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**THE JOB CHALLENGE CONSTRUCT REVISITED: CONCEPTUALIZATION,
ANTECEDENTS, AND CONSEQUENCES OF EXPERIENCED CHALLENGE
AND OVERCHALLENGE IN THE JOB.**

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ABSTRACT

In this study, we propose a conceptual model on individual and job-contextual antecedents, and affective and behavioral employee consequences of experienced job challenge and overchallenge. Based on a sample of 511 frontline employee – supervisor dyads, we found that autonomy in the job and outcome control are positively related to experienced job challenge and that internal locus of control, autonomy and behavioral control are negatively related to overchallenge. While challenge shows to have a consistent positive impact on employee affect and behavioral intentions, overchallenge has a consistent negative impact on the same outcome variables. Challenge and overchallenge did however not relate to effectiveness levels as rated by the supervisor. Theoretical and managerial implications are discussed.

Keywords: frontline employee; job challenge; stress; control; employee performance

INTRODUCTION

About three decades ago, organizational scientists (e.g. Hackman & Oldham, 1976) and psychologists (e.g. Bandura, 1977) became convinced that providing people with an intellectually challenging job has beneficial effects in the workplace. Since then, theories on human agency, employee motivation and high performance work systems have been suggesting that challenging employees improves employee motivation, satisfaction and functional behavior. Bearing on goal setting theory (e.g. Lee, Locke & Latham, 1989), Locke and Latham (1990) identified job challenge as starting point and foundation of their High Performance Cycle. Central is the idea that employees or managers who experience more job challenge will perform better, will be more satisfied with their job and more committed to their organization (Locke & Latham, 1990, p. 253).

Other streams of research also emphasized the beneficial role of experiencing challenge for individuals. According to social cognitive theory (Bandura, 1986), challenge is a precondition to develop self-efficacy (Ozer & Bandura, 1990), which concerns people's belief in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over given events (Bandura, 1989). The management development literature transferred this idea to the organizational context. In this tradition, challenge is considered to be an important precursor of individual and organizational learning (e.g. Cunningham & Iles, 2002; McCall et al., 1988; Ruderman et al., 1990), which has shown to have a positive impact on employee affective and behavioral responses (McCaully, 1986).

Thus, from a theoretical point of view, challenge seems a promising concept to further our understanding of human behavior in organizations. Based on the claims provided above, managing challenge in organizations could play a beneficial role in optimizing the work context in which people have to perform.

Surprisingly however, there remains a lot of unclarity on the concept of experienced challenge and its potential role in understanding organizational behavior. We see four main reasons for this. First, from a conceptual point of view, the definition and meaning of the "challenge" concept itself has eluded consensus and clarity. Four main research streams have focused attention on experienced challenged but conceptualized it differently.

In the goal-theoretic approach, challenge has been directly linked to the specificity and difficulty of goals (Locke & Latham, 1990). In contrast, Bandura (1986) applied a much broader scope and defined challenge in terms of taxing situations. The management development literature (e.g. McCall et al., 1988; McCauley, 1986) conceptualized challenge in terms of developmental job experiences, operationalized as situations that force managers to solve problems and make choices in dynamic situations under conditions of risk and uncertainty. Finally, in the stress literature (e.g. Karasek, 1979; Janssen, 2001; Schaufeli & Bakker, 2004), job challenge is reflected in job demands, a multifaceted construct consisting of quantitative and qualitative role obligations. Quantitative role demands refer to the degree to which employees are required to work fast and hard and have much work to do in a short time, or permanently have a great deal of work to do. Qualitative job demands refer to having to deal with role ambiguity and/or with conflicting roles (Janssen, 2001).

Second, researchers seem to agree that there is an optimal degree of challenge. According to activation theory, there will be inverted U-shaped relationships between job demands and both job performance and job satisfaction (Gardner, 1986; Gardner & Cummings, 1988; Scott, 1966). That is, an increase in experienced challenge is assumed to be beneficial for job performance and job satisfaction to, but not beyond, a certain level. After attainment of that optimum level of job challenge, job performance and job satisfaction should start to decline. Lazarus (1991) and Perrewe & Zellars (1999) showed that this shift reflects the way an individual emotionally responds to a task (i.e. as part of a work role), which depends on whether a task is being appraised as challenging or threatening. Thus, challenge and overchallenge are conceptualized as more of the same, with the difference lying in the way the individual responds to the challenge. Such a conceptualization may be appropriate at the level of a specific task, but we doubt its usefulness for explaining the role of experienced challenge at the job level. This may explain why the potentially useful challenge concept and the role it could play in explaining organizational behavior has not been fully explored and exploited yet. Third, from a methodological point of view, most insights on the effects of challenge stem from experimental studies in the goal theoretic approach.

Because of the focus on challenge in terms of goal characteristics, much remains unknown on the correlates of a holistic job challenge construct in organizational settings. Finally, all studies we are aware of have treated challenge as an extraneous variable that impacts on employee affect and behavior. As a result, little is known about individual and job-contextual factors that may influence employee's experience of job challenge and overchallenge.

This study aims to take an initial step to address the preceding issues. Specifically, we conceptualize experienced challenge and experienced overchallenge in the job as related but distinct constructs. Further, we develop a model in which individual and job-contextual factors; experienced challenge and overchallenge; and employee affect and behavior are linked. Finally, we provide an empirical test of the proposed model, using 511 employee-supervisor dyads from two service organizations. We aim to demonstrate that this model, which is open to empirical testing and refinement is useful for theory building and holds the potential to yield insights for managerial practice.

Before elaborating on each of the proposed hypotheses, Figure 1 shows the conceptual model, providing a global overview of the variables that are taken into account and their hypothesized relationships.

Insert Figure 1 About Here

Experienced challenge and overchallenge in the job: conceptual clarification

In the job characteristics model, Hackman and Oldham linked the amount of experienced challenge to “the degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the person” (Hackman & Oldham, 1976, p. 257).

