Strategies to promote cross-functional team creativity in SMEs: the cooperative effect of organizational fit and cognitive interaction

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Abstact. Given the overwhelming increase in the background of knowledge-based economy and cross-functional team, one of the critical challenges that stimulation of the team creativity face when trying to integrate members across different functions is the need to concern individual-team suitability and overcome differentiated knowledge representation. However, availability of person-organization fit is merely applied to organization s' development at individual level. And the issue of how to enhance team creativity in the process of interactive coordination and knowledge sharing is largely understudied. Our study attempts to investigate the TMS links between the member-team fit and cross-functional team creativity, we introduce one of the individual self-concept as moderator variable in the above relationships. We have administered a survey design with 82 teams from 35 Sic-tech enterprises and employed the cross-level mediating model for data analysis. Results show that TMS served as a positive mediator between the cross-level relationships and a feasible path of moderated mediation has been explored. These findings indicates that in the formation of a cross-functional team creativity at the cross-level are important mechanisms to understand how the remarkable effects from the individual level are transmitted to the team level.

1 Introduction

Team creativity emphasizes the ability of a team to produce novel and useful ideas, products or services to play effectiveness of unique knowledge collaboration and group innovation [1]. Cross-functional teams, a kind of task-based heterogeneous group, in which representatives from different knowledge domains work together to accomplish specific task[2] structure a huge cognitive repository and situational interaction space. However, differences in skills, perceptions, behaviors and representations associated with knowledge specialization create time pressure and barrier[3-4], necessitating team members to engage in complex fusion processes when integrating diversified resources. The first phase of the adjustment period, judging from the development process of a cross-functional team, and facilitate unified goals and handle internal conflicts to enhance the fundamental appropriateness. It is essential for cross-functional teams to guarantee a stable match and

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dynamic coordination between members and inherent requirements. Therefore, person-organization(PO)fit, as an important context of individual-environment fit [5], could be defined precisely within a team as member-team fit(MT fit), which can effectively implement the compatibility of supplementary and complementary[6]to surmount barrier smoothly during preliminary stage. Nonetheless, the literature remains unclear regarding the MT fit effects on creativity at the team level.

As the team step into operation stage, cross-functional teams are beginning to intensify their knowledge management pursuitin order to continuously obtain, exploit and deploy cognitive resources exemplified by differentiated and integrated knowledge[7], Knowledge in cognitive psychology is traditionally conceptualized in reference to processed and available information of group, while knowledge representation refers to processes of reorganizing and structuring knowledge in individual mind, known as interactive memory systems. Given that cognitive processes in teams are often considered from the perspectives of transactive memory systems (TMS), which contribute to facilitating the shared division of cognitive labor to encode, store, and retrieve knowledge from different but complementary domains of expertise in collective tasks [8]. Past research indicated that a TMS is positively related to team creativity, while several studies that espoused a TMS's impact on innovation within a cross-functional team, have also overlooked the plausible mediating role of a cross-level analysis of creativity. Given that the unique collectivism culture in China will attach importance to provoke a sense of role values and competencies. As a significant dimension of self-concept (The positioning and perception of the individual's role), organization-based self-esteem (OBSE) has gradually become a measurement index of organizational behaviour [9]. In the current literature, the prevailing wisdom is that stable OBSE promote more effective extra-role behavior by cognitive drive that contribute to improve cooperation and innovation at the level only of individuals[10]. The role of OBSE in attaining a transformation between self-attribute and membership is especially crucial by the positive interaction at the perception level, which indeed affect team creativity remains to be further demonstrated in the certain situations. In this article, we build on the fundamental premise that reconceptualize Po fit in groups as a cross-level pattern. In combination with knowledge representation and cognitive interaction study, we focus on the relationship of direct mediating effect with TMS that shape the implications of MT fit for CFT creativity. Moreover, it explores whether the mediating role of TMS changes under the different situations of OBSE based on the cultural characteristics of collectivism.

2 Theory and hypotheses

Majority studies demonstrated that value fit of individuals and the group related to stimulating intrinsic motivation does play an important role in producing potential innovative behaviour [11].Likewise, the meta-analysis theory states that the vision dimension is a primary predictor of team creativity [12]. Individuals with a fairly high level of knowledge have great potential to break the conventional pattern and actively be involved in the team learning and innovation, while employees with low requirements of demands abilities fit to exert creativity of a team that would have been unrealized in all likelihood. The social exchange theory further clarifies that once a team meets demands of its members and provides the required resources, members can mobilize their initiative and creativity for positive return[13].

TMS of a team represents the summary processing of differentiated knowledge and the shared division of labor of group consciousness, and promotes the realization of cognitive complementarity of knowledge structure and content among members, which will have a certain impact on team effectiveness based on adjustment of abundant

self-cognition[14].Specifically, specialization, coordination and credibility, conceptualized as manifestations or indicators of the extent to which a TMS has developed in a group, which have been widely used to measure the relationship to correlated variables of high-performance team development in empirical research [15]. Especially in a cross-functional team with rich heterogeneous resources, the effective transfer and sharing of knowledge promotes communication among members. The operation of team creativity can be elucidated by using the input-process-output theoretical model. MT fit inputs fundamental conditions to team creativity as a reciprocal fusion mechanism, and process processing and organization coordination are conducted through knowledge representation (TMS), members share their unique specialties to promote the formation of group common cognition based on the pursuit of common interests of self and the team,which means a highly matched team enables members to experience a higher sense of competence and efficiency in the collaborative division of labor[16],and further accelerate the possibilities for members to translate their intentions into practice.

