

Influence of proactive personality and career calling on employees' job performance: A moderated mediation model based on job crafting



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Purpose: Based on self-determination theory, this study sought to clarify the internal mechanism of the impact of proactive personality and career calling on job performance from both personality traits and intrinsic motivation perspectives, highlight the important role of job crafting as an individual's proactive behaviour, and demonstrate the supporting role of organisational embeddedness as an external environmental factor.

Design/methodology/approach: Hierarchical regression analysis and bootstrap-based path analysis were used to test the above hypotheses on 292 employees in China.

Findings/results: The results show that proactive personality and career calling had significant positive effects on employees' job performance, and job crafting was a full mediator in both paths, with significantly different mediation effects. Organisational embeddedness moderated this mediating effect.

Practical implications: This study provides references for employees and organisations to continuously improve their job performance. Organisations need to address job crafting behaviours and create related supporting atmospheres.

Originality/value: This study explored the mechanisms that affect career outcomes from both personality traits and intrinsic motivation aspects. The theoretical model verifies the value of individual intrinsic motivation and autonomous behaviour, and confirms the theory of self-determination. The study also extends the existing career theory by breaking through the one-sidedness of the previous theory that emphasises only the role of the organisation, but highlights the crucial importance of employees' subjective initiatives.

Keywords: job crafting; proactive personality; career calling; job performance; organisational embeddedness.

Introduction

Employee performance is closely related to an organisation's overall performance, and is an important basis for enterprises to develop sustainable market competitiveness. Managers seeking to stimulate employees' work potential have realised that improving employee performance not only depends on external incentives such as salary, benefits, and promotion opportunities, but also on employees' personal traits and work motivation (Barrick, Stewart, & Piotrowski, 2002), as well as providing them with more work autonomy (Tisu, Virga, & Mermeze, 2021). How to make employees work more proactively for long-term organisational development is a focal issue.

Job crafting emphasises the proactivity of employees in the organisation by actively seeking self-change perceptions, behaviours, and results (Wrzesniewski & Dutton, 2001). It has attracted considerable attention in recent years, along with positive psychology. Some researchers have found a positive impact of personality traits on job crafting (Teng & Chen, 2019; Zhang, Lu, & Li, 2018), while some others have found no significant impact (Wang, Demerouti, & Le Blanc, 2017); hence, these findings remain inconclusive. A few studies have sought to examine the impact of motivation, and explored the relationship between career calling and job crafting (Chang, Gao, & Wu, 2021; Chang, Rui, & Lee, 2020). However, they have explored the antecedents of job crafting from a single aspect of personality or motivation. Some others have integrated personality with motivation for theoretical development (Ryan & Deci, 2000). Indeed, combining these two aspects to explore their joint impact on job crafting may have broader theoretical and practical implications. Additionally, this study considered taking job performance as the outcome variable to explore

how personality and motivation affect job performance through the mediating role of job crafting. Such a research can contribute to the existing research on the mediating role of job crafting and respond to the focal issue on how to improve employees' job performance that employers concerns about in practice. Thus, this study employed self-determination theory (SDT) to investigate the influence of employee personality traits (proactive personality) and intrinsic work motivation (career calling) on job performance, with the mediating effect of job crafting and organisational embeddedness as the boundary conditions. With this, it adds to the SDT by investigating the role of individuals' intrinsic motivation in promoting their autonomous behaviours and performance embedded in the organisational context.

Literature review and research hypothesis

Proactive personality, career calling and job performance

Proactive personality emphasises stable personality characteristics and behaviour patterns that individuals use to break through the constraints and restrictions of any environment or situation. Proactive employees constantly seek new ways and methods to solve problems, and can actively manage and promote their own behavioural patterns (Bateman & Crant, 1993). More importantly, a proactive personality has inherent advantages over the Big Five personality traits in predicting job performance (Bakker, Tims, & Derks, 2012). A meta-analysis by Spitzmuller, Sin, Howe and Fatimah (2015) found that more than half of the variance in proactive personality is unrelated to the Big Five personality traits; after controlling for these traits, proactive personality was found to have a unique explanatory effect on job performance. Hough and Schneider (1996) argued that a tailored compound personality trait is more suitable than basic personality traits for predicting outcomes. Thus, this study selected proactive personality as the representative variable of employees' personality characteristics in terms of initiative. Individuals with strong proactive personalities are likely to identify and grasp favourable opportunities and take positive actions to explore and understand the environment. They can not only solve the difficulties they face but can even change their immediate environment (Harvey, Blouin, & Stout, 2006). These behaviours enable them to achieve better performance at work. Studies have also shown that proactive personality is a stable and important variable for predicting job performance (Crant, 1995; Thompson, 2005; Zhang, Wang, & Shi, 2012).

