RESEARCH ARTICLE

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The effects of trust climate on individual performance

Abstract   This paper explores the mechanism by which trust climate influences individual performance. From the perspective of psychological dynamics, we investigate the relationship among perceptions of organizational climate, motivation and individual behaviors to crystallize how a trustworthy organizational environment favors superior individual performance. 203 employees and their supervisors participated in this study, the results show that trust climate benefits individual performance through fostering psychological safety, which in turn influences individual performance via two mutually complementary pathways, namely ability to focus and organizational learning. Psychological safety is conducive to increasing individual ability to focus and improving job performance. Moreover, it is also instrumental in enhancing individual willingness to learn and experiment with new methods as an effort to achieve superior performance. Theoretical and practical implications are also discussed.

Keywords   organizational trust, trust climate, psychological safety, ability to focus, learning behavior, performance

摘要   通过问卷调查与结构方程建模分析组织信任对于员工工作绩效的影响途径。203 名被调查人和他们的上司参与了问卷调查。分析采用潜变量路径分析方法，构建了多组模型，通过两个阶段的检验，分析了组织信任的作用机制。结果表明：组织信任作用于心理安全感，而心理安全感通过两条独立途径影响工作绩效，两条独

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立途径分别是工作聚焦与工作改进。心理安全感能够促进员工针对工作的不断改进行为和探索新工作方法的意愿，同时也有利于员工集中精力在工作上，从而提高个人工作业绩。

关键词　组织信任，信任氛围，心理安全，工作专注，改进创新，绩效

1　Introduction

Due to the efforts of researchers across multiple disciplines in the past decades, the important role of trust in workplace has been widely recognized by both scholars and practitioners (Argyris, 1964; Colquitt, Scott and LePine, 2007; Dirks and Ferrin, 2002; Friedlander, 1970; Kramer, 1999; Likert, 1967; Roussea, Sitkin, Burt and Camerer, 1998). As observed by Kramer (1999), because of its ability to reduce transaction costs, increase spontaneous sociability, and facilitate organizational members' deference to authorities, trust has increasingly drawn attention from scholars interested in leadership, stress management, organizational politics, organizational communication, conflict management, system change, and organizational learning. However, although it has long been proposed that trust is particularly important for organizational productivity and competitiveness (Argyris, 1964; Batlis, 1980; Likert, 1967), little empirical study has been conducted to crystallize the relationship between trust and work performance (Dirks et al., 2002). Therefore, the mechanism by which organizational trust leads to superior performance in individual level is still ambiguous (Mayer and Gavin, 2005). In this article, we attempt to construct and examine a theoretical framework from the perspective of individual psychological processing, to advance our understanding of how organizational trust serves to enhance personal performance.

Recent research has revealed that the trust of employees for salient parties, such as teammates, supervisor and top management, is linked to their working attitudes and behaviors (Aryee, Budhwar and Chen, 2002; Atuahene-Gima and Li, 2002; Dirks et al., 2002; Mayer et al., 2005; Wong, Wong and Ngo, 2002). Along the same line, studies using experimental methods have also confirmed the influence of trust on individual work performance through impacting individual internal motivation system (Wong, Wong and Ngo, 2002). Although a variety of studies have demonstrated the association between trust and individual performance, the mechanism behind this linkage still remains unclear (Mayer et al., 2005). We thus attempt to shed light on the potential mechanism and enrich our understanding of how trust operates in the organizational environment. We also try to find out whether the investment in building a trustworthy

organizational climate pays off.

The concept of trust climate is conceptualized as an important trait of organizational climate perceived by employees，based on individual subjective assessment for the trustworthiness of the entire workplace environment (Costigan, Ilter and Berman, 1998). As a dyadic trust relationship between individuals and concrete trusted parties, the willingness to accept the vulnerability to organizational environment is its essential nature (Mayer, Davis and Schoorman, 1995; McAllister, 1995). Hence, this conception describes a phenomenon that, the extent to which organization members will expose themselves or take risking behaviors in organizational environment depends on the individual judgment for the overall trustworthiness of this workplace in which one is embedded. According to this definition, trust climate could be regarded as a special facet of organizational climate, reflecting a general and diffusive evaluation for trustworthiness of the environment in which employees perform their duties.

As a crucial facet of organizational climate, trust climate has several conspicuous features: 1) It is subject to the perception of the behaviors of other salient people, policies of the organizations and entrenched institutions; 2) It is characterized as a subjective perception; 3) It plays a critical role in shaping individuals' perception and interpretation of the events that take place around them. Since trust climate measures a diffusive feeling toward the focal environment, it combines the perception of multiple referents. Accordingly, a comprehensive understanding and measurement of trust climate entails incorporating the relevant important parties of the working settings. Following this reasoning, McCauley and Kuhnert (1992) proposed that trust climate should simultaneously include horizontal and vertical trust. Specifically, horizontal trust refers to the trust relationship between individuals and their peers, such as other members with the same teams; while vertical trust means individuals' trust for their direct leaders or authorities in higher hierarchical positions, such as the top management. Besides the people in the working settings, institutions and policies are also important determinants influencing individuals' trust perception toward their organizational environments.

