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## Organizational climate, climate strength and work engagement

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### Abstract

The objective of this study was to explore the role of human resource development climate quality and climate strength in determining work engagement at organizational level of analysis. Climate strength was examined for its linear, curvilinear and interactive effects on aggregate level work engagement. Data were collected from a total of 375 employees from 28 business organizations in India. Hierarchical regression analysis was used to examine the dynamics of relationship among study variables. Climate quality was found to relate significantly with work engagement. However, climate strength did not show any significant linear effects on work engagement after controlling for climate quality. Further, climate strength failed to show any curvilinear effects on climate quality-work engagement relationship. Interestingly, climate strength for one climate dimensions displayed significant moderation effects on climate quality-work engagement relationship. In addition to designing the customized interventions aimed at improving the development climate perceptions of each employee, providing opportunities for collaboration with people having more positive perceptions of development climate in the organization is likely to shower significant benefits for organizations in terms of engaged workforce.

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*Keywords:* Climate quality; Climate strength; Curvilinear effects; Moderation; Work engagement

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### 1. Introduction

The construct of organizational climate has received a great deal of attention from the researchers over a last three decades (Dawson et al., 2008). Organizational climate has been conceptualized at both individual and organizational levels of analysis. Psychological climate which is an individual employee's perception of the work environment captures the meaningful psychological representations made by

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individuals relative to the structures, processes, and events that occur in the organization (Rousseau, 1988). Organizational climate exists when psychological climate perceptions are shared among employees of a work unit. An aggregate measure of organizational climate be computed and employed as an organization level measure of climate only when perceptual agreement among employees exists (Glisson and James, 2002). This is in accordance with the direct consensus composition model as proposed by Chan (1998). Following the direct consensus model, researchers have demonstrated the impact of climate level, which refers to employees' the average score on organizational climate (Van Vianen et al., 2011), also called as climate quality on different individual and organizational level outcomes. Another, composition model which has off late started receiving attention among climate researchers is the dispersion model. Unlike the direct consensus model which measures the level of a construct, dispersion model measures the variability in climate perceptions. This variability in climate perceptions from one unit to another has been conceptualized in terms of climate strength (Lindell and Brandt, 2000). Climate strength measures the extent of agreement among individuals' climate perceptions (Gonzalez-Roma et al., 2002). Though research relating climate quality with different individual and organizational outcomes is available in considerable amount, research around the construct of climate strength is still scarce (Dawson et al., 2008). Consequently, there is little agreement over the function, climate strength plays in determining varying attitudinal and behavioural outcomes. The next section presents a brief review of literature surrounding the construct of climate strength.

## 2. Review of Literature

Researchers have examined for the incremental role of climate strength over climate quality in explaining individual and organizational outcomes based on the attraction-selection-attrition model and organizational socialization literature (Lindell and Brandt, 2000; Bliese and Halverson, 1998). According to these paradigms people tend to get attracted towards the people and settings which are similar to them in certain ways. This similarity is likely to result in greater interaction and socializing thereby resulting in systematic attenuation of individual differences over time. This is likely to result in greater agreement in climate perceptions which in turn will have positive consequences for performance and other attitudinal and behavioural outcomes (Dawson et al., 2008). In addition to examining the linear relationship between climate strength and valued outcomes, researchers have also looked for the moderation effects of climate strength on climate quality-outcomes relationship. For instance, Lindell and Brandt (2000) in a study among US local emergency planning committees reported that climate strength directly and its interaction with climate quality did not explain any additional variance in aggregate level attitudinal and affective outcomes beyond that explained by climate quality. Bliese and Halverson (1998) in a study among 73 military groups found support for the linear relationship of leadership climate strength and average psychological well being. However, no moderation effects were observed. Schneider, Salvaggio, and Subirats (2002) in a study among 118 bank branches found support for the moderating role of climate strength only for one of the four climate dimensions examined. Gonzalez-Roma et al. (2002) also tested for the moderation effects of climate strength between work unit climate perceptions and work unit satisfaction and commitment in a study among 197 regional public health service units. Moderation hypothesis was fully supported only for one of the three climate dimensions. In a recent study among 48 work units in different branches of industry in The Netherlands, Van Vianen et al. (2011) did not found support for the moderation effect of climate strength on the relationship between climate quality and organizational commitment. However, interaction of climate strength with individual climate perceptions was found be significant for two of the three climate dimensions. The argument put forward by these researchers for examining the moderation effects of climate strength was based on Mischel's (1976) concept of situational strength according to which, in case of low variance in employees' climate perception, people perceive the events in work environment uniformly and have similar expectations about the appropriate behaviour and hence, are likely to display consistent behaviours. Weak climate strength or high variance in employees' climate perception on the other hand, is likely to result in

