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Regulatory focus and innovative work behavior: The role of work engagement

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Abstract
For successful innovations, identifying and facilitating goal-orientations of the workforce is of vital importance in the present day competitive organizational scenario. This study deepens the understanding that innovative work behavior (IWB) of an employee is facilitated by both promotion and prevention foci. Drawing insights from the regulatory focus (RF) theory we have developed and tested a model involving the motivational dynamics of work engagement (WE) in the relationship between regulatory focus (RF) and IWB. Structural equation modeling analysis of responses from 603 information technology (IT) employees in India confirmed the partial mediation effect of WE between promotion focus and IWB. A full mediation effect of WE between prevention focus and IWB was also established. The data model exhibited a good fit. The results help in establishing the role of WE in contributing to IWB of employees who are either promotion or prevention focused. Scope for future research and implications of the results are discussed.

Keywords Regulatory focus · Work engagement · Promotion focus · Innovative work behavior · Prevention focus

Introduction

Information Technology (IT) is seen as a crucial industry that diffuses itself in both the industrial and service sectors thereby significantly influencing the economic growth in developing countries (Jain et al. 2003). The Indian IT sector contributes in a major way to the economic growth of India (NASSCOM report 2014) with estimated revenue comprising of $19.9 billion by exports. This growth is essentially due to the outcome of the innovative capacities of its manpower as they serve as intangible assets who promote competitive power to boost individual and business performances (Sharma and Kamalanabhan 2014).

The growing competition and radical change in business scenarios, make innovation a necessity for organizations to succeed, survive, prosper and flourish in the global economy (Eldor 2016; Potočnik and Anderson 2016; Gupta et al. 2017). High technology enterprises are defined by knowledge-intensive milieu which lay emphasis on novelty and development of products and processes by the employees who convert them to profitable implementations in the workplace (Nirjar and Tylecote 2005). Continuous innovation in organizations encompasses employees' willingness and ability to innovate, and an innovative organization is a consequence of employee's innovative work place behavior (Ramamoorthy et al. 2005; Bharadwaj and Menon 2000). IWB is defined as the "behavior directed towards the initiation and application (within a work role, group or an organization) of new and useful ideas, processes, products or procedures" (De Jong and Den Hartog 2007 p.43). The extent of an individual's attachment to the job-role which produces higher performance depends on the measure of engagement at work of an individual. However, Gallup records only 9% of India's workforce as engaged, compared to 13% of world's average (Gallup 2013). IT sector is predominantly characterized by knowledge workers and revenue is proportional to the investment in engaged employees Saradha and Patrick (2011). Thus it seems appropriate to study the work engagement of IT employees and also identify and strengthen the personality characteristics of employees to enhance their potential for creativity and innovation as they form the dominant variables in technology-intensive sectors.

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Work Engagement (WE) according to Kahn (1990) is the psychological connection of an employee to his or her work task that enables them to invest their personal energies and resources to their job performances. This self-investment, passion and energy of an engaged employee translates into higher levels of extra-role performances. So engagement is an indicator of an employee's willingness to exhibit discretionary effort. Most studies have focused on organizational characteristics as antecedents to WE rather than an individual' predispositions (Langelaan et al. 2006). Macey and Schneider (2008b) came forward with the idea that dispositional characteristics of an individual will influence the motivation factors leading to extra-role behaviors. Thus it is critical to understand the process which motivate and foster employees to innovate and this has become an important focus in the area of organizational psychology (Scott and Bruce 1994). According to Kahn (1990) an individual's traits along-with the organizational factors, influence the employees' psychological experiences towards ones' work and this drives successful work behaviors. Individual differences in personality traits predict and explain an employee' motivation levels and behavior (Barrick and Mount 1991; Hogan and Holland 2003).

Self-regulation is a dispositional characteristic that helps an individual to direct and guide the goal-directed behavior. It helps them to align with their goals and standards and to monitor their progress towards their set standards. The RF theory (Higgins 1997) is built on the premise that people self-regulate and are motivated to focus on their goal attainment through promotion and prevention foci (Friedman and Förster 2001; Crowe and Higgins 1997). Although there are different motives that drive these two orientations, the RF theory can be explained best by how employees are involved in goal-striving behaviors rather than the "why" of the behaviors (Wallace and Chen 2006; Wallace 2005; Förster et al. 2003). As Lanaj et al. (2012) confirms, RF is more oriented towards goal-striving than goal-setting and is directly tied to behavior. Research studies demonstrate a positive relationship between promotion focus and innovation and a negative relationship between prevention focus and innovation (Lanaj et al. 2012). Employees at work adopt promotion and prevention strategies according to the contexts and task requirements to maintain optimum levels of job performance. Prevention focus also contributes to certain aspects of innovation (Wallace and Chen 2006; Johnson et al. 2015; Brockner et al. 2004). A conscientious facet of dependability reflects qualities of persistence, self-discipline and following rules and regulations which characterizes a preventive approach which is also required for successful execution of innovative ideas and safety performance in organizations (Ali 2018; Wallace 2005; Wallace and Chen 2006).