OBSE is a measurable indicator of an individual's role value and competence, which prompted a frame of team-based concept that refers to members' cognition and judgment of their self-status[17]. Individuals with higher OBSE are more likely to receive such positive signals as support, recognition, and encouragement from others[18]. Hereby forging a psychological link with tasks and others in the domination of social identity, and revising the action tacitly to cooperate with the overall operation of the team. Furthermore, through the lens of cognitive drive perspective, a TMS requires individuals to obtain relevant support resources consisting of work tasks, career planning, information distribution, etc. in order to build a matching of cognitive system with tasks, members, and expertise[19-20].Thus, we hypothesized: a higher MT fit will positively influence the development of CFT creativity (H1.), a higher TMS will positively influence the development of CFT creativity (H2.), TMS mediates the relationship between member-team fit and CFT creativity (H3.), and OBSE moderates the effect of TMS on CFT creativity(H4.). OBSE moderates the mediation of TMS(H5).
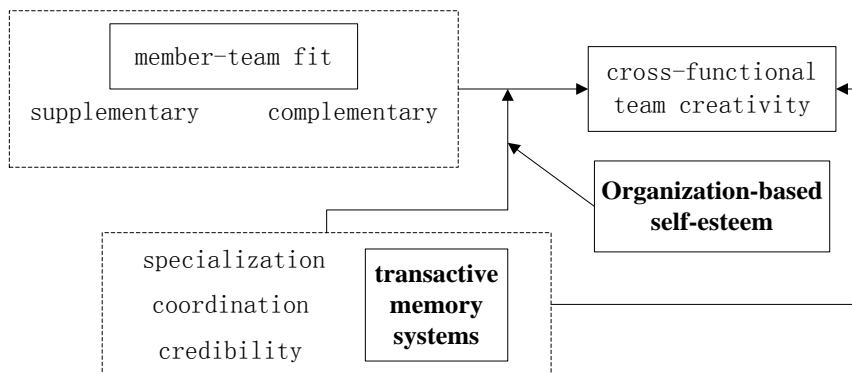

Fig. 1. Conceptual framework.

3 Methods

We conducted a survey study in small and medium-sized scientific and technical enterprises of China to test the feasibility of the theoretical model. The target group is cross-functional teams of 4-12 employees structured by different functions (departments). We successively distributed 500 questionnaires to 82 cross-functional teams in 35 companies from June to September 2021, which involved such emerging industries as advanced manufacturing, software and information services, online finance, etc. 458 valid

questionnaires were collected (76 teams), and the effective recovery rate was 91.6%. All study variables were assessed by using previously validated scales rated by team members. The online survey was administered in Chinese. The response format for all measurement items was a seven point Likert-type scale. By adopting items used in Cable and Derue (2002), we changed the words employees/co-workers into team members and the words company/organization into team and we employed a two-dimension of nine items measure to assess MT fit that scale reliability in this study is .93. We measured TMS by using a 15-item scale, which contains three key dimensions of specialization, credibility, and coordination with five items for each dimension. OBSE adoptd the questionnaire developed by Pierce and Gardner (1989) of 10 items, and the reliability value of the scale reaches above 0.9. CFT creativity adopted the team creativity scale compiled by Chen (2006), which contains 10 items, the scale had a good reliability in measuring creativity of different types of teams, thus providing strong feasibility for the measurement results of this team. We controlled for sociodemographic variables, such as average age, average education, team size and team tenure, to rule out the alternative explanations of the current results.

4 Result

The descriptive statistics (means and standard deviations), reliability estimates, and correlations of the study variables were reported in Table 1.

Table 1. Descriptive statistics and correlations between key variables.

	M	SD	1	2	3	4	5	6	7	8
Average age	4.23	1.09	-							
Average education	2.87	0.77	0.11^*	-						
Team size	3.45	0.93	-0.19^*	0.20^{**}	-					
Team tenure	4.89	0.91	0.06	-0.08^*	0.13^*	-				
MT fit	3.69	0.84	0.19^{**}	0.07^*	0.11^*	0.24^*	(0.82)			
TMS	4.12	0.70	0.05	-0.12^*	0.23^{**}	0.47^{**}	0.19^*	(0.91)		
OBSE	3.13	0.88	0.14^*	-0.14^*	0.39^{***}	0.21^{**}	0.40^{***}	0.08	(0.88)	
CFT creativity	3.95	0.72	-0.09^*	-0.09^*	0.17^{**}	0.42^{***}	0.52^{***}	0.28^*	0.45^{***}	(0.90)

