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**DEVELOPMENT OF A SHORT FORM OF EMPLOYEE
ENGAGEMENT INSTRUMENT**

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DEVELOPMENT OF A SHORT FORM OF EMPLOYEE ENGAGEMENT INSTRUMENT

This research had two objectives: first, to develop a short form of Pati's (2012) employee engagement instrument; and second, to investigate evidence of reliability and validity for the same. Two studies were presented. The first study, based on multiple criteria collated from literature, identified three items that shall constitute the short form of the scale. The second study reported encouraging findings regarding reliability and validity of the short scale thus developed.

Keywords: *employee engagement, short, items, scale, development, instrument*

INTRODUCTION

In recent years, employee engagement has been anointed as one of the hottest topics in management (Welbourne, 2007) with research on the construct growing enormously (for e.g. see Kahn, 1990; Buckingham & Coffman, 1999; Schaufeli et al., 2002; May et al., 2004; Wagner & Harter, 2006; Saks, 2006; Macey & Schneider, 2008; Pati & Kumar, 2010; Pati & Kumar, 2011; Pati, 2012). This should not be surprising, for research has associated various interesting and important benefits with engaged employees. For e.g. a study reported that engaged employees were found to average 27% less physical absenteeism than their peers, thus saving their organizations an average of 86.5 million days per year in lost productivity (Wagner & Harter, 2006). Further, an engaged employee is found to be 57% more willing to go above and beyond the call of duty, thereby resulting in a 20% increase in individual performance improvement (Buchanan, 2004). Additionally, substantial evidence exists to support a direct relationship of engagement with that of organizational profits and customer satisfaction (Wagner & Harter, 2006). Finally it has also come to light that engaged employees are more likely to stay longer with the firm thereby rescuing the latter from the costs associated with recruitment and retraining (Buchanan, 2004). Therefore it is imperative that in the prevalent globalized business environment, organizations ought to adopt specific practices to select and sustain an engaged workforce, thereby remaining relevant and competitive.

The above directive is easier said than done, primarily because of an existing dearth of validated instruments to assess the construct. This is so, for the practitioners and consulting firms who display added interest in popularizing and 'selling' the construct,

habitually desist from defining the same, often presenting it as an agglomeration of work attitudes without any conceptual or empirical support (Pati & Kumar, 2011). For e.g. Wellins & Concelman (2004) use terms such as commitment, loyalty, productivity and ownership to describe employee engagement. To add to the ambiguity, another set of practitioners propagates the mistaken notion of embracing the possible antecedents of employee engagement as its representation. A notable example symbolizing this approach is the Gallup Workplace Audit (GWA). Consisting of 12 questions, such as “At work do I have the opportunity to do what I do best everyday?” and “Do I know what is expected of me at work?”, it’s claim of being an instrument for assessing employee engagement has been strongly criticised in many quarters (for e.g. Pati & Kumar, 2011). Accordingly, based on the above review, we are constrained to conclude that since the understanding on employee engagement witnessed little coherence among practitioners and is devoid of a conceptual anchor, the instruments propagated by them are even arguably less valid.

The advent of academic investigation on the construct brought forth a battery of instruments with proven psychometric credentials. Arguably, the most widely used scale is the Utrecht Work Engagement Scale (UWES) by Schaufeli et al (2002). Anchored on the burn-out approach to cognize engagement (Schaufeli et al, 2002), the scale has 17 items grouped into three sub scales that reflect the underlying dimensions of engagement: Vigour (6 items), Dedication (5 items) and Absorption (6 items). Moving further, May et al (2004) were instrumental in designing a 13-item scale to measure psychological engagement of employees. Their instrument was anchored on Kahn’s (1990) role theory approach to elucidate the engagement construct, with each item of the scale reflecting one of the three components of Kahn’s psychological engagement: cognitive, emotional and physical engagement. In the same vein, drawing conceptual support from social exchange theory, Saks (2006) designed an 11-item instrument to measure engagement. While 5 items correspond to the dimension of job engagement, 6 items correspond to the dimension of organization engagement. Pati (2012) designed the latest scale to measure the construct after drawing support from the theoretical insights of Pati & Kumar (2011) who argued that engagement is “expressed empowerment pertaining to a role”. While 3-items measure the sub dimension of Passionate Task Performance, 4-items are used to measure the sub dimension of Organization Citizenship Behaviour.