inconsistent employee behaviour which will be largely determined by individual differences. Thus, in case of weak and ambiguous climates, prediction of behaviours is likely to be less reliable as opposed to that in strong climates. This implies that under weak climate strength the relationship of climate quality with outcomes is likely to be weaker than that in case of strong climate situations.

In contrast, several researchers advocated for the curvilinear association of climate strength with organizational outcomes according to which climate strength has inverted U relationship with outcomes where it was proposed to have positive impact on the outcomes till it reaches an optimal level and after which the impact is likely to plunge (Dawson et al., 2008; Gonzalez-Roma and West, 2005). They based their arguments on the fact that both too little and too much consensus is detrimental for performance. Very low agreement is likely to result in greater confrontation among members on almost everything thereby resulting in greater conflict and below average outcomes. On the other hand, very high agreement would result in stagnation which group members agreeing on almost everything without questioning which would result in lack of innovation and ultimately poor performance outcomes. Thus, an optimum level of group consensus, where there is perfect balance of collaboration and confrontation would produce optimal outcomes. However, it may not hold true for all climate dimensions (Dawson et al., 2008).

An analysis of little literature available on climate strength as presented above reveals inconclusive findings with respect to the role of climate strength. Thus, making any conclusions about the relationship between climate quality and individual and organizational outcomes, without taking account of climate strength is likely to lead us towards making wrong conclusions. Consequently, more research is warranted in this direction to further our understanding regarding the role and significance of climate strength in work unit processes. The present paper attempts to address the above gap in the literature by exploring the linear, moderation and curvilinear effects of human resource development climate strength following the work of Dawson et al. (2008). The paper attempts to test these relationships using human resource development climate as climate of interest and aggregate work engagement as outcome variable. The following section presents a brief account of both these variables.

### *2.1 Human Resource Development Climate*

It is largely the HRM practices and policies in the organization which determine the climate perceptions of employees (Kopelman et al., 1990). However, the liberalization of Indian economy and the competition from foreign firms has led to the tremendous changes in the HRM patterns, with more emphasis now being given on development of human resources (Budhwar and Boyne, 2004). There is clear shift in HRM function in India from routine HR activities towards a strategic approach to HRD (Budhwar, 2000). With rapid transformation of HRD practices and systems in the organizations, it becomes important to study employee perceptions of the HRD environment (HRD climate) and its impact on their work attitudes and behaviour. HRD climate is an integral component of organizational climate which reflects the perception that the employees have of the development environment of the organization (Rao and Abraham, 1986). It is characterized by the tendencies such as treating employees as the most important resources, perceiving that developing employees is the job of every manager, believing in the capability of employees, communicating openly, encouraging risk taking and experimentation, making efforts to help employees recognize their strengths and weaknesses, creating a general climate of trust, collaboration and autonomy, supportive personnel policies, and supportive HRD practices (Rao and Abraham, 1986).

Some studies have reported positive and significant relationship between individual's perception of development climate and cognitive and affective states like job satisfaction (Rohmetra, 1998, Mishra et al., 1999, Ahuja, 2002) and organizational commitment (Purang, 2008; Mishra et al., 1999). Only two studies could be traced in the literature where HRD climate was shown to relate with work engagement, a cognitive affective work-related state of mind characterized by vigour, dedication, and absorption (Schaufeli and Bakker, 2003) (cf. Chaudhary et al., 2011, 2012). At the same time it should be noticed

that these studies used only individual perceptions of climate to the neglect of shared employee perceptions which represents an organizational level construct. Further, an analysis of the research literature around work engagement revealed that most of the academic research on work engagement has conceptualized it an individual level of analysis. However, the business houses are more interested in the performance at the unit or team level than the individual performance and since most of the interventions are at the unit level, it is practically more useful to conceptualize work engagement at the team and organizational level (Pugh and Dietz, 2008). Surprisingly, none of the studies till date have made an attempt to explore the importance of shared employee perceptions of HRD climate i.e. climate quality and climate strength for aggregate level work engagement. Addressing to the above gaps in the literature, present paper attempts to explore the dynamics of the relationship among development climate quality, development climate strength and aggregate level work engagement.

