Personal resources can positively influence adaptation to change (Avey *et al.*, 2008; Judge *et al.*, 1999; Wanberg and Banas, 2000). Personal resources can be defined as "aspects of the self that are generally linked to resiliency" (Hobfoll *et al.*, 2003, p. 632). This definition emphasizes their functionality when circumstances require attention or place demands on an individual. Personal resources are malleable, lower-order elements of personality that fluctuate (Gist and Mitchell, 1992; Luthans *et al.*, 2007). Self-efficacy, optimism, perceived control or mastery are often used in studies (e.g. Luthans *et al.*, 2004; Maddi, 2002; Wanberg and Banas, 2000). Like personal resources, meaning-making as an individual ability also contains strategies and helps individuals to remain resilient. We therefore expect that meaning-making functions as a personal resource. We will test whether meaning-making has added value in predicting work engagement and performance, over and above other personal resources.

Self-efficacy is defined as "judgments about one's capability of organizing different skills in order to execute appropriate courses of actions to deal effectively with the environment" (Bandura and Adams, 1977; Bandura, 1997). Self-efficacy is positively related to adaptation to change through its positive relation with openness to change, persistence, learning a new job, taking initiative, and developmental activities (Hornung and Rousseau, 2007; Schyns, 2004). Moreover, self-efficacy predicts increased performance (Barling and Beattie, 1983; Frayne and Geringer, 2000; Stajkovic and Luthans, 1998; Taylor *et al.*, 1984) quality of work (McDonald and Siegall, 1996) and work engagement (e.g. Schaufeli *et al.*, 2006; Xanthopoulou *et al.*, 2007, 2009; Xanthopoulou *et al.*, 2008). We expect that meaning-making is related, yet different from self-efficacy, because self-efficacy is the evaluation of one's competence or abilities, while meaning-making refers to a tendency to reflect, based on a broader system of personal meaning, not just competence. Both function as motivators; self-efficacy beliefs work as incentives to act, and meaning-making activities remind people of their personal values, which serve as a guide for goal-setting and action (Bandura, 1998; Thomas and Velthouse, 1990). We predict (*H2a*) that the items used to assess meaning making and self-efficacy will load on two separate factors.

Optimism is defined as "generalized positive outcome expectancies" (Scheier and Carver, 1985). It has been shown to predict many positive outcomes, including effective

coping with life stressors (Nolen-Hoeksema, 2000), successful stress management (Aspinwall and Taylor, 1997), physical health (Peterson, 2000), and productivity at work (Seligman and Schulman, 1986). Recently, optimism was found to partially mediate the relation between job resources and work engagement (Xanthopoulou *et al.*, 2009). We expect meaning-making to be related, but distinct from optimism, as optimism is a positive way of thinking characterized by an expectation of positive outcomes, while meaning-making is a tendency to reflect on events and find meaning regardless of expectations about outcomes. We predict (*H2b*) that the items used to assess meaning-making and optimism will load on two separate factors.

Mastery is defined as "the extent to which one regards one's life-chances as being under one's own control in contrast to being fatalistically ruled" (Pearlin and Schooler, 1978, p. 5). Thinking differently about adversity can help to regain a sense of control (Taylor, 1983; Taylor *et al.*, 2000), which is threatened by unexpected events. Mastery beliefs may be the outcome of reflection on past-experiences. We therefore think that mastery may be a result of meaning-making. Moreover, while perceived control over the situation is crucial for mastery, understanding of the situation is crucial for meaning-making. Therefore, although both concepts function as resources, they are conceptually distinct. Thus, we predict (*H2c*) that the fit of the model where meaning-making is a separate factor from mastery is superior to that of the model where these dimensions form one factor.

Coping
Coping is defined as intentional cognitive or behavioral attempts to manage a stressor (Carver *et al.*, 1989). Meaning-making bears similarities with coping and recently, meaning-making was described as a coping process: "(meaning-focused coping) is appraisal-based coping in which the person draws on his or her beliefs (e.g. religious or spiritual), values and existential goals (e.g. purpose in life) to motivate and sustain coping and well-being during a difficult time" (Folkman, 2008, p. 7). A measure of meaning-making coping has not been developed as of yet. Meaning-making in our view is slightly different from Folkman's conceptualization, in that we think meaning-making not only occurs when people are faced with hardship or adversity.

In this study, we included the coping measures "positive reinterpretation and growth" and "acceptance" from the COPE inventory, which are conceptually close to meaning-making (Carver *et al.*, 1989). "Positive reinterpretation and growth" was originally viewed as "positive reappraisal", in which distress emotions are dealt with by interpreting a stressful transaction positively (Lazarus and Folkman, 1984). The strategy "Acceptance" is particularly useful when the stressor is not easily changed. We predict (*H2d*) that the fit of the model where meaning-making is a separate factor from coping constructs is superior to that of the model where these dimensions form one factor.