However, historically it has been observed that although the multi-item long instruments are respected in principle for their superior validity and reliability, yet their applicability is limited thanks to insufficient time and resources the researcher is bestowed with for a careful investigation (Gosling, Rentfrow & Swann Jr., 2003). Thus valid shortened versions of established instruments are essential. They are an acceptable compromise for researchers wedged between the choices of employing an attractive proxy instrument with suspicious theoretical and psychometric credentials, and long well established multi-item instruments that can generate “fatigue, frustration and boredom” (Robins et al. 2001) in respondents, thanks to their highly similar questions thus leading to erratic responses. Further, when measurement of number of variables is being attempted, devoting considerable questionnaire space to one variable shall be an obstruction to fair assessment (Joseph et al. 2004). Shorter versions of scales shall help prevent such inequities. Lastly, in many research efforts employee engagement may not be the main construct of interest, yet the researcher may have sufficient rationale to believe that engagement might be a significant variable to explore in relation to the primary construct. If the choices of employee engagement measures for researchers are limited to its long form, then there is a high probability that such an instrument, and thereby the construct is excluded from the study in order to limit the size of the survey instrument to a reasonable length (Richins, 2004).

Nevertheless, to the best of our knowledge, only one short 9-item instrument (UWES-9), devised by Schaufeli, Bakker & Salanova (2006) by reducing the 17-item UWES, exists in literature. This posits abundant risk for advancement of research on the construct, for many researchers, owing to the attraction due to availability of a short instrument, shall be compelled to adhere to the burnout theorization of engagement, thus heralding the danger of construct underrepresentation (Cook & Campbell, 1976). Hence multiple shorter instruments ought to be constructed to facilitate triangulation (Cook & Campbell, 1976). Therefore, in this study we shall endeavour towards:

1. Designing a shorter scale towards measurement of the employee engagement construct, labelled as Short Employee Engagement Instrument – (EEI-S).
2. Present preliminary results on psychometric properties of the new scale thus designed.

THE ORIGINAL MULTI-ITEM EMPLOYEE ENGAGEMENT MEASURE

We propose to construct EEI-S by adhering to the path adopted by Schaufeli, et al. (2006), i.e. by reducing an established multi-item instrument through selecting the best performing items from the same, based on rigorous psychometric benchmarks (Gosling, et al., 2003). Nonetheless, we differ from their approach by choosing the 7-item employee engagement instrument (which we label in this study as EEI-7 for brevity) designed by Pati (2012) as our primary source for such items. We chose EEI-7 over other available long item measures because unlike them, it is as yet the only instrument that elaborately supports a behavioural assessment of the employee engagement construct. We concur with the assertion of Pati (2012) that gauging engagement as a behavioural construct shall not only provide a relatively objective measure of the construct, but shall also contribute towards setting a benchmark for positive workplace behaviour.

As described earlier, EEI-7 encases two subscales, designed to tap into each of the sub-dimensions of the employee engagement construct, i.e. Passionate Task Performance (PTP) and Organization Citizenship Behaviour (OCB). Based on qualitative analysis and literature review, Pati & Kumar (2011) define PTP as investment of discretionary effort in one's assigned task in order to bring about a different as well as self and organizationally beneficial outcome against scripted task performance. Discretionary effort, according to them, warrants exertion of extra time, brainpower and energy in not just generating more of the usual but bringing about something different and beneficial. Similarly, drawing from various sources, they argue that since OCB is a necessary lubricant for the functioning of the social machinery within the organization, it is thus a necessary behaviour for the exhibition of PTP, and hence an essential and important facet of the employee engagement construct. According to them, the inclusion of OCB as a dimension of engagement is a recognition that various roles within organizations are interdependent; hence the onus is on every individual, irrespective of hierarchy to create an organizational culture conducive to engagement.

It must be noted that while developing EEI-7, Pati (2012), through a critical review of literature, had argued for inclusion of three types of OCB, i.e. initial initiative, helping behaviour and civic virtue, as dimensions of employee engagement. Consequently, he borrowed representative items from literature towards measurement of the above constructs, to be included in his measure. Nevertheless, subsequent principal component

analysis as well as confirmatory factor analysis revealed that while items of civic virtue did not display factorial purity thus demanding their exclusion from the instrument, items of initial initiative and helping behaviour exhibited solitary loading on one factor that he christened as OCB. Thus the final OCB subscale of EEI-7 consists of 4 items, 2 items each intended to measure the dimensions of helping behaviour and initial initiative respectively. All the items of EEI-7 are provided in Appendix 1.