Brockner et al. (2004) and Johnson et al. (2015) suggest the dual functioning of both promotion and prevention foci will contribute to effective entrepreneurship and innovation. However the lack of empirical studies that focus on this understanding, serves as a gap in this paper. Adopting both promotion and prevention foci may positively influence an employees' overall effectiveness in innovative performances through productivity performance (capturing aspects of work related to quantity and speed) and safety performance (capturing accurate ,safer and careful aspects of work). Both orientations add to individual and organizational performance (Wallace et al. 2009) as organizations involve innovative work tasks which require speed (promotion foci) and accuracy (prevention foci) for completion of tasks (Johnson et al. 2015). We address the gap by examining and explaining the relationships of promotion and prevention foci on IWB through WE. Since innovation involves both creation and the evaluation of innovative ideas, we add value by focusing also on the role of prevention focus on an employees' IWB. Examining the effect of prevention focus on IWB in an employee is imperative as the complexity of work environments during the innovative tasks calls for diligent behavior with observance of accuracy, persistence and discipline (Brockner et al. 2004; Johnson et al. 2015). Overall, the purpose of the study is to explore the integral role of work engagement in the relationship between Promotion and prevention foci on IWB of the IT employees in India using RF theory and sheds light on how the prevention focus of IT employees would also aid in contributing to IWB in organizations through WE.

Theory and Hypotheses Development

Regulatory Focus and Work Engagement

Regulatory focus theory (RFT) (Higgins 1997, 1998) investigates the proposition that all people are driven towards goal-oriented behavior but the means to attain them vary according to an individual' preferences or objectives. This theory takes a cognitive approach behavior that individuals adopt to pursue goals through two mechanisms namely: promotion focus (i.e., focus on positive desired goal outcomes) and prevention focus (i.e., focus on avoiding behavior that produces negative outcomes) (Brockner et al. 2004; Brockner and Higgins 2001). The underlying premise is the same for both foci but they differ in their orientations in pursuing their goals. Promotion focus with nurturance needs for goals that focus on aspiration and hope focusing on gains (benefits of success) while prevention focus with concerns for security needs built on rules and regulations focusing on preventing loss (benefits of avoiding mistake or failure) (Higgins et al. 1994; Shah et al. 1998). As promotion and prevention foci are orthogonal constructs (independent dimensions) (Higgins 1997) individuals exhibit both foci in varying degrees with one of them being dominant at a point (Förster et al. 2003; Brockner and Higgins 2001). According to Bakker et al. (2008) self-regulation is a

goal –directed behavior which is facilitated in engaged individuals. WE is a positive organizational behavior concept that reflects a positive mindset (Bosman et al. 2005). Schaufeli et al. (2002) define WE as a positive and fulfilling work related state of mind comprising of three components namely: vigor, dedication, and absorption. Vigor is high energy with resilience and persistence, dedication is to like the work with a sense of challenge, significance and pride. Absorption is to be fully engrossed with concentration in ones' work. Individual differences as dispositional variables shape a person's tendency towards engagement (Kahn 1990). Because WE is a motivation- induced affective cognitive behavior Schaufeli et al. (2006) and RF is a motivation- based individual difference variable, regulatory mechanisms can help in predicting WE.

WE is characterized by high levels of energy with intrinsic motivation to pursue goals of higher performance. An engaged employee is psychologically attached to his work and aligns with their preferred self (striving to excel in the work task) (Lanaj et al. 2012; Kahn 1990). Promotion focus of an employee is driven by eagerness and initiative in performing the tasks and strives for higher achievement in performances to reach their desired ideal selves (Kark and Van Dijk 2007; Brenninkmeijer et al. 2010). It can be understood that promotion focus fosters engagement at work due to the same underlying motives. WE inculcates a sense of meaning and connectivity towards ones' work (Macey and Schneider 2008a, b). A prevention focused employee is one who is duty-driven, well-organized and disciplined. Hence he or she would possess a sense of obligation and duty in performing their work tasks (Kark and Van Dijk 2007; Wallace 2005). Furthermore, Wallace (2005); Costantini and Perugini (2016); and Gorman et al. (2012) demonstrate that both promotion and prevention foci entails conscientiousness which is also the personality predictor of WE (Kim et al. 2009; Bakker et al. 2012a). Prior studies of Lanaj et al. (2012) and Brenninkmeijer et al. (2010) indicated that promotion focus will contribute to WE. The empirical finding by Andrews et al. (2016) indicates that both promotion focus and prevention focus are positively related to WE. According to self-regulation theories, individuals use strategies that guide their goal-directed activities over time and across changing circumstances (Bakker et al. 2008). In the work environment a promotion focused employee is engaged in order to explore new ideas for achieving rewards and promotions. When prevention focused, an employee engages with vigilant conscientiousness to ensure completion of work tasks in a timely manner with an accurate evaluation of details. Thus by engaging in work, a promotion focused employee uses eager strategies to reach their end goal to reach positive outcomes and when prevention focused they engage in vigilant strategies to avoid negative outcomes like loss or failure that may happen in their jobs. Regulatory focus (RF) theory holds that individuals are motivated to behave in ways that facilitate reaching their desired end states. Because they are driven by such growth aspirations, promotion focused employees are engaged at work to fulfill their experimentation and achievement strivings in approaching their ideal goals. Prevention focused employees, on the other hand, are motivated and engaged by vigilant and avoidance strategies that stimulate a responsible and safety concern. WE represents the extent to which the employees conform or submit to safety expectations, rules and procedures (Nahrgang et al. 2011). Thus prevention focused employees is engaged to work due to a natural propensity towards safety concerns and adherence to work procedures and are able to reach their desired goals by being vigilant and avoiding failures and threats. This reflects the theoretical foundation of RF theory (Higgins 1997, 1998) on approach/avoidance approaches which explains that promotion focus approach positive outcomes and prevention focus avoid negative outcomes. There have been results reported in literature both in favor of and against prevention focus contributing to WE. The authors want to examine the relationships of promotion and prevention foci on WE. Therefore we posit the following hypotheses.