Meaning-making and employee outcomes
We expect that meaning-making is related to positive employee outcomes that are of particular importance during times of change; i.e. positive attitudes, motivation to engage with the change, work engagement, and enhanced performance. First, it is important that employees continue to do their work as is expected from them, that is why we include in-role performance as an outcome measure. In-role performance

captures behaviors directly related to an employee's formal role. It is a self-reported indication of how well an employee carries out formal tasks, duties, and responsibilities as included in their job description (Williams and Anderson, 1991). People who are able to give meaning to changes that happen at work, will be better able to understand why changes are necessary and more willing to perform and invest effort in their work. We expect meaning-making to be a motivational experience, increasing willingness to invest effort in one's tasks and responsibilities, which in turn would lead to successful in-role performance. Thus, meaning-making is positively related to in-role performance (*H3a)*.

Work engagement

Especially during change, it is important for organizations that employees remain enthusiastic and motivated. This is why we chose work engagement as an outcome variable. Studies have shown that a lack of meaning in one's work can lead to disengagement or alienation (Aktouf, 1992). Work engagement is conceptualized as a positive, fulfilling, affective-motivational state of work-related well-being, characterized by vigor, dedication, and absorption (Schaufeli *et al.*, 2002, p. 74). Meaning-making and work engagement are related in that work engagement includes a sense of meaningful work through the dimension of "dedication" (Bakker *et al.*, 2008; Schaufeli and Salanova, 2007). Dedication refers to being strongly committed and experiencing a sense of significance, enthusiasm, inspiration, pride and challenge in work (Schaufeli *et al.*, 2002; Bakker and Demerouti, 2008). Employees who are able and willing to make meaning at work are likely to be intrinsically motivated and committed (Thomas and Velthouse, 1990). We therefore expect that especially people who are able to make meaning, will be engaged in their work. In other words: Meaning-making is positively related to work engagement (*H3b)*.

Willingness to change

In order to successfully implement change, employees need to be open and willing to invest effort in the proposed changes. Therefore, "willingness to change" is an important attitudinal outcome. "Willingness to change" is defined as: a positive behavioral intention towards the implementation of modifications in an organization's structure, work, or administrative processes, resulting in employee efforts to support or enhance the change process" (Metselaar, 1997, p. 34). Willingness to change is crucial in implementing organizational change successfully (Armenakis *et al.*, 1993; Holt *et al.*, 2007; Weiner *et al.*, 2008). Meaning-making involves reflection using personal values. Clarity on personal values was shown to predict willingness to change, job performance, and mental health (Bond *et al.* cited in Hayes *et al.*, 2006). Employees' understanding of the change is important for change implementation (Weber and Manning, 2001; Weick, 1995). We therefore expect that meaning-making will facilitate both willingness and motivation to engage with the changed situation. Thus, meaning-making is positively related to willingness to change (*H3c)*.

Methods
Procedure and participants
A sample of 238 employees was recruited to participate in the present study. In total 200 written surveys were distributed in-person to health care workers

employed in a health care institution located in the centre of the Netherlands. The institution had just gone through a thorough reorganization that included the resignation of a significant number of the health care personnel, and the introduction of a new working methodology. In a letter accompanying the survey, the purpose of the research was explained. Also, in the letter the anonymity and confidentiality of the data were emphasized. Employees were asked to fill out the questionnaire, where necessary in the presence of a research assistant (who was working part-time at the centre) who answered questions. The same research assistant collected completed surveys in-person. This route was chosen as many of the health care workers were lower-educated and had very little experience with answering surveys. In this way, 58 usable surveys were obtained (response rate = 29 per cent). The remaining 180 employees were recruited using a snowball sampling technique (Goodman, 1961). Three master students sent an e-mail containing the survey web-link to working adult acquaintances who, in turn, were encouraged to recruit their working acquaintances to participate in the study as well. In the instructions to the survey, it was clearly mentioned that only employees who recently had been facing organizational change were to fill out the survey. Also the anonymity and confidentiality of the data were emphasized. No response rate can be calculated with this sampling strategy.

The final sample included 81 men (34 per cent) and 146 women (61.3 per cent). For 11 employees (4.6 per cent), information about gender was missing. Their ages ranged from 18 to 65 years with an average of 39 years ($SD = 12.56$). Approximately half the respondents had higher education (24 per cent university degree; 33 per cent higher vocational training). Of the respondents, 50 per cent were blue-collar workers. Of the employees, 20 per cent had less than two years of organizational tenure, while 16 per cent had worked more than 20 years for the same employer. The majority of the respondents (72 per cent) had a permanent contract. About half of them (56 per cent) had full-time employment. Participants were employed in a broad range of job positions as appears from employees' job names, including "sales support manager", "office manager", "nurse", "police officer", "entrepreneur", and many others.