EEI-7 is a self-report and has to be responded to on a Likert continuum (1 – Strongly Disagree, 5 – Strongly Agree). The engagement score for each respondent can be arrived by totalling the scores of each sub-dimension. However Pati (2012) cautions that the usability, interpretability and applicability of the instrument is limited to the workplace context.

DEVELOPMENT OF EEI-S

Richins (2004) noted that while development of a new scale has been subjected to detailed deliberation, literature on the methods to reduce the length of an existing scale is sparse and dispersed. Therefore, in order to benefit comprehensively, we took recourse in advice from multiple sources (for e.g. Joseph et al, 2004; Richins 2004; Schaufeli, et al., 2006). Accordingly this research reports two studies. The detailed purpose, methods employed, and findings of the studies are discussed below.

STUDY 1

Study 1 had three distinct yet related purposes: first, with a motive towards improving the scale's internal consistency, we attempted to identify the best-and worst-performing EEI-7 items based on criteria derived from critical assessment of literature; second, to determine whether a short version of EEI-7, i.e. EEI-S can be developed; and finally to determine the optimal size of EEI-S.

DATA AND PROCEDURE

Based on purposive sampling, respondents were drawn from different organizations across industrial sectors. After being assured on confidentiality of their individual responses, they were administered the 7-item employee engagement instrument (EEI-7; Pati, 2012). In total 157 usable survey instruments were returned. The Cronbach Alpha

was calculated to be 0.784, the value being above the minimum specified limit of 0.6 (Sekaran, 1992), thereby indicating the strong internal consistency of the instrument. The demographic analyses revealed that while little more than 50% of the respondents were employed with the Information Technology (IT) industry, 11% of the same were employed with the Banking and Financial Services (BFS) industry. Similarly, it was observed that approximately 4.5% and 5% of the sample were employed with Automobile Manufacturing and Real Estate industries respectively. The remaining respondents were equally supplemented from Pharmaceutical, High Technology and FMCG industries. The average age of the sample was calculated to be 34.6 years (S.D. = 5.46) and the average work experience was determined to be 6.7 years (S.D. = 5.06). Educationally, 2 respondents possessed a Doctoral degree, while 62% possessed an Undergraduate degree. The rest of the respondents possessed a Master's degree. Females consisted of only 10% of the respondents.

DETERMINATION OF BEST AND WORST PERFORMING ITEMS

After reviewing the literature and based on our critical reflection on the same, we identified three criteria to help us select items from the parent scale without forfeiting internal consistency to a large extent. They are:

1. Item – component loading: Joseph et al (2004) recommend a principal component analysis and assert that only those items having component loading scores of 0.55 and above need to be short listed. Thereafter the short listed items need to be ranked based on their registered component loading value.
2. Item – subscale correlation: Richins (2004) advises that only those items that display a correlation coefficient of 0.4 and above with their respective subscale ought to be short listed. Subsequently, based on the value of the correlation coefficient, the short listed items need to be ranked.
3. Item – total correlation: Finally, only those items that share a correlation coefficient of 0.4 and above with that of the total scale ought to be short listed (Richins, 2004). Further, the short listed items need to be ranked based on the value of the correlation coefficient.

The final selection of items for the short scale is contingent on their mean rank, which in turn is the arithmetic mean of their individual ranks registered against each of the above listed criteria.

We decided to examine each item of EEI-7 against the above-mentioned criteria in order to determine their effective worth towards inclusion in EEI-S.

We subjected EEI-7 to principal component analysis (with varimax rotation). Two components, as postulated by Pati & Kumar (2011) and similar to findings of Pati (2012), were identified corresponding to the dimensions of PTP and OCB. Their eigenvalues being 3.12 and 1.35, they accounted for 63.8 % of the extracted variance. However many researchers (e.g. Joseph et al., 2004) advise caution in employing the eigenvalues-greater-than-one criterion towards identifying the number of components. They state that the eigenvalues-greater-than-one criterion is sensitive to the number of variables in the analysis and thus has a potential to escalate the number of components to be extracted. Hence many researchers (e.g. Cattell, 1966; Zwick & Velicer, 1986) affirm that the correct number of components to be extracted is the number of eigenvalues that lie well above the scree slope. Consequently, we examined the scree plot (Fig. 1) and inferred that a one-component solution was possible for EEI-7. Accordingly, we repeated the principal component analysis with a forced one-component solution, with a minimum item component loading of 0.55 specified. No loadings were observed for the items OCB3 and OCB4. The rest of the five items registered loadings ranging from 0.672 to 0.811 (see Table 1). The items were rank ordered based on the value of their loadings. Table 1 also presents the item-subscale, item-total correlations, and the corresponding rank orders for all the items of EEI-7. Thereafter we proceeded to compute the mean rank order for each item by averaging its assigned rank order against each of the above criteria.

