

## Development and application of a new measure of employee engagement: the ISA Engagement Scale

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## **Abstract**

*Effective measure of employee engagement is relevant to human resource development (HRD) theory and practice. We build on Kahn's (1990, Psychological conditions of personal engagement and disengagement at work, Academy of Management Journal 33: 692–724) theory and develop a model of engagement that has three requirements: a work-role focus, activation and positive affect. This model was operationalized in a new measure: the Intellectual, Social, Affective Engagement Scale (ISA Engagement Scale) comprising three facets: intellectual, social and affective engagement. Data from Study 1 (278 employees from a manufacturing organization) showed that the scale and its subscales have internal reliability. Study 2 examined data from 683 employees in a retail organization. The internal reliability was confirmed and construct validity was demonstrated. The new scale had positive associations with three theoretically and empirically important outcomes: task performance, organizational citizenship behaviour (OCB) and turnover intentions. Implications are considered for academic enquiry into the engagement process, and for HRD practices that enhance the experience of work.*

## **Introduction**

Human resource development (HRD) scholars are becoming increasingly interested in theoretical models that explain how HR practices can improve employee engagement and organizational performance (Shuck, Reio, and Rocco 2011; Swanson 2001). Recent developments within the engagement literature have contributed to understanding the influence of engagement on a range of positive outcomes, including individual performance (Alfes et al. 2010; Bakker and Xanthopoulou 2009), organizational citizenship behaviour (OCB) (Rich, LePine, and Crawford 2010) and reduced turnover intentions (Hallberg and Schaufeli 2006).

Human resource development (HRD) scholars have picked up these findings because they offer employee engagement as a psychological foundation upon which to develop HRD theory and practice (Shuck and Reio 2011; Shuck and Wollard 2010). However, approaches to the conceptualization and measurement of engagement vary. Shuck (2011) identified four approaches, each with different associated measures: need-satisfying (Kahn 1990), e.g. as assessed by May, Gilson, and Harter (2004); burnout and the associated burnout inventory (Maslach, Schaufeli, and Leiter 2001); satisfaction – engagement and the Gallup Q-12 (Harter, Schmidt and Hayes 2002); and Saks's (2006) multi-dimensional approach to work engagement and its assessment. Similarly, Simpson (2009) identified four categories: personal engagement; work engagement/burnout; work engagement and employee engagement.

These categorizations lead to two further points of debate. First is the question of whether engagement is a state or a set of behaviours. Recent discussion supports the state approach to engagement since it provides conceptual clarity (Bakker, Albrecht, and Leiter 2011; Parker and Griffin 2011), and we concur with this view since it provides an important separation between state engagement (being engaged) and enacted behaviours that might follow from this state (e.g. focused performance; Saks 2006). Second, the engagement categories are not necessarily distinct. It has recently been acknowledged that engagement is under-theorised and there needs to be theoretical development of both engagement and its operationalization (Bakker, Albrecht and Leiter 2011). Therefore, employee engagement needs further development if it is to make a strong contribution to the HRD field.

We propose that there is a unifying theoretical framework that underpins the psychological mechanism of engagement. The current study presents a new view of engagement based on activation, positive affect and focus. We operationalize the framework and develop a measure that can be used to assess higher-order factor-level engagement as well as the constituent facet-level components, since they might be subtly different in function (Parker and Griffin 2011). This nuanced measure of engagement will allow HRD scholars and practitioners to effectively assess employee attitudes and shape theory and practice around both individual and organizational outcomes.

### ***Engagement theory***

Kahn's (1990) paper is the foundation for much engagement research. His framework encompassed the marshalling and deployment of intra-individual resources to the performance of work roles. Kahn's modelling was based upon needs and motives (Alderfer 1972; Maslow 1954), interactions with the working environment (Hackman and Oldham 1980) and the social organizational context (Alderfer 1985). Kahn (1990) presented engagement as a construct with three facets (physical, cognitive and emotional) that are activated simultaneously to create an engaged state. Empirical evidence supports this conceptualization (May, Gilson, and Harter 2004; Rich, Lepine, and Crawford 2010).

Meyer and Gagne' (2008) also proposed that conceptualizations of engagement should be founded in motivation theory. A motivation-based approach can inform engagement theory by emphasizing the importance of a focus for engagement. In Kahn's terms, it is the work role that provides a channel for engagement via alignment of self and role, and thus meets personal needs for meaningfulness, safety and availability. Therefore, we propose that the first condition for engagement is a defined work role that provides a focus for engagement. Moreover, role development is a concern for HRD practitioners since it provides a route for personal fulfilment and high performance (Ruona 1999).

