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# Polychronicity, decision-making and entrepreneurial self-efficacy of venture team founders: an exploratory study

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## Abstract

**Purpose** – This study explores the role of polychronic temporal orientation and decision-making decentralization on founders' perceptions of entrepreneurial self-efficacy (ESE).

**Design/methodology/approach** – Longitudinal survey data were collected from 141 business founders in China.

**Findings** – Findings suggest that decision-making decentralization is positively associated with founders' ESE. In addition, a polychronic temporal orientation is positively related to ESE, and this relationship is mediated by decision-making decentralization.

**Originality/value** – This study adds to existing knowledge on ESE and temporal related issues by presenting empirical evidence that explains how and why the temporal orientation context and the practice of decision-making decentralization can shape ESE perceptions among venture founders.

**Keywords** Entrepreneurial self-efficacy, Polychronic temporal orientation, Decentralized decision-making, Venture founders, Practicing entrepreneurs

**Paper type** Research paper

## Introduction

Technological advancement and rapidly changing market demands mean that corporate managers and business leaders face an increasing number of tasks in their daily work lives (Souitaris and Maestro, 2010). This reality results in significant temporal pressures and is a challenge for entrepreneurs and owners of small businesses who often have fewer available resources compared to leaders in large organizations. Many entrepreneurs and business owners, when starting a business, wear multiple “hats,” simultaneously acting as a salesperson, a customer representative and a janitor for example (Shane, 2008). Founders must be able to engage in various tasks simultaneously, tolerate pressure, as well as repeated and multiple interruptions (Aboal and Veneri, 2016; Bluedorn and



Martin, 2008). Indeed, early management studies (Kotter, 1982; Mintzberg, 1973) suggest that managerial work is characterized by “multiple, brief, interwoven activities, and continuous interruptions” (Souitaris and Maestro, 2010, p. 652). Polychronicity, the individual’s preference for engaging in multiple tasks simultaneously (Souitaris and Maestro, 2010), should therefore play an important role in business operations and management. Unfortunately, research on polychronicity in entrepreneurship is scarce. We address this gap by examining whether, and how, a business owner’s polychronic temporal orientation relates to entrepreneurial self-efficacy (ESE), which itself refers to an individual’s self-belief in his or her ability to successfully complete entrepreneurial tasks (Zhao *et al.*, 2005).

Extensive research has explored ESE in order to understand, for example, what impact an entrepreneurs’ social networks have on ESE (Javadian *et al.*, 2018) or how entrepreneurship education impacts ESE perceptions and/or behavioral intentions to pursue self-employment among students (e.g. Chen *et al.*, 1998; Engle *et al.*, 2010; Zhao *et al.*, 2005). However, it remains unclear what shapes ESE beyond the classroom and within organizations because ESE “can influence how well existing entrepreneurs discharge their responsibilities as managers of new ventures. The behaviors to which ESE corresponds are largely concerned with new-venture management and, as such, are required for entrepreneurs well beyond the point of founding” (Forbes, 2005, p. 601). Indeed, ESE impacts the level of persistence among practicing entrepreneurs, particularly when faced with challenges or setbacks (Burnette *et al.*, 2020), and shapes managerial behaviors, potentially affecting new venture performance (Forbes, 2005; Miao *et al.*, 2017). Bandura (1997) states that self-efficacy exists in a “casually reciprocal” relationship with the environment. Because the venture’s environment could influence ESE perceptions, we examine a second contextual variable – perceived decision-making decentralization – which may create a context for strengthening ESE. Given that polychronicity and decentralized decision-making involve daily activities within a firm, both are crucial antecedents for shaping ESE. We argue that polychronicity indirectly shapes ESE through perceived decision-making decentralization. This is because, when new ventures implement a decentralized decision-making structure, founding team members are more likely to be involved in decision-making and benefit from their polychronic orientation, which enhances their ability to simultaneously manage multiple tasks. A polychronic temporal orientation may enhance entrepreneurs’ ability to balance multiple simultaneous demands when they work in an environment with a decentralized decision-making structure, and as a result, strengthen their ESE. Developing a better understanding of the antecedents of ESE could help venture management teams become more efficacious and able to tackle difficult problems, persist in the face of obstacles, decrease indecision, distraction, and procrastination and as a result, improve overall venture performance (Bandura, 1997; Forbes, 2005; McGee and Peterson, 2019).