Along the same line, Costigan et al. (1998) identified three salient parties: supervisor, co-workers and top management, and claimed these factors exert preeminent influences on individual perception of the trustworthiness of organizational environment, because these parties are important stakeholders for employees, and significantly affect their well-being and interests within organizational environment (Aryee et al., 2002; Dirks et al., 2002; Hackman and Oldham, 1980; Li, Koh and Hia, 1997; Likert, 1967). Thus, characteristics of these referents take central role when organization members make judgment about the trustworthiness of their organizational environment. Following this theoretical approach, in the process of developing operational definition for trust

climate, we argue that although dozens of organizational characteristics might have influence on employee's trust, several crucial factors take the pivotal roles and account for the most proportion of trust perceptions. Taken together, for the purpose of both theoretical conciseness and practical feasibility, we adopt the three salient stakeholders (direct leader, co-workers and top management) as indicators of trust climate.

In developing our trust model, we synthesize individual trust perception of the three different referents to construct a general assessment of the whole environment. With respect to different referents, we followed different theoretical frameworks to guide our measurement. First, given that trust in supervisor and co-workers is characterized by typical interpersonal relation, we adopted McAllister's (1995) ideas and used relevant measurement tools. Per McAllister, interpersonal trust consists of two distinct dimensions: the cognitive part and affective part. Cognitive forms of trust reflect issues such as reliability, integrity, and honesty of a referent. Affective forms of trust refer to a special relationship with the referent that may cause the referent to demonstrate concern about trustor's welfare. In order to simultaneously include both essential ingredients, we combined them into an overall measurement as individual assessment for the trustworthiness of specific referent.

Second, as for trust in top management, due to hierarchical distance, most individuals' trust perception for their organizational leader tends to rely on characteristics of system-wide HR practices and consideration manifested in decisions made by top management (Ambrose and Schminke, 2003; Costigan, Kranas, Kureshov and Ilter, 2004; Ellis and Shockley-Zalabak, 2001; Gould-Williams, 2003; Tan and Tan, 2000). This view is particularly pertinent for an organization with complex management layers, and our research context can be classified into one of such cases. Hence except for organizational institutions or preached vision, many grassroots employees have few alternative channels throughout which they can assess their top management's trustworthiness (Mayer and Davis, 1999; Morgan and Zeffane, 2003; Young and Daniel, 2003). Considering the features of the sampled organizations, Gould-Williams' (2003) theoretical model was adopted for its consideration of both influences of top management's characteristics and the organizational institution.

1.1   Trust and psychological safety

Psychological safety is defined as 'feeling able to show and employ one's self without fear of negative consequences to self-image, status, or career' (Kahn, 1990). In a trustworthy environment, individuals tend to feel 'safe', as they believe that they will not suffer for expressing their true selves at work. In contrast, if individuals can not trust other organization members, one will

perceive the workplace to be ambiguous, unpredictable and threatening (Brown and Leigh, 1996; May, Gilson and Harter, 2004). Consequently, the trustworthiness of salient parties with which individuals have working relations largely shapes the safe perception of organizational environment. Given the legal authorities and prominent status supervisors have in the workplace, they are expected to play a big role in shaping employees' psychological safety (Konovsky and Pugh, 1994; West, 1990). This view is echoed and qualified by recent empirical research, which corroborates that supervisors have significant influences on subordinates' psychological safety (Detert and Burris, 2007).

As asserted by McAllister (1995), cognitive trust is based on the dyad's interaction history and knowledge about the trustee. Trustor relies on available records to generate evaluation about the characters of trustee, which in turn serve as foundations to anticipate the trustee's future behaviors. It implies that expectations derived from cognitive trust root in rational basis. Thus, once cognitive trust matures, employees have 'good reason(s)' to predict that focal referent would respond favorably if they expose their true selves or real ideas (Ashforth and Lee, 1990; Lind and Tyler, 1988). For example, those employees who have seen their supervisors responded leniently to failure of peers by taking some improvement-oriented experiments are more likely to feel free to put their innovative ideas into practice because they believe that supervisors are tolerant and friendly to initiatives. In this case, we can see that cognitive trust serves as the foundation ensuring the feeling of safety to express one's original ideas and mitigate the fear of overstepping their boundaries.

In contrast to cognitive trust which operates through rational reasoning and deliberate calculation, impetus generated from affective trust is grounded in trustor's belief about the motives of trustee. As the establishment of affective trust entails mutual emotional investment and iterative social confirmations, it enables people to have belief in the intrinsic virtue of the relationship and to make inference that "this person (trustee) genuinely cares about me" (Holmes and Rempel, 1989). This faith acts as a robust counteragent neutralizing the threat of undermining individual psychological safety (Mishra and Mishra, 1994). Williams (2007) outlined three major interpersonal risks at workplace，including harm from opportunism, unintended neglect of individual interests by others and identity damage during interactions, which reduce employees' willingness to open oneself. For those who have built affective trust for the partners, confidence evoked from the insights into the motives of focal referents enables individuals to make positive expectations that their partners will not take advantage of them, behave exclusively for their own benefit and carefully handle the issues that might undermine trustor's self-image. Hence, affective trust helps reduce the fear for the potential loss resulted from taking interpersonal risks, fortifying individual psychological safety (Aryee et al., 2002; Brower, Schoorman and Tan,

2000; McEvily, Perrone and Zaheer, 2003).