We propose that a focused role can be complemented by two additional conditions: activation and positive affect. Kahn's (1990) conceptualization of engagement encompasses the notion of activation since engagement is associated with high levels of cognitive activity. Early research on activation was grounded in physiology: activation is the degree of activity in the Reticular Ascending System (Fiske and Maddi 1961) that is influenced by internal factors (e.g. cognitive activity) and external factors (e.g. the environment). There are two points relevant for engagement theory. Activation is a response to stimuli, including work roles (Gardner and Cummings 1988). Furthermore, activation triggers a range of affective and cognitive responses (Fiske and Maddi 1961), such as enthusiasm and intellectual consideration of tasks that contribute to engagement (Bindl and Parker 2010). Thus, we propose that engagement requires activation.

The third requirement for engagement is positive affect. Affect is the experience of consciously accessible feelings (Fredrickson 1998). Affect theory differentiates between affective states using two dimensions (Warr 1990): valence (the extent to which an emotion is positive or negative) and activation (the extent to which an emotion is active or passive). Thus, affect and activation are associated at a fundamental level, and engagement encompasses the positive, activated range of the affect spectrum (Macey and Schneider 2008). Positive affect also plays a role in motivation theory since it is associated with goal attainment (Judge and Illies 2002). The same argument can be extended to the role of activated affect in engagement (Gorgievski, Bakker, and Schaufeli 2010), particularly given the role of affect in driving

engagement with surroundings (Fredrickson 1998). Thus, we suggest that positive affect is integral to engagement. Study 1 operationalized these constructs in a new measure.

### **Study 1: Development of the ISA Engagement Scale**

The purpose of Study 1 was to theoretically develop and define the facets of engagement, to operationalize them, and test a new measure. To date, there has been little discussion about the theoretical foundations for the multi-dimensional nature of engagement. Law, Chi-Sum, and Mobley (1998) proposed three criteria for any multi-dimensional construct: a unified high-level theoretical framework, theoretically meaningful associations between the constituent facets and the higher-order construct and parsimony. We propose that employee engagement is a latent construct, whereby the higher-order factor of engagement underlies the facets. Following the above discussion of the three conditions for the engaged state (focus, activation and positive affect), and building upon prior research, we propose that engagement has three facets that meet the three conditions, have theoretical grounds for inclusion as a facet of state engagement and have relevance to the HRD.

The cognitive dimension of engagement concerns the association between the engaged state and cognitive activity directed towards performing the work role, and has been a component of prior research (Kahn 1990; Macey and Schneider 2008; May, Gilson, and Harter 2004; Rich, LePine, and Crawford 2010; Schaufeli, Salanova, et al. 2002). Terms used include cognitive engagement (Kahn 1990) and dedication (Schaufeli, Salanova, et al., 2002). Given the importance of intellectual activity to work performance, and given that engagement implies more than mere fulfillment of duties, we use the term *intellectual engagement* and define it as 'the extent to which one is intellectually absorbed in work.'

The role of affect in engagement is theoretically and empirically clear, and many conceptualizations include this facet (Bakker and Schaufeli 2008; Kahn 1990; May, Gilson, and Harter 2004; Rich, LePine, and Crawford 2010; Schaufeli and Bakker 2004; Schaufeli, Salanova, et al. 2002; Truss et al. 2006). Underlying theory typically explains this association in terms of affect. Thus, we refer to *affective engagement*, and define it as 'the extent to which one experiences a state of positive affect relating to one's work role'.

Furthermore, we propose that engagement has a third dimension: *social engagement*. There is increasing acknowledgement of the requirement for employees to work collectively (Jackson et al. 2006). Kahn (1990) presented engagement as having a clear social component. He suggested that social engagement is the experience of connectedness with other people who could be colleagues but may be anyone that the work role provides an interface with. Kahn proposed that connectedness is an integral feature of the experience of self-in-role. The relevance of the social context to engagement has been acknowledged by other scholars (Shuck and Wollard 2010) and has been linked to systems perspectives on HRD (Macey and Schneider 2008; Salanova, Agut, and Peiro 2005; Swanson 2001). Relationships with supervisors can be antecedents of engagement (Saks 2006). Yet social engagement has not been conceptualized or operationalized as a facet of engagement. Hence, we include a third facet, *social engagement*, defined as 'the extent to which one is socially connected with the working environment and shares common values with colleagues'.

Each of the facets requires the three conditions of focus, activation and positive affect. Intellectual engagement involves activation and focus to release cognitive effort towards attainment of a goal or solution to a challenge. Positive affect has a role since it enhances thought processes (Fredrickson 1998). Whilst affect need not be activated, affective engagement

does incorporate activation and positive affect (Macey and Schneider 2008; May, Gilson, and Harter 2004). Social engagement also needs activation. Initiating and sustaining work-related social interactions demands active engagement with other people (Saks 2006).

