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Keywords: job design; employee engagement; organisational citizenship behaviours; task
performance, deviance

ABSTRACT

The present study examined a potential mediator of the job design-performance relationship, namely, employee engagement. Data were obtained via a survey of 283 employees in a consultancy and construction firm based in the UK and from supervisors' independent performance evaluations. The results reveal that employees who hold jobs that offer high levels of autonomy, task variety, task significance and feedback are more highly engaged and, in consequence, receive higher performance ratings from their supervisors, enact more organisational citizenship behaviours, and engage in fewer deviant behaviours. Theoretical and practical implications are discussed.

INTRODUCTION

The study of job design has a long history in the field of human resource management. Most research stems from Hackman and Oldman's (1980) classic Job Characteristics Model (JCM), which identifies five core job features as motivational properties of a job: task variety, identity, significance, autonomy and feedback. The JCM posits that the psychological states of meaningfulness, experienced responsibility and knowledge of results mediate the relationship between these job design facets and organisational outcomes. Although research has found that the design of work can have a profound impact on employees' attitudes and behaviour (Campion, Mumford, Morgeson and Nahrgang 2005) at both the individual and the organisational levels (Fried and Ferris 1987, Humphrey, Nahrgang and Morgeson 2007), research has not yielded evidence that supports the mediating role of the three psychological states (Fried and Ferris 1987, Humphrey, et al. 2007), leading to calls for further research that identifies a parsimonious explanation for the processes by which job design impacts on work-related outcomes.

In this paper, we respond to these calls by presenting and testing a theoretical modification to Hackman and Oldham's JCM that explores the mediating effect of work engagement on the job design-performance relationship. Work engagement has been characterised as the investment of a person's authentic self into job tasks, and has been empirically associated with higher levels of in-role and extra-role performances (Christian, Garza and Slaughter 2011). However, to date, the potential for engagement to act as a mediator between job design and a full range of performance outcomes has not been fully explored. The purpose of our paper is to examine the role of engagement as the mechanism that explains the effect of job design on three facets of performance.

Our study extends prior research in three important ways. First, we explore for the first time the role of work engagement as a mediator between job design and performance outcomes using all five features of Hackman and Oldham's JCM. Although Christian et al.'s (2011) meta-analysis showed that four of the five job characteristics, namely, task variety, autonomy, significance and feedback are all positively related to engagement, prior studies have tended to use a limited set of job design characteristics (Salanova and Schaufeli 2008), statistically combined different job characteristics into a single measure (May, Gilson and Harter 2004, Saks 2006), or statistically combined job design measures with unrelated factors (Schaufeli and Bakker 2004, Salanova and Schaufeli 2008).

Second, we adopt a multi-dimensional approach to evaluating job performance by distinguishing among three types of employee behaviour, namely, task performance, citizenship behaviours and deviance. Rotundo and Sackett (2002) found that managers tend to take all three of these facets into consideration when rating employee performance. Most studies on the effect of job design and engagement focus on either task performance or citizenship performance, or a combination of the two. Our study is therefore the first to explore the relationships among job design, engagement and these three performance outcomes.

Third, our study is the first to take into consideration the links among job design, engagement and deviant behaviours. Whilst prior research has explored the links among engagement, job design and positive performance outcomes, few, if any, have examined what features of the job might ameliorate negative outcomes, via engagement. This is especially important in today's environment given the evidence that deviant behaviours are on the rise (Bowling and Gruys 2010).

The paper is structured as follows. First, we review evidence that supports positive relationships between each of the job design facets in Hackman and Oldham's (1980) JCM and engagement. In doing so, we build support for our hypotheses that each job characteristic is positively related to engagement. Second, we discuss the relationship between engagement and the three facets of performance under examination in the present study, and hypothesise relationships among them. Following this, we argue that engagement is a mechanism that explains the relationship between job design and performance outcomes. Next we present our sample, methods and results, and finally conclude with theoretical and practical implications of our findings.

JOB DESIGN AND ENGAGEMENT

Much of contemporary research into work design theory is centred on the JCM. Hackman and Oldham (1980) theorised that the presence of five key characteristics within jobs facilitates the development of internal motivation for effective performance. Specifically, these elements of the job are expected to increase positive attitudinal and behavioural outcomes, and decrease negative ones.

Two meta-analyses demonstrated the relevance and applicability of Hackman and Oldham's JCM to improving job attitudes. In both, all five job characteristics were strongly related to job satisfaction, internal work motivation, and growth satisfaction (Fried and Ferris 1987, Humphrey, et al. 2007). Although these meta-analyses go a long way in demonstrating the positive impact of job characteristics on employees' attitudes, they did not summarise findings that show a positive relationship between job design and work engagement. This is a critical omission given that the characteristics of jobs have featured in most models of work engagement (Kahn 1990, Bakker and Demerouti 2007).

Engagement is a multidimensional latent motivational construct with three dimensions, namely, vigour, dedication, and absorption. Vigour denotes a high level of energy and mental resilience at work, and a willingness to invest effort and persist in the face of obstacles. Dedication is characterised by being involved in one's work, and, as a consequence, it ignites a sense of pride, significance and enthusiasm. Absorption is characterised by being "mentally there" at work; individuals who are absorbed in their work are engrossed by it so that time at work passes quickly, and one has difficulty detaching from work (Bakker and Demerouti 2007). Empirical evidence suggests that engagement is a distinct, unique, and valid construct (e.g., Hallberg and Schaufeli 2006, Schaufeli, Bakker and Salanova 2006, Seppala, et al. 2009).

Leading theorists in the employee engagement literature have emphasized the role of job design in fostering employee engagement. For instance, Kahn's (1990) theory of engagement is rooted in Hackman and Oldham's (1980) proposal that characteristics of jobs drive people's attitudes and behaviours. Kahn (1990) suggested that work contexts create conditions in which individuals can personally engage with their work. In an ethnographic study, he found that when people were doing work that was challenging and varied, they were more likely to be engaged. Bakker and Demerouti's (2007) Job-Demands-Resources (JDR) Model also emphasises the role of job design in generating engagement. Specifically, the model states that physical, social, or organisational aspects of the job can be a source of engagement for people. This is because job resources reduce the pernicious effects of excessive work demands, foster the achievement of goals, and stimulate personal growth and learning (Bakker and Demerouti 2007). There is some empirical work that has linked job design and engagement; however, these studies have some limitations that the present study attempts to address.

