

**Effects of competitive climate on work engagement, adaptability, and performance: A multilevel analysis**

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**Abstract:** Competition in the workplace is a universal argument. This research build on previous research on aiming to straighten out that competitive climate belonged to which kind of job demands and the further effects on the levels of outcomes. This research tested the proposition that employees who are dynamically stimulated to procedure their personal resource with their job resources on the job would be better deal with competitive climate as job demands. Based on job demands-resources (JD-R) theory, this research hypothesized that job resources and personal resource (psychological capital) can protect the impact of job demands (competitive climate) on the outcomes related with works. The sample of this research consisted of 548 service employees from 92 teams (response rate = 83.03%) in 45 organizations. Results of multilevel analyses (HLM3) indicated that work engagement would mediate the three-way interactive effects of competitive climate as a job demand, job resource and personal resource (psychological capital) on the outcomes (adaptability, and performance). Finally, this research provided original theoretical and empirical visions into competitive climate as job demand, job resources, and personal resources.

**Keywords:** *competition, engagement, multilevel, JD-R, HLM.*

### **Introduction**

Competition is a fact. Lots of evidences presented by more and more research would explore the issues of organization with the competitive environment (Arnold, Flaherty, Voss & Mowen, 2009; Brown, Cron, & Slocum, 1998; Fletcher, Major, & Davis, 2008; Keller, Spurk, Baumeler, & Hirschi, 2016, p. 122). In workplace, workers face the competition with their co-workers through their perception in their team. While “team” is an important unit for analysis, the competitive climate is sharing with their team members. The past researches criticism discussed about the competition leads positive or negative effects were still inconsistent, and there are many working discussions for a result. Thus, this study of interest is to the conference participants.

Researches of competition issues related the points of studies are focusing on “competitive climate” would have effects on employee outcomes (e.g. Arnold et al., 2009, p.198; Brown et al., 1998; Fletcher et al, 2008), and performance (e.g. Fletcher et al., 2008, p.903), psychological well-being (e.g. Standage, Duda, & Pensgaard, 2005). More studies have resulted for discussing the competitive labour market (Gim, Desa, & Ramayah, 2015; Spurk, Baumeler, & Hirschi, 2016). These studies showed the problem of employment, the contextual variables and the influence should be understood deeply (Wallance, Edwards, Arnold, & Frazier, 2009). So that, this study would base on Job Demands-Resources theory (JD-R; Demerouti & Bakker, 2011, p.947) to investigate the possibility that employees with job resource and personal resource would be more engaged their job when confronted with competitive climates, thus providing a understanding of the conditions under which competitive climates and employee’s outcome are related.

## Literature Review

Competition has been defined by Ames and Ames (1984, p.42) as a “situation of negative interdependence among the participating individuals, so that the probability of one individual attaining a goal or receiving a reward is reduced by the attendance of more capable individuals” (cited in Standage et al., 2005). Competitiveness might be a characteristic of the environment (Fletcher et al., 2008; Schrock, Hughes, Fu, Richards, & Jones, 2016). Kohn (1992) did an essential thing that he made a difference between structural competition (i.e., the competition that is inherent in situations) and intentional (personal or attitudinal) competitiveness and it could facilitate supervision and different kinds of decisions by organization and managers (cited in Brown et al., 1998).

Cognitive appraisal theory (Standage et al., 2005) has been discussed with the point to examine the possible consequences of competition for over 30 years until now. Conversely, Fletcher et al. (2008) described two viewpoints of competition influence. One examination believes competition causes individuals to do their best with argument by social comparison theory (Wood & Lichtman, 1985), therefore, competition might focus concentration on improving employees’ outcome, and another observation pointed that all forms of competition are unhealthy (Fletcher et al., 2008).

