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# When does shared leadership matter in entrepreneurial teams: the role of personality composition

Wencang Zhou

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**Abstract** Although prior research has investigated a number of conditions under which shared leadership in teams may improve team performance, team composition variables have been left unexplored. Using a sample of 144 teams in a technology incubator in China, this study explored the moderating effects of personality diversity on the relationship between shared leadership and entrepreneurial team performance. Results indicate that shared leadership improves entrepreneurial team performance; the strength of the relationship, however, depends on the level of team personality diversity. More specifically, when relationship-oriented personality diversity is high, the shared leadership—team performance relationship is stronger. These findings advance research in entrepreneurship, groups and teams, and shared leadership, and provide practical implications as well.

**Keywords** Team diversity · Entrepreneurial teams · Shared leadership

## Introduction

New ventures are increasingly founded by teams rather than individuals (Cooper et al. 1989; Lechler 2001; Beckman 2006). Given the prevalence of entrepreneurial teams, more frequently entrepreneurship research has been investigating factors that contribute to entrepreneurial team performance and effectiveness. Although entrepreneurship researchers have adopted multiple approaches to study entrepreneurial teams, the research in the field still remains fragmented and lacks organizing structure (Klotz et al. 2014).

Much of the existing research on entrepreneurial teams has adopted an upper echelons perspective (Hambrick and Mason 1984), which explored the effect of entrepreneurial team characteristics on various entrepreneurial outcomes. This theory mainly focuses on diversity on observable characteristics (demographic and informational) and poses that entrepreneurial team diversity benefits performance in turbulent

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environments rather than in stable environments. This approach has two major shortcomings. First, it assumes that team demographics (e.g. age, gender) reflect team deep level composition such as personalities and attitudes (Pitcher and Smith 2001). Second, it overlooks the mediating team process variables, such as leadership, conflict etc.

The second approach entrepreneurship researchers adopted is the inputs-mediators-outcomes (IMO) framework (Mathieu et al. 2008). The IMO framework has been commonly studied in the field of team research (Mathieu et al. 2008). According to IMO perspective, the configuration of the founding team shapes subsequent entrepreneurial activities, strategies, and entrepreneurial performance. In research on teams, an important focus has been the study of team composition, especially in terms of team diversity. Although plenty of studies investigated the impact of team composition on team performance (c.f. Mathieu et al. 2008) for a comprehensive review), research on team diversity remains inconclusive because of the contradictory findings regarding effects of demographic diversity on team performance (Williams and O'Reilly 1998). Moreover, the nature of the new venture context provides researchers a unique and meaningful setting to investigate team composition (Klotz et al. 2014). According to Klotz et al. (2014), entrepreneurial teams usually have few substitutes and blockers of leadership, few established norms, but greater managerial discretion, and wider latitude of action. Therefore, it is empirically important to examine the effects of diversity on entrepreneurial team performance.

The third approach of entrepreneurial team research has been focusing on the entrepreneurial team process variables that potentially mediate the link between entrepreneurial team diversity and performance. Some of the process variables having been investigated include team commitment and team cognitive comprehensiveness (Chowdhury 2005), team cohesion (Franke et al. 2006), and shared leadership (Ensley et al. 2006). Shared leadership, being defined as mutual leadership influence among multiple team members (Carson et al. 2007; Day et al. 2004), has been shown to enhance team effectiveness (Avolio et al. 1996; Pearce and Sims 2002), team sales (Mehra et al. 2006), and growth in revenue (Ensley et al. 2006), but only under certain conditions. Particularly, Stewart et al. (2011) emphasized the importance of examining contextual conditions in research on team level leadership. To understand these conditions, researchers have proposed a number of factors that might facilitate performance gains from shared leadership among team members. Particularly, previous research has focused on three types of contingencies—characteristics of the task (Pearce 2004), characteristics of the team (Carson et al. 2007), and characteristics of team members (Greer and van Kleef 2010). Although the number of studies in the area of shared leadership has been increasing, research gaps exist and call for more theorization and empirical examination.