### 3. Methodology

#### 3.1 Participants & procedures

Target population for the present study consisted of junior, middle and senior level business executives from select business organizations in India. Data were collected from a heterogeneous nature of organizations including both public and private sector manufacturing and service firms. A total of 375 employees from 28 different organizations participated in the study. The average number of employees per organization completing the questionnaire was 13.39. The range of the number of respondents per organization varied from 4 to 43. The responses were drawn using convenience sampling method using personal contacts. The sample included 307 males and 68 females. The average age of the respondents was 33.8. Eighty percent of the respondents belonged to the private sector while only 20% were from the public sector.

#### 3.2 Measures

Work engagement was assessed using 9-item shortened version of Utrecht Work Engagement Scale (UWES) by Schaufeli and Bakker (2003). Items were rated on a 5-point frequency-based scale (1 = *never*, 5 = *always*). One factor model was found to show superior fit when compared to three factor model (One factor model:  $\chi^2=52.780$ ,  $df=24$ ,  $NFI=.995$ ,  $TLI=.995$ ,  $CFI=.997$ ,  $RMSEA=.057$ ; Three factor model:  $\chi^2=270.372$ ,  $df=119$ ,  $NFI=.987$ ,  $TLI=.991$ ,  $CFI=.993$ ,  $RMSEA=.059$ ) Results of exploratory factor analysis provided further support for one factor model (see. Table1). Cronbach's alpha value for the scale was found to be .812.

Thirty-eight items HRD Climate survey instrument by Rao & Abraham (1986) was used for assessing the level of HRD climate in the organizations understudy. Responses were measured on a 5-point Likert-scale with the response range varying from 1 for "*strongly disagree*" to 5 for "*strongly agree*." Exploratory factor analysis resulted in a modified 37-item scale (see. Table 2) with five factors which showed superior fit over alternative model conceptualizations when confirmatory factor analysis was applied to confirm the structure ( $\chi^2=1054.79$ ,  $df=619$ ,  $NFI=.976$ ,  $TLI=.989$ ,  $CFI=.990$ ,  $RMSEA=.044$ ). Average HRD climate scores for each organization were used to represent HRD climate quality.

Cronbach's value for 37-item scale was 0.952 and for the five factors was - 0.862 for HRD mechanisms (HRDC1), 0.811 for Trust, Team spirit and Objectivity (HRDC2), 0.816 for Autonomy, Openness & Interpersonal relationships (HRDC3), 0.640 for Management's belief and commitment to HRD (HRDC4), and 0.869 for Training, Development & Management support and encouragement for t & d (HRDC5).

*Climate Strength* for each unit was established by means of average deviation index  $AD_{M(j)}$  (Burke et al., 1999). One advantage of using  $AD_{M(j)}$  over  $rwg(j)$  is that it can be interpreted in terms of actual categories of the scale.

Table 1. Factor loadings of UWES items based on a principle components analysis

Item No.	Items	Factor Loadings
1	At my work, I feel bursting with energy.	.514
4	At my job, I feel strong and vigorous.	.684
5	I am enthusiastic about my job.	.710
7	My job inspires me.	.606
8	When I get up in the morning, I feel like going to work.	.679
9	I feel happy when I am working intensely	.601
10	I am proud on the work that I do.	.660
11	I am immersed in my work	.702
14	I get carried away when I am working	.527

Table 2. Factor loadings based on a principal components analysis for HRD climate