### **Competitive psychological climate v.s. JD-R theory.**

Competitive climate exposes that employees perceive their rewards to be relevant with their performance comparisons against their co-workers (Arnold et al., 2009). In the workplace, employees need to find out the content of their job demands which could help them to do their job and deal with their job demands. Also, there was a prior research (Sahadev, Seshanna, & Purani, 2014, p.72) mentioned that “competition is an important aspect of psychological climate because it focuses employees’ attention on the performance criteria that serves as the standards of peer group comparison and creates demands on employees to focus their efforts on goal-related activities” (Brown et al., 1998, p.89). Thus, competitive climate as a job demand would have negative or positive effects on outcomes of employees and organizations.

Base on job demands-resources theory, some latest researches provided the suggestion how to deal with the balance between competitive climate as a job demand, job resource and personal resource (Demerouti & Bakker, 2011; Schaufeli & Taris, 2014; Schrock et al., 2016). Schaufeli & Taris (2014) presents a summary of important findings obtained with the JD-R model. They point out personal resource could buffer negative effects of job demands on employees outcome and add positive effects of job resources on engagement. Therefore, it is hypothesised that:

**Hypothesis 1: The three-way interaction among competitive climate, job resource, and personal would be related to Work engagement.**

### **Work engagement**

Work engagement was defined as a positive work-related state of completion (Schaufeli, Salanova, González-Romá, & Bakker, 2002; Quiñones, Broeck & Witte, 2013). According to Simmons and Nelson (2007) provides an exceptional way to demonstrate how job demands at work obvious themselves in both positive and negative responses. In their holistic stress model, work engagement as a form attitude would be a mediator between job demands and outcomes. Moreover, work engagement is a positive indicator such as extra-role behaviour (Quiñones, Broeck & Witte, 2013). In accordance with these arguments, work engagement would mediate the relation between the three-way interaction among job demand, job resource, and personal resource and contextual performance.

**Hypothesis 2: Work engagement mediates the relationship between competitive climate and contextual performance.**

### **Team adaptive capability**

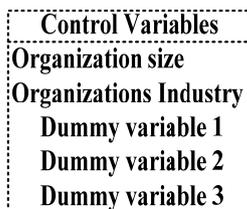
While “team” is an important unit for analysis, the competitive climate is shared with their team members. Workers face the competition with their co-workers through their perception in their team. Moreover, the past researches’ disagreement discussed about the competition leads to positive or negative effects were still inconsistent, and there are many working discussions for a result. Researches of competition issues related to the points of studies are focusing on “competitive climate” would have effects on employee outcomes (e.g. Arnold et al., 2009, p.198; Brown et al., 1998; Fletcher et al., 2008), and performance (e.g. Fletcher et al., 2008, p.903). Otherwise, all team members facing the competitive climate would be flexible and adaptive to deal with the intra-competition dynamically even if a team would be keeping work together or not.

**Hypothesis 3: Competitive climate would affect team adaptive capability, and job resource would buffer the relationship between competitive climate and team adaptive capability.**

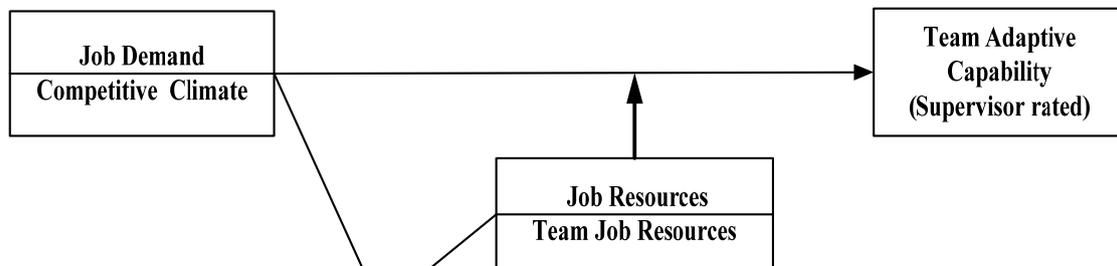
Figure 1 below depicts the theoretical framework of this study.