While the upper echelon theory and IMO framework provide a robust foundation from which entrepreneurship researchers can extend the study of entrepreneurial teams (Klotz et al. 2014), investigations of the moderating influence of team-member characteristics, especially personality compositions, are absent from the literature. Bolden (2011) asserted that the existing descriptive and normative research requires theorizing and specifically mentioned the desirability of including diversity in shared leadership research. Pearce and Conger (2003) also called for studies into the dimensions of diversity facilitating or hindering shared leadership and its impact on team

effectiveness. However, little research has examined the impact of team diversity on shared leadership (Zhou et al. 2013).

The current study further extends existing entrepreneurial team research by integrating the entrepreneurial team composition variables and process variables. More specifically the purpose of study is twofold. The first goal of the current study is to investigate the effect of shared leadership in entrepreneurial teams. The second goal of this study is to explore the contingency effects of personality composition on the shared leadership and entrepreneurial team performance relationship. Gaining insight into whether specific personality compositions help teams benefit from shared leadership should contribute to our understanding of shared leadership in teams and provide guidance for entrepreneurs trying to better understand how to select team members to improve team performance.

## Hypotheses

### Shared leadership and entrepreneurial team performance

Adopting the inputs-mediators-outcomes model, entrepreneurial team research starts to investigate the impact of team process on entrepreneurial outcomes (Marks et al. 2001). One process variable of interest to researchers is shared leadership. Although most research on leadership in teams has focused on the leadership behaviors of an individual team leader, some researchers found that teams performed more effectively when most or all of the members demonstrate leadership behaviors (Carson et al. 2007), referred to as shared leadership. Day et al. (2004) described shared leadership as team leadership capacity that included the leadership repertoire of an entire team. Shared leadership can also prove desirable in contemporary organizations as a mechanism to generate fast responses to complex issues (Pearce et al. 2009). Pearce and Conger (2003) emphasized shared leadership as a dynamic, interactive influence process, and Carson et al. (2007) viewed shared leadership as distributed influence across multiple team members. Barry (1991) defined shared leadership as a collection of roles and behaviors that can be split, shared, and rotated, with multiple leaders existing within a team at any given time. The functional rationale for shared leadership starts with the recognition that effective team functioning requires a variety of leadership roles which a single individual may not be able to enact. Shared leadership desirably emerges when different qualified members assume different leadership responsibilities in response to team requirements. Effective shared leadership can bring complementarity to team leadership roles (Mehra et al. 2006).

According to Pearce (2004) and Carson et al. (2007), shared leadership was more appropriate for certain types of knowledge work characterized as interdependent, creative, and complex. Tasks of entrepreneurial teams are typically characterized by interdependence, creativity and complexity because new venture founding teams face a situation of no standard operating procedures or organizational structures (Bryant 2004). Shared leadership is appropriate for this type of team work (Pearce 2004). In an entrepreneurial team, it is very rare that the leading entrepreneur has all the knowledge and skills to effectively lead the team and perform entrepreneurial tasks (Pearce and Sims 2000). By sharing leadership among team members, the team as a

whole is better informed and more responsive to tasks at hand. Moreover, shared leadership can also increase members' commitment and encourage more information sharing (Cox et al. 2003).

Hypothesis 1: Shared leadership will positively relate to entrepreneurial team performance.

### The moderating role of task-oriented team personality diversity

Although the number of studies in the area of shared leadership has been increasing, systematic theoretical development has not occurred (Bolden 2011; Denis et al. 2012; Stewart et al. 2011). Bolden (2011) asserted that the existing descriptive and normative research requires theorizing and specifically mentioned the desirability of including diversity in shared leadership research. Stewart et al. (2011) emphasized the importance of examining contextual conditions in research on team level leadership. One potential contingency of the shared leadership and entrepreneurial team performance relationship is the personality diversity of the team.

