



Job demands, job control, psychological climate, and job satisfaction: A cognitive dissonance perspective

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Job demands, job control, psychological climate, and job satisfaction: A cognitive dissonance perspective



Abstract

Purpose: Research into job design and employee outcomes has tended to examine job design in isolation of the wider organizational context, leading to calls to attend to the context in which work is embedded. This study examines the effects of the interaction between job design and psychological climate on job satisfaction.

Design/approach: Cognitive Dissonance Theory was used to explore the nature of this relationship and its effect on job satisfaction. We hypothesized that psychological climate (autonomy, competence, relatedness dimensions) augments favourable perceptions of job demands and control when there is consistency between them (augmentation effect) and compensates for unfavourable perceptions when they are inconsistent (compensation effect).

Findings: Analysis of data from 3,587 individuals partially supported the hypotheses. Compensation effects were observed for job demands under a high autonomy and competence climate and for job control under a low competence climate. Augmentation effects were observed for job demands under a high relatedness climate.

Research implications: Psychological climate has the power to enhance or reduce the effects of job design and this may extend to other outcomes such as performance and commitment.

Practical implications: Well-designed and high-quality jobs should take into account the effects of psychological climate on employee outcomes.

Originality/value: This study has offered a way to bridge the job design and psychological climate fields and demonstrated that the call for more attention to the context in which jobs are embedded is worth heeding.

Keywords: job control, job demands, psychological climate, job satisfaction, workplace characteristics model, cognitive dissonance theory

Job demands, job control, psychological climate, and job satisfaction: A cognitive dissonance perspective

A range of perspectives have been used to explore and explain how job design can affect important employee outcomes such as job satisfaction. The consensus among researchers and practitioners is that well-designed jobs, in terms of providing opportunities for control and an acceptable level of job demands, can lead to increased well-being and job satisfaction. However, research on job design and employee outcomes has tended to look at job design in isolation of the organizational context, ignoring the fact that behaviour is a product of the person *and* the wider environment (Field Theory, Lewin, 1939; Mesquita, Feldman Barrett and Smith, 2010). As Lewin (1939) suggested “to explain social behaviour it is necessary to represent the structure of the total situation and the distribution of the forces in it” (p. 868). Although the interactionist approach was first articulated over 70 years ago (Lewin, 1939; also see Magnusson and Magnusson, 2013), attention on the importance of the broader environment or context has only re-emerged relatively recently in the field of organizational behaviour (Johns, 2006, 2010; Rousseau and Fried, 2001).

Specifically, job design has been at the centre of discussion on the neglect of the broader context in organizational behaviour as it is an example *par excellence* of a phenomenon treated in isolation from its surrounding context (Grant, 2010; Johns, 2010; Rousseau and Fried, 2001). As the interactionist perspective reminds us, we should not be treating attitudes and behavior attitudes behavior in isolation from the psychosocial and cultural milieu in which they are situated. It is argued, that the way jobs are designed “is embedded in a larger work context” (Johns, 2010, p. 361), which may influence individuals’ attitudes and behaviour. Morgeson and Humphrey (2006) in particular acknowledge that the effectiveness of job redesign will depend on the organizational context, whereas Morgeson, Dierdorff and Hmurovic (2010) highlight psychological climate (or the perceptions that people have of their work organization; Schneider, 1975) as a dimension of context to consider in relation to job design and employee outcomes.

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3 The question then becomes how do job design and psychological climate work together to
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5 produce employee outcomes such as job satisfaction? The interactionist paradigm (Lewin, 1939;
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7 Magnusson and Magnusson, 2013) can be supplemented by a more detailed examination, offered by
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9 Cognitive Dissonance Theory (CDT; Festinger, 1957), to understand the nature of this interaction
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11 and supplement analysis of the job design–job satisfaction relationship. CDT suggests that
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13 individuals have a preference for cognitions (attitudes, beliefs, or knowledge of one’s behaviours) to
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15 be aligned with each other and that a discrepancy between two cognitions will create an
16
17 uncomfortable negative affective state and, consequently a motivation to reduce that discrepancy.
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19 We operationalize negative affective state as job satisfaction, or “an evaluative judgment one makes
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21 about one’s job or job situation” (Weiss, 2002), as a key outcome variable that has been reliably
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23 linked to cognitive dissonance (see Pugh, Groth and Hennig-Thurau, 2010).
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28 In this paper we take an interactionist approach to job design and psychological climate
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30 within which employee outcomes are situated. We supplement past analysis of the job design–job
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32 satisfaction relationship by drawing from CDT to understand the nature of this interaction. We firstly
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34 outline the concepts of job design and psychological climate and their impact on job satisfaction, and
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36 then apply CDT to explore how the job and climate might jointly determine job satisfaction, before
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38 reporting the results of the study.
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40 ***Job Control, Job Demands, and Job Satisfaction***

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42 One of the most influential models for explaining the influence of the job on well-being and
43
44 employee outcomes is Karasek and Theorell’s (1990) job demands–control model (DCM). It
45
46 proposes job control or decision latitude and psychological demands as the characteristics of the job
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48 that most influence strain and has since been applied to a range of affective and behavioural work
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50 outcomes. It has been examined in relation to a range of indices of psychological well-being,
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52 including job satisfaction, burnout, and stress, with the evidence supporting a positive effects of job
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54 control and negative effects of job demands (Van der Doef and Maes, 1999). Job demands are
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3 defined as “those physical, psychological, social, or organizational aspects of the job that require
4 sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore
5 associated with certain physiological and/or psychological costs” (Bakker and Demerouti, 2007, p.
6 312). Furthermore, DCM proposes that high strain jobs, characterized by a combination of high
7 demands and reduced control, are most likely to lead to adverse well-being outcomes (Van der Doef
8 and Maes, 1999). Although empirical evidence concurs that “high levels of perceived control [is]
9 associated with high levels of job satisfaction” and a broad range of desirable affective, motivational
10 and behavioural outcomes (Spector, 1986, p. 1005), tests to see whether job control buffers the
11 impact of job demands on well-being is inconsistent (Bakker and Demerouti, 2007). Therefore, we
12 only focus on direct rather than interaction effects of job demands and job control on job satisfaction.
13 On the basis of consistent evidence for strong links between job demands and control and job
14 satisfaction (Dwyer and Ganster, 1991; Loher, Noe, Moeller, and Fitzgerald, 1985), we state the first
15 hypotheses, which form the bases of subsequent hypotheses thus:

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32 *Hypothesis 1a: Job control is positively associated with job satisfaction*

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34 *Hypothesis 1b: Job demands are negatively associated with job satisfaction*

35 36 ***Psychological Climate and Job Satisfaction***

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38 Field Theory posits that “to understand or to predict behaviour, the person and his environment have
39 to be considered as one constellation of interdependent factors” (Lewin, 1946, p. 338). In the
40 organizational behaviour literature the interactionist approach is evident in calls for research to
41 attend to the context in which job design and organizational behavior are situated (e.g., Grant, 2010;
42 Johns, 2006; Johns, 2010; Morgeson et al., 2010; Rousseau and Fried, 2001), as well as with
43 advances in multilevel theory and resolutions of levels of analysis issues (Klein and Kozlowski,
44 2000). What may constitute context, however, is broad and open to debate. Morgeson, Dierdorff and
45 Hmurovic (2010) proposed three aspects of context as relevant to job design, including psychological
46 climate, technical systems, and organizational structure; here we focus on the psychosocial climate
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3 because it is one of the most permeating influences on employee outcomes besides the job (Karasek,
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5 2004; Schneider, González-Romá, Ostroff and West, 2017; Schyns, van Veldhoven and Wood,
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7 2009). For clarity, it should be noted that a distinction is made between psychological and
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9 organizational climate, the former referring to individual's perception of the climate and the latter to
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11 shared perceptions of climate (James and Jones, 1974).

