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Work engagement as a mediator between employee attitudes and outcomes

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This paper assesses the role of work engagement in the relationships between affective commitment, job satisfaction and two employee outcomes – supervisor-rated job performance and self-reported intention to quit – using a cross-lagged research design. Our evidence supports the discriminant validity of work engagement, job satisfaction and affective commitment, and explores the temporal relationships between these constructs. Our findings suggest that work engagement mediates the relationships from affective commitment to job performance and intention to quit. Work engagement also mediates the relationship from job satisfaction to job performance, and partially mediates the relationship from job satisfaction to intention to quit.

Keywords: affective commitment; job performance; job satisfaction; mediation; work engagement

Introduction

Employee engagement has captured the attention of business practitioners, academic researchers and governments. These parties are interested in understanding the concept itself as well as its causes and consequences. There is little current consensus surrounding these issues (Bakker and Schaufeli 2008; MacLeod and Clarke 2009; Fleck and Inceoglu 2010) but all parties agree that employee engagement is worth exploring because of its potential impact on performance.

Practitioner definitions of employee engagement often appear to be combinations of well-established academic constructs such as affective commitment, continuance commitment, job involvement, job satisfaction and discretionary behaviour (Harter, Schmidt and Hayes 2002; Attridge 2009; Schaufeli and Bakker 2010), though the lack of a consistent definition has not precluded wide discussion of performance effects of employee engagement including profits, employee productivity and retention (Little and Little 2006; Truss et al. 2006; Schaufeli and Bakker 2010), and strategies for how to deliver them (e.g. Truss and Soane 2010). Much of the academic literature on engagement has concentrated on the identification of engagement measures that reflect a distinct psychological state rather than being definitionally connected to previously identified constructs (e.g. Halbesleben and Wheeler 2008; Macey and Schneider 2008; Macey, Schneider, Barbera and Young 2010; Rich, Lepine and Crawford 2010; Schaufeli and Bakker 2010). This reveals a fruitful gap for research on the links between engagement and various organizational outcomes of interest to academics and practitioners alike.

Work engagement is a motivational–psychological state with three dimensions: vigour, dedication and absorption (Schaufeli, Bakker and Salanova 2006). An increasing number of studies indicate that work engagement is a demonstrably unique construct in need of further study (Maslach, Schaufeli and Leiter 2001; Hallberg and Schaufeli 2006;

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Saks 2006; Bakker and Schaufeli 2008; Macey and Schneider 2008; Meyer and Gagné 2008; Kühnel, Sonnentag and Westman 2009). Schaufeli and Bakker (2010) indicate that while the distinction between organizational commitment and work engagement has been established, there are no studies demonstrating similar separability of job satisfaction and work engagement. Difficulties in establishing the discriminant validity of work engagement may reflect the confounding of the affective components of job satisfaction with some dimensions of engagement, particularly dedication and absorption. Further work is required to establish the discriminant validity of job satisfaction, affective commitment and work engagement, as well as to investigate the conflicting assumptions about the temporal ordering of these constructs. As such, the first part of this study establishes the distinction between these three constructs and assesses their temporal order. We subsequently focus on the impact of the relationships between these constructs on employee performance and intention to quit.

High work engagement has been linked to improved in-role performance (Salanova, Agut and Peiró 2005; Xanthopoulou, Bakker, Demerouti and Schaufeli 2009), increased extra-role behaviour (Bakker, Demerouti and Verbeke 2004), and reduced employee turnover and intention to quit (Schaufeli and Bakker 2004; Hakanen, Bakker and Schaufeli 2006; Saks 2006; Bakker and Demerouti 2008; Halbesleben and Wheeler 2008). There have been sufficient studies to allow some meta-analytic work on the links from employee engagement to task and contextual performance (e.g. Halbesleben 2010; Christian, Garza and Slaughter 2011). While suggestive, the limited quantity of academic evidence so far has forced meta-analyses to combine the results of studies based on very different kinds of performance data. Examples include: subjective health complaints of individuals (Andreassen, Ursin and Eriksen 2007); daily revenue figures from fast-food outlets (Xanthopoulou et al. 2009); and the self-reported statement of in-role performance of flight attendants, e.g. ‘Today, I fulfilled all the requirements for my job’ (Xanthopoulou, Baker, Heuven, Demerouti and Schaufeli 2008). Further work is warranted on the relationships between work engagement and its outcomes (Demerouti and Cropanzano 2010; Halbesleben 2010).

This study, illustrated by the analytical framework in Figure 1, makes five contributions to the literature. The first is the presentation of the first simultaneous

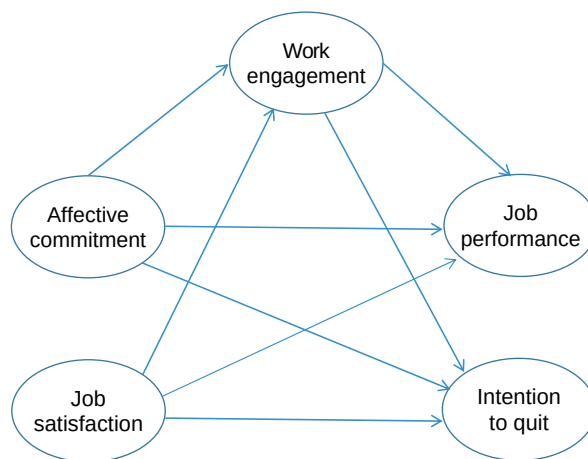


Figure 1. Initial framework.

estimates of the impact of work engagement on both job performance and intention to quit, as well as positing a mediating role for work engagement in the relationships between job satisfaction, affective commitment and these outcomes. Indeed, this is the first study to examine whether engagement mediates the relationship between job satisfaction and supervisor-rated performance. Second, this is the first study to establish the discriminant validity of work engagement from both job satisfaction and affective commitment. Third, this study benefits from a cross-lagged survey design featuring two waves of survey data collection that facilitates exploration of hypotheses with explicit or implicit longitudinal implications (e.g. mediation and causation). This enables us to make a fourth contribution: assessing whether work engagement is an antecedent or an outcome of job satisfaction and affective commitment. Finally, the focus of this study on UK clerical workers establishes the external validity of previous research focused on engagement and enhances our understanding of the engagement of clerical workers.

Very little work on these issues has been undertaken in the UK, but the existing evidence suggests that engagement is lower in the UK than in other European countries (Taipale, Selander, Anttila and Nätti 2011). Research on the antecedents and consequences of work engagement in this national context holds the prospect of enriching our understanding. We begin with a review of literature relevant to the formation of our hypotheses. This is followed with the presentation of our methods, our findings, a discussion of these results and finally our concluding comments.

Literature review

This section discusses the literature supporting the initial framework proposed in Figure 1. Figure 1 represents a process by which employee attitudes towards their jobs and organizations drive job performance and intention to quit through their impacts on work engagement. These attitudes may arise from a multitude of sources, including perceived support from the organization, line manager and colleagues, and this process may take time. Figure 1 suggests that employees' motivational and psychological states will change when attitudes towards the job and/or organization change, with implications for the job performance and turnover intentions of employees. We begin our review of the relevant literature by considering the definition and distinctiveness of work engagement. We then develop work engagement's links with the other constructs in the model.

Work engagement

We define work engagement as an independent, persistent, pervasive, positive and fulfilling work-related affective–cognitive and motivational–psychological state. This definition is consistent with work sometimes collectively referred to as the European Engagement Model (Schaufeli et al. 2006; Bakker and Demerouti 2008; Salanova and Schaufeli 2008). This definition of work engagement is operationalized in the Utrecht Work Engagement Scale (UWES) as three distinct subscales: vigour, dedication and absorption. *Vigour* captures an employee's energy levels and mental resilience, willingness to invest effort in the job and persistence while working or when facing difficulties. *Dedication* reflects an employee's involvement in and psychological identification with his/her work and with feelings of significance, enthusiasm, inspiration, pride and challenge attached to the work. *Absorption* addresses an employee's immersion and full concentration in work such that she/he loses track of time and cannot detach from that work. An engaged employee is one who is enthusiastic about his/her job, exerts high

levels of energy in his/her job while not being able to detach from it (May, Gilson and Harter 2004; Schaufeli and Bakker 2004).

Work engagement is the most discussed and empirically validated form of employee engagement in the current academic literature, but it is not beyond criticism. Some studies suggest that the work engagement construct overlaps with other well-established constructs such as job involvement, job satisfaction and organizational commitment (Newman and Harrison 2008; Wefald and Downey 2009), while other studies indicate the uniqueness of the work engagement construct compared to other employee attitudes (Maslach et al. 2001; Hallberg and Schaufeli 2006; Saks 2006; Bakker and Schaufeli 2008; Kühnel et al. 2009; Christian et al. 2011). The meta-analysis of Christian et al. (2011) offers some evidence for the discriminant validity of work engagement, job satisfaction and affective commitment, but they adopt methods designed to test for construct validity in a multitrait-multimethod framework, despite the fact that the measures used in Christian et al. (2011) do not conform to this design. As such, their chosen method – the comparison of mean corrected correlations between work engagement, job satisfaction and affective commitment to a benchmark of 1.0 – provides only evidence *consistent with* discriminant validity. Clearly, some overlap between work engagement and other well-established employee attitudes may exist, but there is some evidence of discriminant validity, and there remains a need to supplement the limited amount of current evidence by confirming existing findings in novel samples and extending these findings to encompass additional employee attitudes. This holds the prospect of enhancing the case for the value of research focused on work engagement. The variety of evidence surrounding discriminant validity may reflect the fact that the data used in existing studies are typically cross-sectional and subject to common method variance that increases the difficulty of establishing discriminant validity. This study's examination of affective commitment job satisfaction and work engagement at two points of time is therefore a step in the right direction. In addition, as indicated by Gruman and Saks (2011), it is inevitable to have overlaps between moderately correlated concepts – such as job satisfaction and organizational commitment – but this does not necessarily mean that the constructs are not distinct. One contribution of this study lies in establishing the discriminant validity of work engagement, job satisfaction and affective commitment.