*Figure 1: Research Framework*

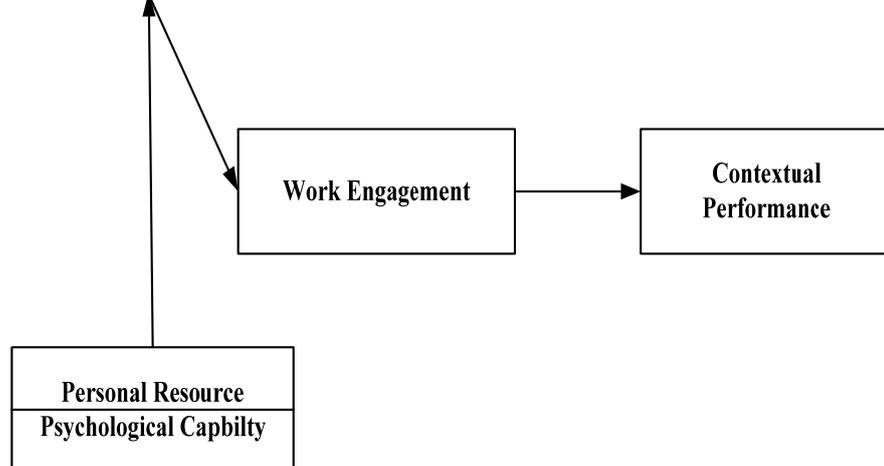
*Organization Level*



*Team Level*



*Individual Level*



## **Methodology**

### **Sampling**

This study wanted to understand that in the competitive environment. Employees in service industry would perceive competitive climate. Participants of this industry would help research to capture the appropriator.

### **Participants and Procedures**

Participants in this study were general staff officers from organizations in Taiwan. There are some criteria included in the study: (1) a team created by three or above team members with one supervisor and two or more full-time employees, and (2) supervisors must know whom they invited to complete employee's questionnaires and rank team outcome which items would be on supervisors' questionnaire. Additional, in the proposed framework, competitive psychological climate is a collective constructs; thus, these chosen companies need to possess this team property. Moreover, the survey's data was collected from multiple sources at multilevel, and this collection could help to avoid common method variance (CMV) problems as description above (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003).

Through the process of this study's survey, 50 organizations, 130 teams, and 880 employees participated in this survey. Surveys with missing data as well as those that could not be matched to a supervisor were eliminated. However, only 45 organizations, 92 teams were retrieved after missing questionnaires removed. The response rate was 70.76 %. The final teams of participants numbered 548 full-time employees, constituting 92 teams after matching the supervisors' questionnaires.

About 58.4 % of the employees in the final sample were female, 34.8% were college graduates, and 44.2 % were not married. The average tenure at the organization was 8.33 years. The most common job categories were sales staffs (47.5 %) and administrative & support staff (16.3 %).

### **Measures**

For the reason that all of original scales were in English, all survey measures employed the back translation procedure recommended by Brislin (1980); therefore, two-way translations were performed by two people who were bilingual in English and Chinese with business backgrounds to ensure equivalence.

Then, this study had a pilot test which were did by 17 volunteers who were the EMBA students of National Don Hwa University, and some item's statements were revised for accuracy. After the Chinese version was completed, it was compared to the original English version. After discussing the translation with two professors, the questionnaire was approved for distribution.

### **Competitive climate**

The measurement of competitive climate was from Brown et al. (1998), and evaluated perceptions of competitive climate using it to be more general rather than specific to sales. In this study, employees reported their individual competitive psychological climate. The competitive psychological climate construct consists of four items, and scale sample items (e.g. My manager frequently compares my performance with that of my coworkers). Individual scores for psychological climate and aggregated scores within teams for shared team climate would be used. This questionnaire had a total of 4 items, which response choices ranged from 1 (strongly disagree) to 7 (strongly agree).