More recently, Evans & Kersh (2004) linked the amount of skill variety in the job to their concept of an expansive working environment, in which employees are encouraged to deploy their skills. In their interpretive approach, Evans & Kersh (2004) found that employees described such an expansive environment as being “challenging”. Thus, several and distinct research streams suggest that skill variety or the provision of intellectual stimulation in the job is an important element of the job challenge construct. However, the intellectual side of challenge alone seems to be insufficient to capture the breadth and meaning of challenge in contemporary working life. Companies are increasingly confronted with an economic environment characterized by fears competition, rapidly changing market demands, increasing shareholders and customer expectations, efficiency optimization, innovation demands, etc. In such a working context, people have to give the best to stay in shape in their professional life. Chances arise that people become overstimulated or lack sufficient resources to cope with increasing job demands. Consequently, the resource based view of challenge becomes more predominant. From this perspective, challenge refers to the amount of resources people have to use in fulfilling their working role. In the stress literature (e.g. Karasek, 1979; Demerouti et al., 2001), attention has been given to this resource-based perspective on challenge. In this tradition, challenge has been linked to job demands, which, according to Schaufeli and Bakker (2004) require sustained effort. Thus, some researchers have conceptualized job challenge mainly in terms of used abilities and skills, while others have focused on used resources, effort.

Also, activation theory suggests that challenge may trigger two distinct cognitive mechanisms, depending on the degree of challenge and the resulting experienced level of activation of the job performer (Gardner, 1986; Gardner & Cummings, 1988). Challenge leads to a level of activation that allows the central nervous system to function more efficiently, resulting in enhanced cerebral and behavioral performance and positive affect. Overchallenge, on the other hand, decreases activation levels, resulting in decreased cerebral and behavioral performance and affect.

In sum, when conceptualizing challenge at the level of the job, the degree of experienced challenge should refer to both the use of resources (Schaufeli and Bakker, 2004) and the use of capabilities (Evans & Kersh, 2004; Oldham & Hackman, 1980).

Further, bearing on activation theory, our definitions should reflect the distinction between positive and negative dimensions of challenge, reflecting whether employees evaluate the expectations towards their working role as realistic (activating) or unrealistic (threatening). Consequently, we define our key constructs as following:

Experienced challenge in the job reflects employees' perceptions on how much abilities and resources they have to use in fulfilling their working role.

Experienced overchallenge in the job reflects employees' perceptions on the degree to which the fulfillment of their working role requires more abilities and resources than can be expected.

Individual and job-contextual antecedents of experienced challenge and overchallenge in the job

As mentioned in the introduction, little is known on the correlates of experienced challenge levels. To address this caveat, in what follows, we propose a conceptual model to explore some individual and job-contextual antecedents.

LOCUS OF CONTROL

As mentioned before, the experience of challenge and overchallenge in the job relate to the perceived amount of abilities and resources individuals have to use in fulfilling their working role and the feasibility of it. Control theory (Klein, 1989) suggests that such appraisals reflect whether the individual feels personal control over the situation or not. There is ample research that has shown that this feeling of personal control is influenced by individuals' propensity to locate causality for outcomes either in oneself or in the external environment (e.g. Judge & Larsen, 2001). This individual propensity, which is relatively stable over time, has been labeled locus of control (Rotter, 1966).

Individuals who view themselves as having the ability to affect reinforcing events are labeled “internals”, whereas those persons who see reinforcing events as resulting from luck, chance, or others are labeled “externals”.

As locus of control is concerned with confidence in being able to control outcomes (Judge & Larsen, 2001), one would expect that this propensity will have a direct effect on experienced challenge and overchallenge. That is, irrespective of the situation individual employees are confronted with, internals will be inclined to view their job as more challenging and less overchallenging. Consequently, we propose the following hypotheses:

Hypothesis 1a: Internal locus of control is positively related to experienced challenge in the job.

Hypothesis 1b: Internal locus of control is negatively related to experienced overchallenge in the job.

JOB AUTONOMY

A large amount of research has consistently shown that characteristics of the job significantly influence employee motivation (Oldham & Hackman, 1980) or the degree to which the employee has an “active orientation towards the working role” (Thomas & Velthouse, 1990). One particular job characteristic that seems especially noteworthy when considering the impact on experienced challenge levels is autonomy.

Autonomy, equivalently referred to as “self-direction” or “self-management”, is the extent to which an individual or group of individuals has the freedom, independence, and direction to determine what actions are required and how best to execute them (Hackman & Oldham, 1976; Henderson & Lee, 1992). To the extent that a job has high autonomy, job outcomes depend increasingly on the individual’s own efforts, initiatives, and decisions, rather than on the adequacy of instructions from the boss or on a manual of job procedures. Furthermore, considering autonomy as a basic human need, it is also a motivational characteristic of work (e.g. Deci & Ryan, 2000).

Employees who perceive themselves as choosing to perform an activity, as opposed to being directed to do so, are intrinsically motivated and accept more personal responsibility for the consequences of their work (e.g. Hackman & Oldham, 1975). Consequently, we expect that employees who experience more autonomy will evaluate their job as being more challenging.

Autonomy in the job has also been directly linked to ‘perceived control’, which concerns the amount of control that an employee believes to have in the work environment, to make it less threatening or more rewarding (Ganster & Fusilier, 1989). A great deal of evidence from animal and human research indicates that the presence or absence of control has profound effects on health and well-being (e.g. Averill, 1973; Greenberger et al., 1989; Miller, 1977; Thompson, 1981). Much of the research in organizational psychology has stemmed from Karasek's (1979) job demands-job control model. This model proposes that the effects of job demands on employee well-being are influenced by job decision latitude (the degree to which employees have the potential to control their work). The model predicts that job decision latitude attenuates any negative effects of job demands on employee well-being. Early studies, using large heterogeneous samples, showed moderate support for Karasek's model (e.g. Karasek, 1979; Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981).

More recent investigations using Karasek's measure of job decision latitude and other measures of work control have demonstrated that high levels of control are directly related to a range of positive health and work-related outcomes; for example, decreased anxiety and depression (e.g. Mullarkey, Jackson, Wall, Wilson, & Grey-Taylor, 1997) and psychosomatic health complaints (e.g. Carayon, 1993). These findings suggest that employees who experience more autonomy will evaluate their job as being less overchallenging. To summarize this discussion, we propose the following hypotheses:

Hypothesis 2a: Autonomy is positively related to experienced challenge in the job.