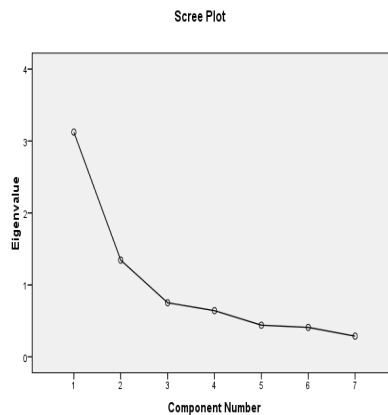
Based on the relatively poor item-scale, item-total correlation coefficients, and lack of observed factor loadings (Table 1), it was decided to exclude OCB3 and OCB4 from the instrument. Although we intend to design a parsimonious measure of the employee engagement instrument, yet we cannot disregard Costello and Osborne's (2005) assertion that factors with lesser than three items are generally unstable. Hence we decided to limit the number of items of EEI-S to three.

TABLE 1

Item-subscale correlation coefficients, item-total correlation coefficients, principal component analysis and rankings of EEI-7 items.

Items	Item-subscale correlation		Item-total correlation		Forced - principal component analysis		Mean rank order
	Correlation coefficient	Rank order	Correlation coefficient	Rank order	Component loadings	Rank order	
PTP1	0.845**	2	0.737**	2	0.749	2	2
PTP2	0.868**	1	0.785**	1	0.811	1	1
PTP3	0.845**	2	0.668**	5	0.672	5	4
OCB1	0.773**	3	0.718**	4	0.728	4	3.6
OCB2	0.763**	4	0.724**	3	0.738	3	3.3
OCB3	0.687**	5	0.514**	6	No loading	-	-
OCB4	0.657**	6	0.446**	7	No loading	-	-

Note: ** $p < 0.01$



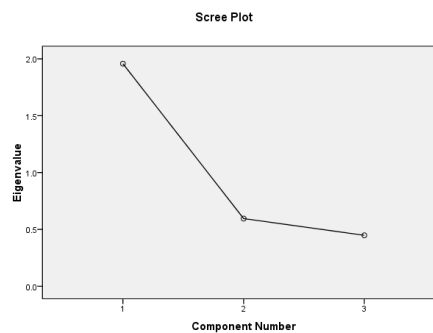
**Scree plot for EEI-7 (Study 1)
Figure 1**

Taking cue from Table 1, it is evident that PTP2, PTP1 and OCB2 emerged as the highest ranked items, and hence can be mandated to be included as items for EEI-S.

Nevertheless, we decided to include OCB 1 instead of PTP1 in the new instrument. This is to stay true to the initial composition of the OCB subscale as designed by Pati (2012) that comprised of 4 items (2 items each) for measuring initial initiative and helping behaviour. In EEI-S, PTP2 represents the sub-dimension of PTP, OCB1 represents the sub-dimension of individual initiative, and OCB2 represents the sub-dimension of helping behaviour.

A repeat principal components analysis of the three items [i.e. PTP2, OCB1 and OCB2] yielded one component with one eigenvalue greater than 1.00 (eigenvalues = 1.958, 0.595, and 0.448), and accounted for 65.2% of the extracted variance. Inspection of the scree plot in accordance with Cattell's (1966) recommendations displayed a single component above a marked elbow (Fig. 2). Component loadings of the three items ranged from 0.767 – 0.840. The Cronbach Alpha was calculated to be 0.733, thus providing evidence for acceptable internal consistency of EEI-S.

Figure 2



Scree plot for EEI-S (Study 1)

STUDY 2

Having established the item content of EEI-S, in Study 2 we proceeded to investigate evidence regarding its convergent validity, discriminant validity and criterion validity. For the purpose thus stated, we have used EEI-7, UWES-9, work alienation as well as several variables that according to previous theory and research are either antecedents or consequences of employee engagement. Following is a brief description of each variable and the rationale for the expected relationship with the engagement construct:

1. Occupational self-efficacy (OSE), which is understood as “one’s belief in one’s own ability and competence to perform successfully and effectively in situations and across different tasks in a job” (Schyns & von Collani, 2002), has been identified by Pati & Kumar (2010) as one of the major antecedents of employee engagement for they argue that it helps reduce fatigue by augmenting coping abilities under stress. Employees with higher degrees of self-efficacy believe that they can control apprehensive cognitions that are threat to their psychological safety (Pati & Kumar, 2010). Thus EEI-S must relate positively with OSE.