Antecedents of work engagement: job satisfaction and affective commitment

Job satisfaction describes how much an employee likes/dislikes his/her job and various aspects of it (Locke 1976; Spector 1997). Job satisfaction reflects an employee's feelings and beliefs, and develops through cognitive, emotional and affective reactions to the job itself and its dimensions (Locke 1976; Organ and Near 1985; Judge and Ilies 2004; Rich et al. 2010). Job satisfaction is an *evaluation* of an emotional state which results from both what an employee feels (*affect*) about his/her job and what he/she thinks (*cognition*) about the various aspects of his/her job (Weiss 2002).

While job satisfaction has been argued to be one of the key attitudes related to work engagement (Saks 2006; Simpson 2009), recent studies agree that this relationship needs further investigation (Mauno, Kinnunen and Ruokolainen 2007; Bakker, Schaufeli, Leiter and Taris 2008; Schaufeli and Bakker 2010). Existing attempts to demonstrate the connection between satisfaction and work engagement have focused on an array of different measures of engagement and satisfaction. For example, using an engagement measure based on Kahn (1990), Rich et al. (2010) test job engagement and overall job satisfaction as mediators between perceived organizational support, value congruence and

core self-evaluations and job performance using cross-sectional data from firefighters. Saks (2006) also uses cross-sectional data to argue that overall job satisfaction is a positive *outcome* of job and organizational engagement, while Simpson (2009), another cross-sectional study, suggests that overall job satisfaction is a significant *predictor* of work engagement. The limitations of previous studies, particularly the absence of a longitudinal dimension that would allow direct assessment of the temporal relationships between these constructs, suggest that the relationship between job satisfaction and work engagement requires further research. A part of this study's contribution is the use of well-established and validated measures in a cross-lagged study to clarify the temporal relationship between job satisfaction and work engagement.

Organizational commitment is a psychological state that drives employee–organization bonding by governing an employee's decision whether to continue their membership of the employing organization and to exert their efforts to achieve organizational goals (Mowday, Porter and Steers 1982). Organizational commitment is a three-component conceptualization (Meyer and Allen 1991) in which affective commitment is defined as an 'emotional attachment to, identification with, and involvement in the organization' (Meyer, Stanley, Herscovitch and Topolnytsky 2002, p. 21). The links between affective commitment and work engagement are unclear, but commitment is 'regarded as an antecedent of various organizationally relevant outcomes, including various forms of prosocial behaviour and/or organizational/job withdrawal' (Macey and Schneider 2008, p. 8).

Figure 1 proposes affective commitment as an antecedent of work engagement. Social exchange theory suggests that a sense of obligation is cultivated in employees who receive valued exchange content from their employers, and that this results in reciprocation with attitudes and behaviours of value to the employer (Cropanzano and Mitchell 2005). Affective commitment is directly related to identification and emotional attachment to the organization. Such attachments give employees the confidence to ask for necessary resources and exert energy towards their jobs, which in return results in higher levels of employee well-being (Meyer, Becker and Vandenberghe 2004; Panaccio and Vandenberghe 2009). Engagement and well-being are closely linked concepts (Fisher 2010) and in these studies affective commitment is posited as an antecedent of employee well-being and its facets (Meyer et al. 2002). Furthermore, Shuck, Reio and Rocco (2011) find that employee engagement mediates the relationship between affective commitment and intention to quit. Employees who have affection for their employers are more likely to approach their work in a manner consistent with the wishes of the employer and are also more likely to perform to the spirit of their jobs rather than simply working to rule.

Previous work has demonstrated that affective commitment is positively related to engagement (Demerouti, Bakker, de Jonge, Janssen and Schaufeli 2001; Hakanen et al. 2006; Richardson, Burke and Martinussen 2006), and it has suggested that commitment is an outcome of engagement. This position sits uncomfortably next to the previously discussed work citing job satisfaction as an antecedent of work engagement because the causal order of job satisfaction and affective commitment is unclear (Bateman and Strasser 1984; Dougherty, Bluedorn and Keon 1985; Currivan 1999; Lund 2003). If job satisfaction is an outcome or a contemporaneous correlate of affective commitment then it is hard to also support the position of affective commitment as an outcome of work engagement.

Outcomes of work engagement: job performance and intention to quit

Why do engaged employees perform better? This question has been addressed in a range of ways, though it has been discussed theoretically in the academic literature more often

than it has been tested empirically. In theory, engaged employees feel compelled to pursue and achieve challenging goals, and key parts of work engagement, i.e. energy and focus, push employees to exert extra effort (Leiter and Bakker 2010). Engaged employees are also thought to have access to additional resources, positive emotions, better health, etc., all of which enhance employee performance (Bakker and Demerouti 2008). Indeed, engaged employees may 'create their own resources' and 'perform better' (Bakker, Albrecht and Leiter 2011, p. 17). According to conservation of resources theory, employees with higher levels of work resources are more likely to use these resources in their jobs and as a result they are more likely to perform better (Halbesleben and Wheeler 2008). In other words, the engaged employees are prepared to exert extra effort to achieve challenging goals because they have access to resources, can efficiently handle current goals and thus are ready to engage in additional in-role and extra-role behaviours (Salanova et al. 2005; Schaufeli et al. 2006; Rich et al. 2010; Christian et al. 2011).

The relationship between engagement and performance has been studied using different measures of engagement (Harter et al. 2002; Saks 2006; Rich et al. 2010), but we focus on those using the UWES-based measure because a narrow definition of engagement facilitates exploration of its relationships with a range of outcomes. Work engagement and employee performance is typically studied either by focusing on a single latent work engagement measure reflecting vigour, dedication and absorption (a composite measure), or by separately specifying the effect of each work engagement dimension on performance. Bakker and Demerouti (2009) focuses on a two-dimensional work engagement construct including only vigour and dedication, and a small number of studies choose to focus on a specific dimension of work engagement: typically vigour (Shirom 2003; Bakker and Demerouti 2009; Halbesleben 2010; Shirom 2010). The majority of studies explain the relationship between a composite work engagement construct and different forms of employee performance. Salanova et al. (2005) find a link between work engagement and customer-rated employee performance, while Halbesleben and Wheeler (2008) conclude that work engagement explains self-, supervisor- and co-worker-rated in-role performance of employees. Karatepe (2011) links work engagement with supervisor-rated job performance and extra-role customer service behaviours. Other studies also find that work engagement is positively related to in-role and extra-role performance (Xanthopoulou et al. 2008; Bakker and Demerouti 2009; Bakker and Xanthopoulou 2009; Bakker et al. 2011), and Bakker and Bal (2010) find a positive link between weekly work engagement and supervisor-rated job performance.

Intention to quit reflects the decisions and feelings employees experience before the initiation of turnover behaviour (Sager, Griffeth and Hom 1998). Turnover of valuable employees is linked to lower organizational effectiveness (Staw 1980; Bentein, Vandenberghe, Vandenberg and Stinglhamber 2005) and is reliably predicted by intention to quit (Steel and Ovalle 1984; Carsten and Spector 1987; Griffeth, Hom and Gaertner 2000; Winterton 2004; Koster, de Grip and Fouarge 2011). Intention to quit behaviours (e.g. job search; interview attendance) have been demonstrated as the most important predictors of subsequent turnover (Blau 1993), especially in periods of low unemployment (Carsten and Spector 1987).

Previous work identifies a negative relationship between work engagement and intention to quit (Schaufeli and Bakker 2004; Halbesleben and Wheeler 2008; Halbesleben 2010). Schaufeli and Bakker (2004) find some evidence that a composite measure of work engagement mediates the relationship between job resources and turnover intentions. Hallberg and Schaufeli (2006) report a moderate negative relationship between a composite measure of work engagement and turnover intention, and Shuck et al. (2011)

identify a similar relationship using an engagement measure from May et al. (2004). Saks (2006) finds that job and organization engagement are both negatively linked to intention to quit. Simpson (2009) finds that nurses with low job satisfaction, high levels of turnover cognitions and higher levels of job search behaviour have lower work engagement. Halbesleben (2010) finds a strong negative relationship between vigour and intention to quit.