14 Following Schneider (1975) psychological climate is widely taken to refer to perceptions
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16 people have of their work organization. Psychological climate can refer to an employee's perceptions
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18 of the organization in general or to aspects of the organization, particularly its policies, practices and
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20 procedures, or the behaviours that are rewarded, supported or expected (James *et al.*, 2008). When
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22 individuals perceive their workplace environment positively, they are more likely to invest more
23
24 effort and yield more positive outcomes (Brown and Leigh, 1996). Positive perceptions of climate
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26 for group relationships, leadership, and supervision, for example, are linked to positive mental health
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28 outcomes (e.g., lower burnout, depression, anxiety) (Bronkhorst, Tummers, Steijn and Vijverberg,
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30 2015; Parker *et al.*, 2003). Schneider (1975) also argued that for the concept of climate to be useful it
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32 ought to be conceptualized as a climate for something or be domain-specific, for example, climate
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34 for justice (Naumann and Bennett, 2000), safety climate (Zohar, 2002), risk-taking climate (O'Reilly,
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36 Chatman, and Caldwell, 1991) service climate (Liao and Chuang, 2004), (Sowinski, Fortmann, and
37
38 Lezotte, 2008), and creativity climate (Ekvall, 1996). In essence, the effectiveness of climate to
39
40 positively influence employee outcomes depends on the congruence and specificity of the said
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42 climate in relation to these target outcomes. A climate for safety will be more strongly linked to
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44 safety than a positive but not domain-specific climate.

49 For the purposes of understanding individuals' broader well-being and affective states, an
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51 "operational definition of psychological climate that is based on the extent to which employees
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53 perceive the organization to be a psychologically safe and meaningful work environment" (Brown
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55 and Leigh, 1996; p. 358) is appropriate. In line with this, the Workplace Characteristics Model
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(WCM; Karanika-Murray and Michaelides, 2015) was developed to describe the characteristics of the workplace that have the potential to support adaptation, meaning, self-regulation, and optimal functioning. It is based on the premise that happiness and a meaningful life as the purpose of human activity and a frame of reference in one's life (self-determination theory, SDT; Deci and Ryan, 1985, 2000). Drawing from the climate, job design, and self-determination perspectives, the WCM differentiates three dimensions of workplace climate: the degree of freedom of action in the workplace (autonomy-supportive climate), of the availability of resources that support the fulfilment of job requirements (competence-supportive climate), and of the degree to which the social context fosters meaningful relationships in the workplace (relatedness-supportive climate). These three dimensions of climate correspond to the three fundamental human needs in SDT, of autonomy, competence and relatedness, the fulfilment of which fosters purpose and self-regulation (Deci and Ryan, 1985, 2000). Gagne and Deci (2005) argue that "climates that promote satisfaction of the three basic psychological needs will enhance employees' intrinsic motivation and promote full internalization of extrinsic motivation and that this will in turn yield the important work outcomes" (p. 337), including, among others, performance, job satisfaction, psychological adjustment, and well-being. Concurring with this, the WCM posits that perceptions of the workplace as promoting self-regulation (and specifically through prominence of the autonomy, competence, and relatedness dimensions) will constitute a workplace climatic context that can lead to positive affective outcomes. The WCM differs from other domain-specific climates in that it focuses on higher-order concepts of meaning and self-regulation, rather than on specific outcome behaviours, and as such it has the potential to be linked to a range of specific behavioural and attitudinal outcomes. Therefore, we propose the following:

Hypothesis 1c: Psychological climate is positively associated with job satisfaction

Effects of Job Control, Job Design, and Psychological Climate on Job Satisfaction

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3 If we accept that the interaction between the job (control and demands) and psychological climate
4 impacts upon employee outcomes and specifically job satisfaction, what form does this interaction
5 take? And which is the moderator?
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10 In relation to the latter, Johns (2010) suggests that both the job and the climate constitute two
11 levels of individual's context. The way jobs are designed "is embedded in a larger work context" and
12 how jobs are designed "constitutes a context for their incumbents" (Johns, 2010, p. 361) that may
13 influence employee outcomes. However, the job, being more proximal and more actively shaped by
14 the individual (Wrzesniewski and Dutton, 2001), has a more immediate influence on attitudes and
15 cognitions than the climatic context. Therefore, we view psychological climate as the moderator of
16 the job control and job demands–job satisfaction relationship.
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25 In relation to the former, we draw from Cognitive Dissonance Theory (CDT; Festinger, 1957;
26 Fiske and Taylor, 2013) to explain the nature of the interaction between the job (control and
27 demands) and job satisfaction. Imported from social psychology, CDT has been used in
28 management, work psychology, and organizational behaviour research to explain human behaviour
29 in the work context, including performance (Schleicher, Watt and Greguras, 2004; Visser and
30 Coetzee, 2005), organizational commitment (Dal Santo et al., 2013), reactions toward bullying
31 (Samnani, 2013), proactivity and organizational citizenship behaviour (Liao, 2015), and reduced
32 well-being and job dissatisfaction (e.g., Grandey, Chi and Diamond, 2013; Bhawe and Glomb, 2016).
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43 CDT suggests that individuals have a preference for cognitions (attitudes, beliefs, and
44 knowledge of one's behaviour) to be aligned and in agreement. Cognitions have instrumental and
45 adaptive functions; they help us to make sense of the evidence and our affective responses (Simon et
46 al., 2004) and to avoid taxing affective outcomes (Fiske and Taylor, 2013). They are also closely
47 interconnected (Scott, 1996). Cognitions "broadly dispose people to respond positively or
48 negatively" (Fiske and Taylor, 2013, p. 254–255) but their influence may depend on how consistent
49 they are. Consistent attitudes help people to create a feeling of contentment with their surroundings
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3 and a sense of stability in their life (Festinger, 1957; Fiske and Taylor, 2013, p. 137). Discrepancy or
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5 conflict between two or more cognitions will lead to dissonance and a negative affective state,
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7 which, in turn, will create a motivation to reduce the dissonance (Harmon-Jones and Harmon-Jones,
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9 2007). Strategies for reducing dissonance include, for example, attitude or behaviour change,
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11 adjusting relevant cognitions, trivializing the importance of the behaviour, or selective information
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13 processing (Hinojosa, Gardner, Walker, Coglisier and Gullifor, 2016).
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17 More specifically, when people experience inconsistencies in their perceptions of the job and
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19 the psychological climate, they will also experience dissonance and an uncomfortable negative
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21 affective state, operationalized here as job dissatisfaction. This may lead them to adjust their attitudes
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23 as a coping process, a means of reducing the discrepancy between cognitions of the job and of the
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25 psychological climate, perhaps a particularly efficient form of 'cognitive miserliness' (Fiske and
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27 Taylor, 2013, p. 15). A positively experienced psychological climate will compensate for poor job
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29 design.
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33 On the other hand, it is possible to expect that consistency between perceptions of job
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35 demands and control and psychological climate will have independent and combined effects on job
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37 satisfaction. Employees with high job control who also perceive the psychological climate for
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39 autonomy as high may have a higher level of satisfaction than those who perceive it as low.
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41 Psychological climate will augment job design as people will feel more secure and that they can
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43 achieve more.
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46 If psychological climate augments the negative relationship between job demands and job
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48 satisfaction, then it strengthens that relationship and intensifies the effects of high demands on job
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50 dissatisfaction. It thus has a negative impact. However, if climate plays a compensatory role, then it
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52 reduces the negative effects of demands on job satisfaction. In contrast, if climate augments the
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54 positive relationship between job control and job satisfaction, then it intensifies the effect of job
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control and thus has a positive impact on employees. On the other hand, if psychological climate compensates for low job control, then it weakens the positive impact of control on job satisfaction.

We therefore propose that psychological climate moderates the effects of job control and job demands on job satisfaction and test the following competing effects (augmentation or compensation) and corresponding hypotheses:

Hypothesis 2a: Psychological climate augments the effects of job control on job satisfaction (augmentation effect).

Hypothesis 2b: Psychological climate compensates for the effects of job control on job satisfaction (compensation effect).

Hypothesis 3a: Psychological climate augments the effects of job demands on job satisfaction (augmentation effect).

Hypothesis 3b: Psychological climate compensates for the effects of job demands on job satisfaction (compensation effect).