Previous research on personality in teams has been focusing on its direct effects on team outcomes (Stewart 2006; Bell 2007; Barrick et al. 1998; Mohammed and Angell 2003). Researchers have built a body of literature examining the relationship between team performance and a team-level trait scores (e.g., Halfhill et al. 2005). For both theoretical and practical purposes, one fundamental issue must be considered when study personality composition of teams; that is, how the individual personality traits should be aggregated to the team level. Because of the influence of the Big Five model of personality (Costa and McCrae 1988; Digman 1990), plenty of studies used the Big Five model of personality to study the team personality composition (Stewart 2006; Bell 2007; Barrick et al. 1998). However, recent reviews have suggested personality traits hold weak overall relationships with team performance (Bell 2007; Peeters et al. 2006). The weak overall relationships might be due to how the trait scores are aggregated (Halfhill et al. 2005). Halfhill et al. (2005) proposed to use the task—relationship dichotomy as a framework to aggregate individual trait scores into the team level. Actually the notion of a task- relationship dichotomy in general team process is well established (McGrath 1984) and adopted by recent meta-analytic reviews (e.g. Prewett et al. 2009). Although studies have been investigating direct relationship between team personality diversity and team outcomes, the understanding of how personality affects team outcomes via its influence on team processes remains under-developed (Moynihan and Peterson 2001). Team personality diversity influences team outcomes not only as an input factor but also as a contextual factor, altering the team processes. Therefore, this study hypothesized that team personality diversity play a moderating role in the relationship between shared leadership and entrepreneurial team performance.

Task-oriented personality traits refer to those traits that aid in the completion of work-related activities including conscientiousness and openness to experience (Halfhill et al. 2005). As task-oriented personality traits, conscientiousness represents the degree to which individuals are achievement oriented, orderly, punctual, dependable, and self-disciplined, and openness to experience refers to whether people accept

new experiences, are interested in unusual thought processes, and possess creative tendencies (McCrae and John 1992). The team's diversity on task-oriented personality should have contingency effects on the shared leadership and entrepreneurial team performance relationship for three main reasons.

First, one rationale that shared leadership enhances entrepreneurial team performance is that team members have a common shared purpose (Carson et al. 2007). Shared purpose indicates that all the team members have similar understandings of their team's primary objectives and take steps to ensure a focus on collective goals (Carson et al. 2007). Teams with low diversity of task-oriented personality scores should agree with one another on process decisions, including the degree of effort to put forth and the level of performance desired (goal-setting). This will help the team build higher level of common sense of purpose and agreed-upon goals, and consequently team members are more likely to feel motivated, empowered, and committed to their team and work (Kirkman and Rosen 1999; Liden et al. 2000; O'Leary Kelly et al. 1994). Teams with higher level of diversity on task-oriented personality may find it difficult to build common purpose and agree on major decisions.

Second, the nature of the entrepreneurial tasks requires team members have low diversity of task-oriented personality traits. On the one hand, the market competition for new ventures is high and all team members need to be highly motivated and work hard. Therefore, team members who are high on conscientiousness likely organize and direct necessary behaviors to produce targeted outcomes and motivate employees to fulfill their job duties more diligently and with more effort (Peterson et al. 2003). Moreover, because new venture activities are usually unambiguous, unstructured, and complex (Ensley et al. 2006), powerful and achievement oriented entrepreneurial team members could initiate structure and establish rules that benefit the new venture over time. Moreover, similarity of such attitudes among team members results in a friendly atmosphere and a strong identification with the entrepreneurial team and the new venture. Entrepreneurial teams homogeneous in conscientiousness may prevent social loafing behavior of team members and ensure that all team members put efforts into the entrepreneurial process. Otherwise, if entrepreneurial team members are very diverse in conscientiousness, team members will have or interpret the goals differently resulting in team conflict. The entrepreneurial tasks are also characterized by innovation and creativity. Team members high in openness to experience question old assumptions and stimulate new perspectives or ways of doing things (Judge et al. 2002). Consequently, entrepreneurial team members with greater openness are more likely to encourage creative, unconventional behaviors in the workplace. Such creativity is relevant for new ventures for recognizing opportunities and stimulating novel ideas about products and practices (Ensley et al. 2002).

Third, the benefits of shared leadership rely on the mutual influence among team members who are better informed and more responsive to momentary task and leadership challenges (Cox et al. 2003). At the team level shared leadership demands that multiple team members have a willingness to act as a leader. The previous evidence about leadership emergence suggests that the two task-oriented personality traits, conscientiousness and openness to experience, are strong predictors of leadership emergence (Judge et al. 2002). Therefore, teams

high and homogeneous on task-oriented personality are more likely to benefit from shared leadership.