For instance, in using Hackman and Oldham's (1980) five-facet measure of job design, both May et al. (2004) and Saks (2006) found a positive relationship between the presence of the five job characteristics and engagement. However, in both studies, the job characteristics were combined into a single measure of job enrichment. There are significant theoretical and practical implications of doing so because the results do not provide information on how individual job characteristics can be altered to generate engagement. One of the challenges in job (re)design involves choosing which job design feature to alter to achieve the (re)design goal (Morgeson & Humphrey 2006). Testing each of the five job characteristics, rather than a composite score of them (i.e. motivating potential score), enables the development of specific, actionable recommendations for organisations. Moreover, such an analysis reveals the relative strength of each job characteristic on the dependent measures (Hackman and Oldham 1974).

Four additional studies, which used the JDR as a theoretical framework, examined the effect of a handful of job characteristics on engagement. Feedback (Schaufeli and Bakker 2004, Salanova and Schaufeli 2008, Van den Broek, Vansteenkiste, De Witte and Lens 2008) task variety (Salanova and Schaufeli 2008) and autonomy (Van den Broeck, Vansteenkiste, De Witte and Lens 2008) were found to lead to higher levels of engagement. However, in all of the abovementioned studies, the job characteristics were combined into a composite variable with other variables that are unrelated to job characteristics (e.g., leadership, social support). It is therefore impossible to disentangle whether characteristics of the job, or other resources led to engagement.

Three studies have examined the effect of individual job characteristics on engagement, without confounding the job characteristics with other variables. Xanthopoulou, Bakker, Demerouti and Schaufeli (2009a) and Bakker and Bal (2010) found that autonomy

was positively associated with engagement and Christian et al. (2011) found that autonomy, task variety, task significance, and feedback were positively related to engagement. A limitation to these studies is that they did not examine all of the job characteristics that have the potential to elicit engagement. The present study extends these findings in an assessment of each of the five job characteristics on engagement, contributing to an understanding of the relative strength of each job characteristic in relation to engagement.

There are theoretical and empirical bases for linking each job design facet to engagement. A job holder whose tasks are varied, in that the incumbent is required to complete various activities throughout the work day, will likely feel challenged by his or her work. Hackman and Oldham (1976, p. 257) likened the effect of variety at work with “parlor games, puzzles, and recreational activities” as they tap into the intellectual or motor skills of the people who do them. When a job involves a variety of tasks, the job incumbent may experience a sense of energetic connection with work activities. Research that has investigated the effect of monotonous jobs lends support to this theory. For instance, research has shown that monotony leads job holders to experience psychological distress (Melamed, Ben-Avi, Luz and Green 1995), which may in turn cause them to cognitively disengage from their work. Individuals who feel that they engage in a variety of tasks, on the other hand, believe that their work is interesting (Morgeson and Humphrey 2006) and motivational (Ryan and Deci 2000), leading to our first hypothesis:

Hypothesis 1: Task variety is positively associated with engagement.

Job autonomy leads to psychological ownership of work. This is because the work outcomes of a jobholder with high levels of autonomy depend on the individual’s effort and decisions, rather than on instructions from the person’s superior or job procedures (Hackman and Oldham 1976). Moreover, autonomy provides a sense of possible gain, agency, and a

means to act (Lazarus and Folkman 1984). Hence the incumbent of a job that contains a large amount of autonomy may willingly invest effort and persist in the face of obstacles, which are tell-tale signs of engagement. Research shows that individuals who have discretion in their work life show high levels of enthusiasm, lower levels of fatigue (Saavedra and Kwun 2000), and a heightened sense of meaningfulness and engagement in their work (Kahn, 1990).

Further, research shows a positive relationship between this facet of job design and engagement (Xanthopoulou et al., 2009; Bakker & Bal, 2010), leading to the formulation of the second hypothesis:

Hypothesis 2: Autonomy is positively related to engagement.

An individual whose job enables him or her to be responsible for a whole piece of meaningful work is likely to feel a connection with the job. Kahn (1990) suggested that individuals who feel able to give and receive from work tasks that reflect their sense of self are more engaged at work. Jobs that involve a small, component part of a product or service are ones that may make identification with the job more difficult. Seeing the ‘big picture’ enables job involvement, and sets the groundwork for experiencing pride in one’s work, and believing that one’s work contributes to the organisation’s goals. Job holders who rate their job as high in task identity are therefore expected to exhibit higher levels of engagement. In other words, our third hypothesis is:

Hypothesis 3: Task identity is positively related to engagement.

A job with a high level of task significance is one in which the job holder believes that the job has a demonstrable impact on others (Hackman and Oldham 1980). Grant’s (2007) theoretical framework asserts that if employees are aware of the impact of their work on others, they are likely to invest high levels of effort and persist in completing their work. An

employee whose tasks are perceived as significant view the work as purposeful and valuable, and therefore may be willing to exert high levels of energy while working, and remain resolute in the face of task difficulty. Grant's (2008) field experiment with lifeguards (experiment 2) lends support to the argument that task significance leads to positive attitudes. The lifeguards who were randomly assigned to the experimental condition read stories about other heroic lifeguards. Those allocated to the control condition were not privy to the stories. One month later, the lifeguards in the experimental condition reported more positive feelings of self-worth than those in the control condition. These positive feelings of self-worth may act as a personal resource that generates engagement. This leads to our fourth hypothesis:

Hypothesis 4: Task significance is positively related to engagement.