It is important to note that the signs of the interaction effects, if significant, will indicate support for one of the two competing propositions but the interpretation of the signs will differ for job control and job demands. If job demands are negatively related to job satisfaction, a negative sign for the job demands–psychological climate interaction would support an augmentation effect, whereas a positive sign would indicate a compensation effect. Assuming a positive relationship between job control and job satisfaction, a positive sign for the job control–psychological climate interaction would be consistent with an augmentation effect, whereas a negative sign would be consistent with a compensation effect.

Method

Participants

Data were collected from 17 organizations in England from various sectors, including education, advertising, finance, manufacturing, and local government. The timeline for data collection was

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3 different for each organization, between mid-2010 and end of 2011. Longitudinal data were collected
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5 by administering the same questionnaire in each organization four times, with 3-month intervals
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7 between data collection waves. In total, 10,506 questionnaires were completed by 5039 participants
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9 from 267 workplaces. Response rates varied among the 17 organizations and data collection waves
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11 and ranged between 5% and 21%. This is consistent with reported response rates for online
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13 questionnaires (e.g., Kaplowitz, Hadlock, and Levine, 2004).
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17 Questionnaires with missing values in any of the variables used were excluded from the
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19 analysis. This yielded a usable sample of 8220 questionnaires from 3761 participants. From this
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21 sample, 36 workplaces have less than 5 responses, considered to be potentially non-representative of
22
23 their workplace. These responses and workplaces were excluded from the data analysis reducing the
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25 sample to 7403 questionnaires from 3587 participants from 231 workplaces. From the total of 3587
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27 participants 1491 (41.57%) completed the questionnaire only once, 880 (24.53%) completed it twice,
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29 712 (19.85%) completed it three times, and 504 (14.05%) completed it all four times.
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33 The final sample consisted of 65.5% women and the mean age of participants was 42.69
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35 years (range: 18–69 years). Nearly half of the participants, 47.5%, had received secondary education,
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37 37.1% had an undergraduate degree and the remaining 15.4% had a postgraduate degree. The mean
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39 tenure of the participants in their organizations was 10.7 years (range: < 1–47.9 years).
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41 *Measures*

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43 *Job demands* were measured with eight items from the Copenhagen Psychosocial Questionnaire
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45 (Kristensen, Hannerz, Høgh, and Borg, 2003). Respondents were asked to indicate how often they
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47 experienced certain workload problems (e.g., “My workload is unevenly distributed so it piles up”,
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49 “My work requires that I remember a lot of things”) on a 5-point Likert scale (from 1 = *never/hardly*
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51 ever to 5 = *always*). The scores were grand mean centred and Cronbach’s α for this scale was .78.
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55 *Job control* was measured with nine items from Morgeson and Humphrey (2006), which
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57 together capture a range of aspects of job control such as work-scheduling, decision-making, and
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3 work methods. Respondents were asked to indicate the extent to which they agreed with a number of
4 statements (e.g., “The job allows me to make my own decisions about how to schedule my work”,
5 “The job provides me with significant autonomy in making decisions”) on a 5-point Likert scale
6 (from 1 = *strongly disagree* to 5 = *strongly agree*). The scores were grand mean centered.
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12 Cronbach’s α for this scale was .95.

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14 *Psychological climate* was measured using the autonomy, competence, and relatedness
15 supportive dimensions of the Workplace Design Questionnaire (Karanika-Murray and Michaelides,
16 2015). Respondents were asked to indicate how true a range of statements were on the working
17 conditions in their workplace (e.g., “We can make a lot of decisions without requiring approval”,
18 “We are always aware of how well we are doing the job”, “There are opportunities to develop
19 friendships”) on a 7-point Likert response scale (1 = *strongly disagree* to 7 = *strongly agree*) and
20 with a 3-month time window. Each dimension was group-mean centred. Cronbach’s α values were
21 .92, .96 and .93, respectively. The WDQ structure and psychometric properties are detailed in
22 Karanika-Murray and Michaelides (2015).
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34 In order to evaluate interactions between job demands and job control on one hand, and
35 psychological climate, on the other, we standardized these variables before the analyses. In addition,
36 the discriminant validity of the autonomy climate and job control was tested via a CFA model across
37 the four waves. The chi-square statistics showed that the two were significantly different.
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43 Discriminant validity is also confirmed by their correlation which was $< .85$.
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45 *Job satisfaction* was measured with three items, two taken from the Michigan Organizational
46 Assessment Questionnaire (Cammann, Fichman, Jenkins and Klesh, 1983; i.e., “In general I like
47 working here” and “All in all I am satisfied with my job”) and one from Quinn and Shepard’s (1974)
48 job satisfaction index (i.e., “Knowing what I know now, if I had to decide all over again whether to
49 take my job, I would”). Respondents were asked to indicate how true the statements were for them
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3 on a 7-point Likert response scale (1 = *strongly disagree* to 7 = *strongly agree*). Cronbach's α for
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5 this scale was .89.

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7 *Time* was measured as a discrete variable to signify the data collection wave. The variable
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9 ranged from 0 to 3 (i.e., the first data collection wave is 0) to allow the regression line between time
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11 and job satisfaction to cross the y-axis at the first wave. Thus, the random intercept reflects job
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13 satisfaction for each individual at the first data collection wave.

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16 *Control variables* included were participants' gender, age, organizational tenure, and job
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18 tenure. Past research has demonstrated that job satisfaction differs between men and women (Bender,
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20 Donohue and Heywood, 2005; Clark, 1997) and can vary with age (Clark, Oswald and Warr, 1996)
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22 and tenure (Bedeian, Ferris and Kacmar, 1992). Although age, organizational tenure and job tenure
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24 are highly correlated (r between .32 and .47), they all had distinct effects on job satisfaction. Because
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26 perceptions of psychological climate and perceptions of job demands and control may differ between
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28 respondents who do and those who do not manage other employees, we also controlled for whether
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30 participants had managerial responsibilities, measured as a single item with a binary response format.
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32 Finally, we controlled for whether participants had experienced any major negative event over the
33
34 last three months, measured with a single item and a yes/no response format (i.e., "Has any major
35
36 negative event happened to you in the last 3 months?"). Negative events could interfere with work
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38 and normal functioning negatively affecting individuals' well-being or mood and can have therefore
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40 a direct effect on job satisfaction. The control variables were included in the first step and remained
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42 significant at all steps of the analysis.

43 44 45 46 47 **Analyses**

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49 The data were analysed using multilevel models with R 3.1.2 (R Core team, 2014), *lme4* (Bates,
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51 Maechler, Bolken and Walker, 2015) and *ggplot2* (Wickham, 2009). The dataset involved four
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53 different levels: observations (repeated measures), individuals, workplaces, and organizations, and
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55 potentially serial correlation (autoregressive) between consecutive data collection waves. Prior to
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3 evaluating the hypotheses we examined the ICC1 values for job satisfaction, autonomy, competence,
4 relatedness, demands and control at different levels. Table 1 shows the ICC1 values are the
5 individual (i.e., repeated measures), workplace and organizational levels.
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10 [Table 1 here]