**Hypothesis 2:** The diversity of a team's task-oriented personality moderates the relationship between shared leadership and entrepreneurial team performance such that the higher the diversity of task-oriented personality, the weaker the relationship between shared leadership and entrepreneurial team performance.

### The moderating role of relationship-oriented team personality diversity

Relationship oriented personality traits facilitate the interpersonal interactions necessary to work as a member of a team, including extraversion, agreeableness, and emotional stability (Halfhill et al. 2005). The trait of extraversion refers to assertiveness and dominance, as well as sociability, gregariousness, and talkativeness (Costa and McCrae 1992). The trait of agreeableness assesses one's interpersonal orientation and includes altruism, likability, kindness, and nurturance (Digman 1990). Individuals scoring high on Agreeableness tend to be kind, considerate, sympathetic, and helpful. They are interested in helping others and deal with conflict in a cooperative and collaborative way. Emotional stability refers to an individual's tendency to be well-adjusted, relaxed, self-assured, and calm (McCrae and John 1992). The team's diversity on relationship-oriented personality should have contingency effects on the shared leadership and entrepreneurial team performance relationship for two main reasons.

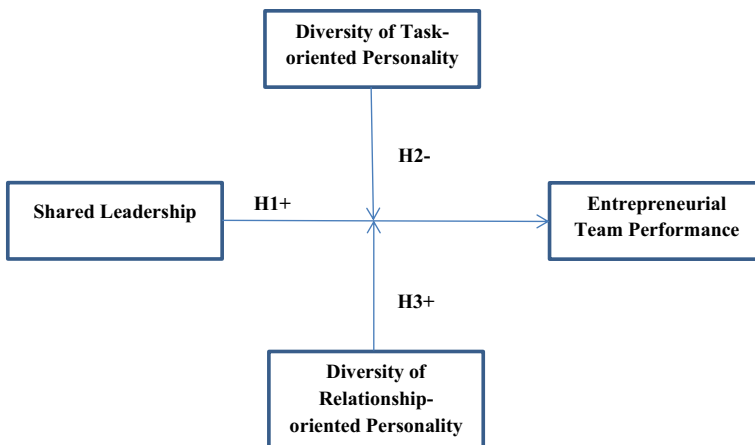
First, whether shared leadership could provide benefits for entrepreneurial teams depends on the degree to which team members show emotional, psychological, and social support to each other (Carson et al. 2007). These supports come through encouraging and recognizing individual and team contributions and accomplishments (Marks et al. 2001) and build supportive team environment where team members develop a sense of shared responsibility for team outcomes (Kirkman and Rosen 1999). Relationship oriented personality traits help entrepreneurial teams build the supportive team climate. For example, teams high on agreeableness and emotional stability could create a positive team climate, deemphasizing status and power differences, encouraging information sharing among team members (Peterson et al. 2003), and building trusting relationships with venture capitalists (Cable and Shane 1997) or among entrepreneurial team members (Eisenhardt and Schoonhoven 1990).

Second, benefits of shared leadership also depend on the degree to which team members assume different leadership roles when the situation dictates. In an entrepreneurial team, team members may display leadership influence for a variety of reasons. However, what may be most important is whether the members assuming the leadership roles are able to coordinate effectively. When all the members recognize one another as leaders, it's much easier for the team to synchronize leadership efforts so that decision making and action are more effectively channeled within the team (Mehra et al. 2006). Relationship-oriented personality traits facilitate team interpersonal process and define what roles team members are more likely to assume. For example, in new ventures, team members high in extraversion usually adopt a transformational leadership style, set visionary goals, and encourage risk taking and creativity (Hofmann and

