

Sources of job stress and cognitive receptivity to change: the moderating role of job embeddedness

Chetty, P.J.J.; Coetzee, M.; Ferreira, N.

Abstract

Scholars interested in investigating individual-level concerns relevant to organisational change programmes have reported the importance of employees' psychological processes and characteristics in understanding their reactions and attitudes towards change. The study explored the moderating role of job embeddedness in the association between experiences of sources of job stress and cognitive receptivity to change. A cross-sectional survey was conducted with a sample (N = 350) of employees undergoing change in the South African fast moving consumer goods (FMCG) sector (black African: 67%; males: 69%; 26-40 years: 67%). Correlations and hierarchical moderated regression analysis showed that the participants' experiences of job-related sources of stress and their cognitive receptivity to change were stronger when their job embeddedness was low. The findings may potentially inform the planning of change initiatives within organisations. The results of the study emphasise the importance of considering job-related sources of stress and employees' job embeddedness in order to gain employee support for organisational change initiatives.

Keywords: Sources of work stress, cognitive receptivity to change, job embeddedness, fit, links, sacrifice, organisational change.

In today's workplace, change has become part of the organisation's strategy to survive in an increasingly globalised context characterised by high levels of competition and changing demand patterns in the market (Cullen, Edwards, Casper, & Gue, 2014; Pasmore, 2011). The world of work is changing at a very fast pace (Cullen et al., 2014). The need for innovation from a technological and socio-economic perspective is putting pressure on organisations to continuously adapt and change within this climate (Cullen et al., 2014; Worley & Mohrman, 2014). The demands employees face within organisations (job insecurity, changes in job role, pressure on the employee to upskill, work overload,

unstable relationships, lack of career advancement opportunities and poor work autonomy) has therefore become a current reality. These factors remain significant sources of job stress for the employee (Coetzee & De Villiers, 2010; Rothmann, 2014).

Research has consistently found that high levels of work stress result in many individual and organisational issues such as lower motivation, productivity, absenteeism, and turnover intention (Coetzee & De Villiers, 2010; Crawford, LePine, & Rich, 2010; Dahl, 2011; Rothmann, 2014) that stem from negative attitudes towards organisational change initiatives (Vakola & Nikolaou, 2005). Scholars interested in investigating individual-level concerns relevant to organisational change programmes have reported the importance of employees' psychological processes and characteristics in understanding their reactions and attitudes towards change (Cullen et al., 2014; Elias, 2009; Vakola & Nikolaou, 2005). A review of the psychological and organisational behaviour literature points out that the thoughts and beliefs about change shape individuals' behaviour in either supporting or resisting sustainable organisational change (Antoni, 2004; Elias, 2009). Considering that the success of organisational change initiatives are dependent upon the change recipient's receptivity to and support of the change effort, insight in the psychological factors that influence change receptivity has become of interest to scholars in the change management field (Chetty, 2015; Cullen et al., 2014; Elias, 2009; Kiecker & Loadman, 1999).

This study contributes to the discipline of psychology by exploring how the experiences and perceptions of individuals undergoing organisational change influence their receptivity to change. More specifically, the study explores the interaction between experiences of sources of job stress and perceptions of job embeddedness (i.e. the perceived links to people on-the-job; the perceived fit with their jobs; and the things they have to sacrifice if they were to leave their jobs: Mitchell, Holtom, Lee, Sablinski, & Erez, 2001; Mitchell & Lee, 2001) in predicting positive cognitive receptivity to change. In the present study, sources of job stress are regarded as antecedents that explain cognitive receptivity to change, and job embeddedness as the moderator of the association between these variables. Job embeddedness represents important cognitive orientations toward the job and organisation which in the case of low job embeddedness significantly predict behavioural intentions such as turnover, lower motivation, trust, commitment and engagement, and counterproductive workplace behaviour (Holtom & Interrieden, 2006;

Mitchell et al., 2001; Ng & Feldman, 2013; Takawira, Coetzee, & Schreuder, 2014; Tebele & Coetzee, 2014; Van Dyk, Coetzee, & Tebele, 2013). The aim of the study was therefore to explore whether the relationship between experiences of sources of job stress and cognitive receptivity to change is stronger or more positive when the job embeddedness of individuals who are undergoing change is low. Although sources of job stress, job embeddedness and attitudes toward change have been studied in the change context, information regarding how these variables may function together is still lacking (Chetty, 2015). Understanding the moderating role of job embeddedness in either strengthening or weakening the association between experiences of job stress and cognitive receptivity to change may potentially advance our theoretical understanding of individuals' psychological orientations in a change context and improve our ability to offer recommendations to practitioners seeking to promote change-supportive employee behaviour.

The relationship between sources of job stress, job embeddedness and cognitive receptivity to change

Job stress is a consequence of the dynamic transaction between the individual and the work environment, and the latter being appraised as threatening or challenging (Lazarus, 1999). Within the context of organisational change, the individual is likely to experience job-related stress when there is a perception of threat and an inability to cope (Hobfoll, 2002; Lau & Woodman, 1995). This is referred to as the judgement process, where, in terms of the conservation of resources theory (Hobfoll, 2002), the individual perceives that current conditions in the work environment are exceeding their resources (Hobfoll, 2002) thus resulting in them either resisting or supporting organisational change (Chetty, 2015). Conservation of resources theory postulates that individuals will strive to protect their resources (i.e. for example, role clarity, positive relations, job security, job autonomy and career growth/advancement opportunities) against loss which may result in them being more receptive to change that are seen as beneficial in helping them to obtain or protect resources (Chetty, 2015)

Scholars have identified various commonly experienced sources of job stress that negatively influence their wellbeing at work. These common sources of job stress include job/role ambiguity, work relationships, job tools and equipment, career advancement

prospects, job security and lack of job autonomy(Coetzee & De Villiers, 2010; De Bruyn & Taylor, 2006; Rothmann, 2014).