Finally, we expect that individuals who receive information about the effectiveness of their efforts from their job are more likely to report higher levels of engagement. This is because knowledge of results from the work itself can increase a person's pride and enthusiasm in their work (Hackman and Oldham 1980). Since engagement encompasses feelings of identification with, and pride in one's work, feedback provides the necessary information to the job incumbent to understand his or her progress and goal attainment. Feedback is also motivational for people (Locke and Latham 1990), and may lead individuals to become more energetic and persistent in the face of difficulties. Therefore, our next hypothesis is:

Hypothesis 5: Feedback is positively related to engagement.

EMPLOYEE ENGAGEMENT AND THREE FACETS OF JOB PERFORMANCE

Increasing job performance is among the most theoretically and practically important problems in organisational research (Staw 1984). We examine three facets of performance,

namely, task performance, organisational citizenship behaviour, and deviance. This is because Rotundo and Sackett (2002) suggested that when managers evaluate employees' performance, all three facets are taken into consideration in formal ratings.

Empirical evidence is beginning to accumulate that identifies task performance as an outcome of work engagement. Specifically, research shows that a positive relationship exists between engagement and performance at the group (Harter, Schmidt and Hayes 2002), individual (e.g., Rich, LePine and Crawford 2010, Christian, et al. 2011), and at the intra-individual level (Bakker & Bal, 2010). Fredrickson's (2001) Broaden and Build theory explains the positive relationship between engagement and task performance. Engaged employees experience positive emotions which broaden people's "thought action repertoire", leading them to become more attentive and absorbed in their work. Based upon Broaden and Build theory and previous studies which have found a positive relationship between engagement and task performance, we hypothesise:

Hypothesis 6: Engagement is positively related to task performance.

OCBs are discretionary behaviours that contribute to the organisation by fostering a social environment that is conducive to the accomplishment of work, and includes such behaviours as helping others, advocating the organisation, and attending functions not formally required by the organisation (Borman and Motowidlo 1997, Organ 1997). The enactment of proactive activities implies going beyond core task behaviour by developing new strategies or pursuing alternative goals in relation to the organization (Fay and Sonnentag 2012). Fredrickson's (2001) Broaden and Build theory and related research on positive affect (Fay and Sonnentag 2012) suggests that engagement is associated with increased enactment of OCBs. Broaden and Build theory asserts that people in a positive state such as engagement experience broadened cognition, which is associated with higher levels of creativity, broader

scope of attention and openness to information (Fredrickson 2001). Empirical evidence has supported the link between engagement and OCBs. Saks (2006), Rich et al. (2010), Babcock-Roberson and Strickland (2010), and Christian et al. (2011) found that engagement leads to higher levels of OCB, and Sonnentag (2003) found that engagement leads to proactive behaviour, taking initiative, and the pursuit of learning goals. In light of this evidence, our next hypothesis is:

Hypothesis 7: Engagement is positively related to OCB.

The third facet of performance, deviant behaviours, negatively impacts the organisation, and threatens its well-being. It includes such behaviours as stealing, damaging the organisation's property, arriving late at work, or taking unauthorised breaks (Robinson and Bennett 1995). Although there is no evidence showing a relationship between engagement and deviance, from a conceptual perspective, it follows that individuals who are not engaged with their job would be more likely to engage in deviant behaviours. This is because engagement implies absorption, attachment to the job, and enthusiasm for it. Since engaged workers have fewer negative emotions (Avey, Wernsing and Luthans 2008) and more job and personal resources (Xanthopoulou, Bakker, Demerouti and Schaufeli 2009b), they may be less likely to act negatively towards the organisation. Therefore:

Hypothesis 8: Engagement is negatively related to deviance.

THE MEDIATING ROLE OF EMPLOYEE ENGAGEMENT

A vast amount of empirical research has been conducted to demonstrate the relationship between job design characteristics and employee attitudinal and behavioural responses (e.g., Fried & Ferris, 1987; Humphrey et al., 2007). For example, recent work on job design has found that task variety and worker autonomy are positively related to labour

productivity and product quality (DeVaro, Li and Brookshire 2007) and autonomy is positively related to worker satisfaction (Garrido, Perez and Anton 2005, DeVaro, et al. 2007), organisational commitment (Noblet, Teo, McWilliams and Rodwell 2005), and participation in knowledge exchange (Cabrera, Collins and Salgado 2006). The JCM asserts that positive outcomes occur as a result of job design when employees experience three critical psychological states. Specifically, task variety, significance and identity lead to “meaningful work”; autonomy leads to “experienced responsibility”; and feedback leads to “knowledge of results” (Hackman & Oldham, 1980). However, there are few studies that have assessed the mediating role of the three critical psychological states on the relationship between job design and favourable work outcomes.

The results of these few studies appear to be mixed (e.g., Fried and Ferris 1987, Johns, Xie and Fang 1992, Humphrey, et al. 2007). One of the most reliable findings is that the psychological state, knowledge of results, is most closely tied to the work characteristic feedback (Hackman and Oldham 1976, Johns, et al. 1992). With regards to the other two psychological states, the results have been inconsistent. For instance, Johns et al. (1992) found that meaningfulness received some unique contribution from each of the five core job dimensions, and Hackman and Oldham (1976) found that responsibility was influenced by several of the job characteristics besides autonomy. An additional issue is that some studies have found that a single factor model of the psychological states fit the data best (e.g., Johns et al., 1992). For instance, results from Humphrey et al.’s (2007) meta-analysis suggest that the mediator is experienced meaningfulness. In addition, there is some empirical support for job satisfaction as a mediator (Liden, Wayne and Sparrowe 2000), and theoretical arguments for the mediating role of job ownership (Pierce, Jussila and Cummings 2008).

In light of this evidence, Morgeson and Campion (2003) criticised the JCM for its inclusion of an unnecessary number of mediating psychological processes. They called for a more parsimonious explanation of the effect of job design on individual and organisational outcomes. The present study answers this call by introducing and testing engagement as a mediator of the relationship between job design and performance. We propose that the way jobs are designed has the potential to ignite a sense of enthusiasm in people, and propel them to higher levels of performance.