Jones 2005). Moreover, extraverted members show initiative, take actions, and persuade other members (Bateman and Crant 1993). However, team members who are high in introversion seek depth over breadth, and delve into issues and ideas before moving on to new ones (Neuman et al. 1999). While high level of agreeableness helps teams build trusting relationships with venture capitalists (Cable and Shane 1997) or among entrepreneurial team members (Eisenhardt and Schoonhoven 1990), team members lower in agreeableness may dare to express concerns about unreasonable ideas and prevent teams from groupthink. And because entrepreneurial teams usually only have limited resources and small room for error, all members being too trusting may be detrimental for survival and growth (Zhao and Seibert 2006). The work environment, workload, work-family conflict and financial risk of starting and running a new business can produce high physical and psychological stress. On the one hand, entrepreneurial teams should have the abilities to maintain and establish good relations with customers, employees, suppliers, financiers and other people related with the business to run it effectively and efficiently. On the other hand, evidence indicates that individuals who score low on emotional stability are better at identifying threats in the environment (Tamir et al. 2006) and anticipating and avoiding the danger from the environment (Nettle 2006). Therefore, entrepreneurial teams with some members lower at emotional stability may help new ventures avoiding risks from the environment.

**Hypothesis 3:** The diversity of a team's relationship-oriented personality moderates the relationship between shared leadership and entrepreneurial team performance such that the higher the diversity of relationship-oriented personality, the stronger the relationship between shared leadership and entrepreneurial team performance.

Figure 1 displays the hypothesized relationships among team personality composition, shared leadership and entrepreneurial team performance.



**Fig. 1** Theoretical Framework of Entrepreneurial Team Diversity, Shared Leadership and Performance



## Method

### Sample

Data were collected from 154 entrepreneurial teams in a technology incubator founded in 2009 by the local government of Hangzhou, Zhejiang province of China. With support from the government, the incubator aims to support up to 300 start-up companies. The incubator offers start-ups office space and shared administrative services. Entrepreneurs who wish to enter the incubation program must apply for admission. Only those with feasible business ideas and a workable business plan are admitted. Other general acceptance criteria include (1) team members are college students or graduates within 5 years, (2) the start-up was registered after 2008, and (3) the leading entrepreneur has more than 30 % of the ownership of the start-up. The focus on firms within a single region allows us to hold constant key labor market and environmental conditions. Of the 154 teams, ten teams consisted of only two members for each team. These ten teams were dropped because a diversity measure could not be calculated from a two-member team. Thus, data analysis was based on usable data from 144 entrepreneurial teams.

### Measures

*Team personality diversity* Team members' Big-5 personality traits were measured by the Chinese Version of NEO-Five Factor Inventory (NEO-FFI) (Costa and McCrae 1992). The NEO-FFI has 60 items (12 items per domain) on five NEO domains: openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability. NEO-FFI was used for this study because it is a widely used personality measure with high reliability. The Cronbach's coefficient alphas for the five dimensions have ranged from .75 to .83. The scale was also cross-culturally validated, and the robustness of the NEO-FFI has been proven in the Chinese culture. Means and standard deviations on each Big-5 personality trait were calculated at the team level (Barrick et al. 1998). Standard deviations on openness and conscientiousness were combined to get the task-oriented personality diversity score. Standard deviations on agreeableness, extraversion, and emotional stability were combined to get the relationship-oriented personality diversity score.

*Entrepreneurial team performance* Team performance was measured by the employment growth rate from which has been widely used as an objective measure of start-up performance (Colomb and Delmastro 2002; Löfsten and Lindelöf 2002; Westhead and Storey 1994).

*Shared leadership* Shared leadership was measured with the approach used by Carson et al. (2007) focusing on density, which is a measure of the total amount of leadership displayed by team members as perceived by others on a team. Every team member rated each of his/her peers (1, "not at all," to 5, "to a very great extent") on the following question: "To what degree does your team rely on this individual for leadership?" The density was calculated by summing all values and then dividing that

sum by the total number of possible ties, or relationships, among team members (Sparrowe et al. 2001).

*Control variables* Team size influences team process and functioning; for instance, Bantel and Finkelstein (1991) suggests that larger teams have lower cohesion. And team size may influence resources and workload requirements that may influence entrepreneurial team performance (Kirkman and Rosen 1999). Therefore team size was included as a control variable in this study and was measured as the actual number of members on each team. Employee ownership affects a member's commitment to an enterprise and willingness to work together productively (Buchko 1992). Therefore, stock ownership dispersion among entrepreneurial team members may have an effect on their shared leadership behavior and team performance and should be included as a control variable. Ownership dispersion was measured by the formula used by Jacquemin and Berry (1979).