In addition to personality, motivation is another important factor that affects individual attitudes and behaviours. Improvement of job performance requires individuals to have strong intrinsic motivation for work, apart from proactive personality characteristics. Career calling is the embodiment of an individual's strong recognition of professional value. Calling emphasises that work is an indispensable part of life, and using work to find meaning in

life can be an intrinsic motivation to achieve career success (Duffy & Sedlacek, 2007). Cognitive evaluation theory, a sub-theory of SDT, proposes that intrinsic motivation is generated by interest in the activity itself. It refers to spontaneous intrinsic regulation, because the individual has fully identified with the activity itself (Ryan & Deci, 2000). Intrinsic motivation usually brings about positive results (Vansteenkiste, Simons, Soenens, & Lens, 2004). Another sub-theory, organismic integration theory, states that intrinsic motivation, as a kind of autonomous motivation, can bring about a healthy mental state and excellent performance (Deci & Ryan, 2008). As an individual's intrinsic motivation for work, career calling often manifests as an incentive force in a professional individual. Spontaneous intrinsic motivation can drive an individual to work more meaningfully. Career calling has a positive impact on employees' career outcomes, such as job satisfaction and organisational commitment (Duffy, Dic, & Steger, 2011). Furthermore, it may positively predict job performance (Kim, Shin, Vough, Hewlin, & Vandenberghe, 2018; Park, Sohn, & Ha, 2016), although the research on this is relatively limited and needs further evidence. Based on the above discussion, we propose the following hypothesis:

H1: (H1a) Proactive personality and (H1b) career calling have positive impacts on job performance.

Job crafting as a mediator

The concept of job crafting comes from reflection on job design. According to Wrzesniewski and Dutton (2001), job crafting is an initiative and autonomy shown by employees in the process of participating in work design and tasks, as a reflection of previous work design concepts and steps. Employees may perform task crafting, relationship crafting and cognitive crafting behaviours at work. From the perspective of balancing job demands and resources, Tims, Bakker and Derks (2012) suggested that employees have the need to proactively undertake more work responsibilities and tasks (increase structured work resources), increase the quality of interpersonal interaction in work (increase social work resources), constantly seek resources to support themselves in completing challenging work (increasing challenging work demands), and reduce the factors hindering their own development (reducing hindering work demands). This research follows this understanding of job crafting and explores the mediating role of job crafting behaviour from the perspective of job resources and demands balance.

Previous studies, including a meta-analysis (Rudolph, Katz, Lavigne, & Zacher, 2017), have shown that employees' proactive personality is positively related to job crafting (Teng & Chen, 2019; Zhang et al., 2018). In contrast, some studies have indicated no significant influence of proactive personality on job crafting (Wang et al., 2017). However, the relationship between these factors remains unclear. Causality orientation theory, a sub-theory of SDT, holds that personality differences exist in how much self-determined an activity is when perceived by individuals. Individuals with autonomous orientation personality traits tend to consider activities

controllable and autonomous; thus, they are more willing to adopt proactive behaviours (Deci, Olafsen, & Ryan, 2017). The core characteristic of proactive personality is proactivity, which is quite similar to autonomy orientation, especially as Deci et al. (2017) indicate that autonomy orientation emphasises proactivity and interest. Therefore, we can infer that employees with higher levels of proactive personality are more active in exploring and investing in their work. They will coordinate work resources and demands more actively to achieve a balance between the two and promote job-crafting behaviour.

Career calling is a call from the vocation that individuals find in their heart, urging them to take active action and work more meaningfully. Duffy and Sedlacek (2007) stated that career calling is an intrinsic work motivation. Job crafting is a kind of proactive and autonomous behaviour (Tims et al., 2012; Wrzesniewski & Dutton, 2001). According to SDT, intrinsic motivation can promote autonomous behaviour, leading us to infer that career calling can encourage individuals to continuously craft their jobs. Some scholars have empirically explored the relationship between the two and found that career calling can positively predict job crafting (Chang et al., 2020, 2021). Some others have proposed that job crafting can predict career calling, and there is a significant positive correlation between them (Esteves & Lopes, 2017; Riasnugrahani, Riantoputra, Takwin, & Panggabean, 2019). Traditionally, a calling is considered to be spontaneous and inapt (Hardy, 1990). Thus, this study proposes that the correlation between the two should be reflected in the predictive effect of career calling on job crafting and, accordingly, the following hypothesis:

H2: (H2a) Proactive personality and (H2b) career calling have positive impacts on job crafting.