We examined whether our two samples (i.e. health care ($N = 59$) vs snowball ($N = 179$)) differed significantly on any of the demographic variables. Multivariate analysis of variance revealed that, relative to the snowball sample, the health care sample included more women, more elderly and lower-educated workers, and more employees with a permanent and a part-time contract.

Measures
Personal resources. Self-efficacy was assessed with a six-item generalized self-efficacy scale (Schwarzer and Jerusalem, 1995). Items (e.g. "I can always manage to solve difficult problems if I try hard enough") were scored on a five-point scale, where (1) indicated 'strongly disagree' and (5) indicated 'strongly agree'. Cronbach's α was .80. Optimism was measured with six items of the Life Orientation Test – Revised (LOT-R; Scheier *et al.*, 1994). Three items of the scale are positively phrased (e.g. "I am always optimistic about my future") and three are negatively phrased (e.g. "I hardly ever expect things to go my way"), with answers ranging from (1) "strongly disagree" to (5) "strongly agree". All negatively keyed items were recoded in order to allow higher

scores to reflect higher levels of optimism. Cronbach's α for this scale was 0.70. Mastery was measured with seven items from Pearlin and Schooler's (1978) self-mastery scale. This scale captures the tendency to feel personal control over life events. Example items are: "What happens to me in the future mostly depends on myself", and "I often feel helpless in dealing with the problems of life" (reversed item). Answer categories ranged from strongly disagree (1) to strongly agree (5). Cronbach's α was 0.80.

Coping was assessed using two four-item subscales from the COPE inventory (Carver *et al.*, 1989*)*. The first was "Positive reinterpretation and growth", which refers to coping by positively reframing the negative event, e.g. "I try to see the negative event more positively". The second subscale was "Acceptance", which refers to coping by accepting the negative event, for example: "I learn to live with the negative event" (1 = strongly disagree, 5 = strongly agree). Cronbach's α was 0.80 and 0.60 for positive reinterpretation and for acceptance respectively.

Meaning in life was measured with the five-item MLQ-P scale developed by Steger *et al.* (2006). The scale measures the presence of meaning in life. An example item is "My life has a clear sense of purpose" (1 = strongly disagree, 5 = strongly agree). Cronbach's α was 0.87.

Meaning-making. We developed the meaning-making scale using literature in health psychology (e.g. Helgeson *et al.*, 2006; Linley and Joseph, 2004, Taylor, 1983). Using the body of work on finding meaning in adversity, the type of activities that people engage in when making meaning were identified. It was important though, that the items were phrased as general statements, as opposed to statements about negative events. A seven-item scale was developed which captures activities related to the psychological process of making meaning, for example, reflection: "I actively take the time to reflect on events that happen in my life" and tendency to focus on meaningful outcomes, "I actively focus on activities and events that I personally find valuable". One reversed item was included. Cronbach's α was 0.78. The full scale is included in the Appendix. Answers ranged from '1 = strongly disagree' to '6 = strongly agree'.

Work engagement was measured with the short, nine-item version of the Utrecht Work Engagement Scale (UWES: Schaufeli *et al.*, 2006), which includes three subscales (all including three items). Following are example items for each of the subscales: "I feel vital and strong when I am working (Vigor), "I am enthusiastic about my job" (Dedication), and "When I am working, I forget everything around me" (Absorption). Items were rated on a seven-point scale ranging from "0 = never" to "6 = always". The reliabilities (Cronbach's α's) were 0.91, 0.92, and 0.83 for vigor, dedication, and absorption, respectively.

In-role performance was measured with seven items from a scale based on the work by Goodman and Svyantek (1999), who studied in-role or "task performance" in relation to the person-environment fit. Respondents were asked to rate how well they performed on a five-point scale ranging from "0 = very badly" to "5 = very well". An example item is "How well did you achieve the objectives of the job?". Cronbach's α was .84.

Willingness to change was assessed using a four-item scale developed by Metselaar (1997). The items measure employees' intention to invest time and effort to support the implementation of the change. Originally the scale was devised for middle managers.

We re-phrased the items slightly in order to make them relevant for general employees. Example items are: "I'm willing to convince colleagues of the benefits the change will bring", and "I'm willing to put effort into achieving the goals of the change" (1 = strongly disagree, 5 = strongly agree). Reliability of the scale was high, with a Cronbach's α of .91.