## Results

### Hypothesis testing

Table 1 presents the means, standard deviations, and zero-order correlations for all of the variables used in the analysis. Moderated hierarchical regression and simple slopes analysis were used to test all hypotheses. The predictor variables were mean-centered, and the criterion variable was standardized using a z score to improve graph interpretability (Cohen et al. 2003). In Step 1, control variables, team size and ownership dispersion, were entered. In Step 2, main effects of shared leadership and the moderator being tested (task-oriented personality diversity and relationship-oriented personality diversity) were entered. In Step 3, the product term for the interaction of shared leadership and the moderator were entered.

Hypothesis 1 proposed that shared leadership would positively relate to entrepreneurial team performance. As indicated in Tables 2 and 3, shared leadership was a

**Table 1** Descriptive statistics<sup>a</sup>

	Mean	S.D.	1	2	3	4	5
1 Team size	3.5	.68					
2 Ownership dispersion	.2	.33	-.06				
3 Task personality diversity	6.0	3.05	-.01	.07			
4 Relationship personality diversity	6.17	2.92	.10	-.09	.05		
5 Shared leadership	3.52	.64	-.01	-.03	-.21*	.34**	
6 Employment growth rate	.49	.53	.02	-.03	-.22**	.31**	.33**

<sup>a</sup>  $N=144$  teams

\* $p<.05$

\*\* $p<.01$

**Table 2** Moderated regression results for task-oriented personality diversity with employment growth

	Step 1	Step 2	Step 3
Control			
Team size	.02	.02	.02
Ownership dispersion	-.03	-.01	-.02
Main			
Task-oriented personality diversity		-.15*	-.15*
Shared leadership		.30**	.30**
Interaction			
Task-oriented personality diversity×shared leadership			-.09
Model F statistics	.09	5.36**	4.52**
R <sup>2</sup>	.01	.13	.14
ΔR <sup>2</sup>		.12	.01

<sup>a</sup>  $N=144$  teams;  $\beta$ : Standardized regression coefficient

\* $p<.05$

\*\* $p<.01$

significant predictor of entrepreneurial team performance in both models ( $\beta=.30$ ,  $p<.01$  in model 1; and  $\beta=.26$ ,  $p<.01$  in model 2).

To test hypothesis 2 that task-oriented personality diversity would moderate the relationship between shared leadership and entrepreneurial team performance, moderated hierarchical regression was conducted in Model 1. As noted in Table 2, the interaction term of shared leadership and task-oriented personality diversity was insignificant ( $\beta=-.09$ , n.s.). Therefore, hypothesis 2 was not supported.

**Table 3** Moderated regression results for relationship-oriented personality diversity with employment growth

	Step 1	Step 2	Step 3
Control			
Team size	.02	-.01	.02
Ownership dispersion	-.03	-.01	-.01
Main			
Relationship-oriented personality diversity		.24**	.20*
Shared leadership		.26**	.27**
Interaction			
Relationship-oriented personality diversity×shared leadership			.17*
Model F statistics	.09	6.37**	6.10**
R <sup>2</sup>	.01	.15	.18
ΔR <sup>2</sup>		.14	.03