Engagement has been described as a unique construct, different from other similar attitudinal variables such as intrinsic motivation, involvement, and commitment (Hallberg and Schaufeli 2006, Seppala, et al. 2009). Of the three critical psychological states identified by Hackman and Oldham (1976), experienced meaningfulness of work is most conceptually similar to engagement. Experienced meaningfulness is defined as “the degree to which the individual experiences the job as one which is generally meaningful, valuable and worthwhile” (Hackman and Oldham, 1976, p. 256). This is reminiscent of the dedication facet of engagement, but the focus of dedication is on enthusiasm, inspiration and pride in one’s work. In addition, engagement also includes an active, energetic component (vigour), and a component that refers to becoming fully engrossed with work (absorption). Hence, engagement represents a broader view of an individual’s agentic self which may position it to explain the effects of job design on performance, OCB, and deviance. Moreover, engagement is an activated motivational state, whereas meaningfulness has been conceptualized as a driver of engagement (Kahn, 1990).

A theoretical explanation for the mediating role of engagement can be gleaned from Social Exchange Theory (Blau 1964). This theory asserts that when both the employer and employee abide by exchange rules, they will have a more trusting and loyal relationship. This

is because “social exchange comprises actions contingent on the rewarding reactions of others, which over time provide for mutually and rewarding transactions and relationships” (Cropanzano and Mitchell 2005: 890).

Hence, engaged employees continue to enact themselves fully into their work role because of the continuation of favourable reciprocal exchanges. Employees who are provided with enriched jobs may feel obliged to express themselves in their role as a repayment for the resources they receive from their organisation. People who perceive that they receive unfavourable treatment from their organisation, on the other hand, are more likely to feel angry, vengeful and withdraw from their role. Consistent with the norms of reciprocity, such dissatisfied employees are likely to reciprocate by behaving in a deviant manner, such as withholding effort, arriving at work late, taking longer breaks than allowed, and so on. These theoretical models imply that dis-engaged employees may retaliate against their employer by behaving in ways that harm the organisation.

Therefore, we hypothesise that each job characteristic leads to higher levels of (a) task performance, (b) OCB, and lower levels of (c) deviance. Each of these relationships, we suggest, is mediated by work engagement. Our hypothesised model is depicted in Figure 1.

Hypothesis 9: The relationships between task variety and (a) task performance, (b) OCB, and (c) deviance are mediated by engagement.

Hypothesis 10: The relationships between autonomy and (a) task performance, (b) OCB, and (c) deviance are mediated by engagement.

Hypothesis 11: The relationships between task significance and (a) task performance, (b) OCB, and (c) deviance are mediated by engagement.

Hypothesis 12: The relationships between task identity and (a) task performance, (b) OCB, and (c) deviance are mediated by engagement.

Hypothesis 13: The relationships between feedback and (a) task performance, (b) OCB, and (c) deviance are mediated by engagement.

Insert Figure 1 about here

METHODS

Sample and procedure

The participants in our study were employees working for a consultancy and construction firm in the UK. Six hundred and seventy-one employees were asked to complete an online questionnaire. Employees were informed about the purpose of the data collection (i.e., to gather opinions of their work) and its confidentiality, in line with the ‘best practice’ guidelines proffered by the British Psychological Society (BPS 2004). The respondents were encouraged to participate in the survey within two weeks. All employees were given time to complete the survey at work. From our sample, 414 questionnaires were returned, a response rate of 62%. Out of this sample, performance appraisal data were available from 283 employees. The final sample comprised 62.6 per cent men; the average age was 41.77 years (SD = 11.62); the average tenure was 4.02 years (SD = 3.22).

Measures

Job Design Characteristics. We drew from the Work Design Questionnaire (WDQ; Morgeson & Humphrey, 2006) to measure the five facets of job design, namely autonomy, task significance, task identity, feedback from the job and task variety. Each job design facet

was measured with two questions. Consistency coefficients were .92 (autonomy), .85 (task significance), .92 (task identity), .93 (feedback from job), and .95 (task variety).

Employee Engagement. We measured employee engagement with the 9-item version of the Utrecht Work Engagement Scale (UWES-9, Schaufeli, Salanova, Gonzalez-Roma and Bakker 2002). The measure of engagement used in the present study has been shown to exhibit high internal consistency and test-retest reliability as well as discriminant, convergent and construct validity (Hallberg and Schaufeli 2006, Schaufeli, et al. 2006, Seppala, et al. 2009, Christian, et al. 2011). Each facet of engagement, namely, absorption (e.g., “I am immersed in my work”), dedication (e.g., “I am enthusiastic about my job”) and vigour (e.g., “At work, I feel full of energy”) was assessed with three items. We used a 7-point frequency rating scale from 1 (“never”) to 7 (“always”) for all subscales. Overall consistency for the composite engagement scale was .89.

Individual task performance. We used managers’ performance appraisal ratings to measure individual task performance. Appraisal data were collected from the Human Resource Department’s database of performance appraisals. Employees were assigned an overall grade of “A”, “B”, or “C”, with “A” representing excellent performance. In the data analysis, A was assigned a numerical score of 3, B was assigned a score of 2, and C was scored as 1.

Organisational Citizenship Behaviour. We measured OCB with four items based upon Lee and Allen (2002). A sample item was, “I attended functions that are not required but that help the organisational image”. Response options ranged from 1 (“never”) to 7 (“always”). Internal consistency was .78.

Deviance. We measured deviance with four items based upon Robinson and Bennett's (2000) deviance scale. A sample item was, "I came in late to work without permission". Response options ranged from 1 ("never") to 7 ("always"). Internal consistency was .81.

RESULTS

Table I presents the means and standard deviations for each scale, and inter-scale correlations, for all study variables.