Strategy of analysis
First, we investigated the factorial validity of the meaning-making scale by means of confirmatory factor analysis (CFA). Specifically, in the CFA we included meaning-making, meaning in life; self-efficacy, optimism, mastery, and the coping dimensions of positive reinterpretation and acceptance as separate latent factors. Following the partial disaggregation method (Bagozzi and Heatherton, 1994), each factor was operationalized by two indicators representing parcels of the scale items. In order to categorize the items in two parcels, we conducted an EFA on the items of each scale separately, in which we forced a two-factor solution. In this way we had roughly sufficient power to conduct our analysis (namely 51 free parameters $\times$ 5 participants = 255 participants (see Bentler and Chou, 1987). The model included seven latent factors, which were allowed to correlate. This model was compared to a six-factor model where the meaning-making parcels collapsed with the meaning in life parcels to form one factor. In a similar vein, we tested the distinctiveness of meaning-making from the other constructs by calculating in total six different six factor models.

All CFA's were conducted with AMOS (Arbuckle, 2005). Maximum likelihood estimation methods were used and the input for each analysis was the covariance matrix of the items. The goodness-of-fit of the models was evaluated using the χ^2 goodness-of-fit statistic. However, χ^2 is sensitive to sample size so that the probability of rejecting a hypothesized model is very high. To overcome this problem, the computation of relative goodness-of-fit indices is strongly recommended (Bentler, 1990). Two relative goodness-of-fit indices were computed: the incremental fit index (IFI), the normed fit index (NFI) and the comparative fit index (CFI). The latter is particularly recommended for model comparison purposes (Goffin, 1993). For both relative fit-indices, as a rule of thumb, values greater than .90 are considered as indicating a good fit (Byrne, 2001, pp. 79-88). In addition, the root mean square error of approximation (RMSEA) is computed for which values up to .08 indicate a reasonable fit of the model (Browne and Cudeck, 1993).

H3a, *H3b* and *H3c* were tested with stepwise regression analysis for each dependent variable separately. In each regression analysis, we included personal resources in the first step and the two coping dimensions in the second step and meaning in life was added in the third step. This was done in order to calculate the R^2, which indicate the amount of explained variance of each group of variables in each dependent measure. Meaning-making was added in the fourth step to determine the amount of variance that it explained in the dependent measures, after controlling for other related constructs.

The latent factors were allowed to correlate. This model was compared to a model where the meaning-making parcels collapsed with the meaning in life parcels to form one factor. In a similar vein, we tested the distinctiveness of meaning-making from the other constructs.

Results

Descriptive statistics

Table I displays the means, standard deviations, and the bivariate correlations of the variables included in the study. As predicted, correlations between meaning-making and the outcome variables; Work engagement, Willingness to change and In-role performance were positive and moderate, ranging from $r = 0.34, p < 0.01$ for work engagement to $r = 0.40, p < 0.01$ for in-role performance.

Factorial validity of the meaning-making scale

H1 and H2 stated that the fit of the model where meaning-making is a separate factor from the constructs: meaning in life (1), self-efficacy (2a), optimism (2b), mastery (2c), and coping (2d) is superior to that of the model where meaning-making and the respective constructs collapse into one factor. The CFA showed that the fit of the model could be substantially improved by allowing the parcel of optimism that included negative items, to correlate with the parcels of meaning in life and mastery that also included the negative items. As can be seen in Table II, the fit of the free model including the seven hypothesized factors is satisfactory. By collapsing meaning-making and meaning in life in one factor, the fit of the model deteriorated significantly, $\Delta\chi^2(6) = 51.53, p < 0.001$. This means that the meaning-making scale and the (presence of) meaning in life scale (MLQ-P) are conceptually different. Their estimated correlation was $r = 0.82, p < 0.001$. However, these constructs have discriminant validity, because when their correlation was constraint to be 1, the model deteriorated significantly and substantially, $\Delta\chi^2(1) = 93.37, p < 0.001$, compared to the original seven-factor model. This shows that the constructs are not overlapping.

In a next step, each personal resource was modeled separately such that it formed one factor next to meaning-making. The model that includes separate factors was significantly better than the model in which meaning-making and self-efficacy collapsed ($\Delta\chi^2(6) = 79.17, p < 0.001$), or the model in which optimism collapsed ($\Delta\chi^2(6) = 29.32, p < 0.001$), or the model in which meaning-making and mastery formed one factor ($\Delta\chi^2(6) = 38.19, p < 0.001$). The models assuming no discriminant validity between meaning-making and personal resources (i.e. where the respective correlations were constrained to 1) confronted computational problems indicating poor model fit. Finally, the models in which positive reinterpretation or acceptance coping formed one factor with the parcels of meaning-making, showed a fit to the data that was significantly worse than the model which included separate factors for these constructs ($\Delta\chi^2(6) = 87.11, p < 0.001$, and $\Delta\chi^2(6) = 112.02, p < 0.001$, respectively).