Item No.	Items	1	2	3	4	5	
<b>HRD Mechanisms</b>							
33	When behavior feedback is given to employees they take it seriously and use it for development.	0.661					
38	Job-rotation in this organization facilitates employee development	0.611					
22	This organization ensures employee welfare to such an extent that the employees can save a lot of their mental energy for work purpose.	0.556					
37	Career opportunities are pointed out to juniors by senior officers in the organization.	0.512					
28	The organization's future plans are made known to the managerial staff to help them develop their juniors and prepare them for future.	0.46					
35	Employees in this organization take pains to find out their strengths and weaknesses from their supervising officers or colleagues.	0.444					
23	People lacking competence in doing their jobs are helped to acquire competence rather than being left unattended.	0.397					
14	When an employee does good work his supervising officers take special care to appreciate it.	0.388			0.325		
29	The personnel policies in this organization facilitate employee development.	0.381			0.313		
26	When employees are sponsored for training, they take it seriously and try to learn from the programmes they attend.	0.312					
<b>Trust, team spirit and objectivity</b>							
9	People trust each other in this organization.	0.786					
2	People in this organization are helpful to each other.	0.734					
13	Team spirit is of high order in this organization.	0.524					
18	Delegation of authority to encourage juniors to develop handling higher responsibilities is quite common in this organization.	0.46					
25	Performance appraisal reports in our organization are based on objective assessment and adequate information and not on favoritism.	0.381			0.361		
20	When problems arise people discuss these problems openly and try to solve them rather than keep accusing each other behind the back.	0.372					
31	Promotion decisions are based on the suitability of the promotee rather than on favoritism	0.33					
<b>Autonomy, openness &amp; interpersonal relationships</b>							
7	Employees are encouraged to take initiative and do things on their own without having to wait for instructions from supervisors.	0.768					
11	Employees are not afraid to express or discuss their feelings with their subordinates.	0.574					
10	Employees are encouraged to experiment with new methods and try out creative ideas.	0.502			0.44		
3	When any employee makes a mistake his supervisors treat it with understanding and help him to learn from such mistakes rather than punishing him or discouraging him.	0.491					
36	People in this organization do not have fixed mental impressions about each other.	0.475					
12	Employees in this organization are very informal and do not hesitate to discuss their personal problems with their supervisors.	0.44			0.364		
4	Employees are not afraid to express or discuss their feelings with their superiors.	0.36					
<b>Management's belief and commitment to HRD</b>							
1	The top management believes that human resources are an extremely important resource and that they have to be treated more humanly.	0.439			0.552		
8	When seniors delegate authority to juniors, the juniors use it as an opportunity for development.	0.302			0.456		
5	The psychological climate in this organization is very conducive to any employee interested in developing himself by acquiring new knowledge and skills.	0.315		0.315	0.389		
<b>Training, development &amp; management support and encouragement for it</b>							
21	Seniors guide their juniors and prepare them for future responsibilities/roles they are likely to take up.				0.337	0.662	
32	The top management of this organization makes efforts to identify and utilize the potential of the employees.					0.639	
16	Employees are sponsored for training programmes on the basis of genuine training needs.					0.639	
30	Employees returning from training programmes are given opportunities to try out what they have learnt.					0.591	
24	Managers in this organization believe that employee behavior can be changed and people can be developed at any stage of their life.					0.566	
19	Development of the subordinates is seen as an important part of their job by the managers/officers here.					0.479	
17	Senior officers/executives in this organization take active interest in their juniors and help them learn their job.					0.345	
27	The top management of this organization goes out of its way to make sure that employees enjoy their work.	0.377				0.344	
15	The top management is willing to invest a considerable part of their time and other resources to ensure the development of employees.					0.329	
6	Weaknesses of employees are communicated to them in a non-threatening way.					0.324	
		Eigen Value	14.047	1.385	1.239	1.185	1.055
		Percentage of variance explained	36.967	3.645	3.261	3.117	2.775

### 3.3 Data aggregation

The present study conceptualizes each of the study variables at collective level. Therefore, agreement among the individuals from the same context must be demonstrated before aggregating data at individual level to represent the scores at collective/organizational level. Inter rater agreement was assessed using  $r_{wg(j)}$  (James et al., 1984). Interrater reliabilities were assessed using intraclass correlation coefficients ICC (1) and ICC (2) (Shrout and Fleiss, 1979). The agreement indices were calculated for each of the 28 organizations for each of the study variables.  $r_{wg(j)}$  values were found to range between .902 to .991 for work engagement (median=.970) and between .968 to .996 for HRD climate (median=.990) which is well above the cut off value of .70 (James et al., 1984, Klein and Kozlowski, 2000) and represents very strong within group agreement and hence justifies aggregation. Further, ICC (1) for HRD climate scale was found to be 0.3565, implying that 35.65% of the variance in employees' rating of HRD climate can be explained on the basis of organizational membership. ICC (2) is 0.887, which is well above the 0.70 criterion proposed by Klein and Kozlowski (2000). For work engagement scale ICC (1) and ICC (2) values were found to be .3653 and .883 respectively, and thus provided, justification for agreement. One way Anova for both HRD climate and work engagement resulted in significant F ratios ( $p < .01$ ) indicating their variability in the organizations under study, thereby providing validity for aggregate HRD climate and work engagement measures. Therefore, workplace comparisons can be reliably made.