In HRD terms, affective engagement is relevant to a range of positive outcomes related to improvements in thinking and building personal resources (Fredrickson 1998, 2001). Intellectual engagement has relevance to performance as well as other outcomes such as innovation (Krauss et al. 2005). Social engagement could be particularly relevant to organizational change since effective social processes are essential to positive outcomes of change (Shuck and Wollard 2010).

## ***Method***

This section presents information about item development, a pilot study and data from Study 1. We generated item sets in English for each of the three facets of engagement, with the aim of retaining a conceptually clear and parsimonious item set. Drawing on prior research (Kahn 1990; Macey and Schneider 2008; May, Gilson, and Harter 2004), we initially developed eight items for each of intellectual and social engagement (which had greater theoretical breadth), and five items for affective engagement (which had less theoretical breadth). Intellectual engagement items focused on intellectual involvement with, and attention to, the task. Social engagement items were based on Kahn's (1990) notion that meaningful social interactions depend upon communication with others and a sense of social embeddedness. Affect items examined experience of positive affect arising from work. The items were used in a pilot study to check they could be understood. Participants were 200 employees from a range of organizations. Results from a principal components analysis using Varimax rotation provided preliminary support for our proposed three-facet model of engagement. Thus, we proceeded to data collection for Study 1.

### *Participants and procedure*

The participants in Study 1 were 540 employees working for a UK-based manufacturing company that produces blow-moulded plastic bottles for the UK food and drink industry. The CEO and HR managers sought to examine engagement levels as part of an organizational change process. The survey was administered by the HR Director to the HR representative at each of the organization's seven sites. The HR representatives distributed the surveys and pre-paid return envelopes to each employee. Two hundred and seventy-eight questionnaires were completed, a response rate of 51%. The final sample comprised 90.6% men; the average age was 39.88 years (s.d. = 10.56), and the average tenure was 7.01 years (s.d. = 5.49). Ethnicity was as follows: 81% White; 6.8% Black; 4% Eastern European; 4% Asian and the remaining self-identified as 'Other'. The respondents represented a range of occupational backgrounds including managers (19.6%), administrators (6.1%), skilled trades (14.3%) and machine operators (57.5%).

Data were gathered using a hardcopy survey. Employees were informed about the purpose of the study and its confidentiality, and encouraged to participate in the survey within two weeks. The questionnaire included the new engagement items as well as a range of demographic and job-related items (managerial responsibilities, permanent vs. fixed-term, full-time vs. part-time, average working hours per week, type of work and tenure) to ensure the representativeness of our sample.

## *Measure*

Each item was presented in the form of a statement with a seven-point Likert scale ranging from 1 ('strongly disagree') to 7 ('strongly agree'). Items were of the same form as the final item set (Appendix I).

## ***Results and discussion***

We started our screening process by calculating Pearson's product-moment correlation coefficients in order to evaluate the inter-correlations amongst the items in each facet. We reviewed the inter-item correlations and eliminated items which did not have at least three correlations greater than 0.30 as they would fail to meet minimum requirements for a subsequent factor analysis (Hair et al. 2005). Two items related to social engagement were rejected on this basis. With the remaining items, we conducted exploratory factor analyses for each facet of engagement. We carried out principal components analysis (PCA) followed by an orthogonal, Varimax rotation (Kaiser 1974). Although principal components solutions differ little from the solutions generated from common factor analysis (Cliff 1987; Guadagnoli and Velicer 1988), and both are commonly used to evaluate the psychometric properties of scales (Tabachnick and Fidell 1996), there are several advantages to using PCA over common factor analysis. PCA reduces data in such a way that a minimum number of factors account for the maximum proportion of the total variance represented in the original set of variables. Also, in common factor analysis, the commonalities are sometimes not tenable or might be invalid requiring the deletion of the variable from the analysis (Hair et al. 2005). Moreover, unlike common factor analysis, in using PCA, a single solution is generated. Hence, PCA offers a unique advantage in that mathematically it provides a more concrete solution than does factor analysis, and follows a psychometrically sound procedure (Stevens 2002; Tabachnick and Fidell 1996). Therefore, we used PCA to explore the structure of the data in the present research.

We used the commonly accepted latent root or Kaiser criterion (Kaiser 1960, 1974), whereby only factors with eigen values greater than one are selected, to determine the number of factors extracted. To obtain the right balance between bandwidth and fidelity, we excluded items which loaded below +0.40 on one of the extracted components from further analysis (Hair et al. 2005). Two intellectual engagement items were removed.

The remaining 17 items (five for affective engagement, six for each of social and intellectual engagement) had demonstrated relatively strong psychometric properties. We evaluated the internal consistency of each facet by calculating Cronbach's alpha (Cronbach 1951). We examined scale variance and item-to-total correlation for each item with the aim of deriving a scale of minimum length, characterized by high internal reliability and high total score variance (DeVellis 2003; Kline 2000, 2005a, 2005b). The assessment of these criteria, together with a detailed inspection of the item content, formed the basis on which we chose the best nine items for our engagement measure. The final item set is in Appendix I.