In sum, H1 and H2a, H2b and H2c are confirmed. Meaning-making can be distinguished from meaning in life, personal resources, and coping.

Incremental validity

A hierarchical multiple regression predicting each of our outcome measures (willingness to change, work engagement and in-role performance) was computed to establish the incremental validity of meaning-making over other personal resources and coping measures (H3a, H3b and H3c). Table III displays the relationship between personal resources, coping, meaning in life, and meaning-making on the one hand, and the outcomes; willingness to change, work engagement and in-role performance, on the

	Mean	SD	1	2	3	4	5	6	7	8	9
Meaning-making	4.56	0.70	–								
Self-efficacy	3.90	0.57	0.58**	–							
Optimism	3.77	0.59	0.52**	0.52**							
Mastery	2.21	0.63	0.42**	0.45**	0.62**						
Positive reinterpretation	3.83	0.66	0.54**	0.57**	0.40**	−0.27**					
Acceptance	3.14	0.96	−0.01	0.07	−0.16*	0.21**	0.22**				
Meaning in life	3.85	0.77	0.62**	0.45**	0.53**	−0.43**	0.40**	0.05			
Work engagement	4.76	1.10	0.34**	0.30**	0.29**	−0.14*	0.29**	0.11	0.40**		
Willingness to change	3.73	0.80	0.36**	0.44**	0.27**	−0.26**	0.27**	−0.02	0.21**	0.37**	
In-role performance	3.84	0.55	0.40**	0.37**	0.33**	−0.12	0.29**	0.06	0.28**	0.41**	0.31**

Notes: * $p < 0.05$; ** $p < 0.01$; $n = 238$

Table I.
Means, standard
deviations, and
correlations among
study variables

Model description	χ^2	df	GFI	NFI	IFI	CFI	RMSEA
Seven factors	187.13	54	0.90	0.87	0.91	0.91	0.10
Seven factors: meaning-making and meaning in life	238.66	60	0.88	0.84	0.88	0.87	0.11
Six factors: meaning-making and self efficacy	266.30	60	0.86	0.82	0.86	0.85	0.12
Six factors: meaning-making and optimism	216.45	60	0.89	0.86	0.89	0.89	0.11
Six factors: meaning-making and mastery	225.32	60	0.89	0.85	0.88	0.88	0.11
Six factors: meaning-making and acceptance	299.15	60	0.85	0.80	0.83	0.83	0.13
Six factors: meaning-making and positive reinterpretation	274.24	60	0.86	0.82	0.85	0.85	0.12
Null model	1489.30	91	0.38				0.26

Table II.
Fit statistics of confirmatory factor analyses

Note: χ^2 = chi square; df = degrees of freedom; GFI = goodness of fit index; NFI = normed fit index; IFI = incremental fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation

other hand. In the first step, personal resources were included. Reported self-efficacy and optimism were positively related to willingness to change and work engagement. All three personal resources were related to in-role performance. In the second step, coping was included, however, as is shown in Table III, coping was not related to either willingness to change, work engagement or in-role performance. In the third step, meaning in life was included, which was related to work engagement.

In the final step, meaning-making was included, which was related to both willingness to change ($\beta = 0.18; p < 0.05$) and in-role performance ($\beta = 0.25; p < 0.01$), hence *H3a* (in-role performance) and *H3c* (willingness to change) were confirmed. Against our prediction, meaning-making was not related to work engagement and therefore *H3b* (work engagement) was rejected. However, when the regression analysis was repeated without "meaning in life", a significant result was found for the relation between meaning-making and work engagement.

Discussion
Departing from previous studies on meaning in life and work and sensemaking, this study focused on the making of meaning in line with the theories of employees as active construers of meaning (Wrzesniewski *et al.*, 2003). We introduced and evaluated the validity of a new measure of meaning-making. Meaning-making refers to the ability to integrate challenging or ambiguous situations into a framework of personal meaning, values and goals, using conscious value-based reflection. Because organizational changes represent also challenging or ambiguous situations, we expected that being able to find meaning may help to adapt to changing organizational environments (Cash and Gray, 2000).

Meaning-making differs from sense making in that meaning-making is deliberate reflection on ambiguous events, in light of an individual's personal values and goals. Due to its conscious and reflective nature, meaning-making could be described as "secondary sensemaking". With the rise of positive organizational behavior, attention is no longer solely on overcoming resistance to change, but also on employee aspects that positively influence willingness to change (Avey *et al.*, 2008; Bakker and Schaufeli, 2008). In our view, focusing on meaning-making as a predictor is useful in organizational change research, because the growing complexity of dynamic work