Prior research has demonstrated the benefits of decision-making decentralization. For example, upper echelon theory (Hambrick and Mason, 1984) argues that strategic decisions are shaped by a cognitive base, values and perceptions of an individual decision-maker. Because strategic choices are increasingly complex, Hambrick and Mason (1984) believe that organizations with a diverse top management team, which includes individuals from different backgrounds, stand to benefit from the ability to generate multiple alternatives and as a result, engage in better decision-making. When decision-making is shared among a heterogeneous group, decision-makers enjoy more resources and information and “put forward abundant and diverse opinions and viewpoints [ . . . ] these can promote team learning [and] help teams make high-quality and innovative decisions” (Wang *et al.*, 2015, p. 281).

Shared decision-making through decentralization among venture founders can boost ESE for two reasons. First, individual founders can learn vicariously from peers, through observation, which strengthens ESE (Bandura, 1997). Second, when decentralized decision-making leads to improved performance (Wong *et al.*, 2011), this can also contribute to ESE because positive performance feedback from others can serve to build ESE through subjective norms and enactive mastery (Bandura, 1997). We therefore expect that firm founders who have a polychronic temporal orientation and are part of the leadership team in a venture in which shared decision-making is practiced will have stronger perceptions of ESE. We explore these two concepts in more detail in the theory section and explain how they may act to shape ESE.

This article offers two major contributions. First, we identify two antecedents of ESE for practicing entrepreneurs and explore them together. This builds and expands on Forbes' (2005) work by examining the mediating role of decentralized decision-making structure in the relationship between entrepreneurs' temporal polychronic orientation and ESE. For a long time, the entrepreneurship literature considered ESE a dispositional trait that could not be changed. Recently, Hsu *et al.* (2017) used a randomized experiment to show that ESE can be altered through task feedback. Indeed, Bandura (1997) highlights four sources of self-efficacy. However, the antecedents of ESE are rarely examined among practicing entrepreneurs. We add to the ESE literature, by exploring additional antecedents to ESE (i.e. polychronicity and perceived decision-making decentralization). These antecedents are especially relevant to the study of ESE formation because they directly shape daily actions and collaboration that strengthen ESE: enactive mastery, subjective norm and vicarious learning. Second, by examining polychronic temporal orientation of venture founders as well as its influence on ESE, our work contributes to the temporal dynamic literature in general, as well as our understanding of polychronic orientation. Notably, we respond to Souitaris and Maestro's (2010, p. 669) call inviting scholars to further study "temporal dynamics [which] are very much at the heart of new ventures [yet] scholars still know very little about how time or temporal constructs impact actors in new ventures."

## Theory and hypotheses

### *Entrepreneurial self-efficacy*

ESE is defined as an individual's "cognitive evaluation of personal capabilities in reference to the specific task of entrepreneurship" (Chen *et al.*, 1998, p. 312). Multiple studies have explored ESE (Bergman *et al.*, 2011; Florin *et al.*, 2007; Newman *et al.*, 2019; Oosterbeek *et al.*, 2010; Peterman and Kennedy, 2003; von Graevenitz *et al.*, 2010; Wilson *et al.*, 2007) and its potential outcomes such as opportunity identification efforts (Schmitt *et al.*, 2018), intentions to start a business (Burnette *et al.*, 2020; Chen *et al.*, 1998; Engle *et al.*, 2010; McGee *et al.*, 2009; Neneh, 2020; Newman *et al.*, 2019; Zhao *et al.*, 2005), actual venture startup (Shinnar *et al.*, 2018), ability to tackle difficult problems and persist in the face of obstacles (Bandura, 1997), decreased indecision, distraction, procrastination (Forbes, 2005) and firm performance (McGee and Peterson, 2019).

According to social cognitive theory, self-efficacy beliefs are multifaceted and can be enhanced or strengthened in four ways: (1) enactive mastery; (2) vicarious experience (role modeling); (3) subjective norm (social persuasion) and (4) physiological states (Bandura, 1982; Wood and Bandura, 1989). *Enactive mastery* refers to the acquisition of personal mastery experience, shaped by performance accomplishments (Bandura, 1982) such as starting a business or accomplishing milestones in one's business. Acquiring experience as a practicing venture founder/entrepreneur can affect one's ESE because working as an entrepreneur offers an opportunity to repeatedly engage in a task and develop confidence in one's ability, thus reinforcing positive estimations of one's future performance potential.

*Vicarious experience* refers to role modeling or vicarious learning through observation (Bandura, 1982). When observing others, individuals can change or reassess their efficacy beliefs (Forbes, 2005). *Social persuasion* refers to positive feedback and realistic encouragement or support received from others (Bandura, 1982). For example, positive feedback on the level of mastery on the performance of domain-relevant tasks from referent others can shape enactive mastery.