## 4. Results

Table 3 presents the inter-correlation among study variables. As can be observed unit size did not show any significant correlation with work engagement. All HRD climate dimensions correlated significantly with work engagement. However, climate strength except for one dimension did not display any significant correlation with work engagement. The unique effects of climate strength on work engagement could only be tested after controlling for the effects of climate quality. Hence, hierarchical regression analysis was performed to see the direct linear effects of climate strength on work engagement beyond the effect of climate quality.

To test for the direct linear and interactive effects of climate strength on work engagement, a series of moderated regression analysis was performed. Since unit size displayed insignificant correlation with work engagement, it was excluded from the regression analysis. Variables were centered to avoid the problem of multicollinearity. Climate quality was entered in step 1 followed by the entry of climate strength in step 2. Lastly to test for the moderation effects of climate strength on HRD climate quality and aggregate level work engagement relationship, interaction term (climate quality\*climate strength) was computed for each of the climate dimensions and entered in step3. Table 4 presents the results of multiple moderated regression analysis of aggregate level work engagement on five climate dimensions. Climate quality for each of the climate dimensions was found to predict aggregate level work engagement significantly. Main effects of climate strength on aggregate level work engagement were not found to be significant for any of the five climate dimensions after controlling for climate quality. Thus, no linear effects of climate strength were observed. Further, climate strength failed to show any moderation effects as the addition of the interaction term in step 3 did not result in any significant increase in  $R^2$  value and the interaction terms did not displayed significant beta coefficient for four of the five climate dimensions. Interestingly, climate strength for HRDC4 demonstrated significant moderation effects ( $\beta = -.285$ ,  $p < .10$ ). Since, climate strength was operationalized in terms of ADM(J), which represents the variability in climate perceptions, positive/higher value of climate strength represented lower consensus and hence lower situational strength. Interaction between climate quality and climate strength for HRDC4 are shown graphically in figure 1. As is evident from the graph, relationship between climate quality and aggregated work engagement was stronger in case of high situational strength (lower value of climate strength construct).

Table3. Inter-correlation among study variables

No.	Variab les	1	2	3	4	5	6	7	8	9	10	1 1	1 2
1	Unit Size	1											
2	HRDC 1	.300	1										
3	HRDC 2	.310	.868*	1									
4	HRDC 3	.297	.907*	.761 *	1								
5	HRDC 4	.172	.899*	.772 *	.774*	1							
6	HRDC 5	.239	.920*	.782 *	.923*	.845 *	1						
7	S1	.119	-.252	.001	-.392*	-.346	-.366	1					
8	S2	.178	-.114	-.216	-.285	-.153	-.237	.512*	1				
9	S3	.137	.067	.106	-.164	-.036	-.071	.577*	.681 *	1			
10	S4	.132	-.031	0	-.127	-.221	-.134	.666*	.607 *	.751 *	1		
11	S5	.235	-.017	.025	-.187	-.109	-.209	.625*	.649 *	.880 *	.718 *	1	
12	WE	.172	.721*	.511 *	.829*	.611 *	.829 *	-.395†	-.164	-.026	.076	-.0 7	-.0 9

Note: \*p<.01, †p<.05; HRDC1, HRDC2, HRDC3, HRDC4 and HRDC5 represent climate quality (average climate level) of five climate dimensions; S1, S2, S3, S4, S5 represent climate strength for five climate dimensions; WE denotes aggregate level work engagement.