The core barrier to build psychological safety stems from the qualm for the negative consequences ensuing self-exposure. Both those who are unable to predict what will happen (lack of cognitive trust) and the ones anticipate unfavorable aftermath (lack of affective trust) are less likely to perceive safe to employ their true selves or express real ideas (Rousseau et al., 1998; Tsui, Pearce, Porter and Tripoli, 1997; Whitener, 1997). Despite through different mechanisms, both forms of trust can motivate trustors to make positive expectations about the results of self-exposure, and diminish the concerns for the harms incurred by interpersonal risk, in terms of both material losses and blow to self image, status and perceived power. Taken together, we propose that employee's psychological safety is contingent on one's trust in the salient parties in the workplace.

As Deming (1994) observed, in an organization lacking of trust climate, each component protects one's interests from potential detriments, resulting in impairment to the entire system. Thus, organizational trust is mandatory for optimizing an organizational system because it can create a safe environment and lubricate organization functioning. Grounded on the above discussion, we bring forward the first hypothesis:

H1   The relationship between trust climate and individual performance is mediated by psychological safety.

1.2   Mediating mechanism

The concept of psychological safety is rooted in the areas of clinical psychology (Rogers, 1958), family therapy (Minuchin, 1974) and groups (Gibbard, Hartman and Mann, 1974). The central theme is that positive outcomes are achieved under conditions in which individuals feel safe. More specifically, the concept of psychological safety is rooted in interpersonal interactions where individuals who perceive that they are not at risk interpersonally will be more willing to try new and different ways of getting work done, hence increasing individual work performance. Therefore, one is able to engage in work without fear of negative consequences to self-image, status or career. We thus assert that the perception of psychological safety would lead to higher levels of performance.

This relationship is evident in the two streams of work that builds on psychological safety: organizational learning (Edmonson, 1999) and ability to focus (Mayer and Gavin, 2005).In the literature on organizational learning, the role of psychological safety is identified as one of the crucial factors ensuring learning behaviors which can impact employees' performance because such learning allows employees to adapt and improve (Edmonson, 1999). However, one is also at risk of exposing one's vulnerability as such behaviors typically

involve seeking feedback, asking for help and talking about errors (Edmonson, 1999). For instance, as a result of admitting errors or asking for help, one may appear incompetent which can potentially affect one's image (Lee, 1997). Similarly, the sense of threat evoked by openly discussing one's barriers encountered at work discourages individuals from engaging in problems-solving activities (MacDuffie, 1997). Thus, learning behaviors would be limited when employees are concerned about such prospective threats or embarrassment. However, conversely, when employees perceive such vulnerability to be sufficiently low (in the case of higher levels of psychological safety), they are more likely to seek help, admit errors and discuss problems, which in turn help them achieve better performance.

In an environment where too many distractions exist, employees' ability to focus on one's job is limited (Mayer and Gavin, 2005). Specifically, the more distractions individuals have to deal with in the course of work performance, the less disposable resources could be allocated to core tasks. When employees feel that they do not have adequate energies their jobs demand, they might change their task and relational boundaries to lower stress and seek equipoise (Harvey, Kelloway and Duncan-Leiper, 2003; Lo and Aryee, 2003; Willemyns, Gallois and Callan, 2003). For example, the lack of self-assurance of possessing sufficient energy required by work leads employees to reduce the scope and scale of work activities to prevent exhaustion (Detert and Burris, 2007). Furthermore, research on work stress also reveals that the absence of confidence to meet job requirement, physically and emotionally, can cause estrangement and alienation from work, which ultimately influence individual performance (Jung and Avolio, 2000; McLain and Hackman, 1999; Spagnolo, 1999). Taken together, the following hypotheses are proposed:

H2 Psychological safety influences individual performance through increasing ability to focus.

H3 Psychological safety influences individual performance through fostering leaning behaviors.

Each path from psychological safety to performance has its special underpinning theoretical foundation and different routes base on different logics. Accordingly, we argue that the two routes are mutually complementary and each path explains different facet of how psychological safety leads to a better task performance. Thus we propose our final hypothesis as below:

H4 The two mediating mechanisms, via ability to focus and learning behavior, are mutually independent.
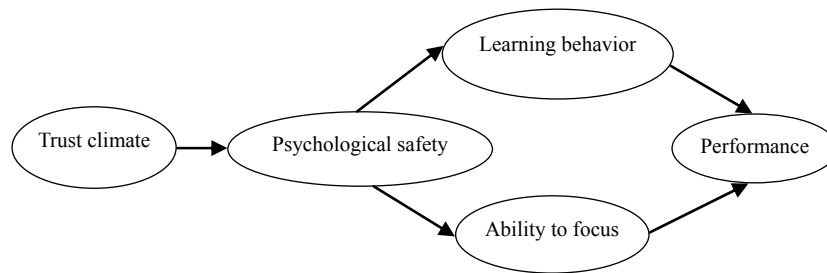
Fig. 1   Hypothesized model

2   Methods

2.1   Research setting, participants and procedures

Data were collected from three firms located in Zhejiang. Participating firms involved industries of manufacturing and IT. Given the sensitivity in the understanding of interpersonal trust, we followed Aryee et al.'s (2002) procedure to maximally diminish the effect of respondent's social desirability. We first explained the purpose of the survey to the employees and assured confidentiality of responses. Employees who agreed to participate in the survey received survey packets containing the survey questionnaire and a self-addressed stamped envelope. Respondents filled in the questionnaire, sealed the completed questionnaire in the envelopes provided and returned the packet through a mail box situated in the organization's HR department. Employees were given a serial number when the survey packet was distributed and this same serial number was used on the questionnaire survey distributed to the supervisor, whose name and contact information was obtained from the HR department. Employees completed items based on their perceptions of cognitive and affective trust in supervisor and their psychological safety. The employees' immediate supervisors provided individual performance appraisals.