Finally, *physiological states* refer to emotional arousal and tension (such as anxiety) when engaging in a task (Bandura, 1982). It is common for founders to face multiple pressures and demands from various stakeholders (Souitaris and Maestro, 2010). Being comfortable with handling multiple tasks at once and managing to control physiological states can strengthen one's self-efficacy. In the following sections, we discuss the ways in which two variables — decentralized decision-making and polychronic temporal orientation — can play a role in shaping a founders' self-efficacy perception.

### *Decentralized decision-making*

It is important to note that the focus of our paper is on founders in new venture teams. While many businesses are started by one person, businesses started by a team tend to be more scalable and have more growth potential (Tsai and Li, 2020). Naffakhi and El Andoulsi (2009, p. 3) add that “the creation and successful management of new ventures in terms of decision-making process, strategies and leadership are often a [shared] team effort.” Therefore, founding teams are an important research area in entrepreneurship. When a business is founded by a team, decision-making is no longer the responsibility of a single founder. This raises the question of decision-making style, which can range from centralized to decentralized, according to the degree to which the entire founding team is involved in the process.

Decentralized decision-making occurs when decision-making power is shared, within a group or organization. In the context of small new ventures, “decentralization tends to reflect the extent to which decision-making is perceived to be dispersed among individuals in the firm as opposed to being concentrated in the hands of a single entrepreneur” (Forbes, 2005, p. 604). The management literature often refers to the idea of decentralization of decision-making as empowerment. Empowerment can enhance feelings of self-efficacy. Indeed, Bandura (1986) suggests that when individuals are empowered, their personal efficacy expectations become stronger. “People who are persuaded verbally that they possess the capabilities to master given tasks are likely to mobilize greater sustained effort than those who harbor self-doubt and dwell on personal deficiencies when difficulties arise” (Bandura, 1986, p. 400). In addition, Phillips (2001) show that in decision-making teams, broadly shared decision-making control enhances team member satisfaction with the team leader and promotes higher levels of self-efficacy among members.

In the context of shared decision-making through decentralization, firm founders may experience a heightened sense of self-efficacy thanks to the confidence placed in them. Indeed, Forbes (2005) finds decision-making decentralization to be positively related to ESE. For example, Osorio *et al.* (2015, p. 73) explain that entrepreneurial decision-making is a developmental “process involving conflict, uncertainty [. . .] *learning* and adaptation over time.” Similarly, Cooper and Daily (1997) suggest that new venture employees often share a sense of solidarity with the founder, stemming from a strong common interest in a firm's success. Thus, when a founder discusses problems with others and receives feedback from sympathetic organizational members (Ensley *et al.*, 2002), this increases the number of opportunities to receive self-efficacy enhancing feedback in the form of social persuasion that is both encouraging and supportive (Bandura, 1982). In addition, research evidence shows that entrepreneurial teams contribute to new venture success (Kamm *et al.*, 1990; Naffakhi

and El Andoulsi, 2009; Tsai and Li, 2020) and that being part of a venture team and shared decision-making can further strengthen ESE through enactive mastery experiences.

Finally, because we study ventures with founding teams, the individuals in our sample can collaborate with others who act as role models, thus contributing to the formation of ESE via vicarious experience (Bandura, 1982). Indeed, Wang *et al.* (2015) propose that shared decision-making can enhance team member learning. Others (Boxer *et al.*, 2013; Wheatly, 2001) support this notion, suggesting that complex organizational decisions can be better addressed by groups, rather than by individuals. This is because, “through intellectual stimulation and critical debate, others in the group are encouraged to consider alternatives leading to better, more comprehensive decision-making” (Boxer *et al.*, 2013, p. 58). Similarly, Wheatly (2001, pp. 5–6) considers the top management team to be “the most important decision-makers of the organization as opposed to limiting that view to only the CEO as strategic decision-maker.” Research also indicates that when shared decision-making is an organizational norm, individuals tend to feel more confident about the quality of their decision (Heath and Gonzalez, 1995; McGuire and Maki, 2001; Puncochar and Fox, 2004). We would therefore expect that sharing the responsibility for difficult or complex decisions with others would reduce the strain associated with having to make decisions that affect the entire organization. This may also positively influence physiological states and thus strengthen ESE. Moreover, given that our sample consists of venture founding teams, it is possible that the individuals in this study have additional opportunities to receive positive feedback on their performance from others as compared to sole founders. We would therefore expect a shared decision-making structure, created through decentralization, to enhance individual perceptions of ESE through vicarious experience, social persuasion and physiological states. We propose that:

*H1.* Decentralized decision-making is positively related to ESE.