Job crafting is an important method to improve job performance. Previous studies have shown that a prominent role of job crafting for employers is to improve organisational performance (Tims et al., 2012). Combined with the previous hypotheses that proactive personality and career calling may have a significant impact on both job crafting and performance, we are curious about whether job crafting can be a mediating variable. Firstly, job crafting may mediate the relationship between proactive personality and job performance. Employees with proactive personalities may re-evaluate work content and tasks through job crafting. In this way, they maximise their personal initiative to change their work style to better complete their work tasks (Bakker et al., 2012). Researchers have empirically proven that proactive personality can sequentially affect job crafting, and then work engagement to improve employees' in-role performance (Bakker et al., 2012). Therefore, combined with H1a and H2a, this study argues that employees' job-crafting behaviour is likely to be affected by their proactive personality, and then positively affects job performance. Secondly, job crafting may also mediate the path from career calling to job performance. A typical intrinsic motivation behaviour, as defined in SDT (Duffy & Sedlacek, 2007), job crafting is viewed as autonomous modification of jobs by employees

(Wrzesniewski & Dutton, 2001) to fulfil the psychological needs of autonomy, competence, and relationship at work. Employees can enhance their sense of control over the external work environment through job crafting, thereby promoting job performance (Lee & Lee, 2018). Li and Yang (2018) proved empirically that the four sub-dimensions of job crafting can mediate the impact of career calling on work engagement. Work engagement is usually highly correlated with job performance (Christian, Garza, & Slaughter, 2011). Therefore, combined with H1b and H2b, we infer that career calling affects job crafting, and then job performance. In summary, job crafting acts as a bridge in the process of proactive personality and career calling affecting job performance. Accordingly, we propose the following hypothesis:

H3: Job crafting plays a mediating role in (H3a) how proactive personality influences job performance, and (H3b) how career calling influences job performance.

As variables reflecting employees' personality and motivation, proactive personality and career calling may have different influence patterns on employee behaviour. Proactive personality is defined as a stable personality trait towards proactive behaviour (Bateman & Crant, 1993; Seibert, Crant, & Kraimer, 1999; Teng & Chen, 2019), and accordingly is expected to have a proximal effect on employees' proactive behaviour. Career calling, as an intrinsic motivation, is a dynamic concept that describes the process of guiding behaviours (Gerrig & Zimbardo, 2010). It emphasises the sense of life meaning of work, which will then affect behaviours. So, it sheds light on the impact of the cognitive aspect first. For the same outcome, these two concepts may generate different influencing mechanisms, and thus, the influencing significance may be different. Therefore, we infer that the effects of proactive personality and career calling on job performance differ according to job crafting.

H4: The mediating effects of job crafting are different in the two paths of proactive personality affecting job performance and career calling affecting job performance.

Organisational embeddedness as a moderator

Organisational embeddedness refers to the degree of fit and links between employees and their work content and organisational environment, as well as the sacrifice of their departure from the organisation (Ng & Feldman, 2007). It represents the state of an individual in an organisational environment. According to SDT, environmental factors play an important role in the formation of individual autonomous behaviour (Deci et al., 2017; Gagne & Deci, 2005). Job crafting is an autonomous behaviour, and its positive effects are contextually embedded and affected by the work and organisational environment (Tims & Bakker, 2010). In prior empirical studies, scholars found that organisational support is an important contextual factor affecting job crafting (Park, Lim, Kim, & Kang, 2020). Organisational embeddedness reflects the interaction between individuals and their environment. Firstly, individuals with a high level of organisational embeddedness are more closely fitted and connected with the organisation, with a higher potential cost

of leaving the organisation. Their turnover intention is lower than others', and they pay more attention to their current work. Thus, high organisational embeddedness will magnify the effect of proactive personality and career calling on job crafting and then job performance, because employees will concentrate their energy on how to improve their behaviours and performance in the current organisation. Secondly, individuals with a low-level of organisational embeddedness leave easily, as they perceive more outside opportunities in the job market. Therefore, low organisational embeddedness weakens the effect of proactive personality and career calling on job crafting and then job performance, because employees may search for outside career development instead of only focusing on their current job. That is, with high- or low-levels of organisational embeddedness, the effects of proactive personality (and career calling) on job crafting and then job performance will be different. Accordingly, we propose the following hypothesis:

H5: Organisational embeddedness moderates the mediating effect of job crafting on the influence of (H5a) proactive personality and (H5b) career calling on job performance. When the level of organisational embeddedness of employees is high, the indirect effect of proactive personality or career calling on job performance through job crafting is higher.

Based on the above discussion and hypotheses, we propose the research model illustrated in Figure 1.

Method

Sample and procedure

The data were collected through a questionnaire survey, and samples were obtained from companies in mainland China. The respondents were full-time employees across enterprises, including state-owned, private, and foreign or joint ventures. They are distributed in various provinces or cities such as Jilin Province, Shandong Province, Xinjiang Province, Beijing City, and Chongqing City. The respondents were obtained from the personal relationships of the authors and the Master of Public Administration (MPA) training courses of one author. At the beginning of the survey questionnaire, it was clearly stated that the investigation was only used for academic research and the data were being obtained anonymously. A total of 400 questionnaires were distributed, and 292 valid questionnaires were returned, with an effective response rate of 73%. The demographic characteristics of the sample are as follows: male: 38.7%, female: 60.6%, missing: 0.7%; unmarried: 48.3%, married: 51.7%; age 25 and below: 12.7%, age 26–35: 71.9%, age

36 and above: 15.4%; from state-owned enterprise: 36.0%, from private enterprises: 46.6%, from foreign companies or joint ventures: 17.5%; junior college degree and below: 12.7%, bachelor's degree: 55.5%, master's degree: 30.8%, doctoral degree and above: 0.7%, missing: 0.3%.