The mediating role of work engagement

Figure 1 suggests a mediating role for work engagement in the relationships from job satisfaction and affective commitment to job performance and intention to quit. Job satisfaction is the most researched variable in organizational behaviour research (Iaffaldano and Muchinsky 1985; Spector 1997; Judge, Thoresen, Bono and Patton 2001; Winterton 2004, among others), and the links between job satisfaction and employee outcomes, such as job performance and employee retention, have featured prominently in this literature. Weiss and Cropanzano (1996) refer to the link between overall job satisfaction and individual performance as the 'Holy Grail' of organizational behaviour research. Intuitively, job satisfaction and job performance should be related, but research has consistently demonstrated only a weakly significant relationship (Spector 1997). Iaffaldano and Muchinsky (1985) found in their meta-analysis that there was a relatively low (0.17) correlation and high variability in results, and in a subsequent meta-analysis, Bowling (2007, p. 167) argues that the job satisfaction–performance relationship is largely spurious, with the practical significance of the satisfaction–performance relationship almost completely eliminated after controlling for general personality traits and organization-based self-esteem. Another meta-analysis by Judge et al. (2001) observes that longitudinal or cross-lagged designs are rare, and documents a significant correlation between satisfaction and performance (0.30), but these results are consistent with at least six different models of the relationship: differing in their assumed causal order and on the existence of moderating or mediating variables.

While the evidence collectively supports a link between job satisfaction and performance, this 'happy worker hypothesis' is complex, and not yet fully understood. The variety of results identified suggests the existence of mediating variables that could usefully be investigated using longitudinal or cross-lagged research designs, and we are unaware of any study investigating the potential role for work engagement in this context. Given the established literature on job satisfaction as an antecedent of work engagement, we propose that satisfied workers become engrossed in their work, finding personal gratification in the performance of their roles and increasing the energies they devote to these roles accordingly with beneficial effects on job performance. We hypothesize:

Hypothesis 1: Work engagement mediates the relationship between job satisfaction and employee performance.

Most theories of turnover relate in some way to employee dissatisfaction (Spector 1997): unhappy employees look for alternative employment; and studies demonstrate that job satisfaction measures correlate well with intention to quit measures (Blau 1993; Tett and Meyer 1993). Our literature review, indicating that job satisfaction is an antecedent of work engagement, makes engagement an excellent candidate as a mediator in this relationship. We propose that the increased engrossment and personal gratification of satisfied workers noted earlier also increase the desire of employees to continue to perform their current roles. We hypothesize:

Hypothesis 2: Work engagement mediates the relationship between job satisfaction and intention to quit.

Links from affective commitment to job performance, employee turnover and intention to quit are well established (Mathieu and Zajac 1990; Meyer et al. 2002). Employees with low affective commitment are thought to withdraw from their work, generating performance problems, increased turnover intention and actual departure. Similarly, employees feeling affective ties to their organizations may feel a sense of indebtedness that leads them to reciprocate through increased vigour, dedication and absorption, thus generating valuable outcomes for their employers. Our literature review leads us to hypothesize:

Hypothesis 3: Work engagement mediates the relationship between affective commitment and employee performance.

Hypothesis 4: Work engagement mediates the relationship between affective commitment and intention to quit.

Figure 1 suggests that the attitudes of employees towards their jobs and organizations shape their motivational–psychological states, which in turn affect intention to quit and task performance. This is the first study to examine Hypothesis 1, and while variations of Hypotheses 2–4 have been tested in previous work, this is the first study to test these linkages in a single model. Support for this model would imply a central role for work engagement in the delivery of performance benefits from strategic human resource management and bolster the academic case for an increased focus on engagement as an object of study.

Testing this model necessitates a move away from cross-sectional data to address concerns about common method variance evident in the existing literature. As such, we test the four hypotheses mentioned above using structural equation modelling techniques to analyse data from the cross-lagged research design outlined below. We will do this using a novel sample and context that establishes the external validity of results from previous studies, and in so doing provide evidence that is not dependent on purely cross-sectional relationships and/or undermined by concerns about common method variance. We begin with a description of our methods and a test of the temporal ordering of work engagement, job satisfaction and affective commitment to justify the structure of Figure 1.

Methodology

Our data come from clerical employees in the specialist lending division of a UK bank. This division focuses on the provision of non-standard mortgage products including mortgages for buy-to-rent properties as well as applicants who self-certify their income (e.g. the self-employed). These employees are not in direct contact with customers, but are involved in the processing and approval of applications generated through the retail branch network. Data were collected via paper-based questionnaires in August 2009. All 520 employees received questionnaires and 377 surveys were returned (73%). A follow-up survey was conducted in August 2010, which generated 199 repeat respondents. The sample available for analysis is contingent on missing data, but missing values' analyses revealed no patterns to the missing observations. Employees received time during work for the survey, and they received a prepaid envelope with the questionnaire allowing returns directly to the research team. This facilitated employee understanding of the independence of the research team from the company, as did the material on the opening page of the survey. Establishing independence was particularly important because respondents were

asked to provide their employee numbers on their surveys to allow the matching of survey data with information about the respondents held in company databases. This raised concerns that employees might choose not to respond or that they would withhold their employee numbers. Newby, Watson and Woodliff (2003, p. 166) demonstrate that the use of monetary incentives significantly enhances participation, completeness and overall data quality in surveys without introducing bias. Consequently, at the conclusion of each wave, three randomly selected respondents were given meaningful cash awards in return for their participation: both to enhance data quality and to encourage the inclusion of employee numbers.¹ As previously noted, our response rate was excellent and there were no evident patterns in our missing observations. The small number of individuals who returned surveys without an employee number (4.5%) had very similar response profiles to those who supplied employee numbers. As with all surveys, social desirability is a potential concern, but the very high response rate, the very small proportion of respondents withholding their employee numbers and the similarity of the responses from those reporting employee numbers to others lead us to conclude that these issues are unlikely to influence inferences based on our sample.

The UK economy was emerging from recession at the time of the first survey wave. While the UK economy grew by approximately 2.4% in real terms by the second wave of data collection, the unemployment rate rose from 5.8% to 7.6% over the same period, suggesting that finding alternative employment could have proven challenging. Salaries were generally below the city average of £25,870 and UK average annual wage of £26,654 (Office for National Statistics 2010), albeit in a company with an established reputation for employment stability. Some 61% of employees had over 3 years of tenure, 62% of employees were female and 82% of employees were under the age of 45.

Variables used in the analyses

Execution of our analyses required the measurement of five latent variables, as well as task performance and a series of control variables. We discuss the measurement of each of these variables in turn.

Work engagement

We used a short questionnaire (UWES-9) to measure work engagement – a positive work-related state of fulfilment that is characterized by vigour, dedication and absorption (Schaufeli et al. 2006). Each facet of work engagement is measured using a three-item scale in which the degree of agreement with each question is assessed on a seven-point Likert scale. Sample questions are, ‘When I get up in the morning, I feel like going to work’ and ‘At my job, I feel strong and vigorous’. Cronbach’s α in our survey is 0.93 for vigour, 0.89 for dedication and 0.83 for absorption. In this study, we specify work engagement as a second-order factor latent construct in which the items designed to measure vigour, dedication and absorption loaded onto their underlying constructs and these three constructs load on the higher order factor. Fit statistics obtained support the use of this second-order factor model of work engagement (RMSEA 0.07; CFI 0.97; IFI 0.97).

Job satisfaction

We measure job satisfaction using the Michigan Organizational Assessment Questionnaire, a three-item measure of global job satisfaction (Cammann, Fichman,

Jenkins and Klesh 1983), which has been meta-analysed and found to have acceptable reliability across the multitude of studies that have used the measure since it was first published (Bowling and Hammond 2008). Again, respondents were asked to express their level of agreement based on a seven-point Likert scale. A sample question is, 'All in all, I am satisfied with my job'. The Cronbach's α for the job satisfaction scale is 0.89.

Affective commitment

In this study, we measure affective commitment using the six-item scale of Allen and Meyer (1990). In each case, the questions are placed in the context of the surveyed company and assessed in the context of a seven-point Likert scale. Typical questions include: 'The company has a great deal of personal meaning for me'; and 'I would be very happy to spend the rest of my career with the company'. The construct has a Cronbach's α of 0.88. This implies a high degree of internal consistency in the responses to the individual questions.

Job performance

Capturing employee numbers during the employee survey allows these results to be matched with personnel records. This enables us to use the results of the performance appraisal process as our measure of job performance. There is a long tradition of using appraisal scores in the literature. When researching the satisfaction-performance hypothesis, some 32 out of the 70 studies analysed by Iaffaldano and Muchinsky (1985) used a variation of supervisor ratings alone, and a further 14 studies used a mixture of supervisor ratings with another objective or subjective measure, apparently without deleterious effect on the power of the findings. Judge et al. (2001) also conclude that using supervisor ratings alone did not introduce meaningful biases.

The performance appraisal process for continuing employees operates at the end of the financial year, and is divided between a review of progress against the goals agreed in the previous appraisal, scored on scale ranging from 1 to 5 and the setting of new goals for the coming appraisal cycle. Table 1 reports a means score of 3.28. This indicates that the employee has 'met expectations', and meeting this minimum level of performance allows the employee access to the annual bonus pool and awards that are often around 5% of salary. This is true for half of the respondents in our sample. The 25% of employees who achieve better performance appraisals are eligible to receive a more generous share of the bonus pool. The remaining employees are deemed not to have achieved the expected levels of performance and performance improvement plans are agreed to address this issue. Persistent failure to meet the performance standards can be grounds for dismissal.

Intention to quit

We measure intention to quit using the three-item scale used by Colarelli (1984). An indicative question is, 'I am planning to search for a new job during the next 12 months'. Respondents indicated levels of agreement on a seven-point Likert scale anchored at 'strongly disagree' and 'strongly agree'. Cronbach's α for this scale is 0.89.