Insert Table I about here

We employed latent variable structural equation modelling (Jöreskog and Sörbom 1993) using maximum likelihood estimation in AMOS 18.0 (Arbuckle 2006) to evaluate the model. Structural equation modelling simultaneously estimates the structure within a series of dependence relationships between latent variables with multiple indicators while correcting for measurement errors (Bollen and Long 1993, Hair, Black, Babin, Anderson and Tatham 2010). Following established recommendations (Hair, et al. 2010) we calculated five fit indices to determine how the model fitted the data: χ^2 , Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Square Residual (SRMR). For GFI and CFI values greater than .9 represent a good model fit, and for SRMR and RMSEA values less than .07 indicate a good model fit, whereas values less than .1 are acceptable (Browne and Cudeck 1993, Hu and Bentler 1998, Kline 2005).

Measurement Models

To assess construct validity of the variables in the present study, we examined discriminant and convergent validity, following the steps outlined by Hair et al. (2010). To analyse whether the constructs in our model were distinct from each other, we initially

performed a series of confirmatory factor analyses (CFA). First, we tested the measurement model for work design by allocating the 10 items to the five job design characteristics. The 5-factor model showed a very good model fit ($\chi^2 = 50$; $df = 25$; $GFI = .97$; $SRMR = .02$; $RMSEA = .06$; $CFI = .99$). We compared the 5-factor model with a 1-factor model in which all job design items loaded onto one general factor. The 1-factor measurement model did not yield an acceptable model fit (see Table 2).

Insert Table II about here

In the second step we tested the measurement model for employee engagement. Employee engagement consists of three closely related dimensions, which can be combined into one aggregate measure of engagement (Schaufeli and Bakker 2003). The 3-factor model, in which the 9 engagement items loaded on their respective dimensions, had an acceptable model fit ($\chi^2 = 92$; $df = 24$; $GFI = .93$; $SRMR = .05$; $RMSEA = .10$; $CFI = .95$). In contrast, the model fit for the 1-factor solution, in which all items loaded on one general engagement factor, was unacceptable (see Table 2). We therefore decided to aggregate the engagement items on a dimensional level and keep the three engagement dimensions separate.

In the next step we tested the measurement model for the performance variables. The 3-factor model, in which the items for performance, OCB and deviance loaded on their respective factors, yielded a good model fit ($\chi^2 = 38$; $df = 25$; $GFI = .97$; $SRMR = .04$; $RMSEA = .04$; $CFI = .98$). In comparison, a 1-factor model, in which all items loaded on one general performance factor only, had an unacceptable model fit (see Table 2).

Finally, we combined all 9 factors in one overall measurement model. The CFA analysis revealed a good fit of the data ($\chi^2 = 296$; $df = 174$; $GFI = .91$; $SRMR = .05$; $RMSEA = .05$; $CFI = .97$). Again, we tested a series of alternative models to establish the discriminant

validity of our scales. Specifically, employee engagement was subsumed under one common factor with job design and performance, respectively. These 4- and 6-factor models had unacceptable model fits (see Table 2). We therefore concluded that all constructs in our study were distinct from one another.

To establish the convergent validity of the scales, we examined the standardised regression weights in the full measurement model. The standardised regression weights were between .56 and .97 and therefore were deemed satisfactory because they were above the suggested threshold of .5. Moreover, the average variances extracted (AVE) measures ranged from 49% to 90%. The AVEs therefore exceeded the suggested 50-percent 'rule of thumb', with the exception of OCB, where the AVE was just below this value. This supports the convergent validity of the measures.

Structural Model

After having established the discriminant and convergent validity of the constructs, we tested the full structural model. Overall, our hypothesised model provided a good fit for the data ($\chi^2 = 327$; $df = 192$; $GFI = .90$; $SRMR = .06$; $RMSEA = .05$; $CFI = .96$) and the majority of our hypotheses were supported by the data. Apart from task identity, all work design dimensions were positively related to employee engagement. Moreover, engagement was positively related to task performance and OCB and negatively related to deviance.

Our hypothesised model implies that engagement mediates the link between job design and performance. The literature provides a number of suggestions on how to identify such a model (Shaver 2005, Wood, Goodman, Beckmann and Cook 2008, DeVaro 2011). In the present study, we assumed that the error terms in the 'Y' regression and the 'M' regression are uncorrelated. By fixing the error terms across equations to zero in SEM, the

model was identified and could be estimated. Doing so may be problematic as the error term in a regression equation captures missing variables and systematic measurement error, aside from truly random effects¹ (Shaver 2005). Therefore, a number of precautions were taken.

Specifically, the relationships in the empirical model were based on theoretically derived hypotheses, reducing the likelihood of major model misspecifications or that variables were omitted. Additional steps were taken to minimise measurement error. All measures were taken from validated scales and had high inter-item reliability. Furthermore, the AVEs were above the recommended threshold which indicated that the majority of variance was captured by the construct and not the error terms. Finally, we tested for mediation following the most commonly used approach, as outlined by Baron and Kenny (1986). Wood et al.'s (2008) recommendations were followed to ensure that valid conclusions could be drawn regarding the mediation effect in the present study.

In our analysis, we tested a full mediation model against alternative models in which we subsequently added direct paths between the job design facets and the performance constructs, using nested model comparisons with X^2 difference tests. We buttressed this approach by examining the significance of indirect effects using a bootstrapping procedure in AMOS 18.0. An advantage of bootstrapping over alternative tests of mediation such as Sobel (1982) is that it takes into account the skew of the distribution (Shrout and Bolger 2002). The results are presented in Table 3.

¹ If the error term captures missing variables and systematic measurement error, it is possible that the error terms between equations will correlate, thereby violating a key assumption of standard tests for mediation and leading to biased mediation results. Shaver (2005) and DeVaro (2011) suggested that researchers should include at least one additional 'instrumental' variable in the model that directly affects the mediator, but does not directly affect the outcome variable to solve the identification problem. Since the additional instrument was not specified at the design stage of the present study, the alternative mediation procedure was not viable. We therefore decided to proceed with the analysis following Shaver (2005: 348) who suggested that in a situation like this, "the standard approach [should] be applied with careful interpretation and with the proper caveats."