Cronbach's  $\alpha$  of individual-level was 0.80 in this study. Aggregation of competitive climate to team level was averaged across team ratings of the individuals to form team-level competitive climate. This approach is consistent with prior research (e.g., Liao & Chuang, 2004). Moreover, within-team agreement and ICCs provided empirical justification for aggregating competitive climate to the team level. The  $r_{wg(j)}$  across teams was negatively

skewed with a median value of 0.80. The ICC1, a measure of the reliability of a single assessment of climate was .19 above .12. The ICC2, a measure of the reliability of the team means for climate was 0.62 between .50~.70 acceptable (Bliese, 1998). The one-way ANOVA assessing the effect of team membership on competitive climate is significant ( $F(25, 542) = 3.01, p < 0.01$ ). These data provided support for aggregating to the team level. All of the constructs were measured based on scales developed by previous researchers. Job resource was measured based on a scale development by Bakker & Bal (2010). Team adaptive capability was measured based on a scale development by Wei & Lau (2010). Psychological capital was measured based on a scale development by Luthans, Avolio, Avey (2007) in this study, and used PCQ-12 items with the suggestion of to measure Psychology capital which extract 12 items (self-efficacy: items 2,3,6; hop: items 7, 10, 11,12; resilience: items 15, 16, 17; optimism: items 21, 22) from PCQ-24 by Luthans, Youssef & Avolio (2007). Work engagement was measured based on a scale development by Schaufeli, & Bakker (2006). Contextual performance was measured based on a scale development by Van Scotter & Motowidlo (1996).

### **Control Variables**

By reason of the possible effects of education, age and team size on employees' outcome, this study chosen to control for these variables. At the individual-level, this study controlled employees' age, and gender, and education level (dummy variables; 0 = high school and below; 1 = college or above). It was for the reason that the two variables are belong these variables were found to be related to job attitudes or relationships involving job attitudes (e.g., Judge et al., 2001). At the team-level, this study controlled team size (number of team members). In addition, the reason for controlling team size was that prior research showed that the number of team members was an important affective factor when it comes to team job performance (Brewer & Kramer, 1986). Also, controlled organizational size and the industry with 3 dummy variables at organizational level.

Trait competitiveness was measured based on a scale development by Brown, Cron & Slocum (1998). Demand-ability fit was measured based on a scale development by Cable & DeRue (2002).

### **Analytic Strategy**

This study's data were nested and multilevel in nature. For instance, employees who appraised their own perceptions of the competitive climate (a team-level construct) and their own work engagement and contextual performance were nested within their team, and team adaptive capability were nested within their organization. In the same way, each team calculated at least two surveys in addition evaluating their perceptions of competitive climate. Consequently, this study used hierarchical linear modeling (HLM) as an analytic tool to test our hypotheses with a 3 level model (Raudenbush & Bryk, 2002).

### **Results and Discussion**

The result showed significant for Hypotheses 1 that the three-way interaction among competitive climate, job resource, and personal resource would be related to work engagement, and Hypotheses 2 was supported that work engagement mediates the relationship between competitive climate and contextual performance. As shown in Table 1, HLM results revealed that competitive climate as a predictor in team level significantly predicted employee's work engagement ( $r = -0.09, p < 0.05$ , Model 1-1). Work engagement as Level 1 predictor significantly predicted employee's contextual performance ( $r = 0.25, p < 0.05$ , Model 3-3). Also, the result supported Hypothesis 3 which competitive climate would affect team adaptive capability ( $r = -0.14, p < 0.05$ , Model 0-1), and job resources would buffer the

relationship between competitive climate and team adaptive capability ( $r=0.07$ ,  $p<0.05$ , Model 0-1).

*Table 1: Hierarchical Linear Modelling Results (team level)*

Independent Variables	Team Adaptive Capability	
	Model0	Model0-1
Intercept	3.69	3.68***
Team level ( level 2 )		
Team size	0.00	0.00
Competitive climate	-0.14**	-0.15*
Job resources		0.08
Organization level ( level 3 )		
Organization size (log)	0.04	0.05
Industry dummy variables	0.16	0.14
Dummy variables1 –selling & sales		
Dummy variables2 –banker& insurance	0.07	-0.05
Dummy variables3 –hospitality & leisure	0.23	0.24
Interaction		
Competitive climate×Job resources		0.07*
Deviance	111.51	116.88

Organization number=45、 team number=92

\*p < .05 \*\*p < .01 \*\*\*p < .001

Table 2: Hierarchical Linear Modelling Results (Moderation effect)