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12 We also compared a series of models to determine whether it was necessary to account for all
13 of the levels of analysis or to allow for an autoregressive effect. We first fitted a two-level model
14 with a random intercept for individuals (which accounts for the repeated measures nested in
15 individuals) and compared it to a three-level model with random intercepts for individuals and
16 workplaces. The two models were significantly different ($\Delta\chi^2(df=1) = 374.75, p < .001$) indicating
17 that there is substantial variability between workplaces in job satisfaction. Then, we compared the
18 three-level model to a four-level one with random intercepts for individuals, workplaces, and
19 organizations. The comparison was not significant ($\Delta\chi^2(df=1) = 2.94, p > .05$) indicating that
20 overall job satisfaction does not vary significantly between organizations. Building on the three-level
21 model we then added a fixed effect for time, which showed a significant negative effect of time on
22 job satisfaction ($\beta = -.07, t = -7.03, p < .001$). We then compared this to a model with time as a
23 random effect to determine whether allowing for a different growth curve for every participant
24 improves the model fit, and found that a random slope for time allowed for job satisfaction changes
25 over time ($\Delta\chi^2(df=4) = 35.25, p < .001$). Finally, we also tested if there was serial correlation by
26 allowing for an AR1 (autoregressive lag 1) correlation structure but the results revealed that this was
27 not the case ($\Delta\chi^2(df=1) = 2.67, p > .05$). We therefore did not use an AR1 structure in the main
28 analysis.
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50 Consequently, the baseline model was a three-level growth curve model of observations
51 nested in individuals, which in turn is nested in workplaces. The random effects of the model
52 consisted of two random intercepts (individual level and workplace level) and one random slope for
53 the effect of time at the individual level. Starting with this baseline model, we added predictors in
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3 stage and compared the model to the previous step. The control variables were added at the first step
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5 (Model 1), the effect of job demands and job control at the second step (Model 2), the three
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7 psychological climate dimensions at the third step (Model 3), and finally the interactions were
8
9 simultaneously added at the fourth step (Model 4). Six interactions were included to reflect the three
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11 dimensions of psychological climate (autonomy, competence, relatedness) and the two main effects
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13 (job control and job demands). Each step was compared to its preceding step using -2 Log
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15 Likelihood ($\Delta\chi^2$) maximum likelihood estimates.
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19 To ensure that there was no multicollinearity between different interaction terms, we
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21 evaluated the multilevel variance inflation factor. This was below the recommended maximum value
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23 of ten for all predictors and interactions and thus there is no multicollinearity problem. The highest
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25 value was for the interaction between control and competence ($\text{VIF} = 1.88$). Finally, because we
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27 found no interactions between job control and job demands (Van der Doef and Maes, 1999) we did
28
29 not include this interaction term in the analyses.
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32 Results

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34 Table 2 shows the descriptive statistics and correlations between all the continuous variables. The
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36 core variables are significantly correlated and in the expected directions.
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39 The first regression model, Model 1 (see Table 3) revealed that all the control variables were
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41 significant related to job satisfaction. Specifically, job satisfaction was higher for those with
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43 managerial responsibility ($\beta = .19, SE = .04, p < .001$), women ($\beta = .20, SE = .05, p < .001$), and those
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45 who reported not having experienced a negative event in the previous three months ($\beta = .17, SE =$
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47 $.03, p < .001$). Job satisfaction increased with age ($\beta = .01, SE = .00, p < .01$) but decreased with
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49 organizational tenure ($\beta = -.01, SE = .00, p < .05$) and job tenure ($\beta = -.01, SE = .00, p < .001$).
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52 [Tables 2 and 3 here]

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54 The addition of job demands and job control (Model 2) resulted in an overall better fit
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56 compared to Model 1 ($\Delta\chi^2 = 851.25, df = 2, p < .001$). In addition, there was a negative significant
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3 effect for job demands ($\beta = -.18, SE = .02, p < .001$) and a positive significant effect for job control
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5 ($\beta = .42, SE = .02, p < .001$), providing support for Hypotheses 1a and 1b.
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7 The third step (Model 3), which involved the inclusion of the three psychological climate
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9 variables, further improved the fit of the model ($\Delta\chi^2 = 1279.77, df = 3, p < .001$). All three climate
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11 dimensions had a significant positive effect on job satisfaction, providing support for Hypothesis 1c.
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13 Competence climate had the strongest effect ($\beta = .43, SE = .02, p < .001$), followed by relatedness (β
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15 = $.22, SE = .02, p < .001$) and autonomy climate ($\beta = .14, SE = .02, p < .001$).
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18 The addition of the six interaction terms in Model 4 further improved the model fit ($\Delta\chi^2 =$
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20 $33.54, df = 6, p < .001$). The main effects (of the two job characteristics and three climate variables)
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22 remained significant, and of the six interaction effects four were significant.
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25 Of the interactions involving psychological climate and job control, only the interaction
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27 between job control and competence climate was significant ($\beta = -.04, SE = .02, p < .05$) with a
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29 significant simple slope ($ss = .12, SE = .01, p < .001$). As Figure 2 shows, the positive effects of job
30
31 control on job satisfaction were stronger under a low competence climate, which is consistent with
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33 the compensation hypothesis (see Figure 2; Hypothesis 2b). These findings offer partial support for
34
35 the moderating effects of psychological climate on the relationship between job control and job
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37 satisfaction.
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40 The interaction between job demands and autonomy climate was positive ($\beta = .03, SE = .01,$
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42 $p < .05$) and the simple slope test showed a significant negative effect ($ss = -.08, SE = .01, p < .001$),
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44 supporting a compensation effect: autonomy climate compensates, to some extent, for the negative
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46 effect of job demands on job satisfaction such that under a high autonomy climate the effects of job
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48 demands are less pronounced (see Figure 1a; Hypothesis 3a). The interaction between job demands
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50 and competence climate was also positive ($\beta = .05, SE = .02, p < .001$) with a negative simple slope
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52 ($ss = -.06, SE = .01, p < .001$), suggesting a compensation effect: competence climate reduces the
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54 negative effect of job demands on job satisfaction (see Figure 1b; Hypothesis 3b). Finally, the
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3 interaction between job demands and relatedness climate was negative ($\beta = -.04, SE = .01, p < .05$)
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5 with a negative simple slope ($ss = -.15, SE = .00, p < .001$). As Figure 1c shows, the negative effect
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7 of job demands on job satisfaction is further amplified under a high relatedness climate but less
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9 pronounced under a low relatedness climate, which is consistent with an augmentation effect
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11 (Hypothesis 3c).
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14 [Figures 1 and 2 here]
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16 Discussion

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18 This study examined the joint impact of job control and demands, on one hand, and psychological
19
20 climate, on the other, on job satisfaction. Using the interactionist paradigm to define our focus and
21
22 highlight the importance of understanding the situational or contextual forces shaping behaviour
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24 (Lewin, 1939; Mesquita *et al.*, 2010) and Cognitive Dissonance Theory to explain their impact and
25
26 ground our hypotheses, we presented an empirical test of the proposition that the analysis of job
27
28 demands and control as antecedents of job satisfaction can be usefully complemented by a
29
30 consideration of the wider context in which the job resides (Johns, 2010; Morgeson *et al.*, 2010). The
31
32 context we have focused on is the psychological climate and how it impacts on affective evaluations
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34 of one's job which we examined through the lens of the Workplace Characteristics Model (Karanika-
35
36 Murray and Michaelides, 2015) with its three dimensions of autonomy, competence, and relatedness
37
38 -supportive climate dimensions. We proposed that the form of the moderation effect of psychological
39
40 climate on the relationship between job characteristics and job satisfaction would reflect one of two
41
42 competing effects: augmentation or compensation.
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47 The results of our study revealed interaction effects between psychological climate
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49 (autonomy, competence, and dimensions) and job demands/job control on job satisfaction, in four of
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51 the six interactions tested. Three of these supported the compensation effect and one the
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53 augmentation effect. The results thus show that the effects of psychological climate may vary across
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55 its different dimensions and different aspects of the job. Discrepancies between job-related
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3 cognitions and climate-related cognitions seem to be the most prominent driver for job satisfaction,
4 as the compensation effect fits two of the interactions involving job demands and the one involving
5 job control. The remaining interaction involving job demands and relatedness climate suggested an
6 augmentation effect and two of the interactions involving job control were not significant.
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11 The compensation effect implies that job demands increase dissatisfaction less when the
12 individual perceives that the psychological climate encourages the use of discretion in their work
13 (and conveys a sense that skills are valued and their use is encouraged and actively supported.
14 Similarly, low job control has a weaker effect on feelings of dissatisfaction when the psychological
15 climate is supportive of competence.
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23 The finding that a psychological climate that is high in relatedness amplifies the negative
24 effects of job demands on job satisfaction may reflect the role of peer pressure. It may be that in
25 workplaces where people are more closely connected and work in teams there is more pressure to
26 fulfil job demands. Alternatively, or in addition, grievances about high demands may be amplified by
27 being shared and communicated among colleagues.
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34 The lack of interactions between job control and the autonomy and relatedness climate
35 dimensions reflects the strong main effect that control has and also the way that its effect is
36 moderated by competence climate. It is a feeling that the organization provides resources to promote
37 individual competence, for example, through training, constructive feedback and support, that
38 enhance the effect of job autonomy and meaningful personal relationships on job satisfaction; it is
39 less a feeling that it encourages the exercise of autonomy or sense of community.
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47 **Implications for theory and research**