- *Job/role ambiguity:* This source of job stress relates to the amount of stress experienced by an employee owing to vague direction or constant change regarding the performance expectations, duties, responsibility and constraints that define his or her job.
- *Work relationships:* This source of job stress relates to poor or unsupportive relationships with colleagues and/or line managers, isolation (a perceived lack of adequate relationships) and unfair treatment.
- *Job tools and equipment:* In order to perform their jobs effectively, individuals need to feel they have the appropriate training, resources and equipment.
- *Career advancement prospects:* This source of job stress relates to the stress experienced by individuals as a result of a perceived lack of opportunity to further their career prospects in the organisation for which they work.
- *Job security:* Is an overall concern of losing one's job or the discontinuation of one's job. It also implies uncertainty about the future.
- *Lack of job autonomy:* The experience of stress is strongly linked to perceptions of decision-making authority and control. This may be due to either job constraints or workplace constraints. When there is great interdependence between the person's tasks and the tasks of others, the person is likely to experience stress.

These sources of work stress need to be considered when the organisation changes strategy in order to ensure successful change outcomes (Chetty, 2015). Research has shown important links between high levels of job stress associated with these sources of job stress and negative organisational outcomes such as low engagement and motivation, poor productivity, and negative attitudes toward the job (Coetzee & De Villiers, 2010; Rothmann, 2014).

Research suggests that individuals who experience low levels of work stress are likely to remain embedded in the organisation (Bennett & Durkin, 2000; Feldman & Ng, 2007;

Mitchell et al., 2001; Vakola & Nikolaou, 2005). However, more clarity is needed in terms of how individuals' experiences of the various sources of job stress relate to their job embeddedness, that is, their perceptions or cognitive orientations toward a wide range of forces or connectors that influence their decision to remain with the organisation and/or community (Holtom, Mitchell & Lee, 2006). These forces or connectors keep an individual bound to or embedded in his or her organisation and/or community in a social, financial, psychological system which includes on-the-job factors and off-the-job factors (Holtom et al., 2006). On-the-job factors include bonds or links with work peers, the fit (perceived compatibility) between employees' skills and values in relation to the job and organisation, and the sacrifices that employees would have to make in giving up their jobs (Mitchell & Lee, 2001). Off-the-job factors include family, community and personal commitments (Mitchell et al., 2001). It is assumed that within the context of organisational change, an individual's perceptions of links, fit and sacrifice must be considered as these are the factors that will influence whether or not the individual remains with the organisation during times of change or in conditions relating to work-related stress (Chetty, 2015).

The notion of job embeddedness explains why employees stay in their jobs despite opportunities presenting themselves elsewhere (Feldman & Ng, 2007; Mitchell et al., 2001). Links denote formal or informal bonds between an employee, and organisation or other people in the community. The higher the number of links between the employee and the organisation or community, the more an employee feels bound to the job and the organisation or community. Employees might consider leaving the organisation if the perceived change result in dissolving important bonds with others (Chetty, 2015; Mitchell et al., 2001). Employees who perceive a good fit between their personal goals, values and skills and the organisation and job, is more likely to stay with an organisation. Organisational change may be evaluated in terms of whether the change will affect the perceived fit or compatibility of individual goals and values and the organisation (Chetty, 2015; Mitchell & Lee, 2001). O'Reilly and Chatman (1986) found that a misfit with employee and organisational values leads to higher levels of voluntary turnover. Apart from links and fit, employees also consider what they have to sacrifice in terms of the perceived cost of material or psychological benefits that may be forfeited (such as for example, giving up strong relationships or bonds with peers or an interesting project or

promotion) by leaving the job or community. The more an employee would need to give up or sacrifice when leaving, the more difficult it would be to leave the organisation and/or community (Mitchell et al., 2001). Understanding how employees' job embeddedness influence their cognitive receptivity to organisational change is important in the light of research showing that high job embeddedness relates to innovation-related behaviours that support positive organisational change (i.e. generating new ideas, sharing ideas with peers and working to execute those innovations) (Ng, Feldman, & Lam, 2010). Moreover, high levels of job embeddedness were shown to serve as a moderator or mediator to stress arising from organisational dissatisfaction in the workplace (Holtom et al., 2006).

Representing cognitive orientations (perceptions) of being bound or not bound by an organisation or job, individuals' job embeddedness may predict their cognitive receptivity to change (Chetty, 2015). Understanding what people think about organisational change is important because their cognitions inform what they feel and do when experiencing change (Dunham, Grube, Gardner, Cummings, & Pierce, 1989). Research has shown that an employee evaluates change through his or her perceptual filters and their subjective judgment of the change makes them decide how to react to the change. For example, individuals who perceive the change to mutually benefit them and the organisation, are more likely to support the change initiative. Similarly, if the change is perceived to be a threat in any way, resistance by the employee is likely to arise (Chiang, 2010; Fugate, Prussia, & Kinicki, 2012; Lau & Woodman, 1995). Employees' attitudes towards change present themselves as challenges to the organisation. Thoughts, feelings and behaviour toward change are seen to range on a continuum from strong positive attitudes (readiness for change) to strong negative attitudes (resistance to change) (Bouckenoghe, 2009; Choi, 2011; El-Farra & Badawi, 2012; Piderit, 2000). In the context of the present study, individuals who perceive change to benefit the organisation and its members are cognitively receptive toward change, that is, they are cognitively ready for the change, and have positive beliefs and thoughts about the organisational change initiative (Dunham et al., 1989; Elias, 2009; Kiecker & Loadman, 1999). Employees who perceive the change as meaningful and beneficial (positive cognitive receptivity) generally believe that it benefits them; they tend to feel positive about supporting the change and will increase their work efficiency in support of the organisational change (Chetty, 2015).