Measures

The measurement instruments are widely used in existing literature. Following the translation and back-translation process, the Chinese versions of the items were prepared, and a 5-point Likert scale was used for evaluation.

Job crafting was measured using the 21-item four-dimensional scale developed by Tims et al. (2012). Representative items are as follows: 'I try to develop my capabilities', 'I try to ensure that my work is emotionally less intense', 'I look to my supervisor for inspiration', and 'If there are new developments, I am one of the first to learn about them and try them out'. In this study, the internal consistency reliability coefficient of the scale was 0.82.

Proactive personality was measured using the 10-item one-dimensional scale developed by Seibert et al. (1999). Representative items are as follows: 'If I see something I don't like, I fix it' and 'I am always looking for better ways to do things'. In this study, the internal consistency coefficient of the scale was 0.81.

Career calling was measured using a 12-item questionnaire developed by Dobrow and Tosti-Kharas (2011). The original items have strong occupational limitations (art, business, and management); to fit this study, the term 'current career' was used in this study to replace the specific limited occupations of the original questionnaire. Representative items included 'I would sacrifice everything to my current career' and 'My existence would be much less meaningful without my involvement in my current career'. In this study, the internal consistency coefficient of the scale was 0.90.

Organisational embeddedness was measured with the 20-item three-dimensional scale developed by Lee, Mitchell, Sablinsi, Burton and Holtom (2004). Representative items were as follows: 'I feel like I am a good match for this organisation' and 'I have a lot of freedom on this job to decide how to pursue my goals in this organisation'. In this study, the internal consistency coefficient of the scale was 0.83.

Job performance was measured using a three-item one-dimensional scale developed by Motowidlo and Van Scotter (1994), such as: 'Compared with others of the same rank, my job performance is very low(1)/ low(2)/moderate(3)/high(4)/ very high(5)', and 'My job performance fails to meet(1)/ poorly meets(2)/moderately meets(3)/totally meets(4)/ exceeds(5) job performance standards'. The internal consistency coefficient of the scale was 0.86 for this study.

The study also included gender, marriage status, age, enterprise type, and education level as control variables.

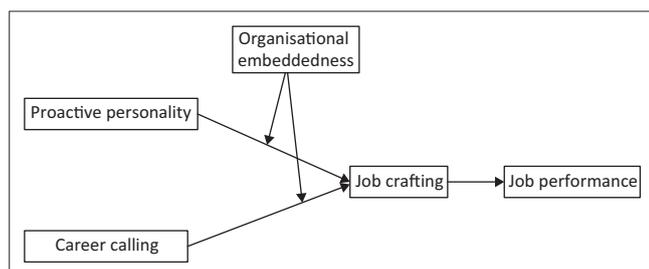


FIGURE 1: Proposed research model.

Previous studies have reported these demographic variables were significantly correlated with the outcome variable, job performance (Hsieh, Huang, & Su, 2004; Ng & Feldman, 2008, 2009; Tkachenko, Quast, Song, & Jang, 2018; Zhang & Lin, 2016).

Ethical considerations

Ethical clearance for this study was obtained by the Institutional Review Board of the School of Government, BNU.

Results

Common method bias and validity test

To test whether a common method bias existed in this study, Harman's single-factor test was used. An exploratory factor analysis of five variables' items conducted using SPSS18.0 software showed that a total of 17 factors with eigenvalues greater than 1 were obtained. The largest factor explained 19.67% of the variation, and all the factors explained 67.16%. No common factor explained most of the variation. Thus, a common method bias problem did not exist in this study. To test discriminant validity among variables, confirmatory factor analyses were conducted using Mplus7.4 statistical software to compare the fit indices of the five-factor model with other combined models (Anderson & Gerbing, 1988). The results showed that the single-factor model fitted poorly ($\chi^2/df = 4.67$, RMSEA [root-mean-square error of approximation] = 0.11, CFI [comparative fit index] = 0.56, TLI [Tucker Lewis index] = 0.52, SRMR [standardized root mean square residual] = 0.11, whereas the five-factor model fitted best ($\chi^2/df = 1.91$, RMSEA = 0.06, CFI = 0.90, TLI = 0.88, SRMR = 0.06). Thus, the five variables were distinct, indicating good discriminant validity, and partially proving no common method bias issues.

Descriptive statistics and correlational analysis

Table 1 presents the means, standard deviations and correlation coefficients. Proactive personality positively correlated with job crafting ($r = 0.62, p < 0.001$), organisational embeddedness ($r = 0.34, p < 0.001$), and job performance ($r = 0.25, p < 0.001$). Career calling was positively correlated with job crafting

($r = 0.48, p < 0.001$), organisational embeddedness ($r = 0.50, p < 0.001$) and job performance ($r = 0.22, p < 0.001$). Job crafting was positively correlated with organisational embeddedness ($r = 0.40, p < 0.001$) and job performance ($r = 0.31, p < 0.001$). Organisational embeddedness was positively correlated with job performance ($r = 0.30, p < 0.001$). These results are consistent with our theoretical expectations.