Hypothesis 2b: Autonomy is negatively related to experienced overchallenge in the job.

OUTCOME AND BEHAVIORAL CONTROL

A second set of job-contextual factors that may substantially influence challenge levels are control mechanisms, often being part of performance management systems. Anthony, Dearden & Vancil (1972) defined management control systems as “the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization’s objectives” (Anthony et al, 1972, p. 5). Because management control systems have the purpose to intensify employee effort (Tannenbaum, 1968) they may be important in explaining experienced challenge levels.

A variety of typologies have been devised to differentiate control mechanisms (e.g. Ouchi, 1979, 1980; Reeves & Woodward, 1970; Tannenbaum, 1968). Two control mechanisms we will focus on are behavioral and outcome control (see e.g. Anderson & Oliver, 1987; Eisenhardt, 1985; Krafft, 1999; Oliver & Anderson, 1994, 1995). We limit our scope to formal control mechanisms because these are more or less directly initiated by the management of the organization, for example as part of a performance management cycle. Within a bureaucratic framework, formal behavior control regulated the actions employees exhibit on the job.

More generally, it structures the transformation process of work. As an alternative to using behavior control, managers can control outcomes. Outcome control differs from behavioral control in that supervisors do not translate intentions into operating procedures but instead set targets for employees to pursue (Hill & Hoskisson, 1987). This form of control provides employees discretion in the means they use to achieve desired ends, thus decentralizing control. It does not allow them to choose goals, only the methods used to pursue established targets.

We propose that outcome and behavioral control will have a differential impact on experienced challenge levels. More specifically, we expect that employees who experience more outcome control will evaluate their job as being more challenging as setting work-related goals will affect the expectancies and valences that are associated with those goals (Locke & Latham, 1990). More precisely, Earley et al. (1990) Bandura and Cervone (1983; 1986) found that people used discrepancies between goals and outcome feedback as the basis for such cognitive self-evaluations as judgments about self-efficacy and satisfaction.

These self-evaluations, in turn, influenced an individual's effort and, thereby, performance. Thus, the self-reactive impact of outcome control seems to depend on an evaluation of performance outcomes relative to a goal. This self-assessment provides people with a basis for adjusting levels of effort. However, outcome control bears the risk of setting performance objectives which employees may find unrealistic or too hard to accomplish. This means that higher outcome control could also lead to higher levels of perceived overchallenge. Thus, we propose the following hypotheses:

Hypothesis 3a: Outcome control is positively related to experienced challenge in the job.

Hypothesis 3b: Outcome control is positively related to experienced overchallenge in the job.

Although outcome feedback can identify the need to adjust action, it often does not provide specific information concerning how to adjust – information on the direction of behavior (Earley et al., 1990). Behavioral control, on the other hand, provides the employee with insights on how the work should be done and which procedures should be followed. Thus, behavioral control lacks the motivating character of the goal setting mechanisms, but it provides employees with guidance, insights and support in how the work should be done. As a result, we propose that it is less likely that the expected work outcomes will be viewed as being unrealistic or too hard to accomplish when more behavioral control is present. Consequently, we propose the following hypotheses:

Hypothesis 4a: Behavioral control is not related to experienced challenge in the job.

Hypothesis 4b: Behavioral control is negatively related to experienced overchallenge in the job.

Affective and behavioral responses of experienced challenge and overchallenge.

In this research, we consider two affective responses: job satisfaction and affective commitment to the organization. Job satisfaction is a fairly stable evaluative judgment about how well one's job compares to needs, wants or expectations (Fisher, 2003). As measured in this research, it includes, next to a judgment of the job as a whole, facets such as satisfaction with supervision and company support and guidelines. Affective organizational commitment is one of the three widely accepted commitment components proposed by Allen and Meyer (1990). They define affective commitment as an attitudinal process whereby people come to think about their relationship with the organization in terms of value and goal congruency. The most often cited definition of affective or attitudinal organizational commitment (Riketta, 2002) is 'the relative strength of an individual's identification with and involvement in a particular organization (Mowday, Steers & Porter, 1979, p. 226). We also consider the impact of challenge levels on behavioral intentions and behavioral outcomes: intention to stay and employee effectiveness. Intention to stay is the intention employees have to stay working for the organization they currently work for. Effectiveness, in this study, is the supervisor rating of individual employees' contribution to the realization of work unit goals and objectives.

In line with activation theory, we expect that experienced challenge and experienced overchallenge will have opposite effects on employees' affect and behavior. There is consistent evidence (see e.g. Lazarus, 1991; Perrewe & Zellars, 1999) that shows that how an individual approaches and emotionally responds to a task (i.e. as part of a work role) depends on whether a task is being appraised as challenging versus threatening. Specifically, negative emotions that accompany threat appraisals, such as anxiety or fear, require regulation to keep them from interfering with problem-focused forms of coping and to preserve a tolerable internal state. Within the service work context, this possible threatening nature of 'over-challenging' goals may stem from the enhanced perceived likelihood of receiving negative feedback when goals are not attained. When feeling challenged however, individuals generate fewer negative emotions that require attention and will therefore be in a position to engage in problem-focused coping efficiently.

Several studies consistently showed that perceived vulnerability and risk perception and discernment not only influence employee affect, but also directly influence behavior (Aspinwall & Taylor, 1997; Ozer and Bandura, 1990). Consequently, we propose the following hypotheses on the impact of experienced challenge levels on employee affect and behavior:

Hypothesis 5a: Experienced challenge in the job will be positively related to employee satisfaction, affective commitment, intention to stay and effectiveness.

Hypothesis 5b: Experienced overchallenge will be negatively related to employee satisfaction, affective commitment, intention to stay and effectiveness.