48 Promoting the climatic context from a background to a foreground variable in the relationship
49 between job characteristics and work outcomes offers a range of possibilities for understanding its
50 role in shaping work attitudes and behaviour. This study has a number of implications for developing
51 theory and future research.
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3 First, by responding to calls for attention to context in organizational behavior and job design
4 theory (Grant, 2010; Johns, 2006; Johns, 2010; Kozlowski and Doherty, 1989; Morgeson et al.,
5 2010; Rousseau and Fried, 2001), it offers the first empirical study on the relationships amongst
6 context, operationalized as psychological climate, job design, and job satisfaction. Affective
7 processes need to be studied within the psychosocial and cultural milieu in which they are situated.
8 This is an essential principle in Field Theory – as Lewin (1939) asserted, “analysis starts with the
9 situation as a whole”. Essentially, job satisfaction is constructed through a combination of
10 perceptions of climate and job characteristics. The results confirm that the manner of this will vary as
11 climate can either augment or compensate the effects of job design and this will depend on the job
12 characteristic. Further studies are required to ascertain the robustness of the specific results and the
13 more general principle underlying these processes, rooted as it is in cognitive dissonance. This could
14 be enhanced by theoretical and empirical exploration of how cognitions or perceptions of both the
15 job and the context are formed and they jointly impact upon affective and motivational states.
16 Further research on other aspects of the context, structural and technological characteristics, might
17 also be valuable, not least to assess the relative significance of the climate.
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36 Second, in addition to psychological climate, it may be useful to examine how organizational
37 climate moderates the effects of job design on work outcomes. This would allow to see whether
38 organizational climate has the same effects as psychological climate, or any effect over and above
39 those of psychological climate, or even moderate the interactions effects involving psychological
40 climate. In this case, however, the conceptual foundations would be different from what we have
41 presented here, since CDT is an individual level theory and does not account for shared constructs
42 such as organizational climate.
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52 Third, the complex interaction between the person and the environment (Mesquita et al.,
53 2010) may involve “reciprocal causations between persons and environments” (Magnusson and
54 Magnusson, 2013, p. 280), such that “satisfaction with job/tasks (job satisfaction) and perceptions of
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3 challenge, autonomy, and importance are reciprocal causes of each other” (James and Jones, 1979; in
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5 Magnusson and Magnusson, 2013, p. 289). A longitudinal study would be required to explore this
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7 possibility more fully.
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10 Fourth, we have suggested a way to integrate and expand current knowledge of psychological
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12 climate and job design with insights from social psychology. By explaining how individuals react
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14 when experiencing attitude-cognition inconsistencies and how such inconsistencies can influence a
15
16 range of outcomes (e.g., Liao, 2015; Lopez, 1992; Schleicher et al., 2004; Visser and Coetzee, 2005),
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18 CDT has offered a useful lens for understanding how job design and job control, on one hand, and
19
20 the psychological climate on the other, together shape job satisfaction. As such, this study is a
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22 reminder that there is scope in the field of organizational behaviour for further refining our
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24 understanding of organizational and work behavior by applying models from cognate fields.
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28 Fifth, we used the DCM (Karasek and Theorell, 1990) to examine job characteristics in the
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30 form of job control and job demands and provide initial support for our hypotheses. It would be
31
32 useful to broaden the examination to other job characteristics, perhaps using the Job Characteristics
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34 Model (Hackman and Oldham, 1976). Further conceptual and empirical work using a broader range
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36 of job characteristics would help to develop more nuanced examination of the joint contribution of
37
38 climate and the job on employee outcomes. We are at very early stages of this exploration.
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41 **Implications for practice**

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43 Three implications of our study for practice and policy can be highlighted. First, supporting
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45 well-designed and high-quality jobs remains a significant objective for governments, employers, and
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47 employee representatives, especially in the face of empirical evidence showing that only a minority
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49 of jobs could be described as well-designed jobs (e.g., in the UK, see Van Wanrooy *et al.*, 2013).
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51 The fact that differences exist between countries within the same sector (e.g., in call centre jobs)
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53 suggests there is scope for improvement in the way that jobs are designed (Holman, Frenkel,
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55 Sørensen and Wood, 2009). However our research shows that we should also encourage employers
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3 and management to invest resources in creating and supporting climates that encourage employees to
4 use their autonomy, develop their competencies and are support their relationships. It may in fact be
5 that managers are currently more appreciative of this need than they are of the need for conscious job
6 design but highlighting the interdependencies between the two may reinforce the significance of
7 both. The fact that job control and autonomy climate are independent suggests that just designing
8 jobs in certain ways or more generally instituting high-involvement practices (Lawler, 1986) or what
9 is often termed 'high performance work systems' (Appelbaum, Bailey, Berg and Kalleberg, 2000)
10 may not be sufficient. The emphasis in human resource management practice is often very
11 concentrated on processes and ensuring procedures are followed rather than on content and what is
12 actually happening in their enactment (Bowen and Ostroff, 2004). Management should aim to create
13 positive climates that help employees to perceive work environments as psychologically safe and
14 meaningful and feel that the workplace is being supportive of their competencies, relationships, and
15 autonomy. This can be achieved through entrusting employees and teams to make decisions within
16 their locus of control, by providing the resources to ensure staff can competently perform their jobs,
17 providing fair and helpful feedback and displaying recognition of effort and appreciation for their
18 contribution to the organization.

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The third implication of the study derives from the interaction results as these indicate more precisely what needs targeting. The results that conform to compensation effect suggest that psychological climates supportive of autonomy and competence are especially important. The interaction between demands and relatedness climate suggests that managers might investigate whether peer pressure is too strong.

Strengths and limitations

The main strength of the present study was that it was based on a substantial sample size of employees across a range of organizations, allowing us to assess the stability of the hypothesized relationships across organizations and enhance the robustness of our results. Collecting the data over

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3 four time periods and modelling changes over time as a growth model also allowed to control for
4 changes in job satisfaction for each participant and model the moderation relationships independently
5 of within-individual fluctuations.
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10 A weakness of the study was that all the data were collected using questionnaires which can
11 potentially result in common method variance or social desirability biases (Podsakoff, MacKenzie
12 and Podsakoff, 2012). However, the detection of strong interaction effects suggests that neither is a
13 significant problem (Siemsen, Roth and Oliveira, 2010).
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18 **Conclusions**

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20 This research is a response to the call for more nuanced consideration of the interaction between job
21 design and psychological climate and the context of work. On the basis of CDT, we hypothesized
22 that psychological climate (conceptualized via the WCM) is more likely to augment perceptions of
23 job characteristics when there is consistency between them, and to compensate for job design
24 perceptions when they are inconsistent. Our empirical study has confirmed such conjectures and that
25 psychological climate may be a significant contextual factor that influences the way job
26 characteristics affect job satisfaction. The climatic context is not then just an additional variable to
27 take into account or control for when considering employees' attitudes or well-being; the findings
28 demonstrate it is a significant moderator of the job demands/control–job satisfaction relationship,
29 and it is likely – or at least worth hypothesizing – that its influence may extend to other employee
30 outcomes such as job strain and organizational commitment. Even more importantly, the results
31 show that the moderating effects of psychological climate vary across its dimensions. Overall, our
32 findings suggest that the call for more attention to be paid to the context in which jobs are embedded
33 is worth heeding. Psychological climate not only impacts upon job satisfaction but also shapes how
34 perceptions of the job influence job satisfaction.
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References