2. Perceived supervisor support (PSS), which is understood as the degree to which employees form impressions that their superiors care about their well-being, value their contributions, and are generally supportive (Eisenberger et al. 2002), has been found to positively relate with employee engagement in previous studies (for e.g. Saks, 2006; Pati & Kumar, 2010). According to Saks (2006), engagement is a reciprocation of the socio-emotional benefits that the employee receives from the first line supervisors. In fact the root of employee disengagement is attributed to first line supervisors (Frank et al. 2004). Therefore EEI-S must relate positively with PSS.
3. Job satisfaction, which is comprehended to be “pleasurable or positive emotional state resulting from an appraisal of one’s job or job experiences” (Locke, 1976) has been argued to be a positive consequence of employee engagement in many previous studies (for e.g. Saks, 2006; Harter, Hayes & Schmidt, 2002). Similarly turnover intention that is defined as a conscious and deliberate willingness to leave the organization (Tett & Meyer, 1993), has been found to correlate negatively with employee engagement in previous studies (for e.g. Schaufeli & Bakker, 2004; Saks, 2006). This is not surprising, for engaged employees have fulfilling work related experience and positive state of mind which leads to desirable work outcomes like satisfaction with one’s job and attachment with one’s organization (Schaufeli & Bakker, 2004)
4. Reviewing a diverse set of studies, Nair & Vohra (2010) had contended that work alienation refers to powerlessness or lack of control of workers on their product, labour or work processes and is equivalent to disengagement. Since Pati & Kumar (2010) argue that engagement is an expression of empowerment, therefore EEI-S must negatively correlate with the measure of work alienation. Similarly EEI-S ought to correlate positively with the scales of UWES-9 and EEI-7 for all the three are meant to assess the same construct.

DATA AND PROCEDURE

A total of 112 participants (12 female and 100 male), ranging in age from 24 to 45 years (Mean = 33.9 years, S.D. = 4.75) in diverse occupations, were approached across various industrial sectors. All of them completed the administered questionnaire. The work experience of the sample ranged from 3 to 228 months (Mean = 73.08 months, S.D. =

52.87). Educationally, 3 respondents had a Doctoral degree, 63.4% of the respondents were Undergraduates, while the rest possessed a Master’s degree. The questionnaire provided to the participants assured them confidentiality of their individual responses. Thereafter it requested them to respond to a battery of items related to the instruments of EEI-S, EEI-7 (Pati, 2012; 7 items), UWES-9 (Schaufeli, Bakker & Salanova, 2006; 9 items), work alienation (Nair & Vohra 2010; 8 items), job satisfaction (Cammann et al. 1979; 3 items), perceived supervisor support (Eisenberger et al. 2002; 3 items), occupational self-efficacy (Rigotti et al. 2008; 6 items) and turnover intention (Cammann et al. 1979; 3 items). The response to all the items was solicited on a Likert scale (1 – Strongly disagree, 5 – Strongly agree).

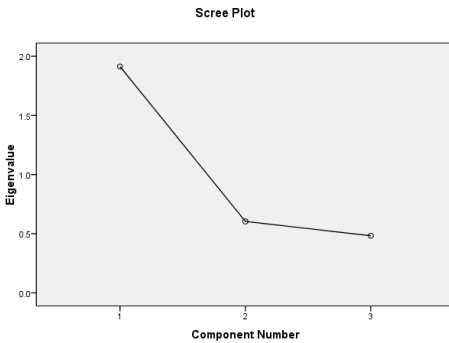
ANALYSIS AND FINDINGS

Descriptive statistics for all Study 2 variables are presented in Table 2. It can be observed that all the scales display a strong Cronbach Alpha. The instrument of interest in this study, i.e. EEI-S, has a Cronbach Alpha of 0.715 thus raising our confidence on its reliability.

TABLE 2

Descriptive statistics for Study 2 variables

Measures	Cronbach Alpha	Mean	Standard Deviation
EEI-S	0.715	12.41	1.98
EEI-7	0.781	28.72	3.81
UWES-9	0.904	35.27	6.39
Job satisfaction	0.857	9.63	1.30
Turnover intention	0.916	7.28	3.64
Occupational self efficacy	0.843	25.15	3.19
Perceived supervisor support	0.903	11.27	3.04
Work alienation	0.939	14.90	7.25



Scree plot for EEI-S (Study 2)
Figure 3

When subjected to a principal component analysis, the three items related to EEI-S loaded on a single component. Even the scree plot (Fig. 3), viewed as guided by Cattell (1966), revealed the presence of a single component. This single component had an eigenvalue of 1.914 (other eigenvalues = 0.604, 0.483) that accounted for 63.8% of the variance. All three items had loadings on the component ranging from 0.764 to 0.826. These results are consistent with the findings of Study 1 and hence provide additional proof regarding the reliability of EEI-S.