527 survey packets were distributed and only 203 matched responses from both the employee and their supervisor were obtained (final response rate of 38.5%). The mean age of the final sample was 34, with 46.2 percent male, and an average organizational tenure of 5.56 years. The final sample consists of 27.3 percent of skilled or semiskilled production workers; 65.2 percent of professionals or technicians, and 8.1 percent of others. No significant differences in the demographic background of participants and those of non-participants (demographics for non-participants were obtained from the HR department) were

found. There were also no significant differences in the demographic background of the participants (age, organizational tenure, present position tenure, gender, education) among the three firms. Firm membership also did not affect the outcome variable.

To ensure equivalence of the measures for the translated Chinese items, back-translation procedures were followed (Brislin, 1970). In addition, two research assistants with master degree in English reviewed the translated items to ensure that the translation conveys the appropriate meaning in the Chinese surveys.

2.2   Measures

Responses to all the measures were made on a 7-point Likert-type scale anchored by 1 (strongly disagree) to 7 (strongly agree). Subordinates were asked to provide assessments of their affective and cognitive trust in their immediate supervisor and the three psychological conditions. Supervisors rated their subordinates' basic task performance.

2.2.1   Trust climate

Drawing on the model of organizational trust described above, employees responded respectively to assess the trustworthiness of different referents. An eleven-item scale developed by McAllister (1995) was utilized to measure trust in co-workers and in direct leaders. Of the 11 items, one item designed to measure cognition-based trust was dropped because of the possibility of being misunderstood, and the items were altered slightly to reflect the different referents. A seven-item scale by Developed Gould-Williams (2003) was utilized to measure trust in top management. Cronbach's alpha coefficients of the three scales were .76, .70, and .88, for direct leader, co-workers and top management, respectively. Confirmatory factor analysis results support the distinction between cognitive trust and affective trust. For trust in direct leader, $\chi^2 = 89.21$ ($d.f. = 53$), RMSEA= 0.058,   GFI= 0.93, CFI= 0.96, NNFI= 0.95; For trust in coworker, $\chi^2 = 99.72$ ($d.f. = 53$), RMSEA= 0.062, GFI= 0.91, CFI= 0.95, NNFI= 0.95; For trust in top management, $\chi^2 = 48.44$ ($d.f. = 14$), RMSEA= 0.092, GFI= 0.94, CFI= 0.97, NNFI= 0.95.

2.2.2   Psychological safety

Psychological safety (α=0.66) was measured based on the study of May et al. (2004) and Edmondson (1999). A total of four items (two from each) were chosen from the scales. Specifically, items from May et al.'s are 'I'm not afraid

to be myself at work' and 'There is a threatening environment at work (R)', and the two items from Edmondson (1999) are 'Someone in the workplace deliberately acts in a way to undermine my effort (R)' and 'If you make a mistake in the workplace, it is often held against you (R)'. According to the result of principle factor analysis based on 100 samples randomly drawn from sampling pool, one effective factor was drawn out and accounts for 61% of total variance. Cronbach's alpha coefficient of is 0.83.

2.2.3   Learning behavior

We measured learning behavior with six items developed by Edmonson. Cronbach's alpha coefficient of learning behavior is 0.79 and sampled questions are: 'I regularly take time to figure out ways to improve my working processes', 'I often seek new information that leads me to make important changes', and 'I invite people to discuss work I do'.

2.2.4   Ability to focus

Six-item questionnaire developed by Mayer (1995) was adopted to measure ability to focus. Cronbach's alpha coefficient of ability to focus is 0.87 and sampled questions were: 'the work climate here allow me to focus on doing my job', 'in this company, you make sure that your back is covered' and 'I need to spend fair amount of time getting information to protect myself'.

2.2.5   Job performance

Due to our sample's diversity in working characteristics, six basic task dimensions were chosen as work performance criterion: quality of work, efficiency of work, creativity of work, and conscientiousness for work, competence and enthusiasm. A six-item abbreviated version of a scale developed by Tsui et al. (1997) was used to measure task performance. Cronbach's alpha coefficient is 0.85.

3   Results

Descriptive statistics for the study variables are presented in Table 1. All of the correlation results are in the expected direction. Cronbach alphas for all the constructs are greater than 0.70. Specifically, psychological safety is correlated with trust in direct leader (r=0.31, p<0.01), trust in coworkers (r=0.51, p<0.01), trust in top management (r=0.42, p<0.01) and job performance (r=0.47, p<0.01).

Similarly, psychological safety is also significantly correlated with the mediating variables of learning behavior (r=0.31, p<0.01) and ability to focus (r=0.53, p<0.01). For the relationship between two mediators and performance, significant and positive correlations are observed, learning behavior with performance (r=0.41, p<0.01), ability to focus with performance (r=0.43, p<0.01).