### *Polychronicity*

Initially introduced in the cultural anthropology literature as the temporal orientation in societal cultures (Hall, 1959), polychronicity is also considered at the individual level. Individual polychronicity is conceptualized as an innate and stable individual trait (Alipour *et al.*, 2017; Chen, 2021; Hecht and Allen, 2005; Kirchberg *et al.*, 2015) that shapes behavioral preferences. Polychronic individuals “prefer and tend to engage in multiple tasks simultaneously or intermittently instead of one at a time and believe that this is the best way of doing things” (Souitaris and Maestro, 2010, p. 652). They consider “rigid agendas . . . as inhibiting creativity in meetings, deadlines serve more as guidelines than unalterable facts, and it is, on the whole, more acceptable for several people to talk at the same time without it being experienced as chaos” (Schneider and Barsoux, 2003, p. 226). Monochronic individuals, on the other hand, prefer to deal with projects “systematically, decisions taken, deadlines respected, and one person speaks at a time” (Schneider and Barsoux, 2003, p. 226). Several scholars (Bluedorn *et al.*, 1992; Cotte and Ratneshwar, 1999) argue that treating unscheduled tasks as equal to planned tasks and accepting interruptions “is the most common behavioral manifestation of polychronicity among top managers” (Souitaris and Maestro, 2010, p. 656). Bluedorn *et al.* (1992) add that polychronic individuals may be more flexible in their approach toward plans and schedules.

Polychronicity has scheduled little attention in entrepreneurship research in spite of its relationship to decision-making. Leunbach *et al.* (2020) suggest that polychronic entrepreneurial teams tend to be more alert and responsive to relevant external information which allows them to cope with the inherent uncertainty that entrepreneurial ventures face. Similarly, Kaplan (2008) points to the benefit of polychronicity in teams, as such teams benefit from more creative idea generation and broader decision options compared to teams that work in a more focused and sequential fashion. This is seconded by

Chen (2021) who found polychronicity to be positively related to firm innovation when firms operate in dynamic environments. Kaplan (2008) adds that this approach to decision-making can potentially contribute to better performance when the multiple cognitive interruptions that polychronicity entails help decision-makers evaluate a situation anew and in ways that lead them to imagine new courses of action.

Souitaris and Maestro (2010) find that in new technology ventures operating in dynamic and unpredictable environments, top management team polychronicity is positively related to strategic decision-making speed, which has a positive influence on firm financial performance. The authors argue that environmental dynamism enhances decision-making speed and flexibility because these allow for “fast and low-cost action that can exploit a changing list of opportunities that defy thorough understanding” (Souitaris and Maestro, 2010, p. 660). Indeed, Bluedorn and Martin (2008) find a positive correlation between an entrepreneur’s preference for polychronicity and a preference for working fast. Argouslidis *et al.* (2015), in their examination of decisions regarding product exit, further indicate that decision-making speed depends on both temporal polychronicity and a tactical decentralized decision-making structure. The authors argue that polychronic managers simultaneously work on product exit decisions and other product strategy tasks. Due to a preference for multi-tasking, or polychronicity, managers (or business founders in our case) have to delegate decision-making to others to make timely decisions with limited resources. The decentralized approach to decision-making enables managers “to acquire insightful information through interpersonal interactions” that lead them to “concentrate effort on critical decision factors” (Argouslidis *et al.*, 2015, p. 272).

As discussed above, an organization with a decentralized decision-making structure enables organizational decision-makers to better manage multiple stressors. As a result, this enables decision-makers to better manage and control their physiological responses (i.e. the experienced emotional arousal and tension when engaging in a particular task). When physiological states of arousal in the face of stressors are well-managed, entrepreneurs may be able to cope with multiple pressures and handle many tasks simultaneously, which can serve to boost their ESE. Bandura (1982) labels this process “physiological arousal” which refers to the emotional arousal and tension (such as anxiety) when engaging in a task. Additionally, sharing organizational decisions may also enhance an entrepreneur’s perceptions of self-efficacy by enhancing enactive mastery, defined above as the acquisition of personal mastery experience (Bandura, 1982). Finally, when decision-making is shared, venture founders have the opportunity to learn by observing others. This adds vicarious experience, which may also contribute to building higher levels of ESE.