The aim of the study was to explore whether the relationship between experiences of sources of job stress and cognitive receptivity to change is stronger or more positive when the job embeddedness of individuals who are undergoing change is low. In the present study it was expected that individuals with low job embeddedness would exhibit higher cognitive receptivity to change because they would feel less bound by the organisation or job. Individuals with high levels of job embeddedness may perceive organisational change as a potential threat to their current boundedness relating to aspects of their ties/links with peers, fit with the job and what they have to potentially sacrifice as a result of the change. They may therefore exhibit more negative attitudes (less cognitive receptivity) toward the change initiative. It was further expected that the relationship between individuals' experiences of job-related sources of stress (i.e. job/role ambiguity, relationships, job tools and equipment, career advancement prospects, job security, lack of job autonomy) and their receptivity to change would be stronger when their job embeddedness was low than when their job embeddedness was high.

Method

Participants

The participants comprised a non-probability purposive sample (N = 400) of full time employees who were affected by organisational change at the time of the study. The sample was taken from a single company in the South African fast moving consumer goods (FMCG) sector. Only 350 questionnaires were identified as useable, i.e. fully completed with no missing data; thus yielding a final sample of n = 350 (response rate = 88%). The participants were represented by mostly black African people (67%) and white people (33%), and males (69%) and females (31%) in the establishment stage of their careers (26 – 40 years: 67.4%). The age range was 25 to 56 years (Mean = 40.59; SD = 9.38). The sample comprised participants at managerial (32%) and staff (68%) level positions in the organisation.

Measuring instruments

Sources of job stress. The Sources of Job Stress Scale (SJS) developed by Coetzee and De Villiers (2010) was used to measure the participants' experiences of stress in terms of specific sources of job stress. The scale utilizes a five-point response format (1 = none at

all; 5 = *very much*) to measure individuals' experiences of six sources of job stress (e.g. "how much do the following aspects contribute to stress at work for you: job/role ambiguity; relationships; job tools and equipment; career advancement prospects; job security; and lack of job autonomy"). Coetzee and De Villiers (2010) reported an internal consistency reliability of $\alpha = .79$ for the scale. In terms of the present study, the reliability of the overall scale was .89.

Job embeddedness. The participants' job embeddedness was measured by the Job Embeddedness Questionnaire (JEQ) developed by Mitchell et al (2001). The JEQ measures job embeddedness on 21-items that assess the extent to which people have links to people on-the-job (e.g. "I have close links with many people in this organization": 4 items); the extent to which they feel they fit or are a good match with their jobs (e.g. *I feel I am a good match for this company*": 7 items), and the ease with which they would have to give up or sacrifice things if they were to leave their jobs (e.g. "I would sacrifice a lot if I left this job": 10 items). The scale utilizes a six-point response format (1 = *strongly disagree*; 6 = *strongly agree*). Internal consistency reliabilities ranging between $\alpha = .65$ and $\alpha = .88$ are reported for the scale (Mitchell et al., 2001). In terms of the present study, the overall reliability of the scale was .91.

Cognitive receptivity to change. The participants' cognitive receptivity to change was measured by the Attitudes toward Change Questionnaire (ACQ) developed by Dunham et al. (1989). The cognitive attitude toward change subscale was used for the purposes of the present study. The subscale utilizes 6 items to assess the degree to which participants have cognitive receptivity or positive thoughts (e.g. "I look forward to change at work"; "Change usually helps improve unsatisfactory situations at work"; "I usually benefit from change") toward change in the organisation (Dunham et al., 1989). The ACQ utilizes a five-point response format (1 = *strongly agree*; 5 = *strongly disagree*). Dunham et al (1989) reported an internal consistency reliability of .89 for the scale. In the present study, the cognitive subscale obtained a reliability coefficient of .87.

Ethical considerations and procedure

Ethical clearance to conduct the research was obtained from the research institution (University of South Africa) while permission for the research was obtained from the

management of the FMCG sector. The participants were invited to voluntarily participate in the study. The questionnaires were manually distributed and collected by one of the researchers. Each questionnaire included a cover letter inviting respondents to participate voluntarily in the study and assuring them that their individual responses would remain anonymous and confidential. The cover letter also stated that completing the questionnaires and returning them constituted agreement to use the results for research purposes only.

Statistical analysis

Descriptive, correlation and inferential statistics (stepwise hierarchical moderated regression analysis) were used to analyse the data. Following the guidelines of Aiken and West (1991), predictor variables were mean-centered before computing the interaction terms. This approach also helped to minimise concerns about multi-collinearity. Regression models were computed on each of the six sources of job stress (independent variables) in relation to cognitive receptivity to change (dependent variable) in order to assess the moderating effect of job embeddedness. In order to counter the probability of a type 1 error, the significance value was set at the 95% confidence interval level ($p \leq .05$). For the purposes of this study, Cohen's (1992) f^2 effect sizes were calculated for establishing the practical significance of the ΔR^2 values.

In order to examine the nature of the significant interactions for the relationship between the sources of job stress variables and cognitive receptivity to change, a series of simple slope tests for each of the regression models which showed significant interaction effects were conducted. Rescaled mean-centered values as outlined by Aiken and West (1991) were used. The zero values for the job embeddedness variable in each regression model were set at one standard deviation above and below the mean for participants with high and low scores respectively.

Results

Descriptive statistics

The means, standard deviations, internal consistency reliabilities, and bi-variate correlations are reported in Table 1. The range of the zero-order correlations among the variables are between $r \geq -.33$ and $r \leq .68$ ($p \leq .01$; moderate to large practical effect). These values are all well below the level of multi-collinearity concerns ($r \geq .80$). Job embeddedness had significant negative associations with the sources of job stress and cognitive receptivity to change variables. The sources of job stress variables correlated significantly and positively with cognitive receptivity to change.