Step		Willingness to change			Work engagement			In-role performance		
		B	SE B	β	B	SE B	β	B	SE B	β
Personal resources	Self-efficacy	0.562	0.097	0.403***	0.421	0.141	0.219**	0.286	0.067	0.301***
	Optimism	0.035	0.107	0.025	0.449	0.156	0.239**	0.280	0.074	0.303***
	Mastery	0.080	−0.096	0.063	−0.188	−0.140	−0.106	−0.180	−0.066	−0.207**
R² change		0.202***		0.119***	0.187***					
Coping	Pos. reinterpretation	0.034	0.091	0.028	0.209	0.130	0.124	0.055	0.063	0.066
	Acceptance	−0.030	0.053	−0.036	0.110	0.076	0.096	0.021	0.036	0.036
R² change		0.001			0.023			0.005		
Meaning in life		0.013	0.076	0.013	0.432***	0.105	0.302***	0.072	0.052	0.101
R² change		0.000			0.059***		0.007			
Meaning-making		0.211	0.099	0.183*	0.137	0.138	0.086	0.196	0.068	0.249**
R² change		0.015*			0.003			0.028**		

Notes: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; $n = 238$

environments has increased employees' need for meaning and value in their work (Cash and Gray, 2000). Being able to find this may help to adapt to changing environments on an ongoing basis.

Results confirmed the factorial validity of the meaning-making scale was by showing that meaning making was psychometrically distinct from related constructs (meaning in life, personal resources and coping strategies). We were particularly interested in the question whether meaning-making can explain employee outcomes in times of organizational change, when it is crucial to gain continued enthusiasm and motivation from employees. We confirmed the incremental validity of meaning-making in explaining variance in positive employee outcomes i.e. in-role performance, and willingness to change, over and above the impact of personal resources, coping and meaning in life. Regression results showed however, that meaning-making was not uniquely related to work engagement. Taken together these findings suggest that meaning-making can form an important addition to the study of factors contributing to positive outcomes during organizational change and personal resources at work.

Meaning-making versus meaning in life, personal resources and coping

This study aimed to take a step towards understanding whether meaning-making can help employees in dealing with organizational change. We tested the factorial validity of the meaning-making construct against meaning in life, personal resources (self-efficacy, optimism, mastery) and coping strategies (positive reinterpretation and acceptance). Meaning in life and meaning-making were strongly correlated, yet the CFA showed that it makes sense (from a psychometric point of view) to separate the two constructs.

Our aim was to gain insight into the importance of the ability to reflect on, and find meaning in everyday events. This reflection includes making sense of how events relate to what an individual finds important and meaningful. We showed that meaning-making is distinctive from meaning in life (Steger *et al.*, 2006), which makes us conclude that there is merit in studying the two constructs separately and using the measure to further the study of meaning-making and its resource-function at work.

The analyses showed that meaning-making was moderately to highly correlated with other personal resources (self-efficacy, optimism and mastery), yet could be distinguished from those resources. The difference between meaning-making and the previously mentioned personal resources is partly the result of the fact that personal resources all measure beliefs, while our scale includes both behaviors and their result, namely meaning "made". Thus, meaning-making carries a quality which forms another type of resourcefulness. Is meaning-making not just a way of coping? Results indicated that meaning-making was highly correlated to the positive reinterpretation coping dimension. No significant correlation was found between meaning-making and acceptance. The CFA showed that meaning-making has incremental value over coping behaviors in explaining variance in the dependent measures. Meaning-making is not the same as positively re-interpreting or accepting negative events, but a broader measure of something that people do to create meaning. Not just in response to negative events, but also more broadly in everyday life. Seeking meaning is something that people are inclined to do, regardless of how positively or negatively they appraise their circumstances (Frankl, 1963; Klinger, 1998).

Correlates of meaning-making in a changing work environment
In this study, we showed that the ability to create meaning and link everyday events to a framework of personal values, positively relates to willingness to change and performance. In the same line, previous studies showed that understanding the change is important for successful organizational change (Rafferty and Griffin, 2006; Weber and Manning, 2001; Weick, 1995). Results show that meaning-making is related to how open employees are towards changes encountered at work. Meaning-making can function as a resource and help employees to sustain their performance despite the ambiguity of changing requirements. These relations make us belief that meaning-making can function as a personal resource during times of change, namely it helps employee to remain resilient when confronted with organizational changes. The construct of meaning-making has an additional value as resource compared to other personal resources such as self-efficacy, optimism and mastery. Therefore, it forms a valuable individual characteristic relevant to the study of adaptation to organizational change.

Meaning-making and the changing work environment
In this study, we showed that the ability to create meaning and link everyday events to a framework of personal values, positively relates to willingness to change and performance. Results show that meaning-making is related to how open employees are towards changes encountered at work. Meaning-making can function as a resource and help employees to sustain their performance despite changing requirements. These relations make us belief that meaning-making can function as a personal resource during times of change. The construct of meaning-making is a different type of resource than other personal resources such as self-efficacy, optimism and mastery, and it therefore forms a valuable addition to the study of adaptation to organizational change.