In summary, as founders often face multiple pressures and demands from various stakeholders, we predict that founders with a polychronic temporal orientation whose ventures practice decentralized decision-making within the founding team will have higher levels of ESE because they are able to control physiological states, gain vicarious experience as well as experience enactive mastery (Bandura, 1982). We suggest that:

- H2. Polychronic temporal orientation is positively related to ESE, and this relationship is mediated by decision-making decentralization.

Figure 1 depicts the research framework of this study.

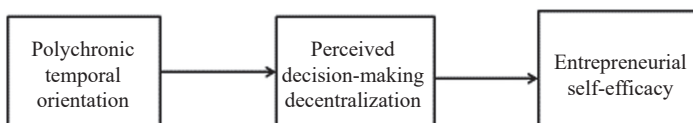


Figure 1.  
Research model

## Method

### *Participants and procedure*

To test the research model, we collected data from Chinese entrepreneurs. We chose to study Chinese entrepreneurs for two reasons: First, according to [Ahlstrom and Ding \(2014, p. 614\)](#), China provides a valuable context in which to understand how entrepreneurship and entrepreneurs grow due to the specific institutional and cultural systems in place. Developing a better understanding of the Chinese context can potentially enable knowledge and experience transfer to other developing countries. Second, China is experiencing an energetic economic development characterized by high levels of entrepreneurial opportunity ([Davidsson et al., 2008](#)) with an increasing number of young workers and college students engaging in self-employment ([Ahlstrom and Ding, 2014](#)). Indeed, China “has become the world’s largest and fastest-growing emerging economy” ([Chun Guo et al., 2017, p. 8](#)). This makes China an appropriate context to study venture founders and test our hypothesis.

Specifically, data for this study were collected from venture founders of business ventures located in Wenzhou, China. Wenzhou was selected because it is recognized as the most entrepreneurial city in China ([Raballand and Andréy, 2007](#)). Wenzhou has shown an ability to foster economic development by establishing private enterprises. The “Wenzhou Economic Model” of opening to private economies is mainly driven by entrepreneurs, making it one of the most successful economic development cases in China ([Davidsson et al., 2008](#)). Furthermore, the University of Wenzhou has developed specific entrepreneurship educational programs ([Liu et al., 2013](#)) to foster entrepreneurial activity in the region. Finally, as [Tsui \(2007, p. 1353\)](#) argues, additional international management research “is not only desirable but also critical to generate knowledge on the management of firms operating in [...] novel national contexts.”

Our sample is drawn from among the participants in an executive training program, held at Wenzhou University. To test our hypotheses, we contacted the 220 venture founders from 220 firms who were in attendance and have co-founded a venture in Wenzhou, China. In this study, co-founders are defined as two or more founders working together to create a new venture. The selection of the sample was mainly based on two criteria. First, firms must have more than one founder; however, only one founder from each firm participated in our study. Second, as the literature indicates that more than 60% of new businesses close within the first five years ([Reynolds, 2011](#)), we selected only firms that were established within the last five years.

To mitigate common method variance (CMV), we follow the recommendation of [Podsakoff et al. \(2003\)](#) by collecting data (surveys 1 and 2) at two different times (times 1 and 2). At time 1, the founders completed survey 1, which included items related to polychronic temporal orientation, decision-making decentralization and individual demographic data. One month later, at time 2, the same founders completed survey 2 containing items related to ESE and individual demographic data. Study participants were provided with a link to gain access to the online surveys. Survey 1 was completed by 204 founders and 176 out of the original 220 participants completed survey 2. Attrition is common in longitudinal studies, the 15% attrition in this study is relatively low and compares well with other longitudinal studies ([Shinnar et al., 2018](#); [Thompson and Surface, 2007](#)). After eliminating incomplete surveys and founders who did not complete both surveys (i.e. completed only one of the two surveys), the final sample included 141 founders.

Among the founders, the majority (77.3%) were male, the average age was 26.6 years ( $SD = 7.5$ ), 63.1% were single and 36.9% were married. Most (85.1%) had a college degree, 12.1% had a master’s degree or above, and 2.8% had a high school degree. The average number of ventures (including the current venture) the founders have started (alone or with others) was 1.6 ventures. Except for 37 individuals (26.2%) with no entrepreneurial



experience, close to three-quarters of the sample had entrepreneurial experience ranging from 1 to 44 years, with a median of 2 years. Additionally, 38 (27%) had at least one parent who was an entrepreneur. At the firm level, the surveyed entrepreneurs owned and/or operated firms with an average of 90 employees (median 8) and an average of 4 shareholders (median of 3). The firms represent a diverse group of industries, including e-commerce (15.9%), entertainment and advertisement (16.6%), information technology (10.7%), crafts studio (10%), retail (12.6%), medical health (4.2%), asset management and investment (4.2%), interior design (3.3%), outdoor sports (2.8%), social enterprise (2.3%), cultural industries (2.3%) and “other” (15.1%). The venture diversity confirms Wenzhou’s characterization as a highly entrepreneurial city in China, compared to other cities and regions (Raballand and Andrésy, 2007).