Preliminary evidence of convergent validity (Table 3) is provided by the high positive correlation shared by EEI-S with EEI-7 ($r = 0.919$, $p < 0.01$) and moderate positive correlation shared with UWES-9 ($r = 0.430$, $p < 0.01$) respectively. Further evidence of convergent validity is inferred from the negative correlation ($r = -0.325$, $p < 0.01$) shared by the new instrument with the measure of work alienation. Similarly, preliminary evidence of criterion validity (Table 4) is provided by the directions of the various correlations shared by EEI-S with that of occupational self-efficacy ($r = 0.467$, $p < 0.01$), perceived supervisor support ($r = 0.112$, $p < 0.05$), job satisfaction ($r = 0.248$, $p < 0.01$) and turnover intention ($r = -0.095$, *ns*). It must be noted that the correlation of EEI-S with turnover intention is not significant. We believe the short size of the EEI-S is responsible for the observed non-significance between the constructs for reduction of length amounts to sacrifice of content. Yet the direction of the coefficient, i.e. negative, follows the postulations in literature. The correlation coefficients of EEI-S with other constructs are significant with their directions in coherence with the extant literature. Finally preliminary evidence regarding discriminant validity is obtained by examining the difference in size of correlation coefficients shared between EEI-S and the positive

psychology constructs (i.e. job satisfaction, perceived supervisor support and occupational self efficacy); EEI-S was able to discriminate empirically between each of the above constructs.

TABLE 3

Correlations of EEI-S with EEI-7, UWES-9 and Work Alienation

	UWES-9	EEI-7	Work Alienation
EEI-S	0.430**	0.919**	-0.325**

Note: ** p < 0.01

TABLE 4

Correlations indicating criterion validity of EEI-S

	Occupational self-efficacy	Perceived organizational support	Job satisfaction	Turnover intention
EEI-S	0.467**	0.112*	0.248**	-0.095

Note: ** p < 0.01, *p < 0.5

DISCUSSION, STUDY LIMITATIONS AND FUTURE DIRECTIONS

This paper reports the development of the 3-item unidimensional Short Employee Engagement Instrument (EEI-S) using two distinct data sets. EEI-S was demonstrated to have good internal consistency as well as good convergent and discriminant validity, thus indicating that despite its brevity, it is appropriate to be employed as a measure of employee engagement. We believe it shall be particularly useful to practitioners and researchers who are in need of a short but reliable and valid measure to assess the construct. A significant strength of EEI-S is that it was developed and tested across a diverse sample chiefly in terms of occupation and work experience. So it can be argued that the scale thus developed is best suited to be used across work place context. However it must be borne in mind that the reported validity assessments of EEI-S are preliminary in nature for they are based on correlations with limited number of constructs. Hence future research must focus on collating further evidences of validity by exploring relationships between the new scale and other organizational variables. Moreover the study was silent on the potential social desirability independence of EEI-S, which calls for a recheck of the instrument to enhance confidence in its application and results. Moving further, engagement being a victim of conceptual chaos (Pati, 2012), research ought to be directed on construct validation and potential independence of EEI-S from

measures of theoretically related constructs like organizational commitment, job involvement, etc. Lastly, since empowerment is contingent on organizational hierarchy (Menon, 2001), and national culture (Hui, Au & Fock, 2004), the dependency of engagement on the above variables cannot be ruled out. Therefore the unidimensionality and reliability of the new scale ought to be investigated across hierarchy and national cultures.

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APPENDIX 1

Items of EEI-7 (Sourced from Pati, 2012)

Passionate task performance

I give my all to my job [PTP1]

I push myself really hard to meet any challenge in job performance [PTP2]

I exert a lot of energy in performing my job [PTP3]

Organization Citizenship Behaviour

I frequently suggest coworkers on how the group can improve [OCB1]

I voluntarily help new employees settle into their jobs [OCB2]

For issues that may have serious consequences, I express my opinions honestly even when others may disagree [OCB3]

I show genuine concern and courtesy towards coworkers, even in most trying business or personal situations [OCB4]

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