<insert Table 1 approximately here>

Moderating regression analysis

Six moderated regression analysis were performed, one for each of the six sources of job stress variables. All six models were significant and, in terms of main effects, indicated the sources of job stress variables as positive predictors and the job embeddedness variable as a negative predictor of cognitive receptivity to change.

In terms of interaction (moderating) effects, Table 2 shows that the job/role ambiguity by job embeddedness product term was statistically significant ($\beta = -.12$; $p \leq .01$) The R^2 change was significant ($\Delta R^2 = .02$; $f^2 = .07$; $F = 86.63$; $p \leq .001$; small practical effect). Figure 1 plots this relationship and shows that the relationship between job/role ambiguity and the cognitive receptivity to change was stronger when job embeddedness was low. For participants with low levels of job embeddedness, their experiences of job/role ambiguity increased as their cognitive receptivity to change increased. Participants who had low job embeddedness and who scored high on job/role ambiguity had also significantly higher scores than the high job embeddedness participants on cognitive receptivity to change.

<insert Table 2 approximately here>

.....

Insert figure 1 approximately here

.....

A similar pattern was observed in terms of regression model 4 (career advancement prospects), model 5, (job security) and model 6 (lack of job autonomy). Table 2 shows

that the R^2 change of each of these models was significant ($\Delta R^2 = .02 - .03$; $f^2 = .04 - .08$; $p \leq .001$; small practical effect). Figure 2 (career advancement prospects), figure 3 (job security) and figure 4 (lack of job autonomy) show in each case that the relationship between these three sources of job stress and cognitive receptivity to change was stronger when job embeddedness was low. In each of these three models, the participants with low job embeddedness had significant higher stress experiences regarding their career advancement prospects, job security and lack of job autonomy which related to significantly higher receptivity to change than those participants who had high levels of job embeddedness.

.....

Insert figure 2 approximately here

.....

.....

Insert figure 3 approximately here

.....

.....

Insert figure 4 approximately here

.....

Discussion

The study explored the moderating role of job embeddedness in the sources of job stress-cognitive receptivity to change relationship. The study involved a group of participants who were undergoing organisational change at the time of the study. It was expected that the relationship between the participants' experiences of job-related sources of stress (i.e. job/role ambiguity, relationships, job tools and equipment, career advancement prospects, job security, lack of job autonomy) and their receptivity to change would be stronger when their job embeddedness was low than when their job embeddedness was high.

The results showed that the relationship between the participants' experiences of only four of the six job-related sources of stress (i.e. job/role ambiguity, career advancement prospects, job security and lack of job autonomy) and their receptivity to change was stronger when their job embeddedness was low than when their job

embeddedness was high. This finding regarding the interaction effect between the sources of job stress and job embeddedness are in agreement with research showing that high levels of stress experiences regarding these four sources of job stress generally affect individuals' psycho-emotional wellbeing and flourishing at work (Rothmann, 2014) which could have contributed to the stronger receptivity for change in the organisation. The four sources of job stress relate to the degree of stress experienced owing to (1) change and vagueness in performance expectations, duties, responsibilities and constraints that define the job (job/role ambiguity), (2) perceived lack of opportunity to further prospects in the organisation (career advancement), (3) concern of losing one's job or the discontinuation of one's current job (job security) and (4) perceptions of losing autonomy regarding decision-making and control with perceived greater interdependency between one's tasks and those of others (job autonomy) (Coetzee & de Villiers, 2010). In line with the reasoning of Dunham et al. (1989) and Elias (2009), the strong relationship between high levels of job-related stress and positive cognitive receptivity to change could be attributed to the likelihood that the participants held the belief that the organisational change may mutually benefit them and the organisation and bring positive change regarding the job (thus, positively address the job-related stress). The stronger levels of cognitive receptivity to change reflect a belief that the change will benefit the organisation and the individual and help to improve unsatisfactory situations at work (Chetty, 2015; Dunham et al., 1989).

The low levels of job embeddedness associated with the four sources of job stress and the more positive attitude toward change (high cognitive receptivity to change) could be attributed to the nature of the job-related stress associated with these sources. Low job embeddedness implies a perceived lack of fit between the individuals' goals, values and skills and those of the organisation, lack of strong links and little to sacrifice should one decide to leave the organisation (Mitchell et al., 2001) which could explain the higher level of openness toward organisational change. However, low job embeddedness has also been associated with higher levels of voluntary turnover (O'Reilly & Chatman, 1986; Mitchell et al., 2001; Takawira et al., 2014), suggesting that the participants with low levels of job embeddedness and high levels of job-related stress might also be open toward change internal or external to the organisation. On the other hand, the less strong relationship between high levels of job stress and cognitive receptivity to change (that is, more negative attitude toward organisational change) due to high job embeddedness corroborates

research showing that high job embeddedness function as a buffer for stress arising from organisational dissatisfaction in the workplace (Holtom et al., 2006). It appears from the findings that the participants with high job embeddedness were more likely to view the organisational change as negative and less beneficial due to their current sense of boundedness to the organisation and job (links and fit) and the perceived sacrifices they would have to make due to the change.

Although relationships and job tools and equipment significantly predicted cognitive receptivity to change and were negatively related to the participants' job embeddedness, their job embeddedness did not appear to influence the relation between these sources of job stress and their receptivity to change. The findings regarding the interaction between relations and job embeddedness seem counterintuitive and unexpected due the theoretical association between relations as a source of job stress and links with peers on-the-job (Coetzee & de Villiers, 2010; Mitchell et al., 2001). However, this research only explored the overall construct of job embeddedness which limits the possibility to identify the contributing factors to this finding.

Implications for psychological theory and practice

The findings of the study provided evidence for the need to assess the sources of individuals' experiences of job-related stress, and their job embeddedness and attitudes towards change in order to manage successful change outcomes. Overall, the study contributed to understanding psychological states that explain change-supportive employee behaviour in the South African organisational context. The results suggest that individuals are likely to be more supportive of organisational change when they experience high levels of job-related stress and low job embeddedness. Research by Chetty (2015) showed that individuals who experience high job-related stress are likely to exhibit low levels of job embeddedness.