METHOD

Sample and data collection

Web-based survey questionnaires were administered during normal working hours to frontline service employees and their supervisors in a temporary staffing organization and a health insurance company. The employee survey focused on job and work context experiences. The supervisors were requested to rate the performance of each of their employees. Frontline employees and supervisors were asked, before filling out their web-based questionnaire, to agree upon a fictive work unit and individual employee code. With these two codes, we were able to match cases at the individual level, without compromising confidentiality. To foster collaboration, one week prior to sending out our request to fill out the survey, respondents received a motivating mail from their CEO or HR-director. Respondents were given two weeks to respond. After that time, a reminding mail was sent, again by top management of the companies. In the temporary staffing organization, 302 out of 374 frontline employees (response rate 81%) and 33 out of 47 supervisors (response rate = 70 %) filled out the questionnaire. In the health insurance company, 397 out of 491 frontline employees (response rate = 81 %) and 37 out of 65 supervisors (response rate 57 %) filled out the questionnaire. In total, we succeeded in matching 521 cases (227 cases in the temporary staffing organization and

294 in the health insurance company). After deletion of cases with missing values and multivariate outliers, 511 cases remained for analysis.

A majority of the employee sample is female (79 %) with an average age of 31 years. 25 % has a high school diploma, 53 % a bachelor and 22 % a master degree. Average seniority is about six years. Also the supervisor sample is mainly female (71 %). Supervisors have an average age of 41 years old. 10 % has a secondary educational degree, 49 % a bachelor and 41 % a master degree. Average seniority is around 11 years and supervisors have on average 5 years experience in a supervisory function. The average span of control (ratio #employees / #supervisors) is 7,7.

Measures

Appendix 1 shows all items used to measure the constructs mentioned above.

Experienced autonomy in the job was measured by 2 items (e.g. “My job permits me to decide on my own how to go about doing the work”) from Hackman & Oldham’s (1980) job description survey. Items were rated on a 5-point Likert scale, ranging from ‘totally disagree’ to ‘totally agree’. Reliability of this scale (Cronbach’s alpha) in this sample was .77.

Internal locus of control was measured by 5 items (e.g. “I have noticed that there is a direct connection between how hard I work and my performance) adapted from Rotter (1971). Items were rated on a 5-point Likert scale, ranging from ‘totally disagree’ to ‘totally agree’. Two items that originally relate to an external locus of control (e.g. “Sometimes I have the feeling that I have little to do with my performance”) were reverse scored and integrated in the internal locus of control scale. Reliability for the scale (Cronbach’s alpha) in this sample was .71.

Outcome control was measured by three items (e.g. “Specific performance goals are established for my job”) from Jaworski and MacInnis’ (1989) outcome control scale. Items were rated on a 5-point frequency scale, ranging from ‘never’ to ‘always’. Reliability for the scale (Cronbach’s alpha) in this sample was .73.

Behavioral control was measured by four items (e.g. “I receive feedback on *how* I accomplish my performance goals”) from Jaworski and MacInnis’ (1989) behavioral control scale. Items were rated on a 5-point frequency scale, ranging from ‘never’ to ‘always’. Reliability for the scale (Cronbach’s alpha) in this sample was .85.

Experienced job challenge was measured by an own developed scale, consisting out of five items. Two items reflecting the use of capabilities in the job (e.g. “My job requires me to do many things at work, using a variety of skills and talents”) were taken from Hackman and Oldham’s (1980) job description survey. Three other items, reflecting the use of resources when executing the job (e.g. “Dealing with the responsibilities in my job requires a lot of effort and persistence”) were developed and fine-tuned based on think aloud exercises with frontline service employees. Extra items were developed because a pilot test in a sample of 306 frontline employees in a hospital had shown that the reliability of an earlier version of the scale was insufficient. Items were rated on a 5-point Likert scale, ranging from ‘totally disagree’ to ‘totally agree’. Reliability for the scale (Cronbach’s alpha) in this sample was .82.

Experienced job overchallenge was also measured by an own developed scale, consisting out of two items. Consistent with our conceptualization of the experienced overchallenge construct, we used two items that reflect employees’ perception of having role expectations that seem unattainable to them (e.g. “A lot of tasks I have to do are simply not attainable”). Items were rated on a 5-point Likert scale, ranging from ‘totally disagree’ to ‘totally agree’. Reliability for the scale (Cronbach’s alpha) in this sample was .79.

Job satisfaction was measured by four items from Churchil, Ford & Walker (1974) and Hartline & Ferrell (1993). These items (e.g. “Indicate how satisfied you are with your co-workers”) tapped into different aspects of employee satisfaction. Items were rated on a 5-point scale, ranging from ‘totally dissatisfied’ to ‘totally satisfied’. Reliability for the scale (Cronbach’s alpha) in this sample was .76.

Organizational commitment was measured by five items (e.g. “I talk up this organization to my friends as a great organization to work for”) from the Organizational Commitment Questionnaire (Mowday, Steers & Porter, 1979). These items reflect the affective component of organizational commitment. Items were rated on a 5-point Likert

scale, ranging from ‘totally disagree’ to ‘totally agree’. Reliability for the scale (Cronbach’s alpha) in this sample was .90.

Intention to stay was measured by five items (e.g. “What’s the chance that you will be working for this company in one year?”) adapted from Bluedorn (1982). Items were rated on a 5-point Likert scale, ranging from ‘Very small’ to ‘Almost sure’. Reliability for the scale (Cronbach’s alpha) in this sample was .92.

Supervisor rated effectiveness was measured by four items adapted from Singh (2000). Supervisors were asked to compare performance aspects of their employees and to rate individual performance over the last six months on an asymmetric 7-point scale ranging from ‘Not good at all’ to ‘top performer’. For economic performance, supervisors were asked to rate cost consciousness and productivity.

For service performance, supervisors were asked to rate customer focus and contribution to customer satisfaction and loyalty. Items were combined into one overall effectiveness scale. Reliability (Cronbach’s alpha) of this scale is .84 in this sample.

Analysis

Measurement properties were tested in a two-stage procedure. First, exploratory and confirmatory factor analysis was executed in SPSS and AMOS (maximum likelihood estimation) for each construct in the model. After deletion of items that did not properly load on the conceptualized constructs, an integrated measurement model that included all the constructs was tested using Structural Equation Modeling (SEM). All items were directly modeled to load on their respective constructs. We used a unidimensional measurement model because this is more useful for the interpretation of latent constructs as it allows for a more precise test of the convergent and discriminant validity of the indicators (Kline, 1998). All constructs were allowed to correlate with each other. For each latent construct included in the simultaneous analysis, the standardized factor loadings (see table 2) and the variance extracted and shared variance with any other construct (see table 3) were computed. This enabled us to test Kline’s (1998) criterion for convergent validity and Fornell and Larcker’s (1981) criterion for discriminant validity.