We performed a confirmatory factor analysis with latent variable structural equation modelling (Jöreskog and Sörbom 1993) using maximum likelihood estimation in AMOS 18.0 (Arbuckle 2006). The overall model fit for a second-order structure with three facets as latent indicators of a higher order engagement factor was very strong:  $\chi^2 = 64$ ;  $df = 24$ ; GFI = 0.95; SRMR = 0.04; RMSEA = 0.08 and CFI = 0.98. Model fit is usually considered good when  $\chi^2/df$  falls below three, and acceptable when  $\chi^2/df$  is below five; GFI and CFI values greater than 0.9 represent a good model fit, and for SRMR and RMSEA, values less than 0.08 indicate a good, and

values between 0.08 and 1 indicate an acceptable model fit (Browne and Cudeck 1993; Hu and Bentler 1998; Kline 2005a, 2005b).

As seen in Figure 1, all items loaded strongly on the intended facet with standardized factor loadings ranging from 0.82 to 0.94. Moreover, each dimension facet loaded strongly on the general engagement factor with standardized factor loadings of 0.73 for intellectual engagement, 0.60 for social engagement and 0.98 for affective engagement. The inter-facet correlations were statistically significant at the  $p < 0.0001$  level, which indicates that the general factor is influencing each facet with a similar strength. The reliability of our engagement measure was strong for the overall construct ( $\alpha = 0.91$ ) as well as for each facet, where the alpha values were 0.90 for intellectual engagement, 0.92 for social engagement and 0.94 for affective engagement. Overall, there was substantial empirical support for our measure.

## **Study 2: Establishing the construct validity of the ISA Engagement Scale**

Study 2 aimed to make a larger contribution to the engagement literature by confirming the measure reliability, and examining the construct validity by considering the associations between engagement and three organizationally important outcomes: task performance, OCB and turnover intentions. We focus on these factors since there is theoretical and empirical evidence that engagement should be associated with each, yet engagement is theoretically distinct. Confirmation that our new measure was both distinct and associated with these important outcomes would provide useful additional evidence of its utility in the HRD and wider organizational context.

### ***Performance***

Engagement theory suggests that more engaged employees will perform better in their jobs. Empirical evidence supports this (Halbesleben and Wheeler 2008; Harter, Schmidt, and Hayes 2002; Salanova et al. 2003; Schaufeli and Bakker 2004; Schaufeli, Martínez, et al. 2002; Schaufeli, Salanova, et al. 2002). Kahn (1990) suggested that, based on norms of reciprocity, high levels of engagement will raise effort, motivation and performance when it is believed that individuals will receive valued rewards. More recently, Halbesleben and Wheeler (2008) suggested that engagement generates a positive cycle of emotions and cognitions that function to improve performance.

Individual-level performance has been operationalized in several different ways in the engagement literature. Salanova et al. (2003) used an objective measure of task performance in their study of teams. Performance appraisal data are high quality, yet are difficult to obtain (Mannheim, Baruch, and Tal 1997). A typical alternative approach is to gather self-ratings of performance. In the current study, we are particularly interested in the concept of self-in-role since it is relevant to the state and enactment of engagement (Jones and Harter 2004; Kahn, 1990). The notion of self-rated task performance is thus appropriate for our empirical investigation. Our first hypothesis is:

*Hypothesis 1:* Employee engagement will be positively associated with self-rated task performance.

## ***Organizational citizenship behaviour***

A second important outcome of engagement organizational citizenship behaviour (OCB), a discretionary employee behaviour that goes beyond formal job descriptions and contributes to positive organizational functioning (Organ 1988). As such, OCB is relevant to HRD practitioners. Organizational citizenship behaviours (OCBs) are a potential outcome of engagement since the engaged state encompasses positive affect and motivates beneficial behaviours. Kahn (1990, 1992) proposed that engaged employees are likely to be more willing to initiate citizenship behaviours because of their involvement in a positive cycle of input and rewarding outcomes. Empirical study has confirmed this (Rich, LePine, and Crawford 2011). Therefore, our second hypothesis is:

*Hypothesis 2:* Employee engagement will be positively associated with self-rated organizational citizenship behaviour.

## ***Turnover intentions***

A third possible outcome of engagement is the intent to remain with the organization. High engagement represents high levels of emotional and cognitive activity and has been associated with positive emotional and mental well-being (Hallberg and Schaufeli 2006; Schaufeli and Bakker 2004; Sonnentag 2003). These positive emotions and experiences associated with engagement are likely to interact with individuals' intent, actions and behaviours within organizations, and consequently influence their attachment to their role and their current employer. As Kahn (1990) noted engagement refers to presence at work, the corollary being that lack of engagement could lead to psychological and behavioural withdrawal from work. Intention to turnover is also relevant to HRD practitioners and is a common outcome measure (Shuck, Reio, and Rocco 2011). Therefore, our third hypothesis is:

*Hypothesis 3:* Employee engagement will be negatively associated with self-rated turnover intentions.