Hypothesis testing

Mediating role of job crafting in the impact of proactive personality and career calling on job performance

Hierarchical regression was used to test the direct effects of the variables and the mediating effects of job crafting. The results are presented in Table 2. After controlling for the five demographic variables of gender, marriage, age, enterprise type, and education level (M1), the main effects among the variables were tested. The results showed that proactive personality had a significantly positive impact on job performance (M2: $\beta = 0.24, p < 0.001$). Career calling also positively affected job performance (M3: $\beta = 0.18, p < 0.01$). Thus, H1 is supported.

Next, we examined the mediating role of job crafting. The results are as follows: (1) Proactive personality had a significantly positive impact on job crafting (M6: $\beta = 0.62, p < 0.001$). Based on the main effect model of proactive personality affecting job performance (M2), after adding job crafting as an independent variable, the regression coefficient of proactive personality was no longer significant (M4: $\beta = 0.12, p > 0.05$), whereas job crafting had a significant positive influence (M4: $\beta = 0.19, p < 0.01$). ΔR^2 was 0.022 and significant, indicating that job crafting is a full mediator of proactive personality affecting job performance. Thus, H2a and H3a are supported. (2) Career calling had a significantly positive impact on job crafting. When job crafting was added to the main effect model of career calling influencing job performance (M3), the regression coefficient of career calling was no longer significant (M5: $\beta = 0.06, p > 0.05$), while the coefficient of job crafting was positively significant (M5: $\beta = 0.24, p < 0.001$). ΔR^2 was 0.042 and significant, indicating that M5 is significantly better than M3, and career calling also plays a full mediating role. Accordingly, H2b and H3b are supported.

TABLE 1: Means, standard deviations, average variance extracted, correlations, and Cronbach's alpha.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1. Gender	1.61	0.49	-	-	-	-	-	-	-	-	-	-
2. Marriage	1.52	0.51	0.01	-	-	-	-	-	-	-	-	-
3. Age	2.03	0.53	-0.04	0.41***	-	-	-	-	-	-	-	-
4. Enterprise type	1.82	0.71	0.06	0.06	0.07	-	-	-	-	-	-	-
5. Education level	2.20	0.65	-0.06	0.12	0.03	-0.05	-	-	-	-	-	-
6. Proactive personality	3.76	0.50	-0.13*	0.02	0.01	-0.00	0.11	0.81	-	-	-	-
7. Career calling	3.47	0.69	-0.08	0.09	0.19**	0.15*	-0.04	0.35***	0.90	-	-	-
8. Job crafting	3.86	0.40	-0.11	0.10	0.09	-0.02	0.14*	0.62***	0.48***	0.82	-	-
9. Organisational embeddedness	3.50	0.54	0.03	0.23***	0.23***	0.12*	0.05	0.34***	0.50***	0.40***	0.83	-
10. Job performance	3.74	0.66	-0.06	0.17**	0.22***	0.06	0.18**	0.25***	0.22***	0.31***	0.30***	0.86

SD, standard deviation.

*, $p < 0.05$; **, $p < 0.01$; ***, $p < 0.001$.

Note: Cronbach's alpha index is in diagonal brackets. Gender: 1 = male, 2 = female; Marriage: 1 = unmarried, 2 = married; Age: 1 = 25 years old and below, 2 = 26–35 years old, 3 = 36 years old and above; Enterprise type: 1 = state-owned, 2 = private, 3 = foreign or joint; Education level: 1 = junior college and below, 2 = bachelor's degree, 3 = master's degree, 4 = doctoral degree and above.

TABLE 2: Results of the hierarchical regression analysis.

Variables	Job performance					Job crafting	
	M1	M2	M3	M4	M5	M6	M7
Gender	-0.050	-0.020	-0.030	-0.010	-0.020	-0.100	-0.060
Marriage	0.090	0.090	0.080	0.080	0.070	0.060	0.070
Age	0.170**	0.180**	0.150*	0.160**	0.150*	0.080	-0.010
Enterprise type	0.050	0.050	0.030	0.050	0.050	-0.020	-0.070
Education level	0.150*	0.130*	0.160**	0.120*	0.120*	0.070	0.150
Proactive personality	-	0.240***	-	0.120	-	0.620***	-
Career calling	-	-	0.180**	-	0.060	-	0.490***
Job crafting	-	-	-	0.190**	0.240***	-	-
R ²	0.084	0.140	0.112	0.162	0.153	0.411	0.270
ΔR ²	0.084***	0.056***	0.029**	0.022**	0.042***	0.370***	0.226***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