Independent Variables	Work engagement							Contextual performance		
	model1-1	model1-2	model1-3	model1-4	model1-5	model1-6	model1-7	model3-1	model3-2	model3-3
Intercept	4.23***	4.24***	4.25***	4.24***	4.25***	4.25***	4.24***	5.56***	5.57***	5.58
Individual level ( level 1 )										
Gender	-0.00	-0.01	0.01	-0.00	-0.01	0.01	0.01	-0.07	-0.05	-0.07*
Education level	-0.00	0.01	-0.01	-0.01	-0.00	-0.02	-0.02	0.07	0.05	0.07*
Demand-ability Fit (DC_FIT)	0.40***	0.40***	0.20***	0.20***	0.19***	0.20***	0.19**	0.31***	0.18***	0.13**
Trait competitiveness	0.20***	0.20***	0.09	0.08	0.08	0.09	0.10	0.15**	0.09	0.08
Psychological capital			0.49***	0.49***	0.50***	0.50***	0.53***		0.33***	0.18**
Work engagement										0.25***
Team level ( level 2 )										
Team size	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00	-0.00
Competitive climate	-0.09*	-0.02	-0.08**	-0.07*	-0.06*	-0.09**	-0.09**	0.03	-0.05†	-0.00
Job resources		0.24***	0.09	0.09*	0.09*	0.09	0.09	0.18***	0.12***	0.12**
Organization level ( level 3 )										
Organization size (log)	-0.07	-0.04	-0.02	-0.01	-0.02	-0.01	-0.00	0.10*	0.10**	0.11**
Industry dummy variables										
Dummy variables1 –selling & sales	-0.28	-0.23	-0.21*	-0.21*	-0.26*	-0.24*	-0.31**	-0.19	-0.16	-0.12
Dummy variables2 –banker& insurance	0.39*	0.05	0.03	0.04	0.05	0.00	0.02	0.04	0.09	-0.02
Dummy variables3 –hospitality & leisure	0.03	0.01	-0.02	-0.02	-0.04	-0.02	-0.08	-0.02	-0.09	-0.02
Interaction										
Competitive climate × Job resources			0.02				-0.00		0.07*	0.08*
Competitive climate × Psychological capital				-0.03			-0.03		-.07	-0.12*
Job resources × Psychological capital					0.02		0.05†		-0.06†	-0.11**
3 way interaction										
Competitive climate × Job resources × Psychological capital						0.12***	0.16***		0.14*	0.11†
模型變異	1214.90	1181.32	1050.75	1051.37	1048.08	1043.97	1039.34	1137.64	1047.72	998.02

Organization number=45、 team number=92、 individuals number=548

† p < .1 \*p < .05 \*\*p < .01 \*\*\*p < .001

Figure 2: The three-way interaction among competitive climate, job resource, and personal resource would be related to work engagement