Insert Table III about here

Our results demonstrate that the indirect effects of task variety, task significance, autonomy and feedback mediated by engagement on all three indicators of performance, are statistically significant. As task identity was not associated with engagement, we did not find a mediating effect. In the next step, we included direct effects of task identity on all three performance indicators. Task identity was negatively related to OCB. The overall model fit of our final model was good ($\chi^2 = 321$; $df = 192$; $GFI = .91$; $SRMR = .06$; $RMSEA = .05$; $CFI = .96$). The standardised estimates of the final model are represented in Figure 2.

Insert Figure 2 about here

With a standardised estimate of .26, task variety showed the strongest association with employee engagement. Moreover, autonomy ($\beta = .19$), feedback from job ($\beta = .15$) and task significance ($\beta = .18$) showed a strong and positive association with engagement. Hence, Hypotheses 1, 2, 3, and 5 were confirmed. Hypothesis 4, that task identity is positively related to engagement, was not supported by the data.

As we had hypothesised, employee engagement was positively and significantly related to in-role and extra-role performance, confirming Hypotheses 6 and 7. With a standardised estimate of .52, the association between engagement and OCB was strong. The association between engagement and task performance which were sourced through performance ratings was .14. Finally, employee engagement was negatively associated with deviant behaviour towards the organisation, lending support for Hypothesis 8 ($\beta = -.30$). Finally, task identity was negatively related with OCB with standardised coefficients of -.17.

Table 3 shows the results for the mediation analyses. Engagement mediated the relationship between task variety, task significance, autonomy and feedback from job on task

performance, OCB, and deviance. Hypotheses 9, 10, 11, and 13 were supported. Finally, given that task identity was not positively associated with engagement, we did not find support for hypothesis 12.

DISCUSSION

Our results reveal that the way jobs are designed has the potential to ignite a sense of enthusiasm in people, and propel them to higher levels of performance. In the present study, we examined the influence of job design, via engagement, on three facets of performance, namely, task performance, citizenship behaviours, and deviance. Although previous research has shown that engagement leads to both higher levels of task and citizenship performance, few, if any published research studies have identified deviant behaviours as a consequence of (dis)engagement.

We first tested whether features of a person's job lead to higher levels of engagement. Our results show that task variety, autonomy, significance, and feedback were positively related to employee engagement. Among these findings, task variety showed the strongest relationship with engagement. Next, we examined the relationships among engagement and three facets of performance. Our findings revealed that employee engagement was positively related to OCB and task performance, as rated by supervisors, and employee engagement was negatively related to deviance. Finally, the results showed that engagement fully mediated the relationships between four of the five job characteristics and all three facets of job performance. Specifically, individuals who have variety, autonomy, significance and feedback are rated higher by their supervisors, enact more OCBs and engage in fewer deviant acts because they are engaged with their work.

These findings have both theoretical and practical implications. First, we responded to calls for more detailed theory construction and empirical tests of new models in the job design literature. Humphrey et al. (2007) concluded from their meta-analytic summary of the job design literature that there are weaknesses both in the theoretical construction of the JCM, but also in the empirical research supporting it. The present research makes a first attempt to contribute to, and strengthen job design research by identifying and testing a mediator of the job design-outcome relationship, namely engagement. Specifically, our results show that the design of a person's job elicits his or her engagement with the task, which in turn, both increases task and citizenship performance, and decreases the frequency of deviant behaviours. Our study also provides support for using Social Exchange Theory as a guiding theoretical framework in examining engagement as a mediator of the job design – performance relationship. Engaged employees may feel indebted to their organisation, and hence exert more effort in their work role, leading to higher levels of task performance, the enactment of more OCBs and fewer acts of deviance, all in a spirit of reciprocity.

Second, our research examined three facets of performance, namely, task, citizenship performance and deviance. Examining all three facets of performance is important given that Rotundo and Sackett (2002) found that in rating employees' performance, managers take each into consideration. Further, this is the first study, to our knowledge, to demonstrate that engagement leads to lower levels of deviant behaviour at work, thereby increasing our understanding of how job design, through engagement, can deter negative behaviours.

Third, the present study extends our understanding of the drivers of employee engagement. Along with non-job related factors, such as leadership (Christian et al. 2011), and human resource management practices (Alfes, Shantz, Truss and Soane 2012), the present study reveals the importance of job design in eliciting levels of engagement. Although past

research has indicated that job characteristics generate employee engagement, this is the first study to use all five of Hackman and Oldham's job characteristics to do so. The present results therefore shed light on which job characteristics are most relevant for increasing employee engagement.

Our results also add to research that points to engagement as a promising underlying mechanism for explaining employees' performance at work. Establishing the validity and magnitude of this mediation effect in future research would contribute greatly to our understanding of a common explanatory mechanism that may account for the effect of a range of individual and situational factors on performance. Future research should, for example, examine multiple mediators (e.g., the three critical psychological states, intrinsic motivation, job satisfaction, etc.) of the relationship between job design and performance outcomes to determine whether engagement is the sole mediator.

Additionally, the role of individual moderating constructs on the work design to engagement and/or work design to performance relationship should also be explored in future research. For instance, the enactment of positive behavioural outcomes as a consequence of work design and engagement may depend on the wider organisational climate or employees' relationship with their line manager. The area is ripe for investigation of moderator variables that may provide a more contextualised view of the relationship between job design, engagement, and behavioural outcomes.

Practical Implications

One practical implication of the present study is the importance of engagement for generating high levels of performance. The present findings may be of particular interest to practitioners given that we found a positive relationship between engagement and three

separate facets of performance. Raising individual performance through high levels of work engagement may help organisations survive, specifically in difficult economic climates.