## ***Method***

### ***Sample***

Surveys were electronically mailed to 1486 UK-based employees working for a retail organization in the early stages of an engagement-focused change process. Two reminder emails were sent to the participants within a period of three weeks. Eight hundred and thirty-five employees responded. List-wise deletion of missing data led to a usable sample of 759 respondents; 76 responses were not usable because the employees did not respond to the engagement and/or behavioural measures. The response rate was 51.1%. The mean age was 40.38 years (s.d. = 10.14); 44.3% of the participants were males; 93.8% of the sample self-reported their ethnic status as White, 3.3% as either Mixed, Asian, Black, Chinese or Other Ethnic group and 2.9% preferred not to report their ethnic identity; the mean tenure was 10.51 years (s.d. = 8.76). The employees were categorized by role band as follows: 1% band 1 (e.g. senior management); 5.7% band 2 (e.g. head of marketing for a division); 25.3% band 3 (e.g. supplier relationship manager); 28% band 4 (e.g. personal injury legal team leader); 6.8% band



5 (e.g. pensions systems administrator); 19.6% band 6 (e.g. department administrator); 7.8% band 7 (e.g. e-Procurement team member); 0.4% band 8 (e.g. accuracy checking technician) and 5.4% of the sample did not respond to this question on the survey. A chi-square test was conducted to investigate the proportion of females vs. males by role band. The chi-square test was significant ( $\chi^2 = 86.80$ ,  $df = 7$ ;  $p < 0.001$ ). After examining the standardized residuals, the results show that there were significantly more men than expected in bands 2 and 3 and significantly less men than expected in bands 6 and 7. There were significantly fewer women than expected in band 3, and more than expected in bands 6 and 7.

### *Measures*

The items for each dependent variable are shown in Appendix II.

*Task performance.* A five-item scale from Janssen and Van Yperen (2004) was used to assess individual performance. We amended the wording of the original items to reflect the self-rating process. The response scale ranged from 1 ('strongly disagree') to 7 ('strongly agree').

*Organizational citizenship behaviour.* We measured OCB with an eight-item scale developed by Lee and Allen (2002). Four items measured each of OCB towards the organization and the individual. The response scale ranged from 1 ('never') to 7 ('daily').

*Turnover intentions.* We measured turnover intentions using Boroff and Lewin's (1997) two-item scale. The response scale ranged from 1 ('strongly disagree') to 7 ('strongly agree').

The use of additional ratings could be useful and provide somewhat more objective performance data. However, only self-ratings were available in this organization. We proceeded with self-ratings while taking additional steps, following recommendations by Podsakoff et al. (2003), to limit problems associated with common method variance. As outcome measures, we used established scales only, explained the procedures to our participants, and guaranteed anonymity. Furthermore, we separated the measurement of the independent and dependent variables by placing them in different sections of the survey. Finally, we used filler items and different instructions to create a psychological separation between sets of variables (Podsakoff et al. 2003).

## ***Results and discussion***

### *Cross-validation of the ISA Engagement Scale*

We carried out another second-order confirmatory factor analysis to further cross-validate the ISA Engagement Scale. Again, the nine-item model provided a good fit with our data:  $\chi^2 = 128$ ;  $df = 24$ ;  $GFI = 0.96$ ;  $SRMR = 0.03$ ;  $RMSEA = 0.07$ ;  $CFI = 0.98$ . Each item loaded strongly and significantly on its intended facet with single loadings ranging from 0.82 to 0.95. The three facets loaded strongly on the general engagement factor: 0.73 for intellectual engagement; 0.33 for social engagement and 0.95 for affective engagement. The results suggest that the general factor is driving all three facets significantly. Moreover, our measure demonstrated a strong reliability for the single facets (alphas were 0.88, 0.95 and 0.95, respectively) and for the overall measure of engagement ( $\alpha = 0.88$ ). However, given that the social engagement factor

loading was lower than in Study 1, we examined further the utility of social engagement in subsequent analysis.

To assess construct validity of the ISA Engagement Scale, we examined discriminant and convergent validity, following the steps outlined by Hair et al. (2010). To analyse whether engagement is distinct from task performance, OCB and turnover intentions, we performed a series of confirmatory factor analyses (CFA). A full measurement model was initially tested in which the three facets of engagement loaded onto a general engagement factor and all indicators for task performance, OCB, and turnover intentions were allowed to load onto their respective factors. All factors were allowed to correlate. Five fit indices were calculated to determine how the model fitted the data (Hair et al. 2005). For the  $\chi^2/df$  values less than 2.5 indicate a good fit and values around 5.0 an acceptable fit (Arbuckle 2006). For the goodness of fit index (GFI), and comparative fit index (CFI), values greater than 0.90 represent a good model fit (Bentler 1990; Bentler and Bonett 1980). For the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) values less than 0.08 indicate a good model fit and values less than 0.10 an acceptable fit (Arbuckle 2006; Browne and Cudeck 1993).