- Appelbaum, E., Bailey, T., Berg, P. and Kalleberg, A. L. (2000), "Manufacturing Advantage: Why High Performance Work Systems Pay Off", Cornell University Press, Ithaca, NY.
- Bates D., Maechler M., Bolker B. and Walker, S. (2015), "lme4: Linear mixed-effects models using 'Eigen' and S4", available at: <http://CRAN.R-project.org/package=lme4> (accessed 11 August 2016).
- Bedeian, A. G., Ferris, G. R. and Kacmar, K. M. (1992), "Age, tenure, and job satisfaction: A tale of two perspectives", *Journal of Vocational Behavior*, Vol. 40 No. 1, pp. 33–48.
- Bender, K. A., Donohue, S. M., and Heywood, J. S. (2005), "Job satisfaction and gender segregation", *Oxford Economic Papers*, Vol. 57 No. 3, pp. 479–496.
- Bhave, D. P. and Glomb, T. M. (2016), "The role of occupational emotional labor requirements on the surface acting–job satisfaction relationship", *Journal of Management*, Vol. 42 No. 3, pp. 722–741.
- Bowen, D. E. and Ostroff, C. (2004), "Understanding HRM–firm performance linkages: The role of the 'strength' of the HRM system", *Academy of Management Review*, Vol. 29 No. 2, pp. 203–221.
- Bronkhorst, B., Tummers, L., Steijn, B. and Vijverberg, D. (2015), "Organizational climate and employee mental health outcomes: A systematic review of studies in health care organizations", *Health Care Management Review*, Vol. 40 No. 3, pp. 254–271.
- Cammann, C., Fichman, M., Jenkins, G. D. and Klesh, J. (1983), "Michigan Organizational Assessment Questionnaire", in Seashore, S. E., Lawler, E. E., Mirvis, P. H. and Cammann, C. (Eds), *Assessing Organizational Change: A Guide to Methods, Measures, and Practices*, Wiley-Interscience, New York.
- Clark, A. (1997), "Why are women so happy at work?", *Labour Economics*, Vol. 4, 341–372.

- 1
2
3 Clark, A., Oswald, A. and Warr, P. (1996), "Is job satisfaction U-shaped in age?", *Journal of*
4
5 Occupational and Organizational Psychology, Vol. 69 No. 1, pp. 57–81.
6
7 Dal Santo, L., Pohl, S. and Battistelli, A. (2013), "Emotional dissonance and job satisfaction: the
8
9 moderating role of organisational commitment and task significance", *Mediterranean Journal*
10
11 of Social Sciences, Vol. 4, No. 13, p. 691.
12
13
14 Deci, E. L. and Ryan, R. M. (1985), *Intrinsic Motivation and Self-Determination in Human*
15
16 *Behavior*, Plenum Publishing Co., New York, NY.
17
18
19 Deci, E. L. and Ryan, R. M. (2000), "Self-determination theory and the facilitation of intrinsic
20
21 motivation, social development, and well-being", *American Psychologist*, Vol. 55 No. 1, pp.
22
23 68–78.
24
25 Dwyer, D. J. and Ganster, D. C. (1991), "The effects of job demands and control on employee
26
27 attendance and satisfaction. *Journal of Organizational Behavior*, Vol. 12 No. 7, pp. 595–608.
28
29
30 Ekvall, G. (1996), "Organizational climate for creativity and innovation", *European Journal of Work*
31
32 and Organizational Psychology, Vol. 5 No. 1, pp. 105–123.
33
34 Festinger, L. (1957), "A Theory of Cognitive Dissonance", Stanford University Press: Stanford, CA.
35
36
37 Fiske, S. T. and Taylor, S. E. (2013), "Social Cognition: From Brains to Culture", Sage: Los
38
39 Angeles.
40
41 Grandey, A. A., Chi, N.-W. and Diamond, J. A. (2013), "Show me the money! Do financial rewards
42
43 for performance enhance or undermine the satisfaction from emotional labor?", *Personnel*
44
45 *Psychology*, Vol. 66, pp. 569-612.
46
47
48 Grant, A. (2010), Putting job design in context: Introduction to the special issue", *Journal of*
49
50 *Organizational Behavior*, Vol. 31 No. 2-3, 145–157.
51
52
53 Hackman, J. R. and Oldham, G. R. (1976), "Motivation through the design of work: Test of a
54
55 theory", *Organizational Behavior and Human Performance*, Vol. 16 No. 2, pp. 250–279.
56
57
58
59
60

- 1
2
3 Harmon-Jones, E. and Harmon-Jones, C. (2007), "Cognitive dissonance theory after 50 years of
4 development", *Zeitschrift für Sozialpsychologie*, No. 38, pp. 7–16.
5
6
7 Hinojosa, A. S., Gardner, W. L., Walker, H. J., Coglisier, C. and Gullifor, D. (2016), "A Review of
8 Cognitive Dissonance Theory in Management Research Opportunities for Further
9 Development", *Journal of Management*, Vol. 43 No. 1, pp. 170–199.
10
11
12 Holman, D., Frenkel, S., Sørensen, O. and Wood, S. (2009), "Work design variation and outcomes in
13 call centers: Strategic choice and institutional explanations", *Industrial and Labor Relations
14 Review*, Vol. 62 No. 2, pp. 510–532.
15
16
17 James, L. R., Choi, C. C., Ko, C. E., McNeil, P. K., Minton, M. K., Wright, M. A. and Kim, K.
18 (2008), "Organizational and psychological climate: A review of theory and research",
19
20
21
22
23
24
25
26
27
28
29
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31
32
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50
51
52
53
54
55
56
57
58
59
60
- James, L. R. and Jones, A. P. (1974), "Organizational climate: A review of theory and research",
Psychological Bulletin, Vol. 81, pp. 1096–1112.
- Johns, G. (2006), "The essential impact of context on organizational behavior", *Academy of
Management Review*, Vol. 31 No. 2, pp. 386–408.
- Johns, G. (2010), "Some unintended consequences of job design", *Journal of Organizational
Behavior*, Vol. 31 No. 2-3, pp. 361–369.
- Kaplowitz, M. D., Hadlock, T. D. and Levine, R. (2004), "A comparison of web and mail survey
response rates", *Public Opinion Quarterly*, Vol. 68, 94–101.
- Karanika-Murray, M. and Michaelides, G. (2015), "Workplace design: Conceptualizing and
measuring workplace characteristics for motivation", *Journal of Organizational Effectiveness:
People and Performance*, Vol. 2 No. 3, pp. 1–22.
- Karasek, R. A. (2004), "An analysis of 19 international case studies of stress prevention through
work reorganization using the demand/control model", *Bulletin of Science, Technology and
Society*, Vol. 24 No. 5, pp. 446–456.

- 1
2
3 Karasek, R. A. and Theorell, T. (1990), *Healthy Work: Stress, Productivity and the Reconstruction of*
4
5 *Working Life*, Basic Books: New York.
6
7 Klein, K. J. and Kozlowski, S. W. J. (2000), *Multilevel Theory, Research, and Methods in*
8
9 *Organizations*, Jossey Bass, San Francisco, CA.
10
11 Kozlowski, S. W. and Doherty, M. L. (1989), "Integration of climate and leadership: Examination of
12
13 a neglected issue", *Journal of Applied Psychology*, Vol. 74 No. 4, 546–553.
14
15 Kristensen, T. S., Hannerz, H., Høgh, A. and Borg, V. (2005), "The Copenhagen Psychosocial
16
17 Questionnaire (COPSOQ), A tool for the assessment and improvement of the psychosocial
18
19 work environment", *Scandinavian Journal of Work, Environment and Health*, Vol. 31, pp.
20
21 438–449.
22
23 Lawler, E. E. (1986), "High involvement management", Jossey-Bass: San Francisco.
24
25 Lewin, K. (1939), "Field theory and experiment in Social psychology: Concepts and methods",
26
27 *American Journal of Sociology*, Vol. 44 No. 6, 868-896.
28
29 Liao, H. and Chuang, A. (2004), "A multilevel investigation of factors influencing employee service
30
31 performance and customer outcomes", *Academy of Management Journal*, Vol. 47 No. 1, pp.
32
33 41–58.
34
35 Liao, P.-Y. (2015), "The role of self-concept in the mechanism linking proactive personality to
36
37 employee work outcomes", *Applied Psychology: An International Review*, Vol. 64 No. 2, pp.
38
39 421–443.
40
41 Loher, B. T., Noe, R. A., Moeller, N. L. and Fitzgerald, M. P. (1985), "A meta-analysis of the
42
43 relation of job characteristics to job satisfaction", *Journal of Applied Psychology*, Vol. 70 No.
44
45 2, pp. 280–289.
46
47 Magnusson, D. and Magnusson, D. (Eds.) (2013). "Toward a psychology of situations: An
48
49 interactional perspective", Psychology Press.
50
51
52
53
54
55
56
57
58
59
60