Perceptions of low job embeddedness have been associated with turnover intention (Takawira et al., 2014) which signals receptivity to change internal and external to the organisation. Change generally imposes a threat to the employment relationship and as a consequence the individual is likely to feel less embedded in the organisation (Chetty, 2015). Individuals may feel that their fit or congruency to the organisation is being compromised thus the individual may attach very little value to the sacrifice he or she

would need to make should they decide to leave the organisation. Mitchell et al (2001) indicated that fit and sacrifice are two components that would retain an individual in the organisation, thus organisations undergoing change should strive to understand the job embeddedness of their employees and how this is influenced by job-related sources of stress. Organisations who embark on change programmes and who strive to retain valuable talent, should address the job-related aspects explored in this study because of its negative consequences for the psycho-emotional wellbeing and psychological embeddedness of employees. Individuals who are exposed to a working environment that manages stressors such as job/role ambiguity, career advancement prospects, job security and lack of job autonomy are more likely to promote positive attitudes towards change. In addition, an individual's job embeddedness if properly understood and managed will assist organisations in retaining and keeping individuals positively engaged during change.

Concluding remarks

The results of the study emphasise the importance of considering job-related sources of stress and employees' job embeddedness in order to gain employee support for organisational change initiatives. In this regard, the findings of the present study may potentially inform the planning of change initiatives within organisations.

The conclusions about the findings of the study need to be considered in light of a number of limitations, each suggestive of promising directions in the area of research on employees' sources of job stress, job embeddedness and cognitive receptivity to change. The study was limited to the FMCG sector and to a predominant sample of early-career African and male participants. The findings can therefore not be generalised to other occupational, age, race and gender contexts. Replication studies, using independent samples drawn from other occupational sectors are recommended. Due to the cross-sectional nature of the research, future studies should involve larger samples and assess changes in receptivity to change over time.

Notwithstanding these limitations, the present study presented an important perspective on the role of job embeddedness in the organisational change context, and especially the interaction between employees' experiences of job-related stress and their job embeddedness in relation to their cognitive receptivity toward change.

Declaration of conflicting interests

We hereby declare that we have no conflict of interest and that the manuscript has not been submitted else-where for either review or publication.

Funding

This research received no specific grant from any funding agency in the public, commercial, or non-profit sectors.

References:

- Aiken, L.S. & West, S.G. (1991). *Multiple regression: testing and interpreting interactions*. Newbury Park, CA: sage.
- Antoni, C.H. (2004). Research note: A motivational perspective on change processes and outcomes. *European Journal of Work and Organizational Psychology*, 13, 197-216.
- Bennett, H., & Durkin, M. (2000). The effects of organisational change on employee psychological attachment: An exploratory study. *Journal of Managerial Psychology*, 15(2), 126-146.
- Bouckenooghe, D. (2010). Positioning change recipients' attitudes toward change in the organizational change literature. *The Journal of Applied Behavioural Science*, 46(4), 500-531.
- Chetty, P.J.J. (2015). *Sources of work stress, psychological attachment and attitudes toward change: constructing a psychological profile for change interventions*. (Unpublished doctoral thesis). University of South Africa, Pretoria, South Africa.
- Chiang, C. F. (2010). Perceived organizational change in the hotel industry: An implication of change schema. *International Journal of Hospitality Management*, 29(1), 157-167.
- Choi, M. (2011). Employees' attitudes toward organizational change: A literature review. *Human Resource Management*, 50(4), 479-500.

- Coetzee, M., & De Villiers, M. (2010). Sources of job stress, work engagement and career orientations of employees in a South African financial institution. *Southern African Business Review*, 14(1), 27-57.
- Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychological Bulletin*, 112(1), 153-159.
- Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: a theoretical extension and meta-analytic test. *Journal of Applied Psychology*, 95(5), 834.
- Cullen, K.L., Edwards, B.D., Casper, W.C., & Gue, K.R. (2014). Employees' adaptability and perceptions of change-related uncertainty: implications for perceived organizational support, job satisfaction and performance. *Journal of Business and Psychology*, 29, 269-280.
- Dahl, M. S. (2011). Organizational change and employee stress. *Management Science*, 57(2), 240-256.
- De Bruyn, G. P., & Taylor, N. (2006). *Sources of Work Stress Inventory: Technical manual*. Johannesburg. Retrieved from Jopie van Rooyen & Partners.
- Dunham, R.B., Grube, J.A., Gardner, D.G., Cummings, L.L., & Pierce, J.L. (1989). *The inventory of change in organizational culture*. Madison, WI: Authors.
- El-Farra, M. M., & Badawi, M. B. (2012). Employee attitudes toward organizational change in the Coastal Municipalities Water Utility in the Gaza Strip. *EuroMed Journal of Business*, 7(2), 161-184.
- Elias, S. M. (2009). Employee commitment in times of change: Assessing the importance of attitudes toward organizational change. *Journal of Management*, 35(1), 37-55.
- Feldman, D. C., & Ng, T. W. (2007). Careers: Mobility, embeddedness, and success. *Journal of Management*, 33(3), 350-377.
- Fugate, M., Prussia, G. E., & Kinicki, A. J. (2012). Managing employee withdrawal during organisational change: The role of threat appraisal. *Journal of Management*, 38(3), 890-914.
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6(4), 307.