Control variables

We deploy a range of control variables that have been previously identified as significant correlates of the variables of interest in this study. Employees with high levels of tenure

Table 1. Descriptive statistics, correlations and reliabilities.

	Measure	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(1)	Job satisfaction (<i>t</i> ₁)	4.97	1.31	(0.89)														
(2)	Job satisfaction (<i>t</i> ₂)	4.59	1.80	0.54**	(0.91)													
(3)	Affective commitment (<i>t</i> ₁)	3.95	1.22	0.60**	0.41**	(0.75)												
(4)	Affective commitment (<i>t</i> ₂)	3.66	1.38	0.48**	0.67**	0.63**	(0.82)											
(5)	Work engagement (<i>t</i> ₁)	4.64	1.12	0.81**	0.51**	0.68**	0.55**	(0.93)										
(6)	Work engagement (<i>t</i> ₂)	4.36	1.24	0.59**	0.76**	0.58**	0.73**	0.68**	(0.93)									
(7)	Intention to quit (<i>t</i> ₁)	3.20	1.46	-0.82**	-0.59**	-0.55**	-0.50**	-0.71**	-0.52**	(0.87)								
(8)	Intention to quit (<i>t</i> ₂)	3.79	1.76	-0.52**	-0.84**	-0.41**	-0.64**	-0.47**	-0.70**	0.62**	(0.92)							
(9)	Job performance (<i>t</i> ₁)	3.15	0.62	0.05	0.01	0.21**	0.07	0.17*	0.17*	-0.04	-0.04	n/a						
(10)	Job performance (<i>t</i> ₂)	3.28	0.63	-0.01	0.09	0.12	0.16***	0.08	0.15***	0.03	-0.06	0.49**	n/a					
(11)	Age	33.47	10.22	0.08	0.14***	0.16*	0.10	0.17*	0.20**	-0.15*	-0.14*	-0.04	-0.13	n/a				
(12)	Gender	0.62	0.49	0.14***	0.11	0.02	0.08	0.08	0.06	-0.14*	-0.07	0.06	0.01	0.00	n/a			
(13)	Tenure	4.59	3.86	0.06	0.11	0.18*	0.11	0.11	0.14***	-0.11	-0.13	-0.06	0.01	0.48**	-0.03	n/a		
(14)	Change in job code	0.23	0.42	-0.01	-0.01	-0.11	-0.05	-0.02	0.02	0.02	-0.10	0.16*	0.15***	-0.16*	-0.01	-0.20*	n/a	
(15)	Change in supervisor	0.56	0.50	-0.07	-0.18*	-0.07	-0.18*	-0.08	-0.09	0.14***	0.16*	-0.01	-0.18*	-0.04	-0.07	0.09	0.01	n/a

Note: *N* = 167. Scale score correlations are given below the diagonal. Internal reliabilities (coefficient α) are given in parentheses along the diagonal. Latent variables measured in time 1 are indicated by *t*₁ and in time 2 are indicated by *t*₂. Time 1 is the basis for measurement of all other variables. **p* < 0.05; ***p* < 0.01; ****p* < 0.10.

have revealed themselves to be committed to their organizations (Meyer et al. 2002) and at least minimally satisfied with their jobs (Spector 1997). Previous studies have also suggested that work engagement is lower (Richman, Civian, Shannon, Hill and Brennan 2008) and job performance is higher (Ng and Feldman 2010) for workers with higher levels of tenure. Age has been linked with commitment (Meyer et al. 2002, p. 28) and satisfaction (Spector 1997, p. 25), work engagement (Schaufeli et al. 2006) as well as job performance (Waldman and Avolio 1986). We also control for gender because women have been shown to be more engaged with their jobs (Richman et al. 2008) but less committed to their organizations (Meyer et al. 2002). Changes in supervisor and job (e.g. receiving a promotion) between attitude measurement and the performance evaluation could introduce substantial noise in the relationships of interest so we have controlled for these effects using dummy variables, though we note that deletion of these cases makes no material difference to our findings.

Discriminant analysis

Assessment of the discriminant validity of employee attitudes and work engagement was conducted using a two-step process. We began by assessing the equality of our construct measurements for job satisfaction, affective commitment and work engagement across our two survey waves (Brown 2006; Boyd et al. 2011). We then tested the discriminant validity of our measures of job satisfaction, affective commitment and work engagement. We discuss each of these analyses in turn.

We assessed the equality of our construct measurements over time by conducting a factorial invariance analysis for each measure. This was done by comparing a model in which the loadings for corresponding items at Wave 1 and Wave 2 were constrained to be equal with an unconstrained model, in which loadings were freely estimated. Table 2 presents the results of these analyses. We see no evidence that the constrained and unconstrained models fit differently, suggesting these three constructs are structurally the same at both assessment points. Table 1 presents cross-wave correlations of 0.54 for job satisfaction, 0.63 for affective commitment and 0.68 for work engagement.

Second, since job satisfaction, affective commitment and work engagement are all conceptually related, and all were rated by the employees, we conducted discriminant validity tests to assess the distinctiveness of the three constructs. Discriminant validity refers to the extent to which the items representing a latent variable discriminate that construct from the items representing other latent variables. The items used to construct the work engagement, job satisfaction and affective commitment measures were evaluated using confirmatory factor analysis, and the results from non-nested model comparison based on the Akaike information criterion (AIC) indicate that a three-factor model is a better fit to the data in both waves of the survey, thus supporting the distinctiveness of job satisfaction, affective commitment and work engagement in both samples (Tables 3 and 4).

Table 2. Factorial invariance test.

	$\Delta\chi^2$	<i>df</i>	<i>p</i>
Job satisfaction	4.86	3	0.18
Affective commitment	5.53	3	0.14
Work engagement	8.25	12	0.77

Note: Change in $\Delta\chi^2$ based on the difference between a model in which factor loadings are constrained to be equal in both survey waves with one in which they are free to vary.

Table 3. Wave 1 discriminant analysis: job satisfaction, affective commitment and work engagement.

	Model description	χ^2	df	RMSEA	CFI	IFI	AIC
Model A	Three-factor model						
Model A1	JS (W1) AC (W1) WE (W1)	181.992	84	0.08	0.95	0.95	7050.791
Model B	Two-factor model						
Model B1	JS (W1) + AC (W1) WE (W1)	229.12	86	0.10	0.93	0.93	7093.922
Model B2	JS (W1) + WE (W1) AC (W1)	209.80	87	0.09	0.94	0.94	7072.604
Model B3	AC (W1) + WE (W1) JS (W1)	210.05	87	0.09	0.94	0.94	7072.845
Model C	One-factor model						
Model C1	JS (W1) + AC (W1) + WE (W1)	240.51	88	0.10	0.92	0.92	7101.312

Note: $N = 167$, χ^2 , chi-squared; RMSEA, root-mean-square error of approximation; CFI, comparative fit index; IFI, incremental fit index; AIC, Akaike information criterion; JS, job satisfaction; AC, affective commitment; WE, work engagement; W1, wave 1 survey data.

Table 4. Wave 2 discriminant analysis: job satisfaction, affective commitment and work engagement.

	<i>Model description</i>	χ^2	<i>df</i>	<i>RMSEA</i>	<i>CFI</i>	<i>IFI</i>	<i>AIC</i>
<i>Model A</i>	<i>Three-factor model</i>						
Model A1	JS (W2) AC (W2) WE (W2)	209.479	84	0.09	0.94	0.94	7207.455
<i>Model B</i>	<i>Two-factor model</i>						
Model B1	JS (W2) + AC (W2) WE (W2)	272.10	86	0.11	0.92	0.92	7266.077
Model B2	JS (W2) + WE (W2) AC (W2)	284.34	87	0.12	0.91	0.91	7276.314
Model B3	AC (W2) + WE (W2) JS (W2)	238.97	87	0.10	0.93	0.93	7230.941
<i>Model C</i>	<i>One-factor model</i>						
Model C1	JS (W2) + AC (W2) + WE (W2)	311.06	88	0.12	0.90	0.90	7301.036

Note: $N = 167$; χ^2 , chi-squared; RMSEA, root-mean-square error of approximation; CFI, comparative fit index; IFI, incremental fit index; AIC, Akaike information criterion; JS, job satisfaction; AC, affective commitment; WE, work engagement; W2, wave 2 survey data.

Temporal order

Having established the factor invariance and discriminant validity of work engagement, job satisfaction and affective commitment, we turned to latent variable structural equation modelling analyses for the repeated measures of these variables to assess the relative fit of various temporal relationships (Demerouti, Bakker and Bulters 2004; de Lange, de Witte and Notelaers 2008). This process involves assessing the fit of three models relative to a baseline model (Model 1) in which only inter-temporal relationships operate from Wave 1 to Wave 2 values of the same attitude (e.g. Wave 1 job satisfaction to Wave 2 job satisfaction). This baseline model is equivalent to assuming that there is some persistence in job satisfaction, affective commitment and work engagement, and that these measures are correlated within each wave, but there are no direct cross-wave relationships linking different measures.