The four-factor model showed a good model fit ( $\chi^2 = 222$ ;  $df = 71$ ;  $GFI = 0.96$ ;  $CFI = 0.97$ ;  $SRMR = 0.05$ ;  $RMSEA = 0.05$ ). In order to assess the distinctiveness of constructs in the study, sequential  $\chi^2$  difference tests were used. The full measurement model was compared to four alternative nested models, in which (a) engagement and task performance ( $\chi^2 = 750$ ;  $df = 74$ ;  $GFI = 0.87$ ;  $CFI = 0.86$ ;  $SRMR = 0.10$ ;  $RMSEA = 0.11$ ), (b) engagement and OCB ( $\chi^2 = 850$ ;  $df = 74$ ;  $GFI = 0.83$ ;  $CFI = 0.84$ ;  $SRMR = 0.09$ ;  $RMSEA = 0.12$ ), (c) engagement and turnover intentions ( $\chi^2 = 763$ ;  $df = 74$ ;  $GFI = 0.87$ ;  $CFI = 0.86$ ;  $SRMR = 0.12$ ;  $RMSEA = 0.11$ ) and (d) engagement, task performance, OCB and turnover intentions ( $\chi^2 = 2555$ ;  $df = 77$ ;  $GFI = 0.67$ ;  $CFI = 0.50$ ;  $SRMR = 0.16$ ;  $RMSEA = 0.21$ ) were subsumed under one factor. None of these alternative models provided an acceptable model fit. Therefore, the variables were distinct from one another.

To establish the convergent validity of the scales, we examined the average variances extracted (AVE). The AVE for engagement was 49%, for task performance the AVE was 56%, for OCB the AVE was 48% and for turnover intentions the AVE was 87%. The rule of thumb is that AVEs should be approximately 50% or higher (Hair et al. 2005). Hence, our findings showed that more variance is explained by the latent factor structure imposed on the measure, compared to the error that remains in the items. This supported the convergent validity of our measures.

#### *Descriptive statistics and correlations*

Table 1 presents the means, standard deviations and Cronbach's alpha for each scale, and inter-scale correlations for all Study 2 variables. All scales demonstrated good internal reliabilities above 0.70. The inter-scale correlations showed the expected direction of association and were all significant at the  $p < 0.01$  level. Our measure of engagement was significantly correlated with all three outcomes measures with  $r = 0.38$ ,  $0.31$  and  $-0.49$ , respectively. Task performance and OCB were also positively correlated ( $r = 0.21$ ). Moreover, turnover intentions were negatively correlated with task performance ( $r = -0.23$ ) and with OCB ( $r = -0.12$ ).

### *Test of hypotheses*

We hypothesized that engagement is positively associated with task performance and OCB and negatively associated with turnover intentions. We tested these hypotheses through regression analysis using SPSS 18.0. All three hypotheses were supported. Employee engagement explained 14% of the variance in performance, 10% of the variance in OCB and 24% of the variance in turnover intentions.

We examined the relative importance of the three facets of engagement in order to get a more detailed picture of the concurrent validity of our engagement measure on task performance, OCB and turnover intentions. Ordinary least-squared regressions were used. In addition to standardized regression coefficients, we computed two alternative indices of relative importance: dominance (Azen and Budescu 2003; Budescu 1993) and epsilon (Johnson 2000). Relative importance indices calculate the proportional contribution of each variable in explaining a dependent variable, while taking into consideration its unique contribution and its contribution when combined with other independent variables (Johnson 2000). The general dominance statistic (denoted *D*, calculated using dominance analysis 4.4 by James M. LeBreton) estimates the average squared semi-partial correlations across all possible subset regression analyses (LeBreton et al. 2004). The resulting general dominance estimates are then rescaled by dividing them by the total variance explained in order to arrive at an indication of the average importance of each predictor variable. The epsilon statistic (calculated using an SPSS syntax file provided by Jeff W. Johnson) creates a new set of uncorrelated predictor variables and combines two sets of standardized regression weights (Johnson 2000; LeBreton et al. 2004): the dependent variable regressed on the new set of uncorrelated predictors and the original predictors regressed on the new set of uncorrelated predictors. The epsilon statistic establishes the contribution of each predictor to the overall variance explained, taking into account correlated predictors. Both statistics have been proposed as preferred indices of relative importance (LeBreton et al. 2004).