Hypothesis 1: Promotion focus positively influences work engagement

Hypothesis 2: Prevention focus positively influences work engagement

Innovative Work Behavior

According to Barney and Wright (1998) an engaged employee is a source of strength for competitive gain as their resources are rare, valuable and difficult to imitate. They add value to the organization through desirable job performances like IWB (Eldor 2016). IWB of employees includes studying the business environment processes for intentional searching (Idea Generation), developing (Idea Promotion) coupled with applying new ideas and problem solving techniques (Idea Realization), through gathering resources for current situation (Janssen 2000; Scott and Bruce 1994). Innovation process is non-linear, exhausting and involves time- tested immediate actions for solving risk-involved decisions (Huhtala and Parzefall 2007). Adopting innovation brings in resistance from employees because it involves risk- taking and insecurity (Janssen et al. 2004), so organizations depend on engaged employees who are proactive to change (Schaufeli and Salanova 2007). Such employees willingly put in extra efforts beyond their assigned work tasks to accomplish innovative solutions (Ramamoorthy et al. 2005).

The broadening of the thought processes in an employee is triggered by positive emotions (Fredrickson 2001). These positive emotions drive an engaged employee to identify unique

ideas and to improve on his or her coping skills which in turn helps to manage the stress that occurs during challenging situations (Fredrickson 1998). This also helps in building an employee's positive resources such as intellectual (cognitive activities), social (build relationships with others in implementing ideas) and psychological (builds resilience and optimism) resources (Fredrickson 2001). Engaged employees will be more vigilant and focused on their jobs (Christian et al. 2011) to perform better for organizational effectiveness and adaptability (Kataria et al. 2014). WE thus aids in seizing opportunities for change and development, generates better decision making and fosters innovativeness in work tasks (Li et al. 2016; Isen 2001; Liu et al. 2017). Empirical studies have proved a positive relationship between WE and IWB (Gupta et al. 2017; Agarwal et al. 2012; Huhtala and Parzefall 2007; Ramamoorthy et al. 2005; Chughtai and Buckley 2011). Hence we hypothesize that WE positively influences IWB (Hypothesis 3).

Work Engagement as a Mediator between Promotion Focus and IWB

Although individual innovation is predominantly considered as being spontaneous, it is goal-oriented and stimulated by self-regulated actions of individuals (Rietzschel 2011; Lanaj et al. 2012; Brockner et al. 2004; Johnson et al. 2015). Studies by Friedman and Förster (2001), Herman and Reiter-Palmon (2011), Lam and Chiu (2002) and Beuk and Basadur (2016) explained how the differences in these two RF tendencies contribute to creative idea generation and innovative process. Promotion focused individuals are good in searching for many strategies (Friedman and Förster 2001) and they thus generate many ideas (Beuk and Basadur 2016). Furthermore, Herman and Reiter-Palmon (2011) added that promotion focus is beneficial for evaluating originality of ideas but not for quality of ideas. This explains the impact of regulatory focus on creative ideas and its implementation, suggesting that this relationship is complex and depends on the processes and criteria for which they are being used. RF also predicts team innovation with regard to generating and promoting innovative ideas but not with its implementation (Rietzschel 2011). Promotion focused individuals exhibit exploratory behavior at work which is triggered by positive emotions that reshape an individual's thinking process (Higgins 1998). Positive emotions help in experimentation and implementation of novel ideas (Friedman and Förster 2001; Wallace and Chen 2006; Fredrickson 2001) that aids IWB (Lanaj et al. 2012; Wallace et al. 2013) and this indicates that when employees are promotion focused they are more involved in work, thrive and exhibit more of IWB. Positive emotions by itself do not facilitate IWB in an individual but the way it is directed for task accomplishment is vital (Bakker et al. 2012a, b). Organizations require engaged employees, who exhibit behaviors that go the extra mile (Bakker and Demerouti 2014) for risky decision making during high levels of uncertainty that occur with innovation (Janssen 2004). The inner force and activated energy of an engaged employee aids in challenging not only uncertain situations faced during innovation but also helps in innovative behavior that leads to innovative performance (Gupta et al. 2017). It follows that WE unleashes this state of aroused alert behavior (Gorgievski et al. 2014) to fully capture and assess all the resources which an individual invests at work (Lanaj et al. 2012). Based on this understanding, we hypothesize that WE mediates the relationship between promotion focus and IWB (Hypothesis 4).