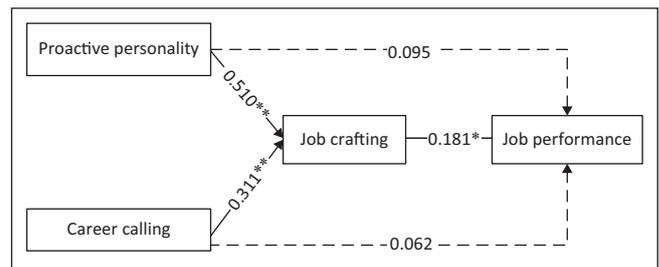
Furthermore, in order to test whether a significant difference existed between the two mediating paths, Mplus 7.4 software was used for path analysis. A comprehensive model, with both proactive personality and career calling as independent variables, job crafting as mediator, and job performance as dependent variable was constructed. The five demographic variables were controlled. After 1000 repeated samplings with returns (bootstrapping method), the bias-corrected confidence intervals (CIs) of each coefficient were estimated, and the results are shown in Figure 2. When both proactive personality and career calling were considered, the direct effects were not significant (0.095, NS and 0.062, NS, respectively). The standardised indirect effects of the two paths were 0.092 and 0.056, with 95% CIs of (0.012, 0.175) and (0.008, 0.119), respectively, indicating that job crafting played a full mediating role in the two paths, because the CIs excluded 0. Thus, H3a and H3b are confirmed again. The mediating effect difference of the two paths was significant at the level of 0.05 (difference of unstandardised indirect effect: 0.067, 95% CI: 0.011, 0.147), indicating that the indirect effect of proactive personality on job performance through job crafting was significantly higher than that of the career calling path. Thus, H4 is supported.

Moderating role of organisational embeddedness on mediation effects

In order to explore the moderating effect of organisational embeddedness, this study adopted steps based on the bootstrapping method proposed by Edwards and Lambert (2007) to test whether significant differences existed in mediating paths under different levels of organisational embeddedness. To test the moderated mediation effect in the first stage of the path of proactive personality, two equations were established based on the research hypothesis, where PP is proactive personality, OE is organisational embeddedness, JC is job crafting, and JP is job performance. These four variables were mean-centred in advance. Using SPSS for the regression analysis, the results of each parameter of Equations (1) and (2) were estimated, as shown in Table 3:

$$JC = a_{05} + a_{x5}PP + a_{z5}OE + a_{xz5}(PP \times OE) + e_{M5} \quad [\text{Eqn 1}]$$

$$JP = b_{04} + b_{x4}PP + b_{M4}JC + e_{Y4} \quad [\text{Eqn 2}]$$



*, $p < 0.05$; **, $p < 0.01$.

FIGURE 2: Comprehensive model of mediating effects.

Next, the constrained nonlinear regression procedure was adopted to estimate the coefficients of 1000 bootstrap samples. After importing the results into the Excel template provided by Edwards and Lambert (2007), the coefficients, difference, and 95% CIs of the mediation model's first stage, second stage, direct effect, indirect effect, and total effect with high- and low-levels of moderator were obtained. Similarly, the moderating effect on mediation path of career calling on job performance through job crafting was tested using the same steps. The results (in Table 4) show significant differences in the indirect effects of both the independent variable paths at the high and low groups of organisational embeddedness. Thus, organisational embeddedness had a significant moderating effect on the mediating effects of job crafting on the two paths. Specifically, in the path of proactive personality influencing job performance, job crafting played a partial mediating role when organisational embeddedness was either high or low (both indirect and direct effects were significant). However, the mediation effect was significantly stronger with a higher level of organisational embeddedness (the difference in indirect effects was 0.082, $p < 0.01$). In the path of career calling influencing job performance, job crafting was a full mediator when organisational embeddedness was high or low (indirect effect was significant while direct effect was not), but the mediation effect was stronger with high organisational embeddedness (the difference in indirect effects was 0.094, $p < 0.01$). Therefore, H5 is supported. Figure 3 shows the moderating effects of organisational embeddedness on the first stage of the mediating path of the two independent variables.

Discussion

Discussion of results

We begin with the main results of this study. Firstly, from the perspective of direct effects, proactive personality and career calling have a positive impact on job performance. Employees with a positive personality are more likely to overcome the obstacles in work situations and environment. They can discover and seize favourable opportunities, and obtain good performance. The results confirm that proactive personality is a stable personal characteristic that affects performance, consistent with the findings of previous studies (Crant, 1995; Thompson, 2005; Zhang

et al., 2012). Employees with a strong sense of career calling are more likely to achieve good job performance. Individuals who regard calling as a work orientation are more likely to obtain a high level of work enthusiasm and career identity; thus, career calling has a positive impact on employees' work and even life (Duffy et al., 2011). Our findings echo with the conclusions about career calling's impact on job performance in existing studies (Kim et al., 2018; Park et al., 2016). This illustrates the important role of career calling as an intrinsic work motivation to improve performance, as stated in the organismic integration theory of SDT (Deci & Ryan, 2008).

TABLE 3: Coefficient estimates.