<sup>a</sup>  $N=144$  teams;  $\beta$ : Standardized regression coefficient

\* $p<.05$

\*\* $p<.01$

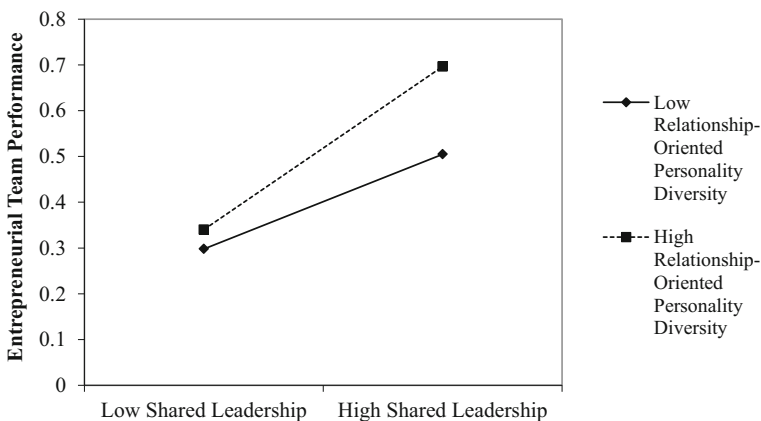
To test hypothesis 3 that relationship-oriented personality diversity would moderate the relationship between shared leadership and entrepreneurial team performance, moderated hierarchical regression was conducted in Model 2. As noted in Table 3, the interaction term of shared leadership and relationship-oriented personality diversity was significant ( $\beta=.17, p<.05$ ). Therefore, hypothesis 3 was initially supported. We also conducted a simple slopes analysis (Aiken and West 1991). Fig. 2 depicts the predicted moderating effect of relationship-oriented personality diversity, providing strong support for hypothesis 3.

## Discussion

Although benefits of shared leadership to team performance have been evidenced by recent empirical studies, no research to date has explored characteristics of team composition, especially team personality diversity, as contingencies of this relationship. Based on shared leadership and entrepreneurial team research, the findings of this study increase understanding of how shared leadership functions in entrepreneurial teams and provides guidance to leading entrepreneurs looking to exploit the benefits of shared leadership within teams. We found that teams with high levels of relationship-oriented personality diversity experienced a stronger positive impact of shared leadership on performance. Hence, this study supports the claim that the characteristics of team members play a critical role in determining the nature of the impact of shared leadership on entrepreneurial team performance.

### Theoretical contribution to entrepreneurship research

First, adopting the upper echelon perspective, entrepreneurial team research has paid little attention to personality differences among team members; prior studies usually only looked into the potential effects of top management team demographic diversity, such as age, gender, race, tenure, and functional experience diversity, but ignored the effect of team personality diversity. The literature review showed that no empirical



**Fig. 2** Results of Moderating Effect of Relationship-Oriented Personality Diversity on the Link between Shared Leadership and Entrepreneurial Team Performance

study was found that examined the relationship between personality diversity and entrepreneurial team performance. Therefore, Klotz et al. (2014) called for studies with direct measurement of team characteristics, such as personality. This study contributes to the entrepreneurship literature by addressing this research gap. Moreover, this study goes beyond the general Big-5 personality dimensions by theorizing the task-oriented and relationship-oriented personality dichotomy.

Second, existing studies on entrepreneurial teams generally used an upper echelons perspective, and focused on relationships between team member characteristics and firm-level outcomes. One major limitation of this line of research is its exclusion of critical mediating and moderating factors (Klotz et al. 2014). By investigating the moderating effect of personality composition variables on the link between shared leadership and entrepreneurial team performance, the current study expanded this line of research.

Third, entrepreneurial team research adopting IMO framework usually just view entrepreneurial team as an ordinary work teams and overlooked its unique nature. The new venture context actually provided a unique setting to investigate team dynamics. For instance, new ventures have very few substitutes and blockers of leadership therefore require entrepreneurial teams provide strong leadership through stages of the entire entrepreneurial process (Ensley et al. 2006; Klotz et al. 2014). Moreover, new venture context also has weak social situations with few established norms (Mischel 1977), therefore new venture teams have greater managerial discretion than other teams (Hambrick and Abrahamson 1995). By recognizing these unique natures of entrepreneurial teams, the current study provided empirical support for the positive effect of shared leadership on team performance, especially for entrepreneurial teams. The findings suggested that when the tasks a new venture faces are complex, shared leadership is desirable (Ensley et al. 2006). The study also contributes to shared leadership research by examining the contingency effect of personality diversity on the shared leadership and team performance relationship. Although the importance of shared leadership in working teams has now been established (Pearce and Sims 2002), much detail remains to be explored about under what conditions shared leadership is more likely to be beneficial. Responding to Bolden (2011) call for including diversity in shared leadership research and Stewart et al. (2011) call for examining contextual conditions in research on team level leadership, this study extends the literature on moderators of shared leadership by demonstrating that relationship-oriented personality diversity moderates the relationship between shared leadership and entrepreneurial team performance.