### Measures

The online questionnaires were administered in Chinese. As most measures used were originally developed in English, they were translated from English to Chinese by one of the researchers. Following conventional back-translation procedures (Brislin *et al.*, 1973), a bilingual person who was blind to the research questions translated the Chinese items back to English. Any inconsistencies between the original items and those back-translated items were discussed and resolved with minor modifications in wording to increase their applicability to the Chinese context. Unless otherwise stated, respondents rated the items on a seven-point Likert scale ranging from “1” (completely disagree) to “7” (completely agree). The Cronbach’s  $\alpha$  for each variable was higher than 0.6, indicating acceptable reliability (Nunnally and Bernstein, 1994).

*Dependent variable:* ESE was assessed using Zhao *et al.*’s (2005) four-item measure (Cronbach  $\alpha = 0.918$ ). The four items on this scale ask respondents to describe their confidence in the ability to “Identify new business opportunities,” “Create new products,” “Think creatively” and “Commercialize an idea or new development.”

*Independent variables:* Respondents’ polychronic orientation was measured using Bluedorn *et al.*’s (1992) three-item scale, rated on a five-point Likert scale (Cronbach  $\alpha = 0.639$ ) ranging from “1” (very false) to “5” (very true). The items on this scale are “I believe people should try to do many things at the same time,” “I tend to juggle several activities at the same time,” and “I believe it is best for people to be given several tasks and projects to perform simultaneously.”

We adapted Elenkov *et al.*’s (2005) scale to measure decision-making decentralization. The original construct measured “the perceptions of the titular heads of each organization regarding the extent of executive influence on recent or shortly anticipated outcomes of the innovation process” (Elenkov *et al.*, 2005, p. 673). This is a six-item, five-point Likert scale, ranging from “1” (totally disagree) to “5” (totally agree) (Cronbach  $\alpha = 0.874$ ). As the measures of executive influences cover all aspects of the organization including new products, new markets, new planning and control systems, new departments or positions, and new systems for training and promotion, these aspects are the same factors upon which lead founders share decision-making power with cofounders. In order to clearly describe the meanings and ensure alignment with our research purpose, we rephrased the measurement items to measure the extent to which respondents perceived decision-making decentralization. The six items on this scale asked respondents to describe the extent to which they perceived the cofounder (e.g. CEO) shared decision-making regarding “New products or services for existing markets,” “New markets for existing products/services,” “New products or services for new markets,” “New planning and control system,” “New department or permanent position,” and “New system for training, development or promoting managers.”

*Control variables:* Consistent with prior research (e.g. Souitaris and Maestro, 2010; Umphress et al., 2010), we controlled for a number of demographic variables that might influence ESE and strategic decision-making processes. We control for the number of founders, their age, education level and entrepreneurial experience of the founding team in order to isolate their possible influences on the dependent variables (Zhao et al., 2005). To reduce data variability (Kutner et al., 2005), we used a log transformation: The number of founders was calculated as the logarithm of the number of founders in the founding team. Founders' age was calculated as the logarithm of the average age of founders (Souitaris and Maestro, 2010). Founders' educational attainment was calculated by the logarithm of the number of founders holding a college degree or higher educational attainment. We used the logarithm of the number of businesses, including the current business, the individuals had started, either alone or with others, which was used to capture the founders' experience (Zhao et al., 2005).