Table4. Results of multiple moderated regression analysis of aggregate level work engagement on climate dimensions

Predictors	Model		
	1	2	3
<b>HRDC1: HRD Mechanisms</b>			
<i>Step1</i> Climate Quality	.721**	.633**	.629**
<i>Step2</i> Climate Strength		-0.228	-0.226
<i>Step3</i> Interaction			-0.100
<i>F value</i>	28.125**	16.448**	10.910**
<i>ΔF value</i>		2.811	0.496
<i>R<sup>2</sup></i>	0.520	0.568	0.577
<i>ΔR<sup>2</sup></i>		0.049	0.009
<b>HRDC2: Trust, Team Spirit &amp; Objectivity</b>			
<i>Step1</i> Climate Quality for HRDC2	.511**	.499**	.472**
<i>Step2</i> Climate Strength for HRDC2		-0.057	.004

<i>Step3</i>			
Interaction			- .276
<i>F value</i>	9.183**	4.486*	4.031*
$\Delta F$ value		0.105	2.561
$R^2$	0.261	0.264	0.335
$\Delta R^2$		0.003	0.071
<b>HRDC3: Autonomy, openness &amp; interpersonal relationships</b>			
<i>Step1</i>			
Climate Quality for HRDC3	.829**	.847**	.852**
<i>Step2</i>			
Climate Strength for HRDC3		0.112	0.111
<i>Step3</i>			
Interaction			0.009
<i>F value</i>	57.132**	29.106**	18.632**
$\Delta F$ value		1.025	0.004
$R^2$	0.687	0.700	0.700
$\Delta R^2$		0.012	0.000
<b>HRDC4: Management's commitment and belief in HRD</b>			
<i>Step1</i>			
Climate Quality for HRDC4	0.611**	.660**	.608**
<i>Step2</i>			
Climate Strength for HRDC4		0.222	.130
<i>Step3</i>			
Interaction			-.285†
<i>F value</i>	15.489**	9.056**	7.758**
$\Delta F$ value		2.017	3.414†
$R^2$	0.373	0.420	0.392
$\Delta R^2$		0.047	0.072
<b>HRDC5: Training, development &amp; Management's support and encouragement for t&amp; d</b>			
<i>Step1</i>			
Climate Quality for HRDC5	.829**	.850**	.811**
<i>Step2</i>			
Climate Strength for HRDC5		0.098	.090
<i>Step3</i>			
Interaction			-.155
<i>F value</i>	57.230**	28.726**	20.509**
$\Delta F$ value		0.757	1.933
$R^2$	0.688	.697	.719
$\Delta R^2$		0.009	0.023

Note: \*\*p < 0.01, \*p < 0.05, †p < .10

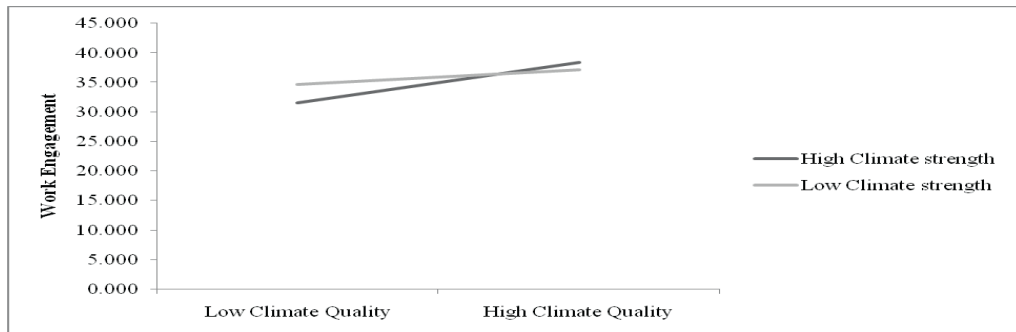


Figure1. Interaction of climate quality and climate strength for HRDC4



Further to test for the curvilinear effects of climate strength, a three step curvilinear regression analysis was performed. Climate quality was entered in step 1 followed by the entry of climate strength in step 2. Lastly to test for the curvilinear effects of climate strength on work engagement, quadratic climate strength term (Climate strength\*Climate strength) was computed for each of the climate dimensions and was entered in step 3. Table 5 displays the results of last step of curvilinear regression analysis of aggregate level work engagement on five climate dimensions.

As can be observed, climate strength did not show significant curvilinear effects on aggregate level work engagement as the standardized beta coefficient for climate strength<sup>2</sup> was not found to be significant for any of the climate dimensions and the addition of the quadratic term in step 3 did not result in significant increase in R<sup>2</sup> value.