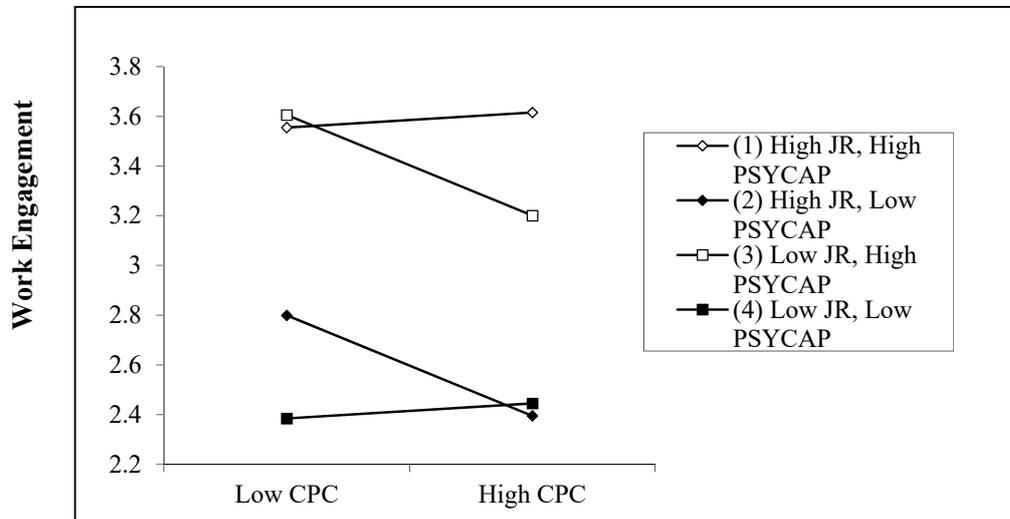
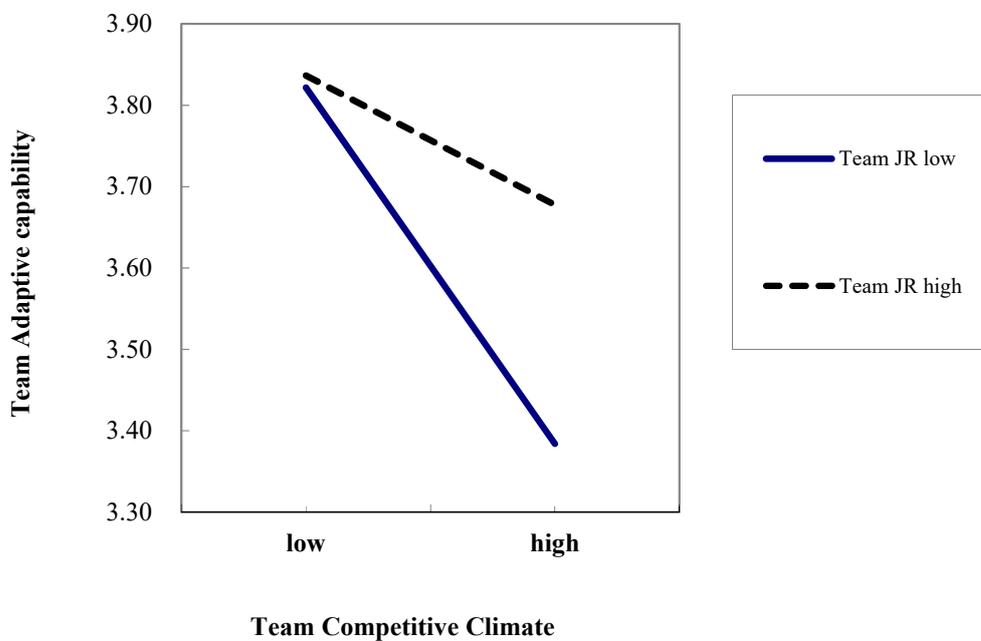


Figure 3: The interaction of competitive climate, job resource would be related to team adaptive capability.



## Conclusion

In this competitive setting, the JD-R researches (Schaufeli, Taris, 2014, p. 43) still goes on by the researches and organizations for reducing it or improving the related about the negative results leading by job demand as competitive climate. Some of researches work hard for it and provide some evidence to understand or decrease the negative effects from competitive environment. Based on Fletcher et al (2008), this study provided the evidence that competitive climate were perceived differently by employees in team.

In this study, the findings showed the interaction of job demands, job resource, and personal resource on work engagement was significant. Moreover, work engagement would mediate the relationship between job demand and employee's outcome which could be provided the evidence which supervisors could try to manage the strategic intervention for the balance between employee's performance and team's adaption capability. In the team level, the result showed that job resource could moderate the relationship between competitive team climate and team outcome. Further, job resource and psychological capital as a personal resource would be related with different ways to help that employee would work happier, and job resource could buffer the negative effects of competitive team climate on team adaptive capability.

This study suggested that research in future could study what invention could improve the negative effects of job demands on employee's outcomes when competitive climate as a job demand was perceived. Moreover, research could try to find out the other job resources and personal resources to assist employee dealing with their job demands and keep employees' health and well-being with the competitive context variable in further.

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