*Analyses*

*Confirmatory factor analysis.* Multiple indexes were used to assess the fit of each model. The criteria examined included chi-square ( $\chi^2$ ) and the comparative fit index (CFI), Tucker–Lewis index (TLI) and root-mean-square error of approximation (RMSEA). When a hypothesized model fully captures the data from a sample population, the CFI and TLI are expected to have values of 1.0 and the RMSEA a value of 0.0. Although standards for such indexes are difficult to establish, a value of 0.90 or higher for the CFI and TLI and a value of 0.08 or lower for the RMSEA are typically suggestive of adequate fit (Hu and Bentler, 1999). We conducted a confirmatory factor analysis in R on our measurement model. The values on the fit indexes indicate our measurement models, including polychronic temporal orientation, decentralized decision-making and ESE have adequate fit ( $\chi^2 = 130.3$ ,  $df = 69$ ,  $\chi^2/df = 1.9$ , CFI = 0.94, TLI = 0.92, RMSEA = 0.079 and SRMR = 0.053). Further, we conduct a chi-square test to examine the differences between our models and the baseline model. As shown in Table 1, results indicate that the chi-square values from other substitute-nested models are significantly different from the baseline model ( $p < 0.05$ ). According to this nested model comparison, the three-factor model shows good discriminant validity for all variables and the three-factor research model is the best measurement model to examine our hypothesis.

*Common method bias and multi-collinearity tests.* While we have followed Podsakoff et al.'s (2003) approach to data collection at different time points, we further follow Harman's (1960) recommendations to conduct a test for CMV. Results show that one factor accounted for only 34.90% of the total variance, which is below the rule-of-thumb cutoff of 50%. Thus, there is no clear evidence of CMV. The means, standard deviations and pairwise correlations for the variables in this study are listed in Table 2. Since significant correlations exist among several variables, we investigate for potential multi-collinearity using variance inflation factors (VIFs). The maximum VIFs ( $1 < VIF < 5$ ) obtained in each of the models for the main effect

**Table 1.** Factor analyses for measurement model results

Model	Factor	$\chi^2$	Df	$\Delta\chi^2$	CFI	TLI	RMSEA	SRMR
Baseline Model		105.5	91					
Model 3	Three-factor model	130.3	69	-1.1	0.94	0.92	0.079	0.053
Model 2	Two-factor model	434.1	76	-21.9	0.65	0.58	0.183	0.125
Model 1	One-factor model (Combination with all four factors)	455.7	77	-25.0	0.63	0.56	0.187	0.113

variables falls below the rule-of-thumb cutoff of 10 (O'Brien, 2007). Therefore, multicollinearity is deemed to not be an important issue.

Polychronic temporal orientation

**Results**

We conducted multiple regression analyses to test Hypothesis 1, which predicted that decision-making decentralization has a positive relationship with ESE (See Table 3). Model 1 included only control variables. Decision-making decentralization and control variables were included in model 2 when predicting ESE. Results reveal that decision-making decentralization is positively associated with ESE ( $\beta = 0.85$ ,  $SE = 0.130$ ,  $p < 0.001$ ), supporting Hypothesis 1.

Our second hypothesis (H2) predicted that founding members' polychronic temporal orientation has an indirect and positive effect on ESE through decision-making decentralization. To test Hypothesis 2, we used *Process Syntax* developed by Preacher et al. (2007) because it permits direct testing of the indirect effect. Table 4 summarizes the regression results for the indirect effects of founding members' polychronic temporal orientation on ESE through decision-making decentralization. Because a conventional mediation test is used to include the independent variable predicting the dependent variable,

Variable	M	SD	1	2	3	4	5	6
Polychronic temporal orientation	3.18	0.64	[0.639]					
Decision-making decentralization	3.58	0.77	0.39**	[0.874]				
Entrepreneurial self-efficacy	4.73	1.36	0.33**	0.51**	[0.918]			
Number of founders	11.25	21.95	0.02	0.03	0.12	-		
Founders' age	25.35	6.57	0.02	0.04	0.04	0.26**	-	
Founders' educational attainment	9.67	18.80	0.03	-0.03	0.13	0.87**	0.15	-
Number of founders' business	3.25	4.94	0.09	0.22**	0.24**	0.23**	0.32**	0.08

**Note(s):** *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets are reliability coefficients for each variable. Founders' education is calculated by the education year; \*  $p < 0.05$ ; \*\*  $p < 0.01$

**Table 2.** Means, standard deviations and correlations

Variables	Entrepreneurial self-efficacy Model 1 $\beta$ (SE)	Entrepreneurial self-efficacy Model 2 $\beta$ (SE)	Entrepreneurial self-efficacy Model 3 $\beta$ (SE)
<i>Controls</i>			
Number of founders	-0.49 (0.73)	-0.65 (0.64)	-0.40 (0.70)
Founders' age	-0.74 (0.81)	-0.35 (0.71)	-0.70 (0.77)
Founders' education	0.78 (0.67)	1.05 (0.59)	0.69 (0.64)
Number of founders' business	1.02 (0.34)**	0.59 (0.30)	0.91 (0.32)**
<i>Main effect</i>			
Polychronic temporal orientation			0.64 (0.17)**
Decision-making decentralization		0.85 (0.13)***	
<i>R</i>	0.28	0.54	0.41
Adjusted <i>R</i> <sup>2</sup>	0.05	0.27	0.14
<i>F</i>	2.81*	11.09***	5.39***