Work Engagement as a Mediator between Prevention Focus and Innovative Work Behavior

Creative ideas alone do not suffice for innovation since selecting and implementing truly new creative ideas is a challenge. To transform ideas into valuable products people should balance creativity and conscientiousness in-order to complement efficiency with quality (Miron et al. 2004). Prevention focused individuals adhere to safety norms and are involved in tasks that involve analytical reasoning (Seibt and Förster 2004) along-with rigorous checking and reviewing in an in-depth approach. Prevention focus in employees is just adequate to complete the given work task on time with a systematic focused thinking (Andrews et al. 2016; Baas et al. 2011). To be committed in innovative activities, organizations require employees with self regulatory orientations (Rietzschel 2011). Research findings indicate that individuals with a promotion focus tend to be more creative and inventive while individuals with a prevention focus tend to be less so (Crowe and Higgins 1997; Friedman and Förster 2001). Prevention focused individuals are conservative (Crowe and Higgins 1997) and aversive to change (Liberman et al. 2001) though they demonstrate creative (Baas et al. 2011) or risky (Cesario et al. 2008) behavior under certain situations. The finding by Lam and Chiu (2002) explained that, in the face of unforeseen obstacles, a prevention focused individual exhibits a greater commitment and persistence towards attaining goals, even if the probability of attaining it is low. Kröper et al. (2011) found that different phases of the design thinking process required both the regulatory strategies to attain success. As suggested by Herman and Reiter-Palmon (2011) prevention focus with a tendency to reject incorrect responses coupled with the focus on not committing errors, evaluate ideas depending on its quality (Beudeker et al. 2014). Prevention focus possesses qualities of conscientiousness of dependability and responsibility (Wallace and Chen 2006; Wallace et al. 2009; Baas et al. 2011; Barrick and Mount 1991). The conscientious employees are hardworking, self-disciplined, competent and translate their WE for higher job performances (Bakker et al.

2012a); Macey and Schneider (2008a, b) that results in extra-role performances and successful innovations (Ali 2018; Dalal 2005). WE will reflect employees' connectedness and attentiveness to the work tasks causing a more vigilant and focused approach in his work. When engaged at work an employee is reliable and careful to anticipate problems and formulate timely solutions (Christian et al. 2011; Shuck 2013). Work engagement is an affective-motivational state rather than a skill to be developed (van der Walt 2018), which implies organizations need to create working environment that cultivates work engagement. Innovation is often associated with change and when promotion focused, an individual adapts to changes in the status quo comfortably. But when prevention focused the conservative and risk- averse nature makes them less adaptable to change. Hence, in our study an employee when prevention focused and engaged at work facilitates innovative work behavior as work engagement indicates a successful adaptation to change (Petrou et al. 2015) and also reflects a conscientiousness characteristic of vigilance. Therefore, prevention focus is not always a "barrier" to change and can facilitate innovation (Johnson et al. 2015) within a prevention focused environment. Brockner et al. (2004) suggested promotion focus is used as a creative spark of ideas and prevention focus in innovation evaluation. The above literature indicates that a prevention focused employee, being conscientious and cautious is engaged to his or her work, can innovate under certain situations. Based on this reasoning we hypothesize that WE mediates the relationship between prevention focus and IWB (Hypothesis 5).

Methods

Data Collection and Sample Characteristics

The respondents were chosen from among employees working in Information Technology (IT) companies in India since these knowledge workers operate within the domain of innovation at work (Nirjar and Tylecote 2005). The IT industry is at the forefront of innovation activities and they were an ideal subject group to be used in this study as they contain employees who work in rapidly changing jobs that require continuous adaptation. Compared to other sectors, these knowledge-intensive services have an intangible, heterogeneous and products of perishable nature that needs continuous minor improvement and to meet the client's expectations. This makes an IT employees' innovative behavior an object of interest for research.

The research design in this paper comprises of cross-sectional data collected from employees of IT companies in Chennai. This study used a self-reported questionnaire to measure the constructs. The researcher used random numbers to choose 15 Information technology (IT) companies (with more than 500 employees in their offices in and around Chennai city) listed in the NASSCOMS web portal. Permission was sought from the Human resource managers of the chosen IT companies to administer the questionnaire to their employees during the lunch breaks. A purposive sampling procedure was adopted to collect responses from the employees at the operational, tactical and strategic levels. The roles of the respondents in their jobs included software developers, software quality testers, team leaders and project managers in the operational and tactical levels. The respondents from the strategic levels included employees designated as associate Vice President and above. All employees chosen for the survey were informed that the participation was purely voluntary and were assured of anonymity. A total of 700 questionnaires were distributed and 603 of it with complete and error-free responses were collected, yielding a response rate of 86.1%. The respondents were requested to complete the questionnaire which included questions about the variables and a few questions on their demographics. The descriptive statistics of the sample is shown in Table 1. Out of 603 respondents 60% were men. About 58.7% of respondents were from tactical and operational levels and 41.3% from the strategic management level. The age of the respondents varied from 21 to 57 years with an average age of 29.57 years and a standard deviation of 6.12. Age, Skill variety and work hours per week were controlled in this analysis.

Measures

All five constructs are measured using well established and valid scales from published literature. The response format was a 7-point Likert scale ranging from (1 = never) to (7 = always) for all the scales used in this study.

Regulatory Focus

Promotion focus and prevention focus were measured using the 18-item work regulatory focus scale by Neubert et al. (2008). Nine items to measure promotion focus (eg. I take chances at work to maximize my goals for advancement) and nine items to measure prevention focus (eg. I do everything I can to avoid loss at work) were used. Promotion focus Cronbach's alpha was $\alpha = .90$ and Prevention focus Cronbach's alpha was $\alpha = .91$.