## 5. Discussion

Aim of the present study was to investigate the role of human resource development climate quality and strength in determining aggregate level work engagement among select business organizations in India. The results of the study revealed significant association between shared employee perceptions (climate quality) and aggregate level work engagement. This highlights the importance of social and contextual information in understanding work engagement in addition to individual's own perception of the development climate. This implies that work engagement not only depend upon individual's own perceptions of the development climate but also on the perception of the similar others (co-workers) in the group/organization. Importantly, the study established the importance of social system in its own right by demonstrating its unique effects on individual attitudes. This could be explained on the basis of social information processing theory which states that individuals utilize social cues in addition to their own perceptions while constructing and interpreting situations and hence established the importance of immediate social environment in addition to individual's own perception in determining their work attitudes (Salancik and Pfeffer, 1978). These results could be supported to some extent on the basis of findings of some studies where importance of social context has been demonstrated for work engagement. For instance, Hakanen et al. (2006) in a study on a sample of over 2000 teachers reported that social climate relate positively to work engagement. In addition, Xanthopoulou et al. (2009) reported significant association between team climate and work engagement.

Table5. Results of curvilinear regression analysis of aggregate level work engagement on climate strength

Climate Dimensions	HRDC1	HRDC2	HRDC3	HRDC4	HRDC5
Climate Quality	.669**	.464*	.896**	.666**	.853**
Climate Strength	-.236	-.033	.125	.159	.112
Climate Strength <sup>2</sup>	-.081	.168	-.182	.102	-.121
<i>F value</i>	10.804**	3.274*	21.670**	5.945**	19.696**
<i>ΔF value</i>	0.358	0.889	2.742	0.260	1.193
<i>R</i> <sup>2</sup>	0.575	0.290	0.730	0.426	0.711
<i>ΔR</i> <sup>2</sup>	0.006	0.026	0.031	0.006	0.014

Note: \*\* p < 0.01, \*p < 0.05

Further, climate strength was not found to show any direct linear effects on work engagement after controlling for the effects of climate quality for all five dimensions. This is in contrast to the selection-attraction-attrition paradigm which provided the theoretical basis for examining the relationship of climate strength with positive work outcomes. Though, these results support the findings of Lindell and Brandt (2000), where climate strength displayed no direct effects on varied aggregate level outcomes like job satisfaction, citizenship behavior, turnover intention etc., they contradict the findings of Bliese and Halverson (1998) where leadership climate strength displayed significant direct linear effects on psychological well being. This seems to indicate that climate quality alone provides adequate representation of human resource development climate and its impact on work engagement. However, further examination is needed before making any such generalizations.

In addition to examining the direct linear effects of climate strength, the study goes a step further to see if climate strength has any curvilinear effects on aggregate level work engagement. However, results of curvilinear regression revealed no significant curvilinear effects of climate strength on aggregate level work engagement. These results contrast the findings of studies where curvilinear effects of climate strength for participation on innovation (Gonzalez-Roma and West, 2005) and climate strength for and integration on performance (Dawson et al., 2008) were reported.

In addition to examining the direct linear and curvilinear effects of development climate strength, the study also aimed at investigating the moderation effects of climate strength on development climate quality-aggregate level work engagement relationship. However, interaction term displayed significant beta coefficient only for one climate dimension HRDC4 (Management's belief and commitment to HRD). For rest of the climate dimensions, climate strength failed to show any significant moderation effects. The moderation effect of climate strength for HRDC4 was in expected direction. Stronger association was found between climate quality and work engagement under situations with high climate consensus. This was in line with Mischel's (1976) theory of situational strength where greater climate consensus was proposed to result in uniform and consistent expectations and increased the predictability of attitudinal and behavioural outcomes. These results support the findings of the studies where significant interactions between climate quality and climate strength were observed for different attitudinal and behavioural outcomes (Gonzalez-Roma et al., 2002; Schneider et al., 2002). However, this is in contrast with the findings of the studies where no significant interaction effects of climate strength on climate quality and different attitudinal and behavioural outcomes were reported (Dawson et al., 2008; Van Vianen et al., 2011; Lindell and Brandt, 2000; Bliese and Halverson, 1998). Thus, any conclusion regarding moderation effects of climate strength could not be made and demands rigorous research before reaching to any conclusion.