The hypotheses were simultaneously tested in a structural model, using maximum likelihood estimation in AMOS (Arbuckle & Wothke, 1999). This approach has several advantages. First, it provides a systematic basis for evaluating the ‘fit’ of the hypothesized model to data based on a χ^2 -statistic, incremental fit indices (e.g. nonnormed-fit-index, comparative fit index) and other indicators of absolute fit including Root Mean Square Error of Approximation (MacCallum & Austin, 2000). Second, it provides control over measurement error that can constitute over 50 percent of the observed variance and often introduces substantial bias in estimated effects and hypothesis testing (Ping, 2001). Third, it provides systematic approaches for testing the psychometric properties of constructs (e.g. convergent and discriminant validity). For parsimony reasons and to optimize the stability of the indicators, in our structural model, we (randomly) aggregated single items so that each latent construct loaded on two composite indicators.

Although we used supervisor ratings for one of the outcome variables, employee effectiveness, the validity of our structural model may still be biased by common-method variance. Drawing upon Lindell & Whitney (2001) and Podsakoff, MacKenzie, Lee & Podsakoff (2003), we estimated a common method factor to control for this variance. Specifically, we included a common method factor such that each manifest item was hypothesized to have a common loading on this method factor in addition to a loading on its theoretic construct. Further, we constrained the method factor loadings to be equal. By estimating this common method factor, the variance due to common method is partialled out of the estimated theoretic constructs and thereby from the estimated structural relationships in our model.

RESULTS

Validity assessment of the experienced challenge and experienced overchallenge construct

Table 1 reports the mean scores, standard deviations, reliability and correlations between the key constructs in our model. Table 2 provides the estimates of the item loadings on each of the constructs, the Cronbach alpha reliability and the shared variance of each of the constructs, based on this measurement model. μ

Insert Table 1, 2 & 3 About Here

With only a few marginal exceptions, standardized factor loadings were always higher than 0.50, providing evidence for convergent validity (Kline, 1998). Table 3 shows that the average variance explained by each construct was generally larger than the squared latent correlations between dimensions in this sample. Two pairs of variables for which the average variance explained was smaller than the squared latent correlations are outcome and behavioral control; and job satisfaction and affective commitment.

However, the squared latent correlations between these pairs of variables are respectively .63 and .54, suggesting that no bivariate multicollinearity exists between those scales (Kline, 1998). Overall, this provides evidence for the discriminant validity of our scales (Fornell & Larcker, 1981).

Individual and job-contextual antecedents of experienced challenge levels

The hypotheses were tested in a simultaneous path analytical model. The results are summarized in Table 4.

Insert Table 4 About Here

In terms of overall fit, Table 4 reveals the following fit statistics: $\chi^2 = 290,71$, $df = 144$, $p < .001$, $GFI = .95$, $NFI = .95$, $NNFI = .97$, $CFI = .98$, $SRMR = .04$, $RMSEA = .05$ (90% CI = .04 to .05). On statistical grounds, the hypothesized model appears to inadequately account for the systematic variation and covariation in the data. However, the relative fit indicators exceed .95 and the absolute fit indicators suggest that the residuals are small (< .05) and tightly distributed (cf. 90 % confidence interval of RMSEA = .04 to .05). Consistent with this, the parsimony fit indicator, NNFI, exceeds .95, indicating that the model has adequate over-identifying restrictions for parsimony, and provides a reasonable fit to the data.

The regression weights show that internal locus of control has no significant influence on experienced challenge but a very strong negative influence ($B = -.61$, $p < .001$) on experienced overchallenge. Thus, our analysis provides support for Hypothesis 1b, but not for Hypothesis 1a. Hypotheses 2a and 2b are supported. As hypothesized, autonomy has a significant positive influence on experienced challenge ($B = .33$, $p < .001$) and a significant negative influence on experienced overchallenge ($B = -.20$, $p < .001$). Hypotheses 3a is supported. Outcome control has a positive influence on experienced challenge ($B = .40$, $p < .001$). Our analysis provides also marginal support to Hypothesis 3b. The regression weight is $B = .27$, but is not significant at the .05 level ($p < .07$). Hypothesis 4a is not supported. We expected that behavioral control would not be related with experienced challenge in the job. Our analysis indicates however that behavioral control is negatively related to experienced challenge ($B = -.20$, $p < .05$). Hypothesis 4b on the other hand is supported. Behavioral control has a negative influence on experienced overchallenge ($B = -.28$, $p < .01$).

Affective and behavioral consequences of experienced challenge levels

Table 4 also summarizes the effects of experienced challenge levels on employee affect and behavior. The results show that experienced challenge has a positive impact on employee satisfaction ($B = .17$, $p < .001$), a strong positive effect on affective commitment ($B = .35$, $p < .001$) and an even stronger impact on intention to stay ($B = .47$, $p < .001$). Experienced challenge has however no significant impact on employee effectiveness as rated by the supervisor. In line with our expectations, experienced overchallenge shows

to have a strong negative influence on employee satisfaction ($B=-.37$, $p<.001$); affective commitment ($B=-.31$, $p<.001$) and intention to stay ($B=-.17$, $p<.01$). Again however, we found no impact of overchallenge on effectiveness levels. Thus, Hypotheses 6a and 6b are partially supported. As hypothesized, experienced challenge and overchallenge show to have opposite effects on employee affect (job satisfaction and affective commitment) and behavioral intentions (intention to stay). Experienced challenge has a consistent positive effect, while experienced overchallenge has a consistent negative effect. We find however no support for a direct relationship between experienced challenge levels and employee effectiveness. The modification indices of our structural model did suggest four additional paths that significantly improved the overall fit of the model. First, direct relationships from autonomy and behavioral control to effectiveness were suggested. The model shows a direct positive influence from autonomy ($B=.19$, $p<.001$) and behavioral control ($B=.13$, $p<.05$) on employee effectiveness. The two other additional paths reflect a positive influence of behavioral control on employee affective responses. Both the positive effect on job satisfaction ($B=.21$) and on affective commitment ($B=.18$) show to be highly significant ($p<.001$).