Model 1 was used as a baseline for a comparison against three models assuming alternative causal structures. Model 2 was identical to Model 1 but with the addition of cross-lagged structural paths from Wave 1 job satisfaction and affective commitment to Wave 2 work engagement. Model 3 assumes the opposite causal order of Model 2, with Wave 1 work engagement linked to Wave 2 job satisfaction and affective commitment. Model 4 is a reciprocal model, in which attitudes drive engagement and vice versa. Table 5 presents the results of chi-squared difference tests for nested-model comparisons in which Model 1 was compared with Models 2–4. Model 2 is a significant improvement over Model 1, while Models 3 and 4 did not differ significantly from Model 1. The relatively good fit of Model 2 is consistent with the premise that job satisfaction and organizational commitment drive employee work engagement (Model 2: RMSEA 0.07; CFI 0.91; IFI 0.92). We also note that inspection of the cross-wave correlations evident in Table 1 offers another illustration of this point, with the correlations of wave 2 work engagement with wave 1 satisfaction (0.59) and commitment (0.58), both higher than the correlations of wave 1 work engagement with wave 2 satisfaction (0.51) and commitment (0.55). These findings lead us to assume that job satisfaction and affective commitment precede work engagement in our subsequent structural equation models on the basis of model parsimony, but we have verified our subsequent findings within a cross-lagged framework.

Data analysis and results

Latent variable structural equation modelling was used to test the proposed framework (Figure 1) and hypotheses. The indicators of the continuous latent variables were included in the model, and MPlus (version 6.11) was used to analyse the data. We used a chi-square difference test ($\Delta\chi^2$) to compare the proposed model with alternatives. The comparative fit index (CFI; Bentler 1990) and incremental fit index (IFI; Bollen 1989) were used to assess model fit of nested models, and the AIC was used when comparing the fit of non-nested models (Rust, Lee and Valente 1995). We treat individual survey responses as non-independent because employees in the same team report to the same line manager and the failure to account for this clustering could bias our estimated standard errors and chi-square tests of model fit.²

Descriptive statistics

Table 1 presents the means, standard deviations, reliability coefficients and zero-order correlations for all of the study variables and controls. The correlation between affective commitment and job satisfaction is 0.60 in wave 1 and 0.63 in wave 2, placing this

Table 5. Longitudinal structural equation modelling (SEM) analysis of causal order of affective commitment, job satisfaction and work engagement.

	<i>Model description</i>	χ^2	<i>df</i>	$\Delta\chi^2$	<i>RMSEA</i>	<i>CFI</i>	<i>IFI</i>
Model 1	Baseline model: no causal relation between employee attitudes and work engagement. W1 variables $\rightarrow$ W2 counterparts.	892.76	510	–	0.07	0.91	0.92
Model 2	Employee attitudes drive work engagement Model 1 + W1 JS/AC $\rightarrow$ W2 WE.	886.60	508	6.16*	0.07	0.91	0.92
Model 3	Work engagement drives employee attitudes Model 1 + W1 WE $\rightarrow$ W2 JS/AC.	891.02	508	1.74	0.07	0.91	0.92
Model 4	Reciprocal relation model of employee attitudes and work engagement Model 1 + W1 JS/AC $\rightarrow$ W2 WE; and W1 WE $\rightarrow$ W2 JS/AC.	884.73	506	8.03	0.07	0.91	0.92

Note: $N = 167$. χ^2 , chi-squares; $\Delta\chi^2$, difference in chi-squares between models; RMSEA, root-mean-square error of approximation; CFI, comparative fit index; IFI, incremental fit index; AIC, Akaike information criterion; JS, job satisfaction; AC, affective commitment; WE, work engagement; W1, wave 1 survey data; W2, wave 2 survey data. * $p < 0.05$.

relationship in line with evidence from other studies (Meyer et al. 2002). The correlations between wave 2 work engagement and wave 1 measurements of commitment and satisfaction are slightly smaller, consistent with both the discriminant validity demonstrated earlier as well as the absence of common method variance attached to these cross-lagged relationships. We note that there is no significant correlation between job performance and intention to quit, reflecting substantive differences between these employee outcomes. We also note the Monte-Carlo study of Grewal, Cote and Baumgartner (2004, p. 524), which demonstrates that multicollinearity is very unlikely to lead to Type II errors with collinearity and reliability levels similar to those evident in Table 1.

Structural model

The results associated with the estimation of our hypothesized structural model are summarized in Figure 2. Overall model fit is acceptable and all statistically significant path coefficients conform to our hypotheses. We find the expected positive relationship between job satisfaction and engagement, as well as a positive association between affective commitment and engagement, consistent with our earlier temporal order analysis. We also see initial evidence suggesting that engagement mediates the link between employee attitudes and job performance, although the link between job satisfaction and intention to quit appears to operate both directly and indirectly.

We further explore our hypotheses by comparing nested models in which we assess the changes to model fit associated with restrictions on the path coefficients in our hypothesized model. We begin by restricting the direct pathway from job satisfaction to intention to quit, and this increases the χ^2 of the model by 9.459. A Satorra–Bentler scaled test reveals that we can reject the null hypothesis of equivalent model fit ($p = 0.002$), thus suggesting that restricting this pathway to zero is at odds with the data. In contrast, the restriction of the coefficients on the three insignificant pathways in Figure 2 to zero increases the χ^2 of the model by only 5.984, and a Satorra–Bentler scaled test reveals that we can reject the null hypothesis of a significant worsening of model fit

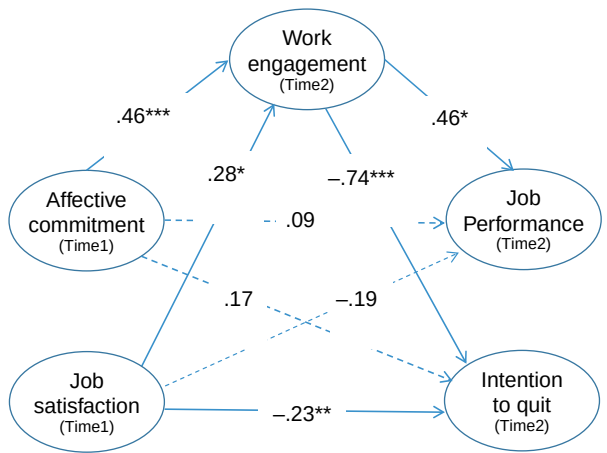


Figure 2. Parameter estimates for the initial framework. Note: RMSEA = 0.073; CFI = 0.911; IFI = 0.912; $N = 167$. Statistics are standardized path coefficients. Dashed paths are not statistically significant. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Measurement models and covariance between exogenous variables are not shown in the figure.

($p = 0.112$). Under the principle of model parsimony, these results suggest the model presented in Figure 3 as the best fit with our data ($\chi^2(241, N = 164) = 452.138$, RMSEA = 0.073, CFI = 0.909, IFI = 0.911). The estimate for the effect of work engagement on job performance is positive and significant (0.43), while the effect of work engagement on intention to quit is negative and significant (-0.66). The path identified from affective commitment to engagement is significant and positive (0.45). The relationship between job satisfaction and work engagement is also significant and positive (0.28), but there is also a significant effect directly from job satisfaction to intention to quit (-0.16). This direct effect is slightly smaller in magnitude than the indirect effect through work engagement (-0.19). Taken together, these results provide evidence in favour of all of our mediation hypotheses, with full support for Hypotheses 1, 3 and 4, and evidence of partial mediation in support of Hypothesis 2.

Discussion

Our findings are consistent with the view that employee job satisfaction and affective commitment shape work engagement rather than the other way around. It also appears that the principal mechanism through which satisfaction and commitment affect job performance and intention to quit is work engagement. Though there is a direct effect of job satisfaction on intention to quit, there is an equivalently sized indirect effect through work engagement. These results add to our understanding of the work engagement of clerical workers as well as adding to the literature focused on work engagement in UK context, thus extending the evidence base in Europe's second-largest economy.

Our cross-lagged research design allowed us to assess the temporal ordering of employee attitudes and work engagement, and our results provide clear evidence that affective commitment and job satisfaction are antecedents of work engagement rather than outcomes. In doing so, we address existing calls for the use of data with a longitudinal dimension in addressing mediation analyses generally (Bono 2011) and work engagement specifically (e.g. Christian et al. 2011). This temporal ordering suggests that measurement

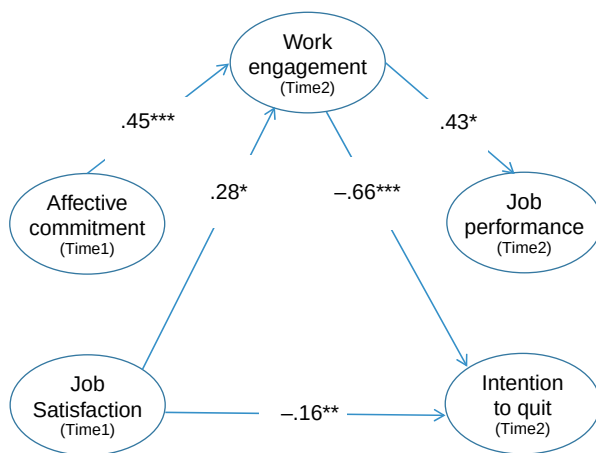


Figure 3. Parameter estimates for final model. Note: RMSEA = 0.073; CFI = 0.909; IFI = 0.911; $N = 167$. Statistics are standardized path coefficients. Dashed paths are not statistically significant. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Measurement models and covariance between exogenous variables are not shown in the figure.

strategies conflating job satisfaction, affective commitment and work engagement will suppress important details of the underlying relationships. This result also suggests that company strategies designed to enhance affective commitment and job satisfaction are likely to generate work engagement.