Meaning-making and work engagement
Studies have shown the importance of experienced meaningfulness at work (Hackman and Oldham, 1980; May *et al.*, 2004) and how this sense of meaningful work can positively influence personal growth, work motivation and work engagement (May *et al.*, 2004; Spreitzer *et al.*, 1997). Personal resources have also been shown to predict work engagement (Xanthopoulou *et al.*, 2008, 2009). We therefore expected meaning-making to be positively related to work engagement. Although there was a moderate, bivariate correlation between the constructs, regression results showed that meaning-making was not uniquely related to work engagement after controlling for the impact of personal resources, coping and meaning in life. This was surprising, since the engagement subscale "dedication" refers to a sense of significance and meaning in one's work. A possible explanation for this result may be statistical. In the regression analysis, meaning in life showed a strong relationship to work engagement. When the analysis was conducted without meaning in life, meaning-making was significantly positively related to work engagement. Most likely, the information in meaning in life "masks" the relationship between meaning-making and work-engagement. Meaning-making and meaning in life are strongly correlated. Therefore, according to Maassen and Bakker (2001) such variables represent 'masking variables'.

Theoretical implications and future research

More research should be done to determine what factors and which events in particular trigger meaning-making. From the health psychology literature (e.g. Helgeson *et al.*, 2006; Taylor, 1983) we know that negative events tend to trigger a search for meaning, however, it is less clear what triggers meaning-making. Is it specific attributes of events, or is it linked to personality factors? As said previously, our scale includes statements referring to meaning-making behaviors and their outcome (being successful at making meaning). Further research should refine the conceptual framework and determine how the concept relates to stable and malleable personality characteristics, which will clarify the ontological status of meaning-making as an individual difference variable, strategy or skill.

In order to answer these questions, multiple measurement methods should be used in order to shed light on the process of meaning-making and how it develops over time. Other methods of data collection, e.g. daily or weekly measures could be used to investigate the relevance of meaning-making in changing work environments. Longitudinal studies should be used to unveil dynamics between meaning-making and other personal resources in the process of organizational change.

Our scale was based on existing literature from the field of health psychology (e.g. Affleck and Tennen, 1996; Helgeson *et al.*, 2006; Linley and Joseph, 2004). From a theoretical and practical point of view it would be interesting to investigate empirically the type of behaviors and strategies people engage in when creating meaning during times of change. This will result in more specific behaviors, which will help to develop interventions to build up meaning-making capacity as a personal resource.

It would also be useful to understand more about the interplay between the employee and his or her personal resources and the work environment. Which job resources favor the process of meaning-making during change? What is the impact of different types of change and employees' change appraisals? Since the manager is also part of an employee's work environment, and a crucial change-agent in times of change, leadership styles and leader-member exchange may influence the process of meaning-making during organizational change and should therefore be included in future studies.

We tested the construct validity of meaning-making against three commonly used personal resources. There are many more personal characteristics that could function as resources, for example, self-esteem, hope and resilience. In future studies, meaning-making could be compared against other personal resources, in order to more thoroughly understand the incremental value of meaning-making as compared to other personal resources.

Limitations

Some limitations of this study should be noted. First, we used cross-sectional data, which made it impossible to investigate causal relations between variables. However, a cross sectional analysis is not problematic when one wants to determine factorial and incremental validity. Second, we relied on self-report data, while especially for the outcomes measures such as in-role performance and willingness to change, other sources of information would have been preferable. Although self-reports are the most appropriate measure to reflect individual perceptions on fairness or job insecurity, well-being and individual attitudes, they carry the risk of common method variance,

artificially inflating the association between the measured constructs. There has been considerable debate among scholars on the common method problem (Spector, 1994), but in order to reduce potential risks, we have followed many recommendations for suitable questionnaire techniques (e.g. changing the response format, stressing anonymity, instructing participants that there are no right or wrong answers, see Podsakoff *et al.*, 2003). Finally, it is unclear to what extent the use of different sampling methods may have affected the results. It is possible that the strength of the relationships differed somewhat in the two samples. Unfortunately, the sample size, were too small to draw strong conclusions on this. Furthermore, there is almost no empirical evidence to support the claim that the nature of the research sample matters much in making inferences about behaviour in organizations (Highhouse and Gillespie, 2009).