Work Engagement

WE was measured with the nine-item version of the Utrecht Work Engagement Scale (UWES) by Schaufeli et al. (2006). The three dimensions of WE are measured as second order constructs and are deemed reliable (Harju et al. 2016; Wefald and Downey 2009; Bakker and Demerouti 2014). The UWES consists of three dimensions with three items in each; vigor

Table 1 Mean, standard deviation, reliability and correlations of the study variables

	Mean	S.D.	α	1	2	3	4	5	6
1.Hours of work per week	46.87	7.28	–	1					
2. Age	29.57	6.12	–	−.022**	1				
3. Skill variety	5.15	1.32	.72	.006	.068	1			
4. Prevention focus	5.69	.97	.91	.000	.131**	.348**	1		
5. Promotion focus	5.24	1.02	.90	.044	.071	.471**	.579**	1	
6. Work engagement	5.35	1.04	.88	.056	.224**	.483**	.458**	.482**	1
7. Innovative work behavior	5.07	1.12	.93	.160	.117**	.498**	.418**	.551**	.573**

**$p < .01$, S.D.-Standard Deviation, α-Cronbach alpha

(eg. At my job, I feel strong and vigorous), dedication (eg. My job inspires me), and absorption (eg. I am immersed in my work). The Cronbach's alpha (α) value is .88.

Innovative Work Behavior

We employed the nine-item scale developed by Janssen (2000) to measure IWB. This scale consists of three dimensions namely, idea generation, idea promotion and idea realization. In this study the above three dimensions of IWB are measured as an aggregate. The respondents were asked to indicate their innovative activities in the three dimensions. The example statements are "creating new ideas for difficult issues" (idea generation), "acquiring approval for innovative ideas" (idea promotion) and "evaluating the utility of innovative ideas" (idea realization). Cronbach's alpha was $\alpha = .93$.

Control Variables

We included age and work-related (skill variety and work hours per week) measures as control variables in this analysis since each of these have been related to innovative work behavior (Wallace et al. 2013; Noefer et al. 2009). Skill variety was important as a control variable because it reflects the extent to which a job requires an individual to use a variety of different skills to complete the work (Hackman and Oldham 1975). Three items of job diagnostic survey by Hackman and Oldham (1975) was used to assess skill variety (eg. 'My job is quite simple and repetitive' – a reversed scale is used). The Cronbach's alpha (α) is .72.

Findings

Data Analysis

In the present study to test the proposed hypotheses we have used the structural equation model (SEM) technique based on Moment of Structures (Amos version 21). In the traditional regression approach the accounting of measurement error is not possible whereas in SEM the structural paths are assessed along with the measurement errors of the indicators. SEM is used to test the complex models with indirect or mediation relationships (Hair et al. 2009). The model validation is done using the following criteria: χ^2 goodness-of-fit statistic, the goodness-of-fit index (GFI), the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR). A model is considered to have a very good fit if the χ^2 statistic is non-significant, the GFI and CFI are greater than .90, and the RMSEA and SRMR is below 0.08 (Hair et al. 2009).

Results

The descriptive statistics, reliability and inter-correlation analysis results are presented in Table 1.

In Table 1 the correlations among the constructs and its reliability values are also reported. All the reported Cronbach alpha values are > .7 fulfilling the reliability criteria. In the present study we have followed the Anderson and Gerbing (1988) two step approach to test the measurement and the structural model. In the first step, confirmatory factor analysis was carried out to test the measurement properties of the items used. During the confirmatory factor analysis an item in vigor dimension (at my work, I feel bursting with energy) was removed due to poor loading. The confirmatory factor analysis has obtained adequate model fit. The indices are: $\chi 2 = 1222.528$, df = 568, p value = .000, $\chi 2$ /df = 2.152, NFI = .918, CFI = .954, RMSEA = .044.

To check for common method bias, we have performed Harman's single factor test using SPSS. In the factor analysis results, the first factor explained 37.62% of the variance. If the explained variance in the first factor is less than 50, the problem of common method variance (CMV) may not exist (Podsakoff et al. 2003). In-order to further establish the absence of CMV in this study, we have included a common method factor into the CFA measurement model along-with the existing factors of this study. The method factor was specified to be uncorrelated with the other constructs; each item

was allowed to be loaded to the method factor (MF) and to its respective underlying factor (Podsakoff et al. 2003, 2012). Two CFA were done, one with the MF and the other without using the MF. Both models exhibited a good fit and the one without the MF exhibited a better fit with the data (Sample with MF: Cmin/df = 3.036, GFI =0.868, CFI = 0.929, TLI = 0.915, IFI = 0.93, RFI = 0.878, RMSEA = .058, SRMR = 0.041. Sample without MF: Cmin/df = 2.209, GFI =0.901, CFI = 0.956, TLI = 0.949, IFI = 0.956, RFI = 0.911, RMSEA = .045, SRMR = 0.042) (Lance et al. 2010). Based on these tests we state that this study is free from common method bias (Podsakoff et al. 2003, 2012; Pattusamy and Jacob 2017).

The average variance extracted (AVE) is used to assess the convergent validity of all constructs in the proposed theoretical model. In the present study all AVE values for the constructs are above the cut off limit >0.5, except for that of promotion focus which has a value very close to .5 (.49) (Hair et al. 2009; Straub et al. 2004).

In Table 2 the factor loadings, AVE and composite reliability values for the constructs are shown. All the first order factor loadings were significant at .001. In the present study WE and IWB are treated as second order factors in the model. All relationships between second and first-order factors are significant at 0.001. The measurement of second order loadings for WE, that of vigor is .97 ($p < .001$), dedication is .91 ($p < .001$) and absorption is .94 ($p < .001$). Similarly the loadings for the dimensions of IWB are, idea generation with .90 ($p < .001$), idea promotion .95 ($p < .001$) and idea realization with .89 ($p < .001$). Table 3 shows the discriminant validity of the theoretical model that is assessed by comparing the square root of the AVE values with its corresponding construct correlation values. All the construct correlations were less than the square root of AVE values. Hence, it is proved that all the constructs in the present study are distinct and theoretically related (Hair et al. 2009; Straub et al. 2004).