Importantly, this study demonstrates the discriminant validity of work engagement, affective commitment and job satisfaction. This suggests that the recent focus on engagement by practitioners and academic authors is not simply a case of repackaging existing ideas. The discriminant validity of the UWES definition of work engagement also suggests that future work would benefit from adopting this approach to operationalizing engagement, as it holds the prospect of clearly separating the concept from its attitudinal and behavioural antecedents and outcomes, thus generating unique value to research in this area (Halbesleben and Wheeler 2008).

Our results have important practical implications for organizations. The cost implications of a disengaged workforce for any organization are serious (MacLeod and Clarke 2009; Rayton, Dodge and D'Analeze 2012). Our results support a role for commitment-based human resource management and the delivery of satisfying jobs to enhance task performance and improve employee retention. These conclusions will not surprise a practitioner audience that has largely endorsed this view based on its internal logic and anecdotal evidence, but our study provides a firmer evidence base for these conclusions. The attitudes of employees towards their jobs and organizations appear to influence work engagement, task performance and intention to quit in the future, reinforcing the notion that HR practitioners should monitor and manage these attitudes as they attempt to improve employee work engagement and consequent outcomes. The meaning of work has been continuously changing in the past decade, and employees increasingly seek jobs that are interesting and fulfilling (Chalofsky and Krishna 2009). Each organization should consider which factors are salient to their particular workforce (Kinnie, Hutchinson, Purcell, Rayton and Swart 2005) because employees' satisfaction and commitment appear to start an important process of employee engagement with implications for important business outcomes. Alternative causal stories remain possible, but our evidence means that any argument in favour of an alternative view would need to explain why measurements of affective commitment and job satisfaction change before work engagement.

Conclusion

This study examined the potential mediating role of work engagement in the relationship between employee attitudes, measured by affective commitment and job satisfaction, and employee outcomes. The employee outcomes investigated were employee job performance and intention to quit, and in so doing the study made five contributions to the literature. First, this was the first study to provide simultaneous estimates of the impact of work engagement on both job performance and intention to quit, as well as revealing a mediating role for work engagement in the relationships between job satisfaction, affective commitment and these outcomes. Second, this was the first study to establish the discriminant validity of work engagement from both job satisfaction and affective commitment. Third, this study benefited from a cross-lagged survey design that facilitated expansion of the typically cross-sectional evidence from the previous literature and facilitated our fourth contribution: the provision of evidence supporting the view that affective commitment and job satisfaction are antecedents rather than outcomes of work engagement. Finally, the focus of this study on UK clerical workers established the

external validity of previous research focused on engagement and enhanced our understanding of the engagement of clerical workers.

There are, of course, several limitations to this study which create opportunities for further work. First, while we were able to draw employee attitudes and employee outcomes from different sources, we were reliant on wave 1 of our survey to measure job satisfaction and affective commitment, and on wave 2 of our survey to measure engagement and intention to quit for use in our structural model. We designed the survey instrument to provide clear separation of these attitudes during completion, and we demonstrated the discriminant validity of satisfaction, commitment and engagement in both waves of our survey, but common method variance remains an issue for some of the relationships in our structural model. In addressing this issue, future work could delve deeper into the longitudinal dimensions of work engagement. Research designs such as ours make it possible to collect data from company records regarding respondents for the duration of their employment. This would allow an assessment of whether engagement drives performance or vice versa, as well as an assessment of the length of time over which these effects persist. We see value in further analysis seeking evidence of differential performance impacts of the separate dimensions of work engagement: vigour, dedication and absorption. Given that our research was conducted during the ‘trough’ of the UK economic cycle, a time when external employment options were quite limited and intention to quit may have been slow in forming, there is scope for further work to verify that the relationships identified in this paper remain valid during periods when labour market conditions are more favourable to job seekers. We also see value in expanding the analysis to include other employee outcomes, including organizational citizenship behaviours and voluntary turnover. Lastly, we think research should also consider the factors that shape the relationship between work engagement and employee performance. Recent studies argue that individual or contextual variables might influence the link between employee engagement and behavioural outcomes, such as performance (Halbesleben, Harvey and Bolino 2009; Alfes, Shantz, Truss and Soane 2013), and personality traits may moderate the work engagement–performance link (Demerouti and Cropanzano 2010).

This paper has used a cross-lagged research design to estimate a structural equation model in which work engagement mediates the relationships from job satisfaction and affective commitment to job performance and intention to quit. In so doing, we have demonstrated the discriminant validity of work engagement, job satisfaction and affective commitment, as well as provided evidence that challenges current thinking about the temporal relationship of work engagement with affective commitment and job satisfaction. The resulting support for the mediating role of work engagement has the prospect of advancing the decades-long debates about the relationships between affective commitment, job satisfaction and performance.

Notes

1. The three prizes were for £250, £100 and £50.
2. Non-independence was taken into account by using the TYPE = COMPLEX analysis command in MPlus. This estimates parameters by maximizing a weighted log likelihood function and it uses a sandwich estimator to compute the corresponding standard errors.

References

- Alfes, K., Shantz, A.D., Truss, C., and Soane, E.C. (2013), ‘The Link Between Perceived Human Resource Management Practices, Engagement and Employee Behaviour: A Moderated Mediation Model,’ *International Journal of Human Resource Management*, 24, 2, 330–351.

- Allen, N.J., and Meyer, J.P. (1990), 'The Measurement and Antecedents of Affective, Continuance and Normative Commitment to the Organization,' *Journal of Occupational Psychology*, 63, 1, 1–18.
- Andreassen, C.S., Ursin, H., and Eriksen, H.R. (2007), 'The Relationship Between Strong Motivation to Work, 'Workaholism', and Health,' *Psychology and Health*, 22, 5, 615–629.
- Attridge, M. (2009), 'Measuring and Managing Employee Work Engagement: A Review of the Research and Business Literature,' *Journal of Workplace Behavioral Health*, 24, 4, 383–398.
- Bakker, A.B., Albrecht, S.L., and Leiter, M.P. (2011), 'Key Questions Regarding Work Engagement,' *European Journal of Work and Organizational Psychology*, 20, 1, 4–28.
- Bakker, A.B., and Bal, P.M. (2010), 'Weekly Work Engagement and Performance: A Study Among Starting Teachers,' *Journal of Occupational and Organizational Psychology*, 83, 189–206.
- Bakker, A.B., and Demerouti, E. (2008), 'Towards a Model of Work Engagement,' *Career Development International*, 13, 3, 209–223.
- Bakker, A.B., and Demerouti, E. (2009), 'The Crossover of Work Engagement Between Working Couples,' *Journal of Managerial Psychology*, 24, 3, 220–236.
- Bakker, A.B., Demerouti, E., and Verbeke, W. (2004), 'Using the Job Demands-Resources Model to Predict Burnout and Performance,' *Human Resource Management*, 43, 1, 83–104.
- Bakker, A.B., and Schaufeli, W.B. (2008), 'Positive Organizational Behavior: Engaged Employees in Flourishing Organizations,' *Journal of Organizational Behavior*, 29, 2, 147–154.
- Bakker, A.B., Schaufeli, W.B., Leiter, M.P., and Taris, T.W. (2008), 'Work Engagement: An Emerging Concept in Occupational Health Psychology,' *Work & Stress*, 22, 3, 187–200.
- Bakker, A.B., and Xanthopoulou, D. (2009), 'The Crossover of Daily Work Engagement: Test of an Actor-Partner Interdependence Model,' *Journal of Applied Psychology*, 94, 6, 1562–1571.
- Bateman, T.S., and Strasser, S. (1984), 'A Longitudinal Analysis of the Antecedents of Organizational Commitment,' *Academy of Management Journal*, 27, 95–112.
- Bentein, K., Vandenberghe, C., Vandenberg, R., and Stinglhamber, F. (2005), 'The Role of Change in the Relationship Between Commitment and Turnover: A Latent Growth Modeling Approach,' *Journal of Applied Psychology*, 90, 3, 468–482.
- Bentler, P.M. (1990), 'Comparative Fit Indexes in Structural Models,' *Psychological Bulletin*, 107, 2, 238.
- Blau, G. (1993), 'Further Exploring the Relationship Between Job Search and Voluntary Individual Turnover,' *Personnel Psychology*, 46, 2, 313–330.
- Bollen, K.A. (1989), 'A New Incremental Fit Index for Structural Equation Models,' *Sociological Methods and Research*, 17, 303–316.
- Bono, J.E. (2011), 'From the Editors: Publishing in AMJ—Part 2: Research Design,' *Academy of Management Journal*, 54, 4, 657–660.
- Bowling, N.A. (2007), 'Is the Job Satisfaction-Job Performance Relationship Spurious? A Meta-Analytic Examination,' *Journal of Vocational Behavior*, 71, 2, 167–185.
- Bowling, N.A., and Hammond, G.D. (2008), 'A Meta-Analytic Examination of the Construct Validity of the Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale,' *Journal of Vocational Behavior*, 73, 1, 63–77.
- Boyd, C.M., Bakker, A.B., Pignata, S., Winefield, A.H., Gillespie, N., and Stough, C. (2011), 'A Longitudinal Test of the Job Demands-Resources Model Among Australian University Academics,' *Applied Psychology: An International Review*, 60, 1, 112–140.
- Brown, T.A. (2006), *Confirmatory Factor Analysis for Applied Research*, London: The Guildford Press.
- Cammann, C., Fichman, M., Jenkins, G.D., and Klesh, J.R. (1983), 'The Michigan Organizational Assessment Questionnaire: Assessing the Attitudes and Perceptions of Organizational Members,' in *Assessing Organizational Change: A Guide to Methods, Measures, and Practices*, eds. S.E. Seashore, E.E. Lawler, P.H. Mirvis and C. Cammann, New York: Wiley, pp. 71–138.
- Carsten, J.M., and Spector, P.E. (1987), 'Unemployment, Job Satisfaction, and Employee Turnover: A Meta-Analytic Test of the Muchinsky Model,' *Journal of Applied Psychology*, 72, 3, 374.
- Chalofsky, N., and Krishna, V. (2009), 'Meaningfulness, Commitment and Engagement: The Intersection of a Deeper Level of Intrinsic Motivation,' *Advances in Developing Human Resources*, 11, 189–203.
- Christian, M.S., Garza, A.S., and Slaughter, J.E. (2011), 'Work Engagement: A Quantitative Review and Test of Its Relations With Task and Contextual Performance,' *Personnel Psychology*, 64, 1, 89–136.