In addition, this study also contributes to group research. Although the effect of diversity has been widely studied in groups and teams research, most of the studies were conducted in the laboratory rather than in the field. Bell (2007) meta-analysis provides evidence that the effect of diversity would differ between lab studies and field studies and requests more future research in field settings. Therefore, this study provides empirical evidence regarding the diversity effects in the field, specifically in the context of entrepreneurial teams. There are different theoretical perspectives regarding the relationship between diversity and team performance. While diversity may create value and benefit for team outcomes because of a broader range of expertise and perspectives from team members (Cox et al. 1991), diversity also could create poor social integration and cohesion and thus poor performance for teams. The empirical

studies have provided inconsistent and inconclusive results regarding the performance effect of team diversity. The results of this study enrich this line of research by showing a different path through which team personality diversity may influence team outcomes. More specifically, this study indicates that relationship-oriented personality diversity shapes how entrepreneurial teams could benefit from sharing leadership among team members. Therefore, conceptualizing team personality diversity as a moderator of process performance relationships may advance our understanding of team dynamics and performance.

### Managerial implications

Besides potential theoretical contributions, the study also has important implications for policy makers and practitioners. First, this study provides policy implications for government agencies, foundations, and universities who provide support for start-ups in incubators. These institutions should know the importance of entrepreneurial team composition and team process to start-up performance and should provide entrepreneurial teams support in team development. Second, the study provides entrepreneurs with implications regarding team member selection. One practical and important question the leading entrepreneur must answer when creating the entrepreneurial team is whom he/she wants to select as partners. Specifically, our results suggest that when building entrepreneurial teams, the leading entrepreneurs should take into account the personalities of future team members and ensure that the team has an adequate blend of relationship-oriented personalities, such as agreeableness, extraversion, and emotional stability. That is, entrepreneurial teams can promote shared leadership by selecting team members who have a good “fit” regarding personality traits.

### Suggestions for future research

It is important to consider the limitations of this study when interpreting the findings. The university based sample frame may be one limitation in regard to the generalizability of the results. The sample was from a single university incubator and not a random sample. However, there is no reason to believe that the results of the study will not generalize to other Chinese university incubators. The sample of the current study was also limited to entrepreneurial teams with a limited partnership structure, in which certain limited partners relinquish their ability to manage the business in exchange for limited liability for the partnership’s debts. Furthermore, since only new start-ups were considered in the current study, it was limited in the extent to which the findings could be generalized to later stages of new ventures. It may be that the relative importance of vertical versus shared leadership is dependent on the stage in the development of the organization (Ensley et al. 2006). Therefore, it might be useful to examine the relationships among team diversity, shared leadership and entrepreneurial team performance longitudinally across various stages in the entrepreneurship life cycle.

Findings of this study suggest several future research directions for group research, entrepreneurship research and shared leadership research. First, this study encourages future research to focus on doing more longitudinal studies. The cross-sectional nature of the research design does not allow us to draw causal conclusions. One study found that effects of team diversity on team performance have a temporal element; the effects

of diversity based on attitude and personality increase with time (Harrison et al. 1998). Hence, future research that adopts a longitudinal approach can refine the current findings. Moreover, future research necessitates the adoption of other performance measures (e.g. innovation, profitability, and revenue) that are applicable to different stages of venture development.

Second, experimental studies that explores whether different personality configuration across team members will facilitate the development of shared leadership would contribute to the understanding of shared leadership dynamics. As this study focused on entrepreneurial teams dealing with entrepreneurial tasks, additional research could explore the effects of personality diversity on shared leadership with other types of teams. Differences in task types may result in variation in the amount of communication, coordination, and technical demands (Sundstrom et al. 1990). The manipulation of different tasks may provide further insight into the role of personality diversity on shared leadership.

Third, the study examined the relationship among team personality diversity, shared leadership, and entrepreneurial team performance using a variable approach—assessing the isolating personality traits' impact on entrepreneurial team performance. It may overlook the possibility that the Big-5 personality traits together affect entrepreneurial behavior. Therefore future research adopting a configuration approach or pattern-oriented approach can be used to offer insights into team personality—performance relationship.

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