- 1
2
3 Mesquita, B., Feldman Barrett L. and Smith, E. R. (2010), "The Mind in Context", The Guilford
4 Press: New York.
5
6
7 Morgeson, F. P. and Humphrey, S. E. (2006), "The Work Design Questionnaire (WDQ): Developing
8 and validating a comprehensive measure for assessing job design and the nature of work",
9
10 Journal of Applied Psychology, Vol. 91 No. 6, pp. 1321–1339.
11
12
13
14 Morgeson, F. P., Dierdorff, E. C. and Hmurovic, J. L. (2010), "Work design in situ: Understanding
15 the role of occupational and organizational context", Journal of Organizational Behavior, Vol.
16
17 31 No. 2–3, pp. 351–360.
18
19
20
21 Naumann, S. E. and Bennett, N. (2000), "A case for procedural justice climate: Development and
22 test of a multilevel model", Academy of Management Journal, Vol. 43 No. 5, pp. 881–889.
23
24
25 O'Reilly, C. A., Chatman, J. and Caldwell, D. F. (1991), "People and organizational culture: A
26 profile comparison approach to assessing person-organization fit", Academy of Management
27 Journal, Vol. 34 No. 3, pp. 487–526.
28
29
30
31
32 Parker, C. P., Baltes, B. B., Young, S. A., Huff, J. W., Altmann, R. A., Lacost, H. A. and Roberts, J.
33 E. (2003), "Relationships between psychological climate perceptions and work outcomes: A
34 meta-analytic review", *Journal of Organizational Behavior*, Vol. 24 No. 4, pp. 389–416.
35
36
37
38 Parker, S., Wall, T. and Cordery, J. (2001), "Future Work Design Research and Practice: Towards an
39 Elaborated Model of Work Design", Journal of Occupational and Organizational Psychology,
40
41 Vol. 74, pp. 413–440.
42
43
44
45 Podsakoff, P. M., MacKenzie, S. B. and Podsakoff, N. P. (2012), "Sources of method bias in social
46 science research and recommendations on how to control it", *Annual Review of Psychology*,
47
48 Vol. 65, 539–569.
49
50
51
52 Pugh, S. D. Groth, M. and Hennig-Thurau, T. (2011), "Willing and able to fake emotions: a closer
53 examination of the link between emotional dissonance and employee well-being", Journal of
54
55 Applied Psychology, Vol. 96 No. 2, pp. 377–390.
56
57
58
59
60

- 1
2
3 R Core Team (2014), "The R Project for Statistical Computing", available at: [http://www.R-](http://www.R-project.org/)
4 [project.org/](http://www.R-project.org/) (accessed 11 August 2016).
5
6
7
8 Rousseau, D. M. and Fried, Y. (2001), "Location, location, location: Contextualizing organizational
9 research", *Journal of Organizational Behavior*, Vol. 22 No. 1, pp. 1–13.
10
11
12 Samnani, A. (2013), "The early stages of workplace bullying and how it becomes prolonged: The
13 role of culture in predicting target responses", *Journal of Business Ethics*, Vol. 113 No. 1, pp.
14 119–132.
15
16
17
18 Schneider, B. (1975), "Organizational climates: An essay", *Personnel Psychology*, Vol. 28, 447–479.
19
20
21 Schneider, B., González-Romá, V., Ostroff, C. and West, M. A. (2017), "Organizational climate and
22 culture: Reflections on the history of the constructs", *Journal of Applied Psychology*, Vol.
23 102 No. 3, pp. 468–482.
24
25
26
27 Schyns, B., van Veldhoven, M. and Wood, S. (2009), "Organizational climate, relative psychological
28 climate and job satisfaction: The example of supportive leadership climate", *Leadership and*
29 *Organization Development Journal*, Vol. 30 No. 7, pp. 649–663.
30
31
32
33
34 Siemsen, E., Roth, A. and Oliveira, P. (2010), "Common method bias in regression models with
35 linear, quadratic, and interaction effects", *Organizational Research Methods*, Vol. 13 No. 3,
36 pp. 456–476.
37
38
39
40
41 Simon, D., Snow, C. J. and Read, S. J. (2004), "The redux of cognitive consistency theories:
42 evidence judgments by constraint satisfaction", *Journal of Personality and Social Psychology*,
43 Vol. 86 No. 6, pp. 814–837.
44
45
46
47 Sowinski, D. R., Fortmann, K. A. and Lezotte, D. V. (2008), "Climate for service and the moderating
48 effects of climate strength on customer satisfaction, voluntary turnover, and profitability",
49 *European Journal of Work and Organizational Psychology*, Vol. 17 No. 1, pp. 73–88.
50
51
52
53
54 Spector, P. E. (1986). "Perceived control by employees: A meta-analysis of studies concerning
55 autonomy and participation at work", *Human Relations*, Vol. 39 No. 11, pp. 1005–1016.
56
57
58
59
60

- 1
2
3 Van der Doef, M. and Maes, S. (1999), "The job demand-control (-support) model and psychological
4 well-being: a review of 20 years of empirical research", *Work & Stress*, Vol. 13 No. 2, pp.
5 87–114.
6
7
8
9
10 Van Wanrooy, B., Bewley, H., Bryson, A., Forth, J., Freeth, S., Stokes, J. and Wood, S. (2013),
11 "Employment Relations in the Shadow of the Recession", Palgrave Macmillan: Basingstoke,
12 UK.
13
14
15
16 Visser, D. and Coetzee, S. (2005), "Affective-cognitive consistency of attitude as a moderator of
17 the job satisfaction-performance relationship", *SA Journal of Industrial Psychology*, Vol. 31
18 No. 3, pp. 62.
19
20
21
22
23 Wickham, H. (2009), "ggplot2: Elegant Graphics for Data Analysis", Springer: New York.
24
25
26 Wrzesniewski, A. and Dutton, J. E. (2001), "Crafting a job: Revisioning employees as active crafters
27 of their work", *Academy of Management Review*, Vol. 26 No. 2, pp. 179-201.
28
29
30 Zohar, D. (2002), "The effects of leadership dimensions, safety climate, and assigned priorities on
31 minor injuries in work groups", *Journal of Organizational Behavior*, Vol. 23 No. 1, pp. 75–
32 92.
33
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Table 1. ICC1 Values for individual, workplace and organizational levels

	Individual level	Workplace level	Organizational level
Job demands	.74	.10	.02
Job control	.69	.09	.01
Autonomy climate	.66	.09	.02
Competence climate	.78	.09	.02
Relatedness climate	.69	.07	.02
Job satisfaction	.73	.07	.02

Table 2. Means, standard deviations and correlations between continuous variables

	<i>M(SD)</i>	1	2	3	4	5	6	7	8
1. Age	43.11 (10.45)								
2. Organizational tenure	10.96 (9.22)	.46***							
3. Job tenure	4.94 (5.27)	.32***	.47***						
4. Job demands	3.24 (0.8)	.13***	.11***	.04***					
5. Job control	3.89 (0.77)	.04***	.04***	-.03**	-.04**				
6. Autonomy climate	5.45 (1.04)	.04**	.04***	-.03*	-.07***	.76***			
7. Competence climate	4.36 (1.47)	-.02*	-.05***	-.12***	-.20***	.42***	.48***		
8. Relatedness climate	5.42 (1.04)	.00	-.01	-.03**	-.12***	.39***	.43***	.59***	
9. Job satisfaction	5.12 (1.44)	.03*	-.03**	-.07***	-.19***	.40***	.45***	.58***	.51***

Note. $N=7403$. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Table 3. Direct and interaction effects of job design and psychological climate on job satisfaction