Table 1 Descriptive statistics and correlations for study variables (n=203)

	M	SD	1	2	3	4	5	6	7
1. Trust in direct leader	45.99	4.29	(0.88)						
2. Trust in coworker	48.98	5.07	0.60**	(0.80)					
3. Trust in top management	33.61	3.35	0.55**	0.57**	(0.76)				
4. Psychological safety	25.36	4.62	0.31**	0.51**	0.42**	(0.83)			
5. Learning behavior	29.35	5.60	0.18*	0.32**	0.41**	0.31**	(0.79)		
6. Ability to focus	31.76	7.95	0.34**	0.47**	0.43**	0.53**	0.19**	(0.87)	
7. Performance	30.52	10.1	0.25**	0.31**	0.41**	0.47**	0.41**	0.43**	(0.85)

Note: * indicates $p \leqslant 0.05$, ** indicates $p \leqslant 0.01$.

Following Anderson and Gerbing (1988), a confirmatory factor analysis was first conducted. The result supports a five factor measurement model and we also use theories to guide our formulation of alternate measurement models. We started with one-factor model and then shifted to combine four self-reported variables as two-factor model, including psychological safety, trust climate, ability to focus and learning behavior. In the following stage, psychological safety, ability to focus and learning behavior are combined into one factor. Among the models till this stage, the results supported that the three-factor model has the highest degree of fitness (χ^2=1138.60, $d.f.$=296, NNFI=0.84, CFI=0.86, GFI=0.70, RMSEA=0.119). To further evaluate if the distinction between mediators and psychological safety is justifiable, two additional models were constructed and compared with the three-factor model. The results support the separation of five measured variables as independent factors, in that the five-factor model has the highest degree of fitness, as compared with the other four models (χ^2=640.33, $d.f.$=289, NNFI=0.91, CFI=0.92, GFI=0.89, RMSEA= 0.078)

Table 2 Results of confirmatory factor analysis (n=203)

Model	χ^2	$d.f.$	NNFI	CFI	GFI	RMSEA	$\Delta\chi^2(\Delta d.f.)$
Null model	4919.35	325					
One-factor model [a]	1435.74	299	0.82	0.82	0.65	0.137	3484.21(26)

<div align="right">(To be continued)</div>

(*Continued*)

Model	χ^2	*d.f.*	NNFI	CFI	GFI	RMSEA	$\Delta\chi^2(\Delta\,d.f.)$
Two-factor model [b]	1290.15	298	0.82	0.84	0.67	0.128	145.59(1)
Three-factor model [c]	1138.60	296	0.84	0.86	0.70	0.119	151.55(2)
Four-factor model [d]	810.02	293	0.89	0.90	0.76	0.093	328.58(3)
Five-factor model [e]	640.33	289	0.91	0.92	0.89	0.078	169.69(5)

Note:

    [a] Trust climate, psychological safety, ability to focus, learning behavior and performance are combined into one factor.
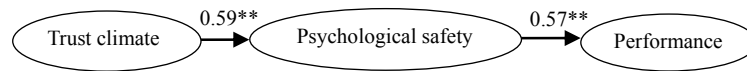
    [b] Trust climate, psychological safety, ability to focus and learning behavior are combined into one factor.

    [c] Psychological safety, ability to focus and learning behavior are combined into one factor.

    [d] Ability to focus and learning behavior are combined into one factor.

    [e] All of the five factors are separate.

In testing the hypotheses with our hypothesized structural model, a two-stage strategy was used to examine the hypotheses. To test H1, we started from examining one-mediator model (see Fig. 2), a five factor model. The results indicate that this full-mediation model has good fit indices (χ^2=169.87, *d.f.*=75, NNFI=.94, CFI=.95, GFI=.89, RMSEA=.079). Further, by comparing the full mediation model (one mediator model) with non-mediation model (see Table 3, model 1) and partial mediation model (see Table 3, model 2), we test whether full mediation model is the best solution, and whether psychological safety fully mediates the relationship between trust climate and performance. According to the results of comparison between one mediator model and the two nested alternative models, full mediation model proves to be the best solution with best fit indices. Thus, H1 is supported.

Fig. 2   One mediator model

In the second analysis stage, we established several sets of nested alternative models, and compared them with the hypothesized model to examine whether the two mediating pathways can achieve best solution result. Model 3 represents non-mediation model as it uses hypothesized model as a starting point and removes all mediating path via ability to focus and learning behaviors. Model 4 and 5 are constructed to test if either mediating path is necessary. Model 6 represents a partial mediation model, which adds a direct path from psychological safety to performance. With respect to the comparison between hypothesized model and non-mediation model, hypothesized model is favored as

the fit indices indicate inferior results when all mediating paths are replaced with a direct path from psychological safety to performance ($\Delta\chi^2 = 53.94$, $\Delta d.f. = 3$; $p < 0.001$). Moreover, the comparisons between hypothesized model and model 4, 5 support the independent value of each mediating path ($\Delta\chi^2 = 106.21$, $\Delta d.f. = 2$; $p < 0.001$; $\Delta\chi^2 = 31.84$, $\Delta d.f. = 2$; $p < 0.001$). This set of results show that none of mediating routes is redundant, and both of them have their unique effect, accounting for different mechanism how psychological safety results in better individual performance. Therefore, hypothesis 2, 3 and 4 are supported. To further test whether these two mediating paths proposed by this study could mediate all the impact of psychological safety on individual performance, the comparison between model 6 and the hypothesized model was conducted and results showed that partial mediation model (model 6) has better fit indices ($\chi^2 = 646.46$, $d.f. = 293$, NNFI$=0.91$, CFI$=0.92$, GFI$=0.80$, RMSEA$=0.078$, $\Delta\chi^2 = 9.6$, $\Delta d.f. = 1$; $p < 0.01$). This result indicates that there is other potential mediating mechanism not identified by this study.