Table 2 shows that the single facets explain more variance in the outcome variables compared to the overall factor, with 19% in task performance, 11% in OCB and 32% in turnover intentions. Moreover, each facet significantly predicts at least one outcome variable. Social engagement is an important predictor of turnover intentions, while affective engagement and intellectual engagement predict all three outcome variables. The dominance and epsilon statistics reflect these findings. Overall, our analysis reveals that all facets of engagement, as well as the overall factor, demonstrate good concurrent validity.

Finally, we carried out a usefulness analysis (Darlington 1968) to compare the predictive validity of our measure with the widely-applied Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, et al. 2002). Usefulness analysis enabled us to assess the contribution of one independent variable in the explanation of an outcome variable that goes beyond the contribution of other independent variables in the model. Through a series of hierarchical regressions, usefulness analysis examines the change of  $R^2$  associated with a particular variable while controlling for other variables. We conducted two separate hierarchical regressions where we changed the regression order of both engagement measures.

Table 3 shows that the ISA Engagement Scale explained additional variance in all three outcome variables after controlling for the UWES measure, with a change in  $R^2$  of 0.06 for in-role performance, 0.01 for OCB and 0.06 for turnover intentions. These results show that the ISA measure is useful above and beyond the UWES measure.

In summary, this study demonstrated inter-item reliability and construct validity of the ISA Engagement Scale. Engagement was conceptualized as comprising three facets – intellectual, social and affective. Data suggest that the new measure is suitable for use in organizations.

### **Limitations**

While efforts were made to ensure a rigorous approach to the ISA Engagement Scale development, the research has limitations. Most importantly, data were cross-sectional, self-report and UK-focused.

### **Recommendations for future research**

Future research could test further the ISA Engagement Scale in other organizational contexts and job roles. Longitudinal designs and testing associations with data from other sources would enable more thorough empirical tests. Moreover, the ISA Engagement Scale could be examined in relation to other concepts relevant to HRD scholars and practitioners. Specific associations between engagement facets of other constructs could also be explored. Future research could make data available for benchmarking purposes, thus increasing opportunities for theoretical development and practical application.

### **Implications for practice**

The ISA Engagement Scale is relevant to the field of HRD, as a comprehensive method of measuring employee reactions to their work environment, and as a tool for HR practitioners and employees to monitor engagement levels in relation to HRD interventions. The ISA Engagement Scale could also be used alongside other relevant measures, such as performance evaluations, as well as by employees as part of individual or team professional development.

The evidence suggests that by creating work roles where employees can apply their knowledge and skills to rewarding tasks set within a social context, HRD practitioners can impact engagement levels in various organizational contexts. The study contributes to the growing employee perspective on HRD (Poell 2012; Poell and Van der Krogt 2003). Increasing employee engagement through development and learning, and thereby creating a positive engagement cycle, should become an objective of all organizational change programmes (Shuck, Reio, and Rocco 2011). Furthermore, the current research has shown that a focus on engagement is likely to be associated with positive outcomes targeted by HRD practitioners, including increased task performance, OCB and decreased turnover intentions. Employee engagement has implications for all areas of HRD (Wollard and Shuck 2011) and we encourage the use of the ISA Engagement Scale to develop relevant theory and practice.

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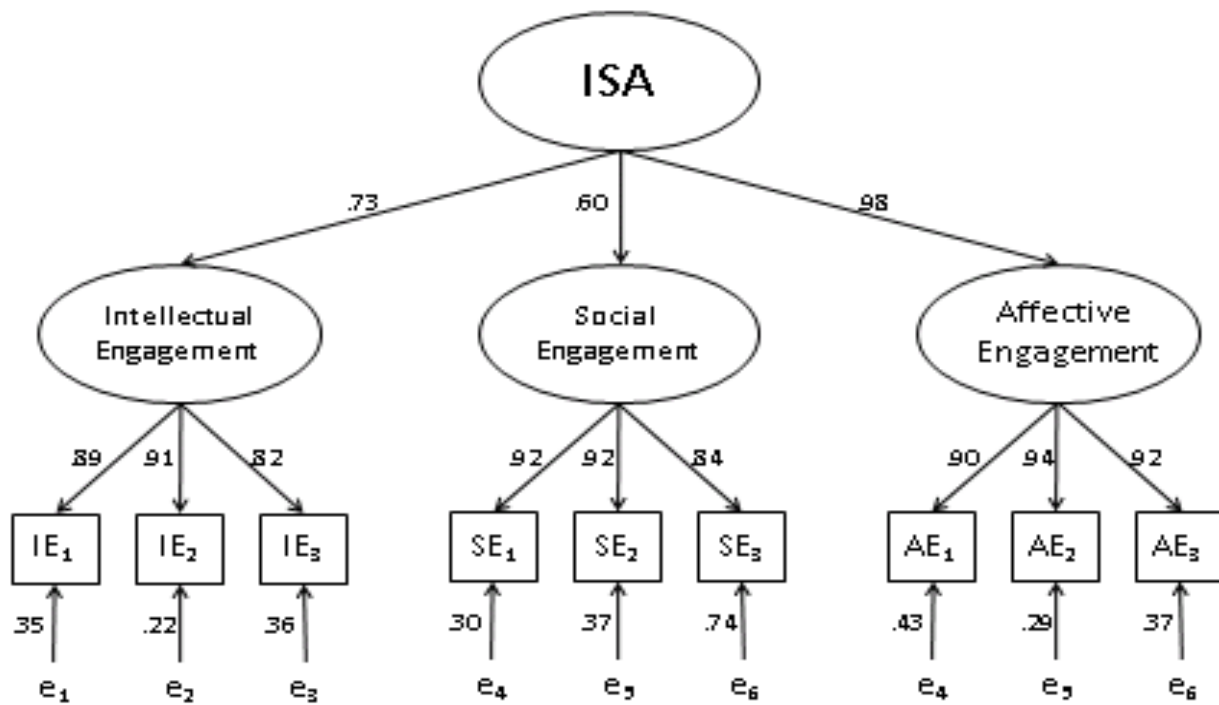
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Figure 1. Results of confirmatory factor analysis for Study 1.