- Colarelli, S.M. (1984), 'Methods of Communication and Mediating Processes in Realistic Job Previews,' *Journal of Applied Psychology*, 69, 4, 633–642.
- Cropanzano, R., and Mitchell, M.S. (2005), 'Social Exchange Theory: An Interdisciplinary Review,' *Journal of Management*, 31, 6, 874–900.
- Curran, D.B. (1999), 'The Causal Order of Job Satisfaction and Organizational Commitment in Models of Employee Turnover,' *Human Resource Management Review*, 9, 4, 495–524.
- de Lange, A.H., de Witte, H., and Notelaers, G. (2008), 'Should I Stay or Should I Go? Examining Longitudinal Relations Among Job Resources and Work Engagement for Stayers Versus Movers,' *Work and Stress*, 22, 3, 201–223.
- Demerouti, E., Bakker, A.B., and Bulters, A.J. (2004), 'The Loss Spiral of Work Pressure, Work-Home Interference and Exhaustion: Reciprocal Relations in a Three-Wave Study,' *Journal of Vocational Behavior*, 64, 1, 131–149.
- Demerouti, E., Bakker, A.B., de Jonge, J., Janssen, P.P.M., and Schaufeli, W.B. (2001), 'Burnout and Engagement at Work as a Function of Demands and Control,' *Scandinavian Journal of Work and Environment and Health*, 27, 4, 279–286.
- Demerouti, E., and Cropanzano, R. (2010), 'From Thought to Action: Employee Work Engagement and Job Performance,' in *Work Engagement: A Handbook of Essential Theory and Research*, eds. A.B. Bakker and M.P. Leiter, London: Routledge, pp. 147–163.
- Dougherty, T.W., Bluedorn, A.C., and Keon, T.L. (1985), 'Precursors of Employee Turnover: A Multiple-Sample Causal Analysis,' *Journal of Organizational Behavior*, 6, 4, 259–271.
- Fisher, C.D. (2010), 'Happiness at Work,' *International Journal of Management Reviews*, 12, 4, 384–412.
- Fleck, S., and Inceoglu, I. (2010), 'A Comprehensive Framework for Understanding and Predicting Engagement,' in *Handbook of Employee Engagement: Perspectives, Issues, Research and Practice*, ed. S.L. Albrecht, Cheltenham: Edward Elgar, pp. 31–42.
- Grewal, R., Cote, J.A., and Baumgartner, H. (2004), 'Multicollinearity and Measurement Error in Structural Equation Models: Implications for Theory Testing,' *Marketing Science*, 23, 4, 519–529.
- Griffeth, R.W., Hom, P.W., and Gaertner, S. (2000), 'A Meta-Analysis of Antecedents and Correlates of Employee Turnover: Update, Moderator Tests, and Research Implications for the Next Millennium,' *Journal of Management*, 26, 3, 463–488.
- Gruman, J.A., and Saks, A.M. (2011), 'Performance Management and Employee Engagement,' *Human Resource Management Review*, 21, 2, 123–136.
- Hakanen, J.J., Bakker, A.B., and Schaufeli, W.B. (2006), 'Burnout and Work Engagement Among Teachers,' *Journal of School Psychology*, 43, 6, 495–513.
- Halbesleben, J.R.B. (2010), 'A Meta-Analysis of Work Engagement: Relationships With Burnout, Demands, Resources, and Consequences,' in *Work Engagement: A Handbook of Essential Theory and Research*, eds. A.B. Bakker and M.P. Leiter, Hove: Psychology Press, pp. 102–117.
- Halbesleben, J.R.B., Harvey, J.B., and Bolino, M.C. (2009), 'Too Engaged? A Conservation of Resources View of the Relationship Between Work Engagement and Work Interference With Family,' *Journal of Applied Psychology*, 94, 1452–1465.
- Halbesleben, J.R.B., and Wheeler, A.R. (2008), 'The Relative Roles of Engagement and Embeddedness in Predicting Job Performance and Intention to Leave,' *Work and Stress*, 22, 242–256.
- Hallberg, U.E., and Schaufeli, W.B. (2006), '"Same Same" But Different? Can Work Engagement be Discriminated From Job Involvement and Organizational Commitment?' *European Psychologist*, 11, 2, 119–127.
- Harter, J.K., Schmidt, F.L., and Hayes, T.L. (2002), 'Business-Unit-Level Relationship Between Employee Satisfaction, Employee Engagement, and Business Outcomes: A Meta-Analysis,' *Journal of Applied Psychology*, 87, 2, 268–279.
- Iaffaldano, M.T., and Muchinsky, P.M. (1985), 'Job Satisfaction and Job Performance: A Meta-Analysis,' *Psychological Bulletin*, 97, 2, 251–273.
- Judge, T.A., and Ilies, R. (2004), 'Affect and Job Satisfaction: A Study of their Relationship at Work and at Home,' *Journal of Applied Psychology*, 89, 4, 661–673.
- Judge, T.A., Thoresen, C.J., Bono, J.E., and Patton, G.K. (2001), 'The Job Satisfaction-Job Performance Relationship: A Qualitative and Quantitative Review,' *Psychological Bulletin*, 127, 3, 376–407.

- Kahn, W.A. (1990), 'Psychological Conditions of Personal Engagement and Disengagement at Work,' *Academy of Management Journal*, 33, 4, 692–724.
- Karatepe, O.M. (2011), 'Procedural Justice, Work Engagement, and Job Outcomes: Evidence From Nigeria,' *Journal of Hospitality Marketing and Management*, 20, 8, 855–878.
- Kinnie, N., Hutchinson, S., Purcell, J., Rayton, B., and Swart, J. (2005), 'Satisfaction With HR Practices and Commitment to the Organisation: Why One Size Does Not Fit All,' *Human Resource Management Journal*, 15, 4, 9–29.
- Koster, F., de Grip, A., and Fouarge, D. (2011), 'Does Perceived Support in Employee Development Affect Personnel Turnover?' *The International Journal of Human Resource Management*, 22, 11, 2403–2418.
- Kühnel, J., Sonnentag, S., and Westman, M. (2009), 'Does Work Engagement Increase After a Short Respite? The Role of Job Involvement as a Double-Edged Sword,' *Journal of Occupational and Organizational Psychology*, 82, 3, 575–594.
- Leiter, M.P., and Bakker, A.B. (2010), 'Work Engagement: Introduction,' in *Work Engagement: A Handbook of Essential Theory and Research*, eds. A.B. Bakker and M.P. Leiter, Hove: Psychology Press, pp. 1–9.
- Little, B., and Little, P. (2006), 'Employee Engagement: Conceptual Issues,' *Journal of Organizational Culture, Communications and Conflict*, 10, 1, 111–120.
- Locke, E.A. (1976), 'The Nature and Causes of Job Satisfaction,' in *Handbook of Industrial and Organizational Psychology*, ed. M.D. Dunnette, Chicago, IL: Rand McNally, pp. 1319–1328.
- Lund, D.B. (2003), 'Organizational Culture and Job Satisfaction,' *Journal of Business and Industrial Marketing*, 18, 3, 219–236.
- Macey, W.H., and Schneider, B. (2008), 'The Meaning of Employee Engagement,' *Industrial and Organizational Psychology*, 1, 1, 3–30.
- Macey, W.H., Schneider, B., Barbera, K.M., and Young, S.A. (2010), *Employee Engagement: Tools for Analysis, Practice, and Competitive Advantage*, Chichester, UK: Wiley-Blackwell.
- MacLeod, D., and Clarke, N. (2009), 'Engaging for Success: Enhancing Performance Through Employee Engagement,' Technical Report BIS/Pub 8859/07/09NP. URN09/1075, Department for Business, Innovation and Skills. Crown Copyright.
- Maslach, C., Schaufeli, W.B., and Leiter, M.P. (2001), 'Job Burnout,' *Annual Review of Psychology*, 52, 1, 397–422.
- Mathieu, J.E., and Zajac, D.M. (1990), 'A Review and Meta-Analysis of the Antecedents, Correlates, and Consequences of Organizational Commitment,' *Psychological Bulletin*, 108, 2, 171–194.
- Mauno, S., Kinnunen, U., and Ruokolainen, M. (2007), 'Job Demands and Resources as Antecedents of Work Engagement: A Longitudinal Study,' *Journal of Vocational Behavior*, 70, 1, 149–171.
- May, D.R., Gilson, R.L., and Harter, L.M. (2004), 'The Psychological Conditions of Meaningfulness, Safety and Availability and the Engagement of the Human Spirit at Work,' *Journal of Occupational and Organizational Psychology*, 77, 1, 11–37.
- Meyer, J.P., and Allen, N.J. (1991), 'A Three-Component Conceptualization of Organizational Commitment,' *Human Resource Management Review*, 1, 1, 61–89.
- Meyer, J.P., Becker, T.E., and Vandenberghe, C. (2004), 'Employee Commitment and Motivation: A Conceptual Analysis and Integrative Model,' *Journal of Applied Psychology*, 89, 6, 991–1007.
- Meyer, J.P., and Gagné, M. (2008), 'Employee Engagement From a Self-Determination Theory Perspective,' *Industrial and Organizational Psychology*, 1, 1, 60–62.
- Meyer, J.P., Stanley, D.J., Herscovitch, L., and Topolnysky, L. (2002), 'Affective, Continuance, and Normative Commitment to the Organization: A Meta-Analysis of Antecedents, Correlates, and Consequences,' *Journal of Vocational Behavior*, 61, 1, 20–52.
- Mowday, R.T., Porter, L.W., and Steers, R.M. (1982), *Employee–Organization Linkages: The Psychology of Commitment, Absenteeism and Turnover*, London: Academic Press.
- Newby, R., Watson, J., and Woodliff, D. (2003), 'SME Survey Methodology: Response Rates, Data Quality, and Cost Effectiveness,' *Entrepreneurship Theory and Practice*, 28, 2, 163–172.
- Newman, D.A., and Harrison, D.A. (2008), 'Been There, Bottled That: Are State and Behavioural Work Engagement New and Useful Construct "Wines"?' *Industrial and Organizational Psychology*, 1, 31–35.
- Ng, T.W.H., and Feldman, D.C. (2010), 'Organizational Tenure and Job Performance,' *Journal of Management*, 36, 5, 1220–1250.