- Holtom, B. C., Mitchell, T. R., & Lee, T. W. (2006). Increasing human and social capital by applying job embeddedness theory. *Organisational Dynamics*, 35(4), 316-331.
- Holtom, B. C., & Inderrieden, E. J. (2006). Integrating the unfolding model and job embeddedness model to better understand voluntary turnover. *Journal of Managerial Issues*, 18, 435-452.
- Kiecker, B.M. & Loadman, W.E. (1999). Measuring principals' openness to change on three dimensions: affective, cognitive and behavioural. *Journal of Instructional Psychology*, 26(4), 1-11.
- Lau, C. M., & Woodman, R. W. (1995). Understanding organizational change: A schematic perspective. *Academy of Management Journal*, 38(2), 537-554.
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis* (eds.). New York: Springer.
- Mitchell, T. R., & Lee, T. W. (2001). The unfolding model of voluntary turnover and job embeddedness: Foundations for a comprehensive theory of attachment. *Research in Organisational Behaviour*, 23, 189-246.
- Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablinski, C. J., & Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover. *Academy of Management Journal*, 44(6), 1102-1121.
- Ng, T. W., & Feldman, D. C. (2013). Changes in perceived supervisor embeddedness: Effects on employees' embeddedness, organizational trust, and voice behaviour. *Personnel Psychology*, 0, 1-41.
- Ng, T. W., Feldman, D. C., & Lam, S. S. (2010). Psychological contract breaches, organizational commitment, and innovation-related behaviours: A latent growth modelling approach. *Journal of Applied Psychology*, 95(4), 744.
- O'Reilly, C., & Chatman, J. (1986). Organizational commitment and psychological attachment: The effects of compliance, identification and internalization on pro-social behaviour. *Journal of Applied Psychology*, 71, 492-499.
- Pasmore, W.A. (2011). Tipping the balance: Overcoming persistent problems in organizational change. In A.B. Shani, R.W. Woodman, & W.A. Pasmore (Eds.), *Research in organizational change and development* (Vol. 19, pp. 259-292). Bradford: Emerald Group Publishing.

- Piderit, S. C. (2000). Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward and organizational change. *Academy of Management Review*, 25, 783-794.
- Rothmann, S. (2014). Flourishing in work and careers. In M. Coetzee (ed.), *Psycho-social career meta-capacities: dynamics of contemporary career development* (pp.203-220). Dordrecht: Springer International.
- Takawira, N., Coetzee, M. & Schreuder, A.M.G. (2014). Job embeddedness, work engagement and turnover intention of staff in a higher education institution: an exploratory study. *South African Journal of Human Resource Management*, 12(1), Art.#524, 10 pages. <http://dx.doi.org/10.4102/sajhrm.v12i1.524>
- Tebele, C. & Coetzee, M. (2014). Job embeddedness, organisational commitment and voluntary turnover of academic staff at a Higher Education Institution in South Africa. *South African Journal of Labour Relations*, 38(1), 9-30.
- Vakola, M., & Nikolaou, I. (2005). Attitudes towards organizational change: What is the role of employees' stress and commitment. *Employee Relations*, 27(2), 160-174.
- Van Dyk, J., Coetzee, M. & Tebele, C. (2013). Organisational commitment and job embeddedness of critical and scarce services staff. *South African Journal of Labour Relations*, 37(1), 61-78.
- Worley, C.G. & Mohrman, S.A. (2014). Is change management obsolete? *Organizational Dynamics*, 43, 214-224.

Table 1. Descriptive statistics and bivariate correlations.

		<i>M</i>	<i>SD</i>	<i>α</i>	1	2	3	4	5	6	7	8
1	Job/role ambiguity	3.68	1.21	.87	-							
2	Relationships	3.16	1.45	.86	.67**	-						
3	Job tools & equipment	3.40	1.33	.86	.56**	.68**	-					
4	Career advancement	3.69	1.24	.87	.49**	.61**	.60**	-				
5	Job security	3.90	1.25	.88	.52**	.47**	.45**	.50**	-			
6	Lack of job autonomy	3.63	1.24	.86	.66**	.57**	.63**	.56**	.60**	-		
7	Job embeddedness	4.17	.82	.91	-.41**	-.37**	-.29**	-.33**	-.36**	-.39**	-	
8	Cognitive attitude toward change	3.15	.67	.87	.52**	.45**	.40**	.36**	.54**	.54**	-.51**	-

Note: $n = 350$. ** $p \leq .01$.

Table 2. Moderated regression analysis examining the interaction effects between sources of job stress and job embeddedness on cognitive attitude toward change

Model	Predictor variables	β	R^2	ΔR^2	F	ΔF	f^2
1	Job/role ambiguity	.40***					
	Job embeddedness	-.35***					
	Job/role ambiguity x job embeddedness	-.12**	.42	.02	.86.63***	8.98**	.07
2	Relationships	.31***					
	Job embeddedness	-.39**					
	Relationships x job embeddedness	-.04	.33	.00	.59.06***	.79	.02
3	Job tools & equipment	.27***					
	Job embeddedness	-.43*					
	Job tools & equipment x job embeddedness	-.06	.32	.00	56.14***	2.10	.05
4	Career advancement	.23***					
	Job embeddedness	-.44***					
	Career advancement x job embeddedness	-.13*	.31	.02	52.17***	7.65*	.04
5	Job security	.45***					
	Job embeddedness	-.36***					
	Job security x job embeddedness	-.18***	.43	.03	88.25***	18.58***	.08
6	Lack of job autonomy	.44***					
	Job embeddedness	-.35***					
	Lack of job autonomy x job embeddedness	-.16***	.42	.03	84.08***	15.27***	.08

Note: $n = 317$. *** $p \leq .001$. ** $p \leq .01$. * $p \leq .05$. All statistics are from the final (second) step. β = standardised regression coefficient. f^2 = effect size estimate for the interaction term. Beta values are mean-centered.