Practical implications and conclusions

Meaning-making or creating a sense of significance was shown to be positively related to positive employee functioning during times of organizational change. From an organizational change and development practitioners perspective, our findings underline the need to facilitate and stimulate employees to reflect on organizational change and how it relates to them personally. Managing change is about managing people (Moran and Brightman, 2001). Encouraging employees to actively reflect on what it means to them personally increases intrinsic task motivation (Thomas and Velthouse, 1990) and facilitates the adaptation process by to creating willingness to change and maintaining in-role performance. This encouragement could possibly come from a mentoring relationship, which has been shown to buffer the negative impact of adverse working conditions on job and career satisfaction (Van Emmerik, 2004). Linking change to opportunities for development and personal growth has been suggested to reduce job insecurity and increase a sense of subjective security (through increased employability) during change (Millward and Kyriakidou, 2004). Practitioners could focus in their interventions on actively encouraging and facilitating meaning-making, not just for leaders, but also for individual employees. Training, coaching and mentoring interventions could include possibilities to learn how to link work events to personal values, through reflection and mindfulness (e.g. Shapiro *et al.*, 2005). Future research should focus on workplace interventions that may facilitate the process of meaning-making in times of organizational change. "Mindfulness" as a concept is related with being able to step back and observe oneself, which is an important part of meaning-making (Baer, 2003; Hayes *et al.*, 2006; Kabat-Zinn, 2003). Mindfulness training (may be a practical way of helping employees to be aware of their personal values, which in turn facilitates meaning-making. The realization that it is necessary to actively involve employees in organizational change processes is widespread. In addition to this, the facilitation of meaning-making can be an in-depth way of engaging employees in the change.

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Further reading

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Appendix. The meaning-making scale

- I actively take the time to reflect on events that happen in my life.
- I have an understanding of what makes my life meaningful.
- I prefer not to think about the meaning of events that I encounter (r).
- When difficult things happen, I am usually quick to see the meaning of why they happen to me.
- Self-reflection helps me to make my life meaningful.
- I actively focus on activities and events that I personally find valuable.
- I feel my life is meaningful.

About the authors

Machteld van den Heuvel (Maggie) is currently working on a PhD in organizational psychology at Utrecht University. Her research focuses on personal resources, organizational change and work engagement. She is a member of the Research Institute Psychology and Health. During her Master, she specialised in Occupational Health Psychology. She also studied Positive Psychology at the University of California, San Diego. Other research interests include: meaning-making, behaviour change and adaptive performance. Maggie also works as a freelance business psychologist, offering training, coaching and consultancy. She holds a BPS Certificate of Competence in Occupational Testing and is a member of the European Association of Work and Organisational Psychologists (EAWOP). Machteld van den Heuvel is the corresponding author and can be contacted at: m.vandenheuvel@uu.nl

Evangelia Demerouti is an associate professor of social and organizational psychology at Utrecht University, The Netherlands. She studied psychology at the University of Crete and received her PhD in the job demands-resources model of burnout (1999) from the Carl von Ossietzky Universität Oldenburg, Germany. Her main research interests concern topics from the field of work and health including the job demands – resources model, burnout, work-family interface, crossover of strain, flexible working times, and job performance. She has published over 50 national and international papers and book chapters on these topics, and serves as a reviewer for various national and international scientific journals.

Bert H.J. Schreurs (PhD, work and organizational psychology at the University of Leuven, Belgium, 2007) is an assistant professor at the Center for Corporate Sustainability, European University College Brussels, Belgium, where he is teaching human resource management and organizational behavior. His research interests broadly include personnel staffing (e.g. applicant reactions to selection procedures, organizational attractiveness, impression management, test anxiety), job insecurity, work and aging, and occupational health. He is an active member of the Society of Industrial and Organizational Psychology and the European Association of Work and Organizational Psychology. He has published in various journals such as: *Journal of Organizational Behavior, Human Performance,* and *Journal of Occupational and Organizational Psychology.*

Arnold B. Bakker is full professor of work and organizational psychology at Erasmus University Rotterdam, The Netherlands, and a member of the Research Institute Psychology & Health. Bakker is president of the European Association of Work and Organizational

Psychology. He received his PhD in social psychology from the University of Groningen. His research interests include positive organizational behavior (e.g. flow and engagement at work, performance), happiness, burnout, crossover of work-related emotions, and internet applications of organizational psychology. His research has been published in journals such as: *Journal of Applied Psychology*, Journal *of Occupational Health Psychology*, and *Journal of Organizational Behavior*. Arnold Bakker is the editor (with Michael Leiter) of the book *Work Engagement: A Handbook of Essential Theory and Research* (Psychology Press, New York).

Wilmar B. Schaufeli is professor of work and organizational psychology at Utrecht University, The Netherlands. He is also visiting professor at Loughborough Business School, UK, and Jaume I Universitat, Castellon, Spain. His current research interests involve job stress and burnout, work engagement, and workaholism. Dr Schaufeli is a licensed occupational health psychologist, who is also engaged in organizational consultancy (www.c4ob.nl). For more information see: www.schaufeli.com