Independent variables	Equation (1) coefficient estimates					Equation (2) coefficient estimates			
	a_{05}	a_{x5}	a_{z5}	a_{xz5}	R^2	b_{04}	b_{x4}	b_{M4}	R^2
Proactive personality	-0.01	0.42**	0.14**	0.19**	0.44**	-0.00	0.14	0.41**	0.10**
Career calling	-0.03	0.23**	0.13**	0.19**	0.31**	-0.00	0.07	0.46**	0.10**

** $p < 0.01$.

Note: a_{05} , a_{x5} , a_{z5} , and a_{xz5} are unstandardised coefficient estimates from Equation (1), and b_{04} , b_{x4} , and b_{M4} are unstandardised coefficient estimates from Equation (2), using regression analysis.

TABLE 4: Results of the moderated mediation model.

Independent variables	Moderator variable	Stage		Effect		
		First	Second	Direct	Indirect	Total
Proactive personality	Low	0.318**	0.407**	0.135**	0.129**	0.264**
	High	0.520**	0.407**	0.135**	0.212**	0.347**
	Difference	0.202**	0.000	0.000	0.082**	0.082**
Career calling	Low	0.126**	0.460**	0.071	0.058**	0.129**
	High	0.330**	0.460**	0.071	0.152**	0.223**
	Difference	0.204**	0.000	0.000	0.094**	0.094**

$p < 0.05$; **, $p < 0.01$.

Note: Difference = coefficient of high moderator group – coefficient of low moderator group. The moderator was organisational embeddedness, and high- and low-threshold value = mean \pm deviation; since all variables were centralised in advance, mean = 0, so a high-level moderator threshold value = 0.54, while a low-threshold value = -0.54. The differences test for the indirect and total effects was based on bias-corrected confidence intervals derived from bootstrap estimates.

Secondly, from the perspective of mediating effect, job crafting completely mediates the relationship between proactive personality, career calling, and job performance. Moreover, the mediating effects of the two paths were significantly different. Employees can craft their jobs by dynamically balancing work resources and demands. In this process, employees with proactive personality and strong intrinsic work motivation are more inclined to take a positive approach to mobilise work resources and demands around them to craft their work, and to improve their job performance. The results are consistent with previous findings on the influence of proactive personality and career calling on job crafting (Chang et al., 2020, 2021; Teng & Chen, 2019; Zhang et al., 2018), and the mediating role of job crafting (Bakker et al., 2012; Christian et al., 2011). In addition, a more comprehensive path model was investigated for both personality and motivational aspects. The different impacts of proactive personality and career calling on employee behaviour results are reflected in the significant differences in the effects of the two mediating paths.

Thirdly, from the perspective of the moderating effect, organisational embeddedness has a significant moderating effect on the mediating path, reflected in the first stage.