Table 3 Comparison between nested alternative models (n=203)

Model	χ^2	$d.f.$	NNFI	CFI	GFI	RMSEA	$\Delta\chi^2 (\Delta d.f.)$
One mediator model	169.87	75	0.94	0.95	0.89	0.079	
Model 1	224.36	76	0.89	0.91	0.86	0.099	54.49 (1)
Model 2	167.19	74	0.94	0.95	0.89	0.079	2.68 (1)
Hypothesized model	656.06	294	0.91	0.92	0.80	0.078	
Model 3	710.65	297	0.89	0.90	0.79	0.084	53.94 (3)
Model 4	762.27	296	0.89	0.90	0.77	0.089	106.21 (2)
Model 5	687.90	296	0.90	0.91	0.79	0.081	31.84 (2)
Model 6	646.46	293	0.91	0.92	0.80	0.078	9.6 (1)
Model 7	705.53	295	0.89	0.90	0.79	0.083	59.07 (2)
Model 8	671.40	295	0.90	0.91	0.80	0.079	24.94 (2)
Model 9	762.27	296	0.89	0.90	0.77	0.089	115.81 (3)
Model 10	687.90	296	0.90	0.91	0.79	0.081	41.44 (3)

Note:
NNFI: Non-Normed Fit Index.
CFI: Comparative Fit Index.
GFI: Goodness of Fit Index.
RMSEA: Root Mean Square Error of Approximation.
Model 1: Using one mediation model as a starting point, this model removes the path from trust climate to psychological safety and path from psychological safety, and adds a path from trust climate to performance.
Model 2: Using one mediation model as a starting point, this model adds a direct path from

trust climate to performance.

Model 3: Using hypothesized model as a starting point, this model removes all mediating paths from psychological safety to performance, and adds one direct path from psychological safety to performance.

Model 4: Using hypothesized model as a starting point, this model removes the mediating path from psychological safety to performance via ability to focus.

Model 5: Using hypothesized model as a starting point, this model removes the mediating path from psychological safety to performance via learning behavior.

Model 6: Using hypothesized model as a starting point, this model adds a direct path from psychological safety to performance.

Model 7: Using model 6 as a starting point, this model removes the mediating path from psychological safety to performance via ability to focus.

Model 8: Using model 6 as a starting point, this model removes the mediating path from psychological safety to performance via learning behavior.

Model 9: Using model 6 as a starting point, this model removes the mediating path from psychological safety to performance via ability to focus and removes the direct path from psychological safety to performance.

Model 10: Using model 6 as a starting point, this model removes the mediating path from psychological safety to performance via learning behavior and removes the direct path from psychological safety to performance.

The result of $\Delta\chi^2$ (Δ $d.f.$) for Model 1–Model 2 are the comparisons between the one-mediator model and Model 1–Model 2. The result of $\Delta\chi^2$ (Δ $d.f.$) for model 3–model 5 are the comparisons between the hypothesized model and model 3–model 5, respectively. The result of $\Delta\chi^2$ (Δ $d.f.$) for model 6 are the comparisons between the hypothesized model and model 6. The result of $\Delta\chi^2$ (Δ $d.f.$) for model 7–model 10 are the comparisons between Model 6 and Model 7–Model 10, respectively.

Since Model 6 has better fit indices as compared with the hypothesized model, another two sets of models are developed to test the validity of independence of the two mediating paths, via ability to focus and learning behavior, in the context of adding a direct path from psychological safety to performance. Through scrutinizing the comparison results between Model 6 and these additional four nested alternative models, model 6 is favored as it indicates best solution indices ($\Delta\chi^2 = 59.07$, Δ $d.f. = 2$; $p < 0.01$; $\Delta\chi^2 = 24.94$, Δ $d.f. = 2$; $p < 0.01$; $\Delta\chi^2 = 115.81$, Δ $d.f. = 3$; $p < 0.01$; $\Delta\chi^2 = 41.44$, Δ $d.f. = 3$; $p < 0.01$). Hence, model 6 best represents the relationships among latent variables and was chosen as the final model (see Fig. 3).
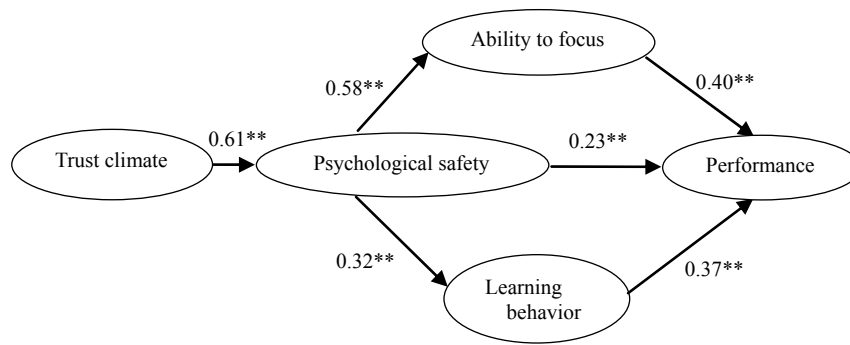
Fig. 3   Final model