**Table 1: Means, standard deviations, Cronbach’s alpha and inter-scale correlations for Study 2 measures.**

	Alpha	M	SD	1	2	3
1. ISA Engagement Scale	0.88	5.78	0.79			
2. Task Performance	0.80	6.15	0.70	0.38**		
3. OCB	0.85	4.94	0.96	0.31**	0.21**	
4. Turnover Intentions	0.93	2.30	1.58	-0.49**	-0.23**	-0.12**

*N* = 759. \*\* Correlation is significant at the 0.01 level (2-tailed)

**Table 2: Relationship between ISA Engagement Scale, task performance, OCB and turnover intentions.**

	Task Performance				OCB				Turnover intentions			
	$R^2$	$\beta$	$D$	$\varepsilon$	$R^2$	$\beta$	$D$	$\varepsilon$	$R^2$	$\beta$	$D$	$\varepsilon$
	General Factor											
ISA Engagement Scale	0.14*	0.38*			0.10*	0.31*			0.24*	-0.49*		
	Specific Facets											
Social Engagement	0.19*	0.02	12.52	3.0	0.11*	0.04	6.70	6.8	32*	-0.11*	14.5	18.0
Affective Engagement		0.14*	39.55	40.7		0.23*	57.6	60.6		-0.56*	72.1	67.0
Intellectual Engagement		0.32*	47.93	56.4		0.11*	35.6	32.6		-0.08*	13.4	15.0

$N = 759$ . \*  $p < 0.05$

**Table 3: Usefulness analysis with Schaufeli, Salanova, et al. (2002) Engagement Measure.**

Regression order	In-role Performance			OCB			Turnover intentions		
	$R^2$	$\Delta R^2$	$B$	$R^2$	$\Delta R^2$	$B$	$R^2$	$\Delta R^2$	$B$
Order 1									
1. Schaufeli Engagement Measure	0.08*	0.08*	0.28*	0.13*	0.13*	0.37*	0.15*	0.15*	-0.39*
2. ISA Engagement Measure	0.14*	0.06*	0.31*	0.14*	0.01*	0.09*	0.21*	0.06*	-0.32*
Order 2									
1. ISA Engagement Measures	0.13*	0.13*	0.36*	0.09*	0.09*	0.29*	0.19*	0.19*	-0.44*
2. Schaufeli Engagement Measure	0.14*	0.01	0.08	0.14*	0.05*	0.31*	0.21*	0.02*	-0.18*

$N = 759$ . \*  $p < 0.05$

## **Appendix I. The ISA Engagement Scale.**

Intellectual engagement	I focus hard on my work I concentrate on my work I pay a lot of attention to my work
Social engagement	I share the same work values as my colleagues I share the same work goals as my colleagues I share the same work attitudes as my colleagues
Affective engagement	I feel positive about my work I feel energetic in my work I am enthusiastic in my work

## **Appendix II**

### ***Task performance***

- (1) I always complete the duties specified in my job description.
- (2) I meet all the formal performance requirements of the job.
- (3) I fulfil all responsibilities required by my job.
- (4) I never neglect aspects of the job that I am obligated to perform.
- (5) I often fail to perform essential duties.

### ***Organizational citizenship behaviour***

- (1) Attend functions that are not required but that help the organizational image.
- (2) Offer ideas to improve the functioning of the organization.
- (3) Take action to protect the organization from potential problems.
- (4) Defend the organization when other employees criticize it.

### ***Intentions to quit***

- (1) During the next year, I will probably look for a new job outside my current employer.
- (2) I am seriously considering quitting my current employer for an alternative employer.