A second practical implication of the present study is that organisations should consider orchestrating jobs so that they are enriched, with an emphasis on creating variety in people's work and providing them with autonomy in the decisions that they make. However, there may be some jobs that do not enable the opportunity to become engaged. For instance, some jobs have little objective task variety, or provide little feedback to the job incumbent. In the present study, we examined perceptions of job features, rather than objective properties of the job. This is because some individuals may perceive a job as more or less enriched than another, perhaps due to the messages he or she receives about the job from management. For instance, a job incumbent who sands catalytic converters throughout the day may not find significance in the work that he or she does. However, when informed that the end product will be used in new Harley Davidson motorcycles, the job incumbent may feel a sense of pride and significance in the work. HR and line managers may have a critical role in shaping the perceptions of jobs. One way to do so may be to speak to employees about the importance of their work and emphasise the contribution of the work to the achievement of overarching organisational aims.

However, there are at least two caveats to recommending that HR and line managers focus on increasing levels of engagement and positive perceptions of job design. The first is that there may be an upper limit on the amount of enrichment that is engaging for people. People whose jobs are too enriched may find the job stressful, rather than engaging. Although Hsieh and Chao (2004) found that job rotation was negatively associated with burnout, a study by Halbesleben, Harvey and Bolino (2009) found that employees who are engaged at work have higher work-to-family conflict because they enact more helping behaviours, or

OCBs, leading to resource drain. A related contention is that, if engaged workers are more stressed, then according to the economic theory of compensating differentials (Rosen 1986), organisations must compensate engaged employees for the associated health risks. There is a need for more research into this domain from an empirical and theoretical perspective.

A second proviso for recommending job design as a solution to improving organisational performance is that employee performance must be positively and significantly related to organisational performance, and that the cost of job (re)design efforts is offset by the increase in organisational performance. In other words, it is necessary to map individual employee performance onto measures of organisational performance, while controlling for the cost of job design, in order to justify that job design configurations confer organisational benefits. The cost of job design may be significant, not only in terms of the process of job re-design itself, but also because if employees exercise more discretion and are expected to perform a wider variety of tasks, they may feel entitled to a pay rise and/or jobs may require re-grading. Although research conducted by DeVaro et al. (2007) shows that job characteristics are positively associated with higher organisational performance (i.e. labour productivity and product quality), more research is necessary that examines the links among job (re)design, individual performance, and organisational performance.

Limitations

A limitation of this study is its cross sectional nature. Aside from our measure of task performance, which was rated by employees' managers, our conclusions should be tempered with concerns regarding causality. We are not certain that the work characteristics cause engagement, or that engagement causes employees to have more positive perceptions of their work. Although the linkages found in the present study are consistent with the literature on engagement (Kahn, 1990) and job design theory (Hackman & Oldham, 1990; Morgeson &

Humphrey, 2006), future research needs to employ longitudinal or experimental designs to provide more definitive conclusions regarding the relationship among work characteristics and employee engagement.

Another limitation refers to the approach taken to assess mediation. The approach recommended by Shaver (2005) and DeVaro (2011) could not be replicated in the present study because an additional instrument was not designed as part of the survey. Hence, we heeded the advice of Shaver (2011) to use the standard approach to establish mediation. Moreover, numerous steps were taken to reduce systematic measurement error and recommendations put forth by Wood et al. (2008) were followed. Therefore, we are reasonably confident that the present results help to understand the relationships among work characteristics, engagement, and performance. Nevertheless, future studies should include appropriate instruments at the design stage to be able to use alternative mediation techniques.

CONCLUSION

Although job design has a long and rich history in the management sciences, questions remain pertaining to the theoretical and empirical bases of models of job design. In particular, the mediating construct(s) that explain the positive relationship between job design and performance outcomes has been, to this point, elusive. In this paper, we presented and tested a theoretical modification to Hackman and Oldham's JCM that explores the mediating effect of work engagement on the job design-performance relationship. The results show that if organisations ensure jobs provide individuals with variety, significance, autonomy and feedback, then people will be more engaged at work, leading to positive performance outcomes and low deviance levels.

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TABLES AND FIGURES

TABLE I

Means, Standard Deviations, and Correlations for Study Variables

	M	SD	1	2	3	4	5	6	7	8
1. Autonomy	5.45	1.35								
2. Task Significance	5.04	1.51	.36**							
3. Task Identity	5.06	1.39	.47**	.31**						
4. Feedback from Job	4.74	1.48	.40**	.40**	.39**					
5. Task Variety	5.58	1.30	.60**	.39**	.32**	.40**				
6. Employee Engagement	4.93	.85	.44**	.37**	.27**	.38**	.50**			
7. Performance	2.18	.48	.18**	.06	.02	.11	.14*	.12*		
8. Organizational Citizenship Behaviour	4.24	1.21	.22**	.26**	.01	.16**	.23**	.44**	.06	
9. Deviance	1.83	.86	-.09	-.09	-.04	-.11	-.11	-.23**	.03	.02

Notes: N = 283; ** p < .01, * p < .05; M = Mean; SD = Standard Deviation

TABLE II
Structural Equation Model Comparisons

Models	$\chi^2(df)$	GFI	SRMR	RMSEA	CFI	χ^2_{diff}	df_{diff}
CFA Work Design 5 factors	50 (25)	.965	.022	.060	.988		
CFA Work Design 1 factor ^a	1183 (35)	.602	.145	.341	.471	1133	10**
CFA Engagement 3 factors	92 (24)	.934	.052	.100	.953		
CFA Engagement 1 factor ^b	198 (27)	.862	.071	.150	.882	106	3**
CFA Performance 3 factors	38 (25)	.971	.041	.043	.981		
CFA Performance 1 factor ^c	394 (27)	.725	.193	.220	.459	356	2**
CFA Overall Model 9 factors	296 (174)	.912	.051	.050	.965		
CFA Overall Model 6 factors ^d	860 (194)	.744	.103	.110	.808	564	20**
CFA Overall Model 4 factors ^d	1713 (204)	.676	.103	.162	.566	1417	30**

Notes: N = 283, **p<.01; χ^2 =chi-square discrepancy, df=degrees of freedom; GFI=Goodness of Fit Index; SRMR=Standardised Root Mean Square Residual; RMSEA=Root Mean Square Error of Approximation; CFI=Comparative Fit Index; χ^2_{diff} =difference in chi-square, df_{diff} =difference in degrees of freedom