Table 4   Index of error leading (*n*=203)

Indicator	Trust climate	Psychological safety	Learning behavior	Ability to focus	Performance	Error loading
TL	0.72					0.49
TP	0.70					0.51
TC	0.84					0.29
PS1		0.49				0.76
PS2		0.76				0.42
PS3		0.74				0.45
PS4		0.76				0.42
PS5		0.75				0.46
LC1			0.42			0.83
LC2			0.56			0.68
LC3			0.56			0.69
LC5			0.66			0.56
LC6			0.20			0.96
AC1				0.37		0.87
AC2				0.78		0.39
AC3				0.82		0.32
AC4				0.76		0.42
AC5				0.72		0.48
AC6				0.76		0.42
F1					0.71	0.50
F2					0.77	0.41
F3					0.44	0.81
F4					0.54	0.71
F5					0.65	0.58
F6					0.74	0.78

Note:
   TT: trust for top management.

TC: trust for coworker.
TL: trust for direct leader.
PS: psychological safety.
LB: learning behavior.
AC: ability to focus.
F: performance.
Coefficients lower than 0.4 are not presented here.

4 Discussion

We examine the idea that trust climate enhances levels of psychological safety, which has two independent ways to impact task performance. First, psychological safety diminishes individual apprehension about the potential negative consequences of innovative or learning behaviors (spontaneous innovation), such as failure or exposure of lack of knowledge and expertise. Second, psychological safety keeps employees from distracters (ability to focus), such as organizational politics, which occupy great amount of employee's time and energy. With more available resources that could be allocated to behaviors benefiting organization productivity, individuals are prone to achieve better performance. The two paths are hypothesized to be mutually complementary, and each of them accounts for different mechanisms of how trust climate facilitates superior individual performance.

Trust climate has long been recognized to have significant influences on work performance, yet the means through which it benefits individual performance has remained unclear. In addressing this issue, previous study has provided a plethora of discrete evidence and scholars differed in their opinions about how trust affects individual behaviors, hindering people from understanding the inherent theoretical linkage and establishing relevant theories. To improve the status quo in trust research, this paper proposes an integrated framework to elucidate the mechanism of converting trust climate into performance. The modeling results provide empirical support for our assertion that an environment perceived by employees as trustworthy is related to positive psychological conditions. The positive psychological conditions in turn motivate people to invest more efforts and personal resources in the work of organization, which finally lead to superior task performance (Chen, Chen and Xin, 2004; Lo et al., 2003; Luthans, Avolio, Walumbwa and Li, 2005). Additionally, the results also illustrate the importance of each mediating path in understanding employee perception, psychological states and performance. These results help to clarify the inconsistent and nebulous results of prior studies of trust and individual performance by integrating existing theoretical rationales used to explain the relationship between two variables, and present a concise and comprehensive picture

describing different paths via which organizational trust impacts task performance.

Previous researchers delved into examining the relationship between trust climate and psychological safety from a diversity of perspectives. Mayer and Gravin (2005) proposed that a lack of trust in management layers resulted in an unsafe feeling, which drove people to engage in self-protecting behaviors. Similarly, as pointed out by McAllister (1995), in fear of being vulnerable to peers or management whom employees do not trust, individuals took actions to monitor organization environment, because the insecurity motivated them to be alert about potential threat and ready to lessen negative influence. For instance, during an economic depression period, without trust in the top leaders, employees tend to worry about whether top management would choose effective (for resolving problems) but detrimental strategies (for employees), such as downsizing and laying off, to handle emergent crisis (Albrecht and Travaglione, 2003; Carson, Madhok, Varman and John, 2003; Gould-Williams, 2003; Mishra et al., 1994; Morgan et al., 2003). Likewise, having a low level of trust in a direct leader is likely to be psychologically unsafe and distressing when the leader has power over important aspects of one's job, such as performance evaluation, assignment of work, or coaching. Evidence from organizational politics also revealed that employees in the workplace, where trust climate between co-workers is lower, are prone to perceive the environment to be insecure, and thus take steps to monitor other members' behaviors and spend great deal of effort to legitimate their own behaviors for self-protection (Colquitt, Conlon, Wesson, Porter and Ng, 2001).

Psychological safety is found in this study to mediate between trust climate and performance. Trust in others creates psychological safety because one has already assessed the probability up front and decides that risks, especially interpersonal risks, can be taken which will not affect one's image. Thus one is less likely to perceive oneself to be taken advantage of and hence psychological safety facilitates risk taking in relationships. As the most direct psychological consequence of trust, psychological safety serves as an important sustaining factor, ensuring employees' willingness to learn and to take initiative. According to the empirical findings of this study, employees expressing higher trust levels in their organizations are shown to be less apt to suffer insufficient psychological safety. Through enhancing levels of psychological safety, trust lessens employees' concerns for the potential negative consequences incurred by learning behaviors or engaging in improvement-oriented experiments. Specifically, under the conditions where employees form higher levels of trust toward their working environment, they are less likely to worry about exposing the imperfection of their expertise, or possible penalty followed by failure of endeavors toward constructive change. It appears that trust climate affects the

psychological states of the trustor, which in turn plays a crucial role in providing the motivation to take the risk and perform on the job.