	Model 1			Model 2			Model 3			Model 4		
Fixed effects	<i>B</i>	<i>SE</i>		<i>B</i>	<i>SE</i>		<i>B</i>	<i>SE</i>		<i>B</i>	<i>SE</i>	
Intercept	5.12	0.11	***	5.04	0.10	***	5.02	0.08	***	5.05	0.08	***
Time	-0.07	0.01	***	-0.07	0.01	***	-0.06	0.01	***	-0.06	0.01	***
Manager (No)	0.19	0.04	***	0.14	0.04	***	0.09	0.03	**	0.09	0.03	**
Age	0.01	0.00	**	0.01	0.00	***	0.01	0.00	***	0.01	0.00	***
Gender (Male)	0.20	0.05	***	0.16	0.04	***	0.14	0.04	***	0.14	0.04	***
Negative event (No)	0.17	0.03	***	0.15	0.03	***	0.09	0.03	***	0.09	0.03	***
Organizational tenure	-0.01	0.00	*	-0.01	0.00	**	-0.01	0.00	**	-0.01	0.00	**
Job tenure	-0.01	0.00	***	-0.01	0.00	***	-0.01	0.00	*	-0.01	0.00	*
Job demands				-0.18	0.02	***	-0.12	0.01	***	-0.11	0.01	***
Job control				0.42	0.02	***	0.17	0.02	***	0.16	0.02	***
Autonomy climate							0.14	0.02	***	0.13	0.02	***
Competence climate							0.43	0.02	***	0.43	0.02	***
Relatedness climate							0.22	0.02	***	0.22	0.02	***

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Job demands * Autonomy climate										0.03	0.01	*
Job control * Autonomy climate										0.00	0.01	
Job demands * Competence climate										0.05	0.02	***
Job control * Competence climate										-0.04	0.02	*
Job demands * Relatedness climate										-0.04	0.01	*
Job control * Relatedness climate										0.00	0.01	

Random effects	Var	SD	r	Var	SD	r	Var	SD	r	Var	SD	r
Individuals – Intercept	1.42	1.19		1.05	1.02		0.71	0.84		0.71	0.84	
Individuals – Time	0.04	0.19	-.09	0.03	0.19	-.05	0.03	0.18	-.15	0.03	0.18	-.14
Workplaces – Intercept	0.02	0.16		0.03	0.18		0.09	0.30		0.09	0.29	
Residual	0.51	0.71		0.50	0.71		0.48	0.69		0.47	0.69	
Log likelihood (REML)	-11509.84 (df= 13)			-11091.24 (df= 15)			-10461.55 (df= 18)			-10465.32 (df= 24)		
Log likelihood (ML)	-11481			-11056			-10416			-10399		
$\Delta\chi^2$				851.25*** (df= 2)			1279.77*** (df= 3)			33.54*** (df= 6)		
AIC	22989			22142			20868			20846		

Note. $N_{\text{observations}} = 7403$, $N_{\text{individuals}} = 3587$, $N_{\text{workplaces}} = 231$; * $p < .05$, ** $p < .01$, *** $p \leq .001$.

Figure 1. Effects of demands on job satisfaction for high, medium and low values of autonomy, competence and relatedness climate (-2, 0, and 2 SD from 0)

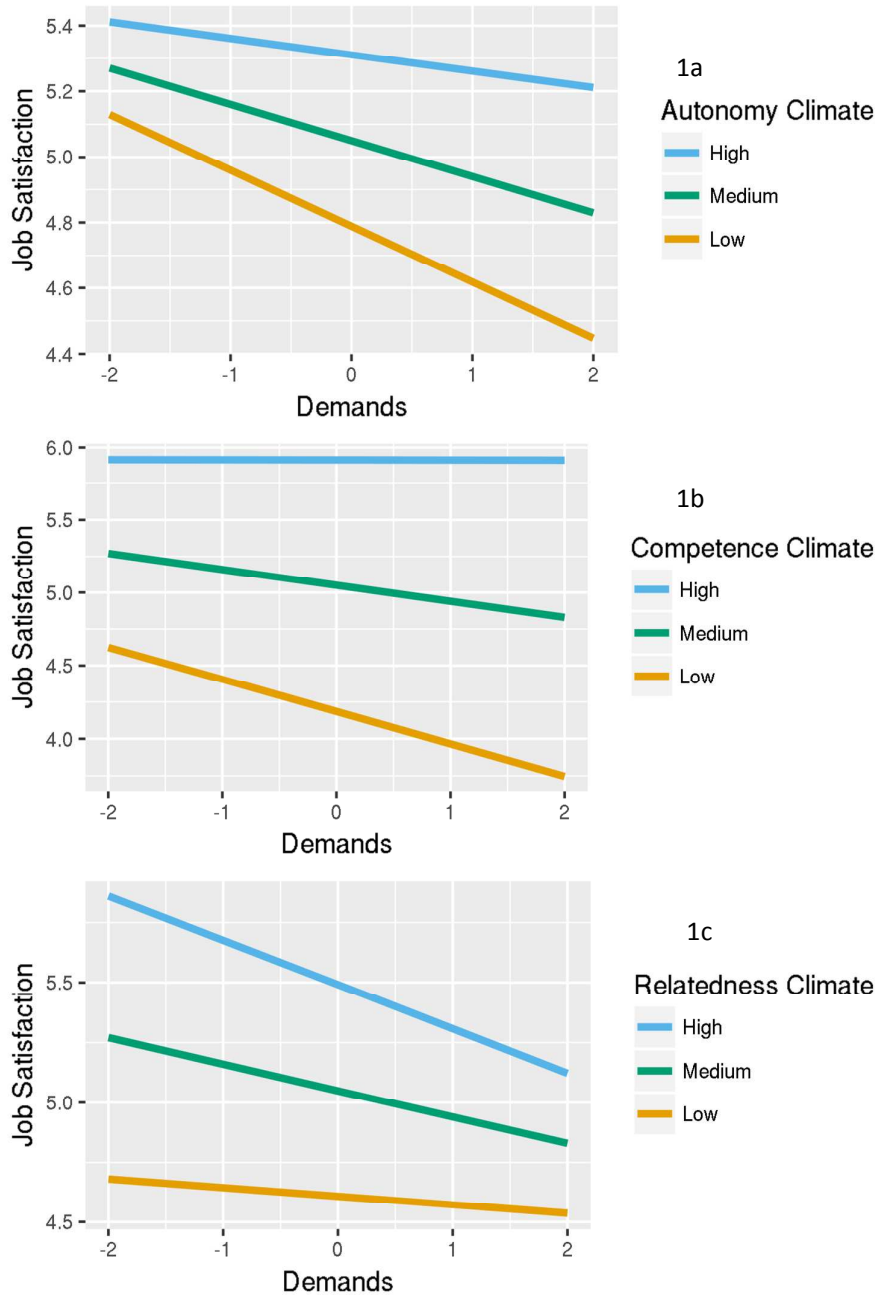
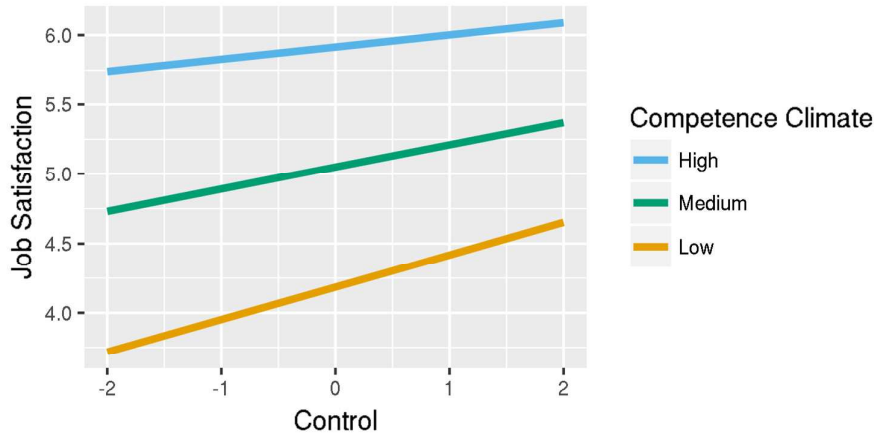


Figure 2. Effects of control on job satisfaction for high, medium and low values of competence climate (-2, 0, and 2 SD from 0)



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