DISCUSSION

Though distinct streams of research (goal theory, stress theory, management development theory and human agency theory) have pointed to the potential beneficial role of experiencing challenge in the job, surprisingly little research has taken a focused interest in this matter. To take some initial steps to address this issue, this study had three main objectives: first, to conceptualize job challenge, explicitly recognizing the distinction between experienced challenge and overchallenge; second, to develop a conceptual model in which experienced challenge and experienced overchallenge are linked to individual and job-contextual antecedents on the one hand and employee affective and behavioral outcomes on the other hand; and third, to provide an empirical test of the proposed model.

Relating to the first issue, our results suggest that it is worthwhile to consider and conceptualize experienced challenge and experienced overchallenge in the job as related but distinct constructs.

Departing from the role the challenge concept has been given in previous models on human agency, goal-related behavior and management development, we conceptualized experienced job challenge reflecting both the use of capabilities and resources in the job. Both these elements showed to significantly and substantially load on a unidimensional experienced job challenge construct. Previous research seems to suggest that challenge and overchallenge relate to each other in some kind of “more of the same”-relationship, implying that people may be challenged until a certain point where the challenge becomes threatening (see e.g. Lazarus, 1991; Perrewe & Zellars, 1999). This implies a positive correlation between challenge and overchallenge. Our results however indicate that challenge and overchallenge are more different than commonly assumed. The squared correlation between these two latent constructs in our measurement model was only .02. Furthermore, the hypothesized differential impact of job characteristics (autonomy) and management control systems (outcome and behavioral control) on experienced challenge and experienced overchallenge was confirmed in our empirical test. Our results indicate that experiencing challenge in the job is fostered by providing autonomy in job execution and by controlling on outcomes. Behavioral control on the other hand has a modest inhibiting effect.

A possible explanation for the negative relationship between behavioral control and challenge may be that behavioral control fosters predictability in the job, which in turn may temper experienced challenge levels. The results also indicate that locus of control does not influence the amount of challenge employees experience in doing their job.

Focusing on the antecedents of experienced overchallenge, a totally different picture emerged. Outcome control slightly fosters the experience of overchallenge in the job, while providing autonomy in the job and controlling on behavior have strong inhibiting effects. We also found that employees with an internal locus of control are clearly less likely to experience overchallenge than employees with an external locus of control do. This finding indicates that personal factors have a more profound impact on experienced overchallenge than they have on experienced challenge. Personal factors also show to be more important than job-contextual factors in explaining experienced overchallenge.

This finding suggests that personal coping strategies may be an important set of variables in explaining experienced overchallenge. Previous research has indeed indicated that individual factors are important in explaining the shift from taxing a situation as being challenging or overchallenging (e.g. Klein, 1989). However, stretching conventional wisdom, our study indicates that, next to personal dispositions, job-contextual elements clearly influence the degree to which employees perceive their job as being overchallenging.

Our findings have some noteworthy implications for stress-related research because they suggest that organizational factors may be more important in explaining the stress and coping process than commonly assumed. While contemporary stress research is very much involved in investigating mental processes that lead up to coping processes (e.g. Perrewe & Zellars, 1999), Schaubroeck (1999) argued that much is to be gained by research focusing on organizational or structural determinants of stress. While a vast amount of stress research has considered the role of job autonomy or job decision latitude (e.g. Karasek, 1979; Schaufeli & Bakker, 2004), our study suggests that further investigation of outcome and behavioral control dynamics in organizations may be useful to expand our understanding of contextual determinants of work-related stress.

Though we found no impact of experienced challenge levels on supervisor rated employee effectiveness, our results indicate that experienced challenge has consistent positive effects on employee affect and behavioral intentions. In contrast, experienced overchallenge showed to have consistent negative effects on the same outcome variables. In our model, 46% of the variance in job satisfaction, 24 % of the variance in affective commitment and 15 % of the variance in intention to stay were explained. Because of the highly significant and strong effects of experienced challenge and overchallenge in explaining these outcome variables, this study suggests that deepening our understanding on these constructs, how they emerge and how they impact on employee affect and behavior may be fruitful. In depicting some avenues for further research, two suggestions seem especially noteworthy. First, looking at the precursors of experienced challenge levels, our model explained about 20 % of the variance in experienced challenge and about 35 % of the variance in experienced overchallenge, indicating that still a lot is not understood on why and how people evaluate their job as being challenging or

overchallenging. Investigating the impact of job contextual elements such as work arrangements, workload and leadership characteristics on the one hand and looking deeper into the influence of personal coping strategies on the other hand seem to be useful avenues to pursue in this respect. Looking at the consequences of experienced challenge levels, it is striking that employee effectiveness (as rated by the supervisor) was not impacted at all, while employee affect and behavioral intentions clearly were. One possible explanation is that we did not capture some important variables that link experienced challenge levels with behavioral outcomes. Strain may be a useful variable in this respect. Another explanation may be that the challenge level – performance relationship is moderated by variables that were not taken into account in our model. Further research is warranted to explore these issues.

Study limitations

Although our study has a number of strengths, it also has its limitations. First, improvement in measurement of key constructs is needed, particularly for overchallenge. As Fornell and Larcker (1981) note, when the number of indicators is less than four, the measurement properties of a given model could be problematic. However, although we used only two indicators for overchallenge, Cronbach alpha is satisfactory (.79) and no convergent and discriminant validity issues emerged.

Second, common-method variance may have biased the validity of the structural relationships. Therefore, we modeled a latent common-method factor that was constrained to equally load on all observed variables in the model. By doing so, we attempted to partial out the variance due to common method from the estimated structural relationships. Furthermore, we used a second data-source to capture individual employee effectiveness levels.

Third, cross-sectional research designs do not allow to empirically test causal relationships. Therefore, future studies could use longitudinal designs to provide a more rigorous test of the proposed causal relationships.

Finally, data for our empirical test were provided by (mainly female) frontline service employees and supervisors from two service companies. Consequently, more research with other samples and in other work contexts is needed to check the generalizability of our findings.