From the perspective of psychological processing, the more available resources are allocated to the jobs, the better individual performance will be (Kanfer and Ackerman, 1989). Employees are often involuntarily influenced by various distracters, and thus task performance suffers. For instance, as a frequently mentioned distracter, organizational politics often brings on poorer work performance. However, scholars have found that the linkage between these two variables is buffered by trust (Parker, Dipboye and Jackson, 1995). Specifically, the individuals who perceive the workplace as trustworthy tend to be immunized from influences of organizational politics, whereas individuals who do not trust the parties in workplace are inclined to invest in lots of personal resources to monitor environment for the purpose of self-protection, which often costs great amount of energy. In resonance with this stream, the final path described in our model claims that a trustworthy organizational environment is helpful to prevent employees from being disturbed by potential distracters. With more available resources, individuals are able to achieve better performance. Furthermore, the importance of each path might vary depending on work context. For instance, the path mediated by psychological safety is likely to be of greater relevance in understanding how organizational trust is related to employee productivity for R&D team members than for employees working along assembly lines, because the safe feeling resulted from trust is more important for R&D team members to perform their core task of experimenting with innovative methods.

Over the past several decades, large amount of research has broadened our understanding of trust in workplace, yet most of which were conducted under western culture and few were designed to enrich our knowledge about trust in eastern culture, particularly under the unique cultural context of mainland China. As compared with western societies, Chinese society has its distinctive traditions, cultures and beliefs. Hence, it provides us a unique background to deeply examine and extend our knowledge about organizational trust. As suggested by some researchers (Hampden-Turner and Trompenaars, 2000; Luo, 2000; Ng and Chua, 2006), Chinese society is bonded by interpersonal relationship. Thus, under this societal environment, organizational trust seems to be of great relevance in understanding the work behaviors of Chinese employees, because mutual trust is a primary condition of any high-quality interpersonal relationship (Argyris, 1964; Patterson, Warr and West, 2004). Furthermore, research conducted in Chinese setting has showed that Chinese people usually have a strong sense of responsibility and obligation toward those who have a close relationship with them. Therefore, Chinese employees are more likely to rely on personal relations to seek or protect their interests within workplace (Wong et al.,

2002). Given this special group tendency, the linkage between a trustworthy environment and positive psychological conditions in Chinese culture might be more manifest than those in the Western cultures.

5   Strength and limitations

This study has important strength as well as limitations. First, through comparison between hypothesized model and the competing models, we establish a rigorous model. Second, the key variables are separately collected from employees and their corresponding supervisors, which largely reduce the negative influence derived from common methods bias. Finally, as conducted in the context of Chinese culture, our study increases our knowledge about the application of current conclusions obtained from western cultures to different cultures in trust literature.

One limitation of this study is its cross-sectional research design. Therefore, any causal inference between variables should be taken with cautiousness. However, all of the hypotheses in this study are well grounded in the previous theories (Dirks et al., 2002; Edmondson, 1999; Kahn, 1990; Mayer et al., 1999; Mayer et al., 2005; Wong et al., 2002) as well as based on empirical evidence (Aryee et al., 2002; Atuahene-Gima et al., 2002; Ferrin and Dirks, 2003; Hemingway and Smith, 1999; Tan et al., 2000), which excludes the possibility that the conclusions are interpreted by alternative explanations or reciprocal causal direction. In addition, the results of this study indicate several potentially fruitful directions for future research. For example, as discussed above, the relevance of each path might vary across work contexts. Further studies are warranted to identify the conditions where one routine has greater relevance than others in facilitating performance. In particular, the core task characteristics of a job may determine the extent to which one path is less or more important.

6   Practical implications

The findings of this study present managers a new perspective to understand why some employees are more devoted to job role, while others are not. Since the trustworthiness of workplace has significant influence on individual work attitudes, building a trustworthy workplace might be a complementary method to increase employee productivity in addition to traditional means, such as offering incentives or training. In situations where certain psychological conditions are critical for superior performance, the results of this research might provide practitioners useful guidance of developing effective strategy to foster it. For

instance, in a scientific research setting where creativity is important for task performance, a trust climate could be enhanced by carefully designed programs to keep individuals from wasting mental energy in monitoring behaviors. In addition, as the positive psychological conditions (psychological safety) are also related to a serial of other desirable attitudinal and performance outcomes, such as organizational learning (Edmondson, 1999), effort (Brown et al., 1996) and OCBs (Mayer et al., 2005), organizational trust can also be used by practitioners as means to obtain competitive advantages.

7   Conclusions

In an attempt to explain the mechanism of trust climate in workplace affecting individual performance, we conduct this research and make several contributions. From the scope of psychological dynamics, we highlight the role psychological safety plays in mediating the relationship between trust climate and individual performance. Furthermore, two distinct routines are identified, through fostering learning behavior and increasing ability to focus, to describe the psychological process of how psychological safety translates into performance. We also examine the independence and uniqueness of each routine, and integrate existing theoretical explanations concerning the relationship of trust with performance into the framework presented here. In so doing, we hope to, by presenting a comprehensive and transparent picture, provide parsimony to the expansive literature, clarify territory between different theoretical perspectives, and offer a useful framework for scholars to guide their future research. Finally, this study also starts a promising tendency examining our knowledge about trust in traditional Chinese settings.

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