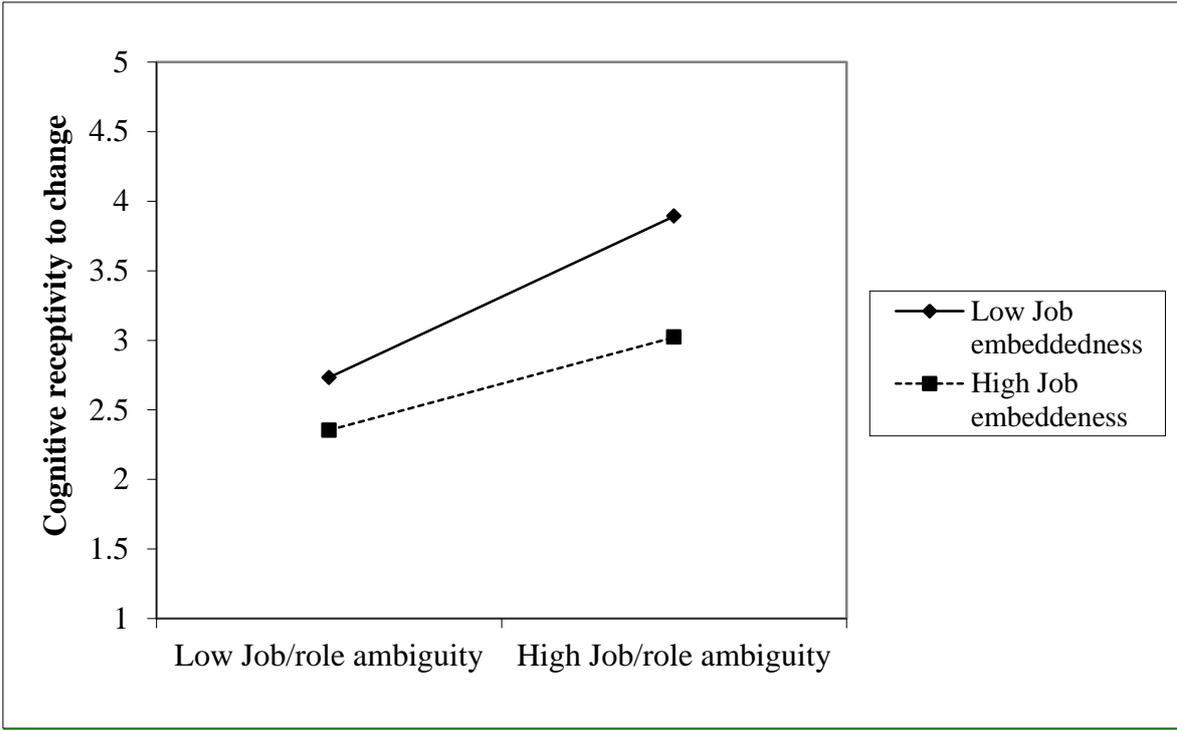


Fig 1. Job embeddedness as a moderator of the relationship between job/role ambiguity and cognitive receptivity to change.

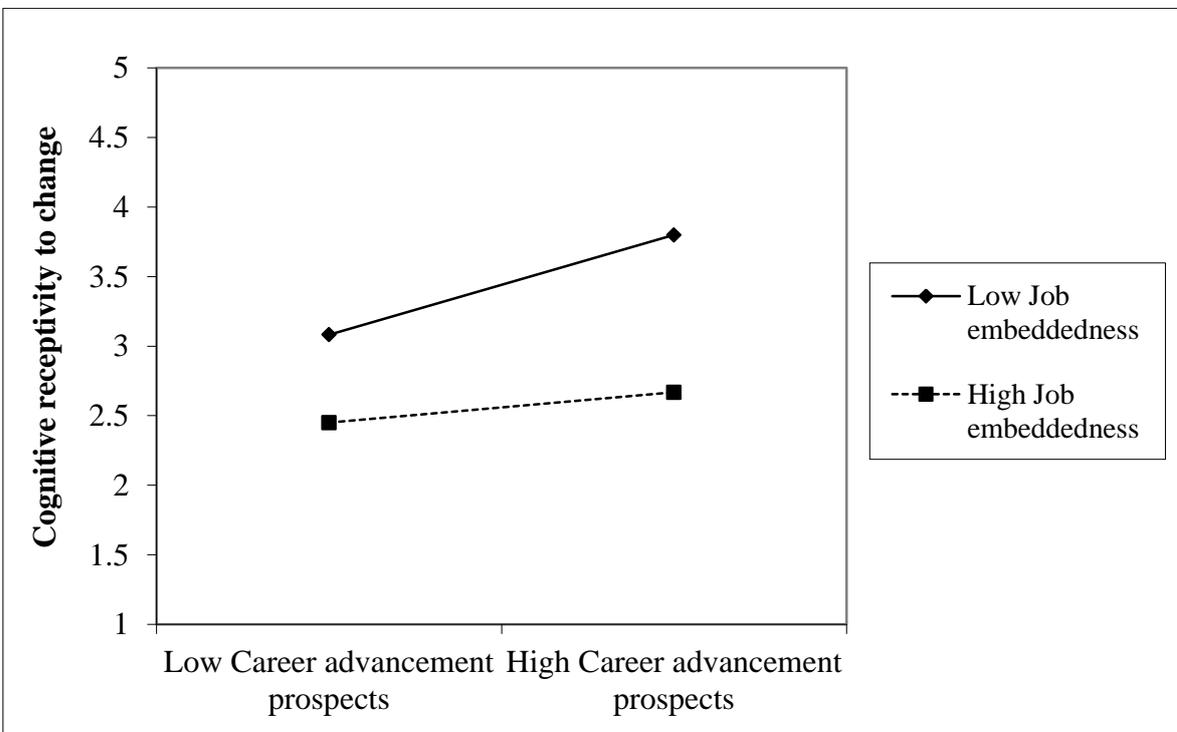


Fig 2. Job embeddedness as a moderator of the relationship between career advancement prospects and cognitive receptivity to change.