Managerial implications

This study also has some noteworthy implications for practitioners. First, our findings suggest that managing challenge in organizational settings is worth the effort because of the substantial impact on important work related outcome variables. Our findings reveal that creating a work context in which challenge is fostered and overchallenge curbed, has substantial beneficial effects on employee job satisfaction, organizational commitment and intention to stay. Increasing autonomy in the job and setting, monitoring and feeding back on expected outcomes seems a valid strategy to increase challenge levels.

Furthermore, our results confirm a direct and positive job autonomy - job performance relationship. Our study results also showed that steering on outcomes holds the risk of overchallenging people, which has deleterious effects on employee satisfaction, commitment and intention to stay. This risk can however be diminished by providing employees with sufficient autonomy and freedom in organizing their work and by giving more attention, guidance and support in the way employees pursue work-related objectives. Behavioral control also showed to have a direct positive effect on employee satisfaction, commitment and effectiveness levels as rated by the supervisor. Thus, steering on outcomes, combined with providing sufficient autonomy in the job and support and guidance in the way people try to attain their work-related objectives seems most warranted in an attempt to balance on the thin line between challenging and overchallenging people.

CONCLUSION

In conclusion, this study revisited the job challenge construct, making the conceptual distinction between experienced challenge and overchallenge in the job. Our conceptual exploration and empirical validation of a partial nomological net surrounding these constructs, suggests that both individual dispositions such as locus of control and job-contextual characteristics such as job autonomy, outcome and behavioral control are important in understanding experienced challenge levels. Because of the substantial impact on important work-related outcome variables, experienced job challenge and overchallenge seem useful constructs in deepening our understanding on how individual and job-contextual characteristics relate to employee affective and behavioral responses. Therefore, these findings offer interesting avenues for further research as well as useful implications for organizational practice.

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FIGURE 1

Conceptual model and hypothesized relationships

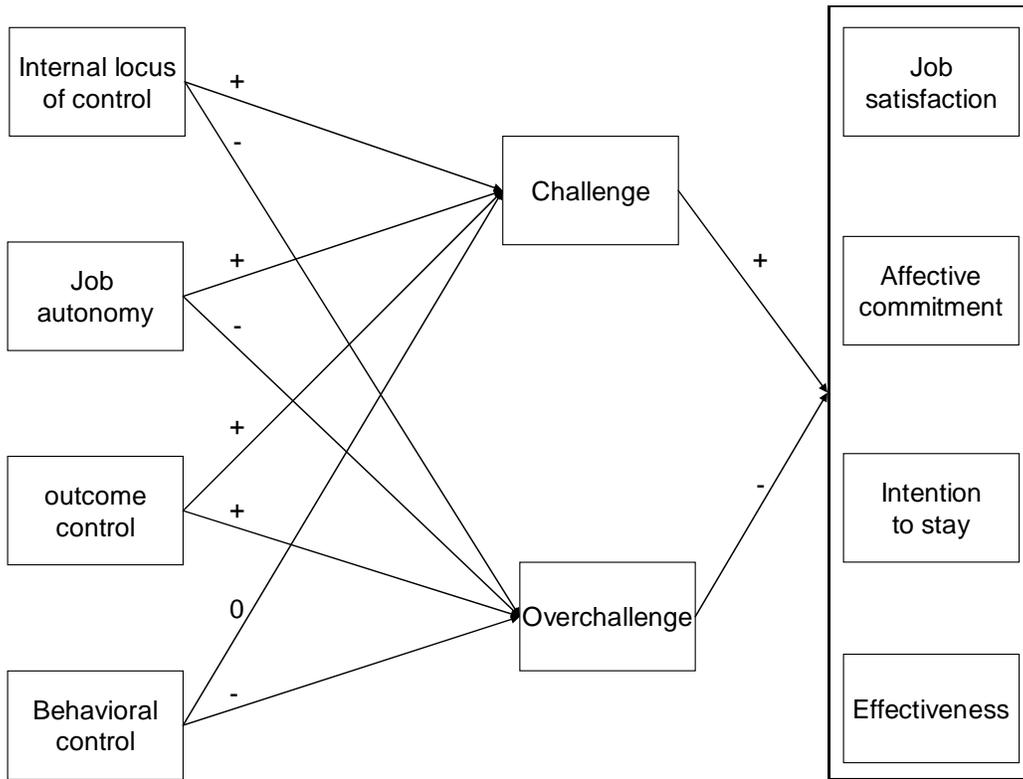


TABLE 1**Means, standard deviations and correlations among constructs^a.**

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Int. locus of control	3.60	.61	.71 ^b									
2. Job Autonomy	3.62	.81	.22 ^c	.77								
3. Outcome control	3.81	.75	.26	.04	.73							
4. Behavioral control	3.25	.82	.25	.08	.65	.85						
5. Job challenge	3.86	.73	.23	.37	.24	.15	.82					
6. Job Overchallenge	2.11	.82	-.24	-.14	.02	-.08	.20	.79				
7. Satisfaction	3.77	.64	.43	.33	.33	.45	.23	-.24	.78			
8. Commitment	3.86	.69	.36	.30	.25	.30	.34	-.11	.65	.90		
9. Intention to stay	4.25	.88	.10	.15	.09	.09	.40	-.01	.25	.27	.92	
10. Effectiveness	4.54	1.00	.17	.20	.08	.12	.11	-.08	.15	.15	.10	.84

^a = $N = 511$. Construct mean and standard deviation based on average mean and standard deviation of observed items' raw score per construct

^b = Entries on the diagonal are Cronbach's alphas.