^a=compared to CFA Work Design 5-factor model

^b=compared to CFA Engagement 3-factor model

^c=compared to CFA Performance 1-factor model

^d=compared to CFA Overall 9-factor model

TABLE III
Indirect Effects of Work Characteristics on Performance Indicators via Engagement

	Task Performance	OCB	Deviance
1. Task Variety	.014 [.037 ^a ; .008 ^b]**	.090 [.120; .038]**	-.059 [-.079; .029] **
2. Autonomy	.010 [.026; .002]**	.060 [.085; .032]**	-.039 [-.056; .024]**
3. Task Significance	.008 [.025; .005]**	.051 [.081; .028]**	-.034 [-.053; .021]**
4. Task Identity	.000 [.000; .000]	.000 [.000; .000]	.000 [.000; .000]
5. Feedback from Job	.007 [.021; .005]**	.045 [.069; .028]**	-.030 [-.045; .020]**

Notes: N = 283, **p<.01

^a=standardised indirect effects

^b=bootstrapped standard errors

FIGURE 1

The Mediating Effect of Engagement on the Job Design to Performance Relationship

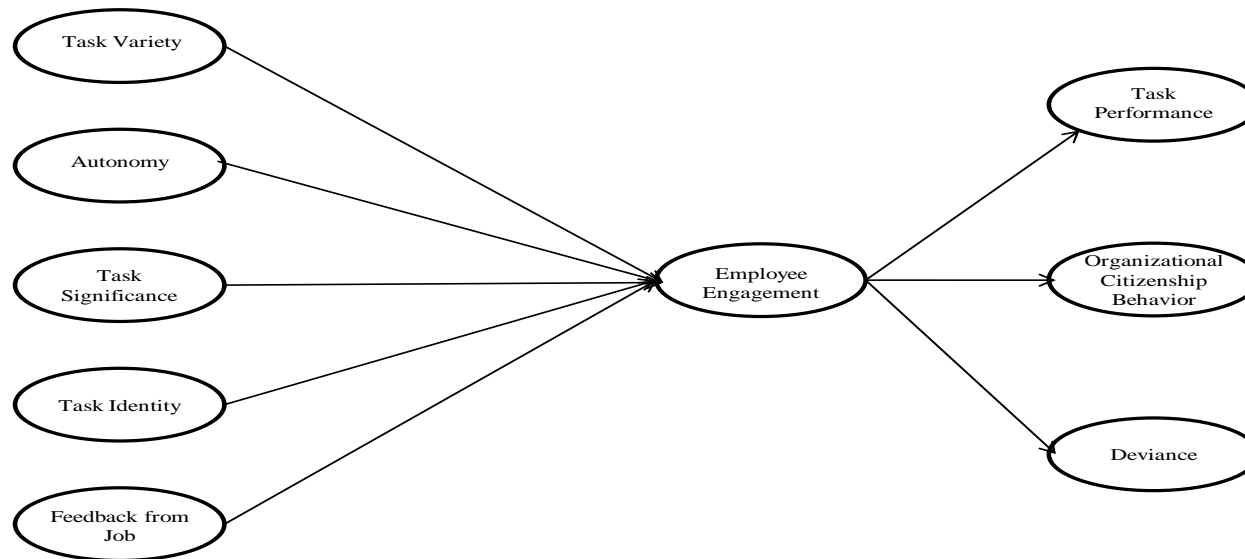
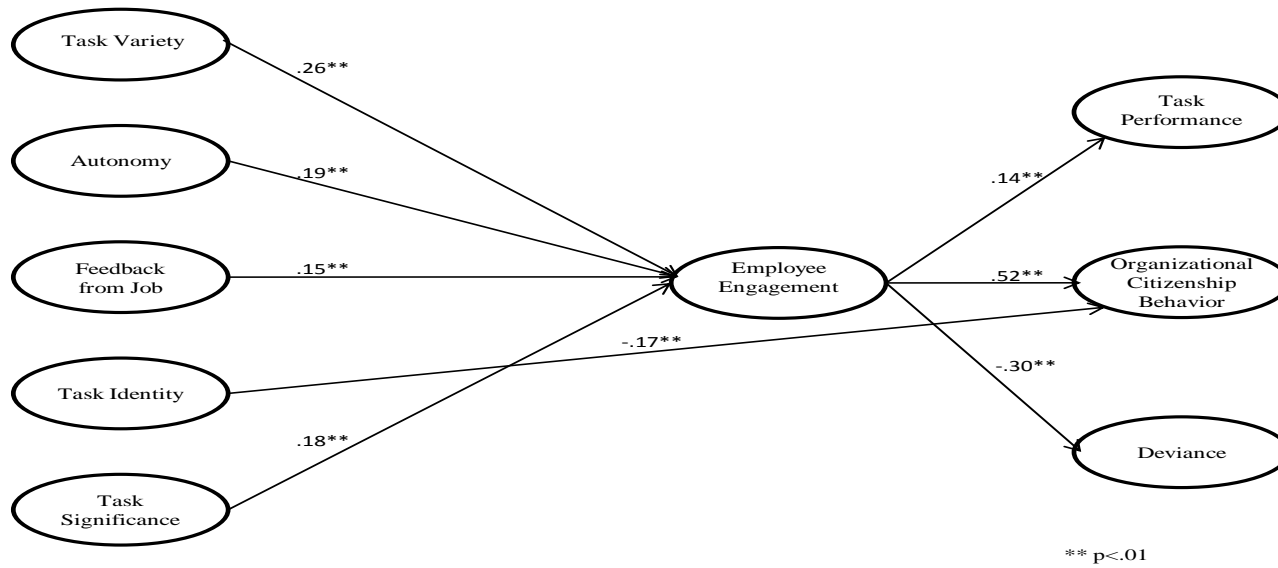


FIGURE 2
Standardised Path Estimates: Final Model



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