In the second stage, the structural model was tested using Maximum likelihood estimation along with 5000 bootstrap estimations. Bootstrap estimation method is a resampling method widely used to estimate the parameter values with the non-normal data distribution. This method of estimation suggested by Hair et al. (2009) suits the data best in the proposed structural model. The standardized regression weights (β) along with the p values are shown in Table 4.

In Table 4 the support for all the direct hypotheses proposed in the present study are shown. The relationships between i) promotion focus and WE (β = .20, $p < .001$) and ii) prevention focus and WE are significant (β = .19, $p < .001$). Thus H1 and H2 are supported. H3 is also supported as the relationship between WE on IWB is significant (β = .35, $p < .001$). To test the mediating role of WE, we use the causal step approach and bias corrected bootstrap estimation method with 5000 resamples (Zhao et al. 2010; Baron and Kenny 1986; Rungtusanatham et al. 2014). The motivation to use bias corrected bootstrap estimation is because there is a flaw in the traditional Sobel's test approach (Zhao et al. 2010; Rungtusanatham et al. 2014). We have tested two models to assess the mediation effect, a full mediation model and a

Table 2 Measurement properties: standardized factor loadings, AVE and composite reliability values

Constructs	Loadings	AVE	Composite reliability
Promotion Focus		0.487	0.894
RFPRF1	.612***		
RFPRF2	.689***		
RFPRF3	.812***		
RFPRF4	.742***		
RFPRF5	.697***		
RFPRF6	.756***		
RFPRF7	.720***		
RFPRF8	.673***		
RFPRF9	.541***		
Prevention Focus		0.504	0.901
RFPEF1	.685***		
RFPEF2	.816***		
RFPEF3	.787***		
RFPEF4	.753***		
RFPEF5	.743***		
RFPEF6	.722***		
RFPEF7	.600***		
RFPEF8	.606***		
RFPEF9	.646***		
WE		0.891	0.961
WEVIG2	.739***		
WEVIG3	.579***		
WEDED1	.834***		
WEDED2	.860***		
WEDED3	.813***		
WEABS1	.753***		
WEABS2	.725***		
WEABS3	.595***		
Innovative Work Behavior		0.838	0.940
IWBIG1	.813***		
IWBIG2	.844***		
IWBIG3	.788***		
IWBIP1	.887***		
IWBIP2	.820***		
IWBIP3	.783***		
IWBIR1	.893***		
IWBIR2	.891***		
IWBIR3	.877***		

***$p < .001$, AVE- Average Variance Extracted

Table 3 Discriminant validity

Constructs	1	2	3	4
1. Work Engagement	**0.944**			
2. Promotion focus	0.586	**0.698**		
3. Prevention focus	0.542	0.652	**0.710**	
4. Innovative Work Behavior	0.616	0.656	0.476	**0.916**

Diagonal values represent the square root of the AVE

partial mediation model. The estimated Structural model is shown in Figs. 1 and 2 in this study.

The indirect effect values are given in Table 5. In the present study, both models have shown adequate fit and we have obtained similar results for the full and partial mediation models. The parameters of the full mediation model are: $\chi^2 = 1379.64$, $df = 662$, p value = .000, $\chi^2/df = 2.08$, NFI = .91, CFI = .95, GFI = .89, RMSEA = .04, SRMR = .050, TLI = .945 and that of the partial mediation model are: $\chi^2 = 1351.93$, $df = 660$, p value = .000, $\chi^2/df = 2.05$, NFI = .91, CFI = .95, GFI = .89, RMSEA = .04, SRMR = .044, TLI = .947. While testing the partial mediation model, we found a significant relationship between promotion focus and IWB ($\beta = .32$, $p < .001$) but not for the direct effect path between prevention focus and IWB. This indicates that the indirect relationship between promotion focus on IWB is partially mediated by WE (H4) and the other mediation path between prevention focus and (IWB) is fully mediated by WE (H5). The above corresponding results are shown in Figs. 1 and 2. The mediation tests offer support for the proposed two mediation hypotheses. In the mediation model, prevention and promotion foci have explained 50% of the variance on WE. With the inclusion of WE as a mediator the explanatory power of the model increased to 56%.

Discussion

This paper shows evidence of the growing importance of WE in organizational behavior studies with significant results and all hypotheses supported. Based on our review of past studies, done to the best of our knowledge, we can state that this is the first empirical examination that measures the effect of WE mediating the relationships between promotion and prevention foci and innovative work behavior. The partial mediation effect of WE in the relationship between promotion focus and IWB proves that a promotion focused employee who is engaged to work exhibits IWB. WE is a conglomeration of energies (cognitive, emotional and physical) with a positive affect that amplifies the proactive achievement focus potential of a promotion focused employee (Lanaj et al. 2012). So our work concurs with the past findings.