^c = Correlations $> .09$, $p < .05$; correlations $> .11$, $p < .01$; correlations $> .15$, $p < .001$

TABLE 2

Construct reliability and standardized item loadings

Construct	1 st order loading ^a	Reliability ^b	Construct	1 st order loading ^a	Reliability ^b
Int. locus of control		.71	Over-challenge		.79
Iloc1	0.61		Ojch1	0.83	
N[eloc2]	0.51		Ojch2	0.78	
Iloc3	0.49		Satisfaction		.78
Iloc4	0.68		Js1	0.57	
N[eloc2]	0.53		Js2	0.62	
Autonomy		.77	Js3	0.81	
Auton1	0.80		Js4	0.80	
Auton2	0.79		commitment		.90
Outcome control		.73	Oc1	0.81	
Oc1	0.67		Oc2	0.89	
Oc2	0.81		Oc3	0.81	
Oc3	0.59		Oc4	0.79	
Behavioral control		.85	Oc5	0.69	
Bc1	0.81		Intention to stay		.92
Bc2	0.89		Its1	0.81	
Bc3	0.63		Its2	0.91	
Bc4	0.74		Its3	0.97	
Challenge		.82	Its4	0.86	
Jchal1	0.65		Its5	0.72	
Jchal2	0.59		Effectiveness		.84
Jchal3	0.84		Eper1	0.50	
Jchal4	0.59		Eperf2	0.57	
Jchal5	0.85		Sperf1	0.95	
			Sperf2	0.95	

^a = standardized regression weights from latent constructs to observed variables, based on SEM measurement model

^b = Cronbach's alpha reliability

TABLE 3**Average Variances Explained^a and Squared correlations^b among constructs**

	1	2	3	4	5	6	7	8	9	10
1. Int. locus of control	<i>.32</i>									
2. Job Autonomy	.09	<i>.63</i>								
3. Outcome control	.13	.00	<i>.48</i>							
4. Behavioral control	.13	.01	.63	<i>.60</i>						
5. Job challenge	.09	.22	.09	.04	<i>.51</i>					
6. Job Overchallenge	.11	.03	.00	.01	.04	<i>.65</i>				
7. Satisfaction	.34	.13	.18	.24	.06	.09	<i>.50</i>			
8. Commitment	.21	.12	.10	.11	.17	.02	.54	<i>.64</i>		
9. Intention to stay	.01	.03	.02	.01	.20	.00	.06	.07	<i>.73</i>	
10. Effectiveness	.02	.04	.01	.01	.01	.00	.02	.02	.01	<i>.59</i>

^a = Entries on the diagonal (in Italics) are average variances explained, which are the averages of the standardized regression weights from a construct to its observed variables, based on the SEM-measurement model estimates

^b = Squared multiple correlations among constructs

TABLE 4

Estimated parameters and fit statistics for the structural model

Independent variable	Dependent variable					
	Challenge	Overchallenge	Satisfaction	Commitment	Stay ^a	Effectiveness
	B (S.E.)	B (S.E.)	B (S.E.)	B (S.E.)	B (S.E.)	B (S.E.)
Internal locus of control	.05 (.07)	-.61 (.10)***	---	---	---	---
Autonomy	.33 (.05)***	-.20 (.06)***	---	---	---	.19 (.06)***
Outcome control	.40 (.13)***	.27 (.15)⁺	---	---	---	---
Behavioral control	-.20 (.10)*	-.28 (.12)**	.21 (.04)***	.18 (.05)***	---	.13 (.05)*
Challenge	---	---	.17 (.04)***	.35 (.06)***	.47 (.06)***	.02 (.06)
Overchallenge	---	---	-.37 (.04)***	-.31 (.05)***	-.17 (.06)**	-.07 (.06)
	$R^2 = .21$	$R^2 = .34$	$R^2 = .46$	$R^2 = .24$	$R^2 = .15$	$R^2 = .08$

*** = $p < .001$

** = $p < .01$

* = $p < .05$

⁺ = $p < .07$

--- = relationship not hypothesized / specified

^a = intention to stay

A latent common-method factor was included that loaded on all the observed variables (except for the performance items, rated by the supervisor). All method loadings were constrained to be equal. The estimated weight of the method factor was $B = .25$ ($SE = .02$), $p < .001$.

Fit-indices: $\chi^2 = 290,71$, $df = 144$, $p < .001$, $GFI = .95$, $NFI = .95$, $NNFI = .97$, $CFI = .98$, $SRMR = .04$, $RMSEA = .05$ (90% CI = .04 to .05)

APPENDIX A

Measurement items

Individual characteristics

- Internal locus of control
- I have noticed that there is a direct connection between how hard I work and my performance
 - My performances are the result of my own efforts; luck has little or nothing to do with it
 - Promotions are earned through hard work and persistence
 - Getting promoted is really a matter of being a little luckier than the next person*
 - Sometimes I have the feeling that I have little to do with my performance*

Job context

- Job autonomy
- My job allows me to decide on my own how to complete my work
 - In my job there is a lot of opportunity to decide freely and independently how to do my work
- Outcome control
- Specific performance goals are established for my job
 - My immediate boss monitors the extent to which I attain my performance goals
 - If my performance goals were not met, I would be required to explain why
- Behavioral control
- My immediate boss monitors the extent to which I follow established procedures
 - My immediate boss evaluates the procedures I use to accomplish a given task
 - My immediate boss modifies my procedures when desired results are not obtained
 - I receive feedback on *how* I accomplish my performance goals

Challenge levels

- Experienced job challenge
- In my job, I do a lot of different activities that require me to use a variety of skills and talents
 - My job is relatively simple and monotone*
 - I have a challenging job
 - To deal with the responsibilities in my job asks for a lot of effort and persistence
 - In my job I am confronted with a lot of challenges

Appendix A continued

Experienced job overchallenge	- A lot of tasks I have to do are simply not attainable - Things I have to realize in my job are impossible to attain, even for the best possible employee
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Affective outcomes

Job satisfaction	Mention how satisfied you are with... - your job in general - your supervisor - the guidelines of the company - the support you get from the company
Affective commitment	- I talk up this organization to my friends as a great organization to work for - I am proud to tell others that I am part of this organization - This organization really inspires the very best in my in the way of job performance - I am extremely glad that I chose this organization to work for - I really care about the fate of this organization

Behavioral outcomes

Intention to stay	What's the chance that you will be working for this company in ... - three months - six months - one year - two years - five years
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Appendix A continued

Supervisor rated effectiveness	Relative to co-workers in your unit, rate the performance of this employee over the last six months on ... <ul style="list-style-type: none">- cost consciousness- productivity- customer orientation- providing high levels of patient satisfaction and loyalty
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* = reversed scored item