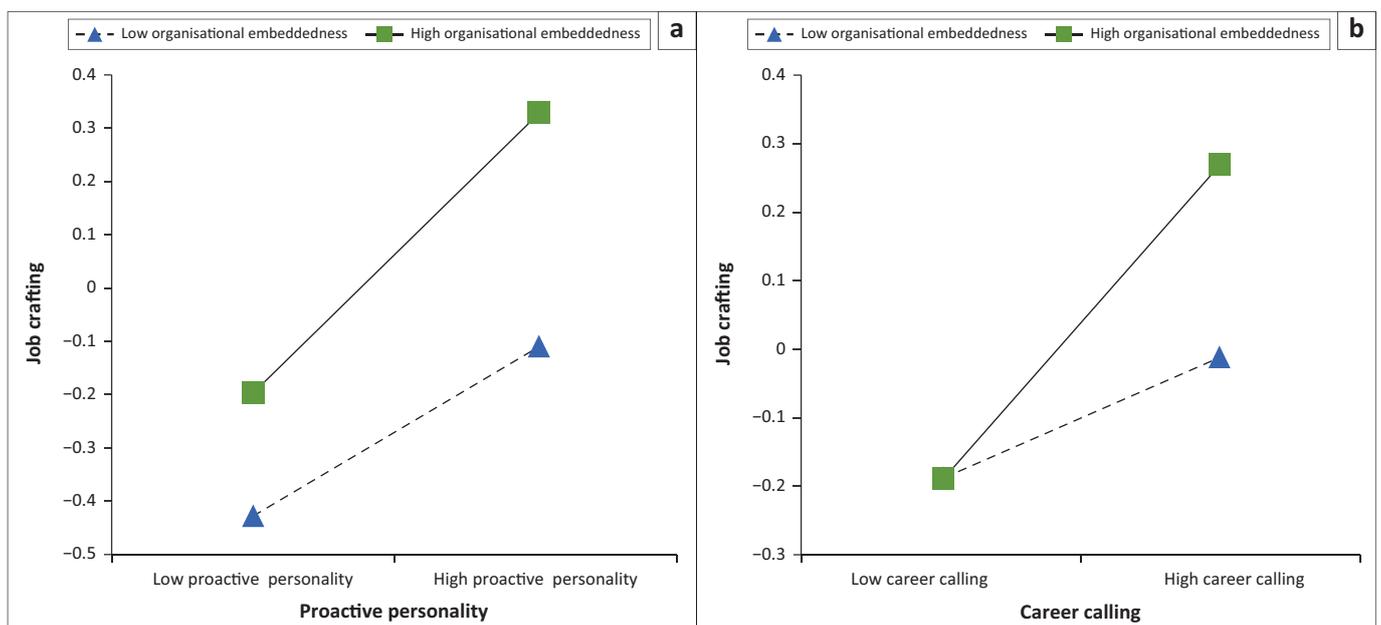


FIGURE 3: Moderating effect of organisational embeddedness in (a) the first stage of proactive personality path; (b) the first stage of career calling path.

This confirms the idea of an organisation's important role in influencing job crafting (Park et al., 2020). A high level of organisational embeddedness helps to better align employees' personality and work motivation with the organisation's characteristics and strategic needs. Thus, employees can correctly and effectively balance work resources and demands and improve job performance. When organisational embeddedness is low, employees have a limited understanding of the organisation and receive less support as well, which is not conducive for employee to demonstrate character initiative and work motivation. Promotion of job-crafting behaviour too is relatively limited.

Theoretical and practical implications

The study has three significant theoretical contributions. Firstly, it explores the mechanism that affects employees' work outcomes from the perspectives of both individual personality and motivation, thereby supporting the important role of individual autonomous behaviour, verifying the value of individual intrinsic motivation, and confirming SDT propositions. Self-determination theory's sub-theories, cognitive evaluation theory and organismic integration theory, state that intrinsic motivation usually brings positive results, including excellent performance (Deci & Ryan, 2008; Vansteenkiste et al., 2004). Causality orientation theory indicates that people with autonomous orientation personality traits behave more proactively. The findings of this study reflect these three sub-theories, and confirms SDT in a comprehensive manner. Secondly, by involving job crafting as a mediator and organisational embeddedness as a moderator, this study demonstrates the value of a good match between environmental factors and motivation, as emphasised in SDT (Deci et al., 2017; Gagne & Deci, 2005). Thirdly, it expands the existing career theory that only emphasises the role of the organisation, by highlighting the importance of employees' subjective initiative.

The practical implications are reflected in two ways. Firstly, it provides a reference for employees to continuously improve their performance by actively interacting with the organisation and crafting their jobs with organisational support to improve job performance. Secondly, this research also informs organisations on how they can improve overall performance and simultaneously help employees develop their careers. Organisations should discard the old routine of conducting top-down job design in work practice. They should create an open organisational culture and working atmosphere, so more job crafting behaviours are about to happen. By providing sufficient information and support for employee development, employees' organisational embeddedness will increase. By giving employees a certain degree of work autonomy, employer can stimulate employees to craft their work, to improve their performance from the bottom up, and to promote the positive career development of employees.

Limitations and future directions

This study has several limitations that can provide avenues for future research. Firstly, the impact mechanism of job performance is a complex system involving many influencing factors. This study selected variables related to personality and intrinsic motivation for the analysis with only one boundary condition. Further research could select other independent, mediating, and moderating variables based on the SDT perspective. Secondly, this study mainly discussed the role of overall job crafting as employee proactive behaviour in influencing job performance. Future research can compare the roles of different dimensions of job crafting. Thirdly, this is a cross-sectional study; in future, adopting a longitudinal method and conducting comparative experiments and intervention studies would help to explore more complete paths affecting employees' job performance.

Conclusion

Drawing on the framework of SDT, this research clarifies the influence of proactive personality and career calling on job performance from the two aspects of personality traits and intrinsic motivation. It highlights the importance of job crafting as an individual's autonomous behaviour and demonstrates the supporting role of organisational embeddedness as a contextual factor. The results indicate that, firstly, proactive personality and career calling have significant positive impacts on job performance. Secondly, regarding the influence of proactive personality and career calling on job performance, employees' job crafting plays a full mediating role, and the effects of the two paths are significantly different. Finally, organisational embeddedness has a significant moderating effect on the mediating path, which is mainly reflected in the first stage, or the path of the two independent variables' influence on job crafting. To summarise, job crafting is a full mediator for proactive personality and career calling promoting employee performance; thus, employers should create an autonomous atmosphere to stimulate employees to craft their jobs, to help develop the latter's careers as well as improve organisational performance.

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Competing interests

The authors have declared that no competing interest exists.

Authors' contributions

All five authors contributed to conceptualisation, investigation and original draft preparation. C.Y., Z.D. and Y.H. analysed the data. H.Y., C.Y., Z.D., and X.G. made contributions regarding the review and editing. H.Y. and X.G. were responsible for funding acquisition, and H.Y. was responsible for supervision.

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Data availability

The data that support the findings of the study are available from the corresponding author, C.Y., upon reasonable request.

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