- Office for National Statistics (2010), 'Annual Survey of Hours and Earnings 2010 Revised Results,' Office for National Statistics, UK Government.
- Organ, D.W., and Near, J.P. (1985), 'Cognition vs Affect in Measures of Job Satisfaction,' *International Journal of Psychology*, 20, 1, 241–253.
- Panaccio, A., and Vandenberghe, C. (2009), 'Perceived Organizational Support, Organizational Commitment and Psychological Well-Being: A Longitudinal Study,' *Journal of Vocational Behavior*, 75, 2, 224–236.
- Rayton, B., Dodge, T., and D'Analeze, S. (2012), *Employee Engagement: The Evidence*, London: Engage for Success.
- Rich, B.L., Lepine, J.A., and Crawford, E.R. (2010), 'Job Engagement: Antecedents and Effects on Job Performance,' *Academy of Management Journal*, 53, 3, 617–635.
- Richardson, A., Burke, R., and Martinussen, M. (2006), 'Work and Health Outcomes Among Police Officers: The Mediating Role of Police Cynicism,' *International Journal of Stress Management*, 13, 4, 555–574.
- Richman, A.L., Civian, J.T., Shannon, L.L., Hill, E.J., and Brennan, R.T. (2008), 'The Relationship of Perceived Flexibility, Supportive Work–Life Policies, and Use of Formal Flexible Arrangements and Occasional Flexibility to Employee Engagement and Expected Retention, Community,' *Work and Family*, 11, 2, 183–197.
- Rust, R.T., Lee, C., and Valente, E. Jr (1995), 'Comparing Covariance Structure Models: A General Methodology,' *International Journal of Research in Marketing*, 12, 4, 279–292.
- Sager, J.K., Griffith, R.W., and Hom, P.W. (1998), 'A Comparison of Structural Models Representing Turnover Cognitions* 1,* 2,* 3,' *Journal of Vocational Behavior*, 53, 2, 254–273.
- Saks, A.M. (2006), 'Antecedents and Consequences of Employee Engagement,' *Journal of Managerial Psychology*, 21, 7, 600–619.
- Salanova, M., Agut, S., and Peiró, J.M. (2005), 'Linking Organizational Resources and Work Engagement to Employee Performance and Customer Loyalty: The Mediation of Service Climate,' *Journal of Applied Psychology*, 90, 6, 1217–1227.
- Salanova, M., and Schaufeli, W. (2008), 'A Cross-National Study of Work Engagement as a Mediator Between Job Resources and Proactive Behaviour,' *The International Journal of Human Resource Management*, 19, 1, 116–131.
- Schaufeli, W.B., and Bakker, A.B. (2004), 'Job Demands, Job Resources, and Their Relationship With Burnout and Engagement: A Multi-Sample Study,' *Journal of Organizational Behavior*, 25, 3, 293–315.
- Schaufeli, W.B., and Bakker, A.B. (2010), 'Defining and Measuring Work Engagement: Bringing Clarity to the Concept,' in *Work Engagement: A Handbook of Essential Theory and Research*, eds. A.B. Bakker and M.P. Leiter, Hove: Psychology Press, pp. 10–24.
- Schaufeli, W.B., Bakker, A.B., and Salanova, M. (2006), 'The Measurement of Work Engagement With a Short Questionnaire: A Cross-National Study,' *Educational and Psychological Measurement*, 66, 701–716.
- Shirom, A. (2003), 'Feeling Vigorous at Work? The Construct of Vigor and the Study of Positive Affect in Organizations,' *Research in Organizational Stress and Well-Being*, 3, 135–165.
- Shirom, A. (2010), 'Feeling Energetic at Work: On Vigor's Antecedents,' in *Work Engagement: A Handbook of Essential Theory and Research*, eds. A.B. Bakker and M.P. Leiter, Hove: Psychology Press, pp. 69–84.
- Shuck, B., Reio, T.G. Jr, and Rocco, T.S. (2011), 'Employee Engagement: An Examination of Antecedent and Outcome Variables,' *Human Resource Development International*, 14, 4, 427–445.
- Simpson, M.R. (2009), 'Predictors of Work Engagement Among Medical-Surgical Registered Nurses,' *Western Journal of Nursing Research*, 31, 1, 44–65.
- Spector, P.E. (1997), *Job Satisfaction: Application, Assessment, Causes, and Consequences* (Vol. 3), London: Sage.
- Staw, B.M. (1980), 'The Consequences of Turnover,' *Journal of Occupational Behaviour*, 1, 4, 253–273.
- Steel, R.P., and Ovalle, N.K. (1984), 'A Review and Meta-Analysis of Research on the Relationship Between Behavioral Intentions and Employee Turnover,' *Journal of Applied Psychology*, 69, 4, 673–686.

- Taipale, S., Selander, K., Anttila, T., and Nätti, J. (2011), 'Work Engagement in Eight European Countries: The Role of Job Demands, Autonomy, and Social Support,' *International Journal of Sociology and Social Policy*, 31, 7–8, 486–504.
- Tett, R.P., and Meyer, J.P. (1993), 'Job Satisfaction, Organizational Commitment, Turnover Intention, and Turnover: Path Analyses Based on Meta-Analytic Findings,' *Personnel Psychology*, 46, 2, 259–293.
- Truss, K., and Soane, E. (2010), 'Engaging the 'Pole Vaulters' on Your Staff,' *Harvard Business Review*, March, p. 24.
- Truss, K., Soane, E., Edwards, C.Y.L., Wisdom, K., Croll, A., and Burnett, J. (2006), *Working Life: Employee Attitudes and Engagement 2006*, London: Chartered Institute of Personnel and Development.
- Waldman, D.A., and Avolio, B.J. (1986), 'A Meta-Analysis of Age Differences in Job Performance,' *Journal of Applied Psychology*, 71, 1, 33–38.
- Wefald, A.J., and Downey, R.G. (2009), 'Construct Dimensionality of Engagement and Its Relation With Satisfaction,' *The Journal of Psychology: Interdisciplinary and Applied*, 143, 1, 91–112.
- Weiss, H.M. (2002), 'Deconstructing Job Satisfaction: Separating Evaluations, Beliefs and Affective Experiences,' *Human Resource Management Review*, 12, 2, 173–194.
- Weiss, H.M., and Cropanzano, R. (1996), 'Affective Events Theory: A Theoretical Discussion of the Structure, Causes and Consequences of Affective Experiences at Work,' *Research in Organizational Behavior*, 18, 1–74.
- Winterton, J. (2004), 'A Conceptual Model of Labour Turnover and Retention,' *Human Resource Development International*, 7, 3, 371–390.
- Xanthopoulou, D., Bakker, A.B., Demerouti, E., and Schaufeli, W.B. (2009), 'Work Engagement and Financial Returns: A Diary Study on the Role of Job and Personal Resources,' *Journal of Occupational and Organizational Psychology*, 82, 1, 183–200.
- Xanthopoulou, D., Baker, A.B., Heuven, E., Demerouti, E., and Schaufeli, W.B. (2008), 'Working in the Sky: A Diary Study on Work Engagement Among Flight Attendants,' *Journal of Occupational Health Psychology*, 13, 4, 345–356.