## 6. Implications

Looking at the potential of work engagement to drive business performance and to impact the bottom line outcomes, findings of the present study imply that creating a climate of human resource development is a compelling intervention, which could provide competitive advantage to the firm in terms of enhanced work engagement levels among employees. Inimitable nature of climate is likely to provide a company with a significant source of competitive advantage (Neal and Tromley, 1995). However, creation of a conducive and favourable climate for development is not a task of one day it requires a continuous commitment on the part of the management and a long term investment in employees. A regular evaluation and monitoring of the employee perceptions of HRD climate should be done to make sure that they are being given adequate attention and are received favourably as this can work wonders for organizations by enhancing engagement levels among workforce (Riordan et al., 2005). Our study established the importance of social interaction climate for determining employee perception and attitudes, organizations should focus on improving the social climate of the organizations so that employees with negative or less positive perceptions of the development climate get the opportunity to

interact with the employees having more positive perceptions of the development environment. Regular interaction with people having positive perceptions of development climate of the organization is likely to induce more positive perceptions of development climate among employees which in turn will show up in their elevated engagement levels. Therefore, in addition to designing the customized interventions aimed at improving the development climate perceptions of each employee, providing opportunities for collaboration with positive people in the organization is likely to shower significant benefits for organizations in terms of engaged workforce. Further, since HRD climate quality for management's belief and commitment to HRD dimension related strongly to work engagement under conditions of stronger climate strength, organizations should not only focus on improving climate levels in organization, but also on improving climate consensus on this dimension in order to promote uniformity in employees' perceptions. At the same time, it should be noticed that greater agreement on negative perceptions of the climate is likely to impact cognitive and affective outcomes adversely. For this purpose as per the recommendation of Van Vianen et al. (2011), organizations could construct teams, where employees with negative perceptions are mingled with positive people in the organization. This could help to deal with the negativity issues in the organization to certain extent. Good quality internal communication and creating a culture of openness could be another recipe for promoting collaboration and team spirit in the organization. However, we recommend further research in this direction

## 7. Conclusion

Human resource development climate quality related significantly with work engagement. However, climate strength failed to show any significant linear or curvilinear effects. Climate strength for only one climate dimension displayed significant interaction effects. Interaction between climate strength and climate quality for other four dimensions failed to add significantly to our understanding of work engagement. Thus it appears that climate quality provides sufficient representation of human resource development climate. However, we encourage further research to confirm these associations.

Rather than simply examining the impact of psychological development climate, which is an individual level variable, the study demonstrated the impact of employees' shared perceptions of development climate, which represents an organizational level variable, on work engagement. Further, the addressed to the call for more research around aggregate level work engagement (Pugh and Dietz, 2008). In addition, our study provides an extension of the previous studies by examining the role of climate strength between antecedents and outcomes different from that investigated in past studies. As opposed to the general climate dimensions or service climate perceptions the study examines the role of human resource development climate strength, a relatively unexplored construct in the area. In addition, extant literature has largely focused on job satisfaction, organizational commitment, turnover intentions, performance etc. as the outcome or the criterion variables examined for their relationship with climate strength to the neglect of work engagement, a positive fulfilling work related state of mind which has gained much popularity among both practitioners and academicians equally, given its proven importance for measures of organizational performance. The study by examining these relationships addresses to the scarce empirical research around the construct of climate strength and adds to the better understanding of the construct of climate strength in determining attitudinal and behavioural outcomes. Since most of the research around the construct of climate strength has come from developed European nations, the study by examining of role of human resource development climate strength in a developing economy of India, which has "patronage of a different socio-cultural background" (Gani and Shah, 2001) and which is experiencing rapid economic, socio-cultural and structural changes (Budhwar et al., 2006), makes a significant contribution to the literature.

## 8. Limitations and future scope

The study carries certain limitations. First, all the measures were based on self-reports thus causing a concern for common method bias. Secondly, the present study included only cross-sectional information on the relationships between study variables, so inferences of causality cannot be drawn. Hence, experimental and longitudinal studies should be taken up in future to establish causality. Third limitation of the study was the use of convenience sampling methods for data collection. Though the study uses heterogeneous sample which helped increase statistical power, caution should be exercised while generalizing the results beyond current study. Further, Small sample size further limits usability of the study findings. In addition, the lack of clear theoretical framework for applying the climate strength concept to development climate in the organizations is likely to have produced misleading results based on mere chance. Thus, there is a need for repetitive and systematic research to explain the importance of developmental climate strength for attitudinal and behavioural outcomes.

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