We used the causal-steps approach to verify the mediating effect of TMS, as recommended by Baron and Kenny (1999). Table 3 reported that we enter four demographic controls to the equation predicting team creativity in model 1. Among the four demographic controls, only average education and team size were significantly related to creativity (β= .13, p< .05, β=- .08, p < .05). Meanwhile MT fit was entered as a predictor of team creativity and it was statistically significant (β = .27, p< .01). MT fit was a significant predictor of creativity before TMS and individual psychological index were considered together. Thus, the current analysis confirmed H1.In model 2, it is equally clear that the correlation of TMS and CFT creativity was also significant (β = .32, p< .001). Explain that the better MT fit performs, not only could effectively enhance the overall creativity of the team, but promoted the group to open the collective memory mode to achieve cooperative division of labor, assuming that H2 was established. On the basis of model 1 into the TMS constitute model 3, found that TMS was associated with CFT creativity is more significant(β = .24, p< .01), while MT fit for the positive influence of the CFT creativity was reduced (β = .08, p< .05), indicating that the partial intermediary role in the TMS, further illustrated the influence of MT fit on the creativity of cross-functional teams depends on the transmission of TNS, and was strongly supported by empirical tests, thus verifying H3. Then we introduced the two-way interaction to the equation. Results displayed in Model 5 showed that OBSE is not a significant predictor of moderating effect

(β = .06, p> .05). We plotted the slope at values of the moderators to visualize the moderating effects. Figures2 revealed that the form of the moderating effect was consistent with H4. Figure 3 revealed that the form of the moderated mediating effect is consistent with H5. As expected, a high level of OBSE had a strong role in promoting the mediating effect of TMS, while a low OBSE level significantly weakened the mediating mechanism ,thus H5 being supported.

Table 2. Results of multilevel models.

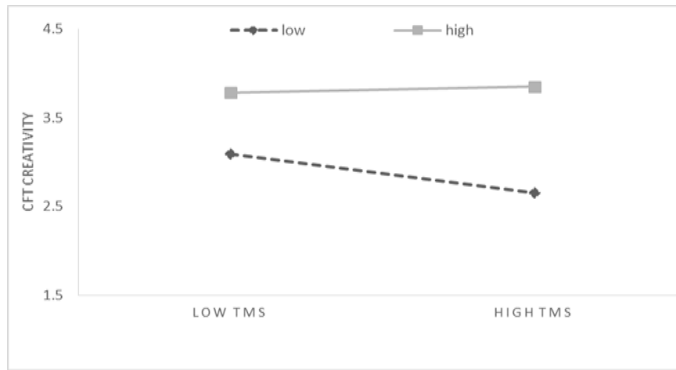| Predictor variable		CFTC				
		Model 1	Model 2	Model 3	Model 4	Model 5
demographic controls	Average age	0.02	0.01	0.12*	0.13*	0.07
	Average education	0.13*	0.08*	0.11*	0.11*	0.12*
	Team size	-0.08*	-0.12*	-0.16*	-0.23**	-0.10*
	Team tenure	-0.03	-0.07*	-0.03	-0.03	-0.06
predictor variable	MT fit	0.27**		0.08*		
mediating variable	TMS		0.32***	0.24**		
moderating variable	OBSE				0.21**	0.17*
Interaction terms	TMS×OBSE					0.06
Adj-R^2		0.52	0.51	0.64	0.61	0.59
F		29.25	21.76	25.98	19.33	25.78

Fig. 2. Interaction effects of TMS and OBSE on the creativity.
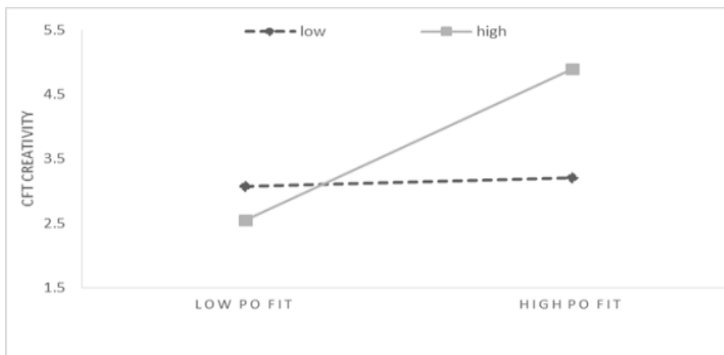

Fig. 3. Moderated mediation of OBSE.

5 Discussion

The present study offered a nuanced theoretical and empirical account of the relationship between MT fit, TMS and creativity in cross-functional teams, and explored the mediating mechanism of organizational self-esteem. Our empirical analysis of multisource data demonstrates that MT fit and TMS were significant predictors of team creativity. Moreover, OBSE had no moderating effect on TMS and team creativity, but the higher the degree of individual OBSE, the stronger the mediating effect of TMS between and MT fit team creativity. Theoretical and empirical analyses provided critical new insights into shaping CFT creativity by combining insights from the social exchange theory and team knowledge representation. The focus of MT fit is to select suitable candidates to construct the team, who can not only identify with the team's values and ultimate goals, but also be willing to contribute their own knowledge and skills to the team. And managers should construct valid TMS to pinpoint "owners" with different specialties in a team. It is essential for enterprises to place a high value on cultivation and improvement of individual organizational self-esteem in daily management.

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