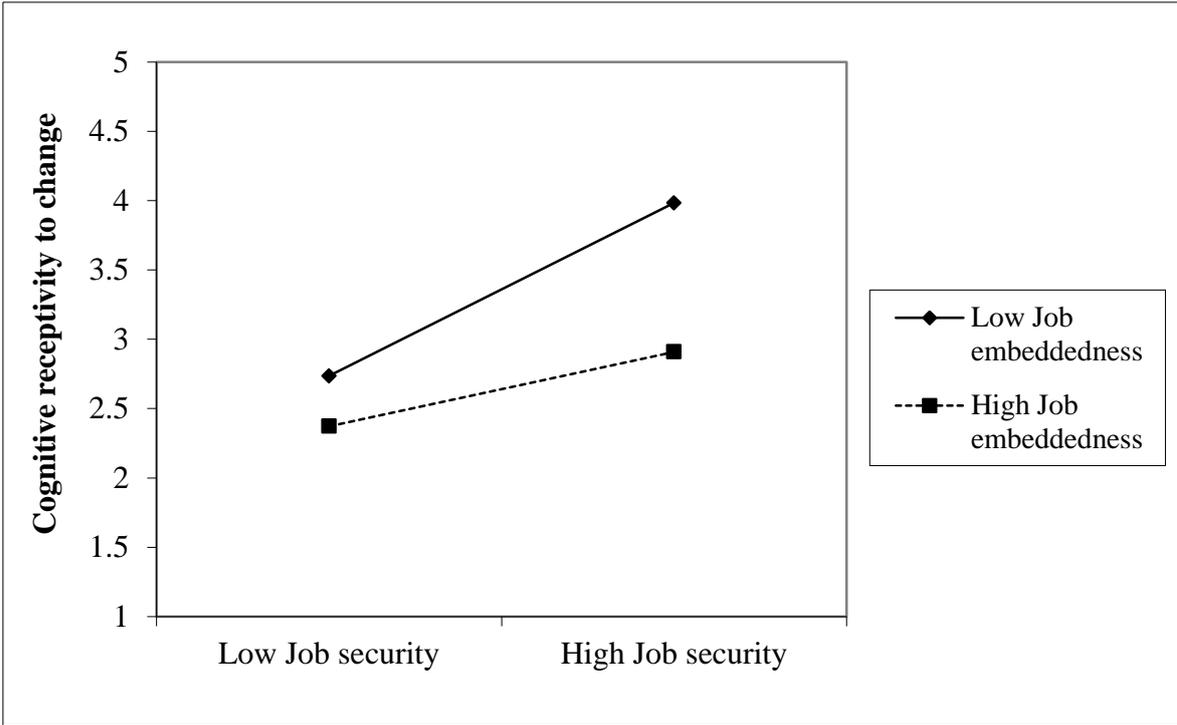


Fig 3. Job embeddedness as a moderator of the relationship between job security and cognitive receptivity to change.

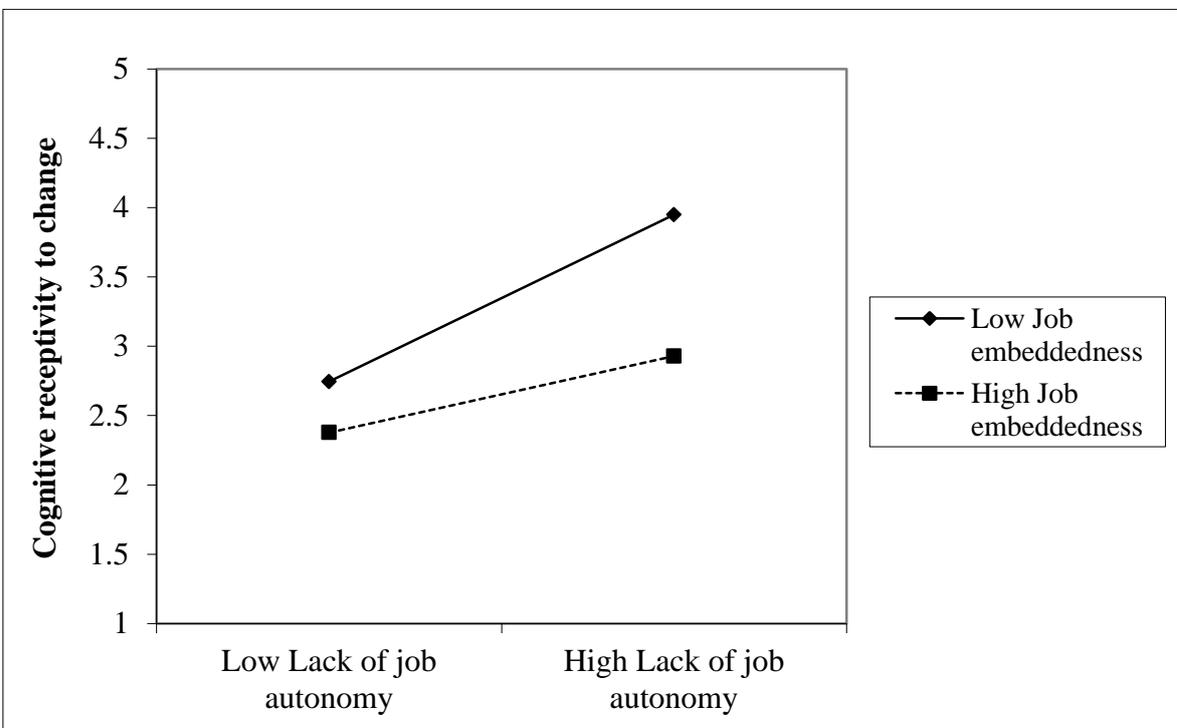


Fig 4. Job embeddedness as a moderator of the relationship between lack of job autonomy and cognitive receptivity to change.