It is interesting to find that WE fully mediates the relationship between prevention focus and IWB. This may be because a prevention focused employee is more conscientious and duty bound as stated by (Barrick and Mount 1991; Wallace and Chen 2006). Given that WE includes conscientiousness, perseverance for effective job performances (Bakker et al. 2012a, b) and extra-role behaviors (Dalal 2005; Sulea et al. 2012) a prevention focused employee is innovative engaged to the job. The findings suggest that information technology employees who are engaged to their work in the organizations and who exhibit IWB do so based on their self-regulation foci that is promotion and prevention foci. The findings in the present study, that both promotion and prevention foci relate to WE, is also consistent with another study (Andrews et al. 2016). As expected, the positive contribution of WE to IWB (Agarwal et al. (2012); Chughtai and Buckley (2011); Gupta et al. 2017) finds relevance in our study too. The mediation analysis showed a variance of 56% which proves the increase in the explanatory power of WE on IWB among the employees who are either promotion and prevention focused.

Consistent with the tenets of RF theory (Higgins 1997, 1998) this paper helps in studying employee's behavior at workplace (Brockner and Higgins 2001). Studying the individual differences in both the regulatory foci concurrently helps us to respond to the recent suggestions by Brockner et al. (2004) that both are vital for the innovation process to bring out successful individual and organizational performances (Wallace et al. 2009). The attributes of prevention focus in an employee is necessary for ensuring that innovative ideas are tested for proper evaluation and execution. Additionally, Albrecht and Albrecht (2010) point out that the empirical studies on WE should be grounded on well-established theories as they explore and describe the relationships among the constructs. By incorporating WE as a mediator this paper has helped to explain how the employees innovate depending on the nature of their regulatory foci and their engagement. This strengthens our claim that WE is an effective tool for explaining the contribution of prevention

Table 4 Standardized regression weights

Relationships	β	S.E.	t value	Decision
H_1: Promotion focus to work engagement	0.201***	0.073	2.90	Supported
H_2: Prevention focus to work engagement	0.197***	0.054	3.51	Supported
H_3: Work engagement to innovative work behavior	0.349***	0.604	5.83	Supported

** $p < .001$, S.E.-Standard Error, β- Beta

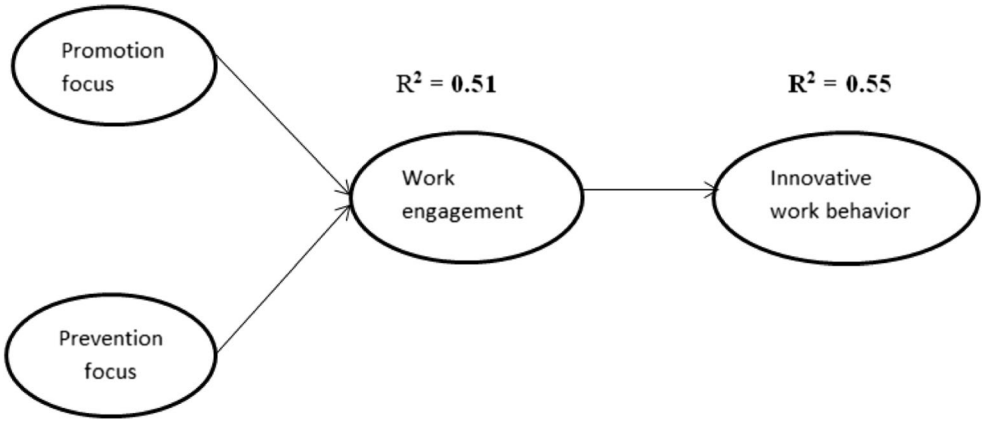

Fig. 1. Full mediation model. Model fit: $\chi 2 = 1379.64$, $df = 662$, $p = .000$, $\chi 2/df = 2.08$, GFI = .892, CFI = .951, RMSEA = .04, SRMR = .050, NFI = .91, TLI = .945

focus on IWB. According to Wallace and Chen (2006) those who alternate appropriately from one regulatory focus to another experience optimum quality in work performance. Schaufeli and Salanova (2007) emphasize that an engaged individual is adaptable to changing circumstances and easily switches from one activity to another with respect to the task role. This means an engaged employee would be able to easily switch from one focus to another. This taps on the understanding that the dispositional characteristic of an employee and their work engaged behavior provide a better perspective to understand, encourage and implement innovative behavior at work. Our findings also suggest that IT employees exhibit the importance of prevention orientation as much as promotion orientation for innovative performance, and work engagement serves as a necessary condition for a prevention focused employee to be innovative. Applying the RF theory to the present dynamic organizational settings (Brockner and Higgins 2001; Neubert et al. 2008; Tseng and Kang 2008) of the information technology sector confirm that both regulatory foci in employees are vital for current business situations. This study in particular has identified that even when an individual is prevention focused, an employee exhibits innovative work behavior when he/she is engaged to work. Finally the study contributes with regard to the Indian context with special focus on how self-regulation of employees contributes to IWB. Hence the results of the present study reveal that opportunities for innovation at work are best realized by employees' experiencing WE as a result of being goal-oriented.

Managerial Implications

The present study focuses on "doing" engagement and not just being engaged to work. So, firms ought to implement strategies and individual developmental approaches that not only encourage and increase the engagement among the employees but also to make it their everyday work practice. The human resource activities in an organization through their needs analysis should identify the potential of innovation among all employees (Wallo et al. 2016). Organizations can recruit and select individuals according to the task requirement in an organization by including the individual differences as a selection criteria. Innovative individuals expect their job performance to bring positive gains as it involves their image risks (Yuan and Woodman 2010) and costs (Janssen et al. 2004). It is imperative that management practices with dual focus on safety initiative (prevention focus) and productivity concerns (promotion focus) are enforced by training leaders and employees to recognize the need to switch from one focus to another focus for optimum task effectiveness. Leaders encourage employee innovations and influence

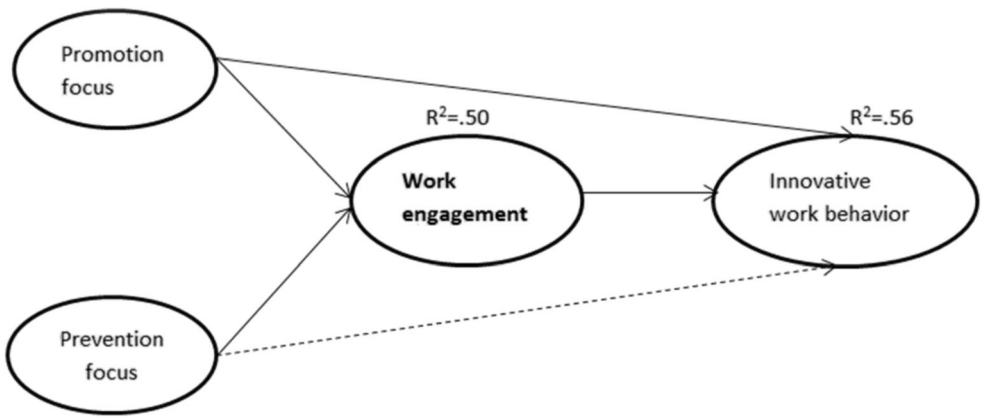

Fig. 2 Partial mediation model. Model fit: $\chi 2 = 1351.934$, $df = 660$, $p = .000$, $\chi 2/df = 2.05$, GFI = .894, CFI = .953, NFI = .912, RMSEA = .042, SRMR = .044, TLI = .947. Insignificant paths are shown as broken lines

Table 5 Standardized indirect effects with lower and upper bound limits

Indirect paths	Indirect effect value	Bias corrected percentile method		Decision
		CI	*p* value	
H4: Promotion focus → we→ iwb	.070	[.023, .127]	.016	Supported
H5: Prevention focus→ we→ iwb	.069	[.029, .122]	.003	Supported

CI Confidence Interval. Indirect effect values are computed through bootstrapping procedure with 603 cases and 5000 bootstrap samples

work engagement (Agarwal et al. (2012); Schaufeli and Salanova 2007). Leaders can bring out the regulatory foci of followers at different points of time in-order to balance the different requirements of innovation. So it is important for a manager to recognize the regulatory orientations of the employees for the appropriate innovative task requirement to ensure quality and speedy output. Managers could provide an engaging work environment that helps a prevention focused employees to feel secure, committed and responsible to demonstrate innovative behavior. Top management should also encourage and reward prevention goal-oriented behaviors of self-regulation as much as those of promotion focus. Furthermore, employees who translate their engagement for practical applications, promote individual and organizational well-being and higher performance (Schaufeli and Salanova 2010; Bakker and Albrecht 2018).

Limitation and Future Scope

All variables in the study were measured by self-reports. Studies have supported the self- report measure of IWB as being consistent with other reports (Janssen 2000). Therefore, we adopted the same in the present study. Future studies may adopt other ratings and multiple assessment methods to avoid the risk of bias. This study is a cross-sectional study which does not analyze the causality between the constructs and longitudinal research design could help to support the causal link in future research. Researchers in the future may also implement the diary method and within-person daily study approaches to study the influence of WE on performance outcomes (Bakker and Albrecht 2018). New mediators such as job crafting and individual strength at work may be included to further explain the variance in IWB thus expanding the scope of the study. This sample consists of IT employees in India only. It would be interesting to test the model in other industries and in geographic boundaries outside India for further understanding of cultural issues. In future, researchers can study the impact of promotion and prevention foci on the three phases of innovation process separately to analyse their distinct contribution to each phase. We suggest that managing the followers' regulatory focus and more specifically their prevention focus, serves as a tool to be used by managers to identify employees' strengths and weaknesses and helps to align their behavior towards innovative performances. Managers should understand that goal orientation with full involvement and commitment of employees is essential for developing the innovative capacity of employees.

Conclusion

Cumulative research has shown that individual employee innovation is predicted by RF but very little research has been done on how this occurs. Our study emphasizes, that work engagement matters for organizations and though prevention focused, an employee by being engaged to his/her work, is innovative. Findings uncover the following arguments. Firstly, prevention focus of an IT employee has a role in contributing to innovation in organizations. Secondly, a work environment that enables switching between both foci provides a solution for complex strategic business innovative outputs. For innovation to flourish WE and self-regulated orientations of employees should be well understood and used as important motivating and practicing tools to be nurtured in present day business situations. The findings from the study are unique in positioning WE as a mediator through which promotion and prevention foci are linked to IWB and explains the relationship of prevention focus to IWB through WE. Prevention focus of IT employees' does not directly influence innovative behavior, however it indirectly influences innovative behavior through WE. Hence the current study elaborates and proves that the employee's regulatory orientations translate into innovative behavior in organizations through WE.

Compliance with Ethical Standards This study was a part of the doctoral level research of the first author, currently pursuing her PhD program at Anna University. The doctoral committee and the Centre for Research, Anna University, India has permitted the researcher to pursue this study.

Informed Consent Informed Consent was obtained from all the participants of this study.

Disclosure of Potential Conflicts of Interest The author(s) declare no conflict of interest regarding this research, authorship or the publishing of this research article.

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