**Note(s):** \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 3.** Regressions results for decision-making decentralization, polychronic temporal orientation and ESE

NEJE 25,2	Variables	Decision-making decentralization Model 4 $\hat{\beta}$ (SE)	Entrepreneurial self-efficacy Model 5 $\hat{\beta}$ (SE)
<b>154</b>	<i>Controls</i>		
	Number of founders	0.37 (0.41)	-0.43 (0.63)
	Founders' age	-0.29 (0.45)	-0.22 (0.69)
	Founders' education	-0.44 (0.38)	0.92 (0.59)
	Number of founders' business	0.46 (0.30)	0.71 (0.47)
	<i>Direct effects</i>		
	Polychronic temporal orientation	0.24 (0.09)**	0.22 (0.13)
	Decision-making decentralization		0.80 (0.13)***
	<i>Mediating effect</i>		
	Decision-making decentralization	0.19 (0.10), 95% CI [0.04, 0.45]	
	<i>R</i>	0.29	0.55
	<i>R</i> <sup>2</sup>	0.08	0.31
	<i>F</i>	2.39**	9.718***
	<b>Table 4.</b> Regressions results for the indirect effect of polychronic temporal orientation on ESE via process syntax	<b>Note(s):</b> $N = 141$ , * $p < 0.05$ , ** $p < 0.01$ , *** $p < 0.001$	

we also included the polychronic temporal orientation and control variables in model 3. Results indicate that a polychronic temporal orientation is positively associated with ESE ( $\hat{\beta} = 0.64$ ,  $SE = 0.17$ ,  $p < 0.01$ ). We included the founding members' polychronic temporal orientation and control variables in model 4 to predict the extent of the perception of decision-making decentralization. Results show that founding members' polychronic temporal orientation is significantly and positively associated with decision-making decentralization ( $\hat{\beta} = 0.24$ ,  $SE = 0.09$ ,  $p < 0.01$ ). Subsequently, we included founding members' polychronic temporal orientation, decision-making decentralization and the control variables in model 5 when predicting ESE. As shown in model 5, results reveal that decision-making decentralization is positively associated with ESE ( $\hat{\beta} = 0.80$ ,  $SE = 0.13$ ,  $p < 0.001$ ). The bias-corrected bootstrap confidence intervals of the indirect effect of founding member's polychronic temporal orientation on ESE ( $\hat{\beta} = 0.19$ ,  $SE = 0.10$ , 95% CI [0.04, 0.45]) exclude zero. Thus, our results fully support H2.

## Discussion

### *Theoretical implications*

Our findings serve to explain some of the contextual as well as individual variables that can shape ESE among venture founders. First, prior studies indicate that decision-making decentralization fosters ESE among team members (Phillips, 2001) and founders (Cooper and Daily, 1997; Forbes, 2005). Using a sample of venture founders, we confirm that perceived decision-making decentralization also enhances founding team members' ESE. This finding helps generalize results from prior studies to the Chinese context.

Second, our results reveal that in founding teams in which founders perceive decentralized decision-making, polychronic temporal orientation serves to further strengthen individual ESE perceptions. This is an important contribution given presumptions that ESE is a dispositional trait that cannot be changed. We show that two contextual factors (polychronicity and decentralized decision-making) can act together to strengthen ESE among cofounders in new venture founder teams. While our findings do not examine whether this also contributes to stronger overall venture performance, we show that entrepreneurs who have a polychronic temporal orientation tend to feel more efficacious when managing and operating a venture in which the decision-making for strategic tasks is shared.

Bluedorn and Martin (2008) suggest that understanding how co-workers perceive and use time is helpful for creating a constructive working environment. By examining venture founding team members' polychronic temporal orientation, our study also contributes to the literature on entrepreneurial temporal issues. Our findings show that stronger ESE perceptions can be built among team members who have a polychronic temporal orientation in ventures in which decision-making is perceived to be decentralized. Many studies have already explored the benefits of empowerment for employee motivation, this study adds insight to the way in which one's temporal orientation interacts with decentralized decision-making as an instrument to shape efficacy perceptions among venture founding team members.

#### *Practical implications*

Our findings regarding the impact of polychronicity on ESE have some implications for entrepreneurship educators. While some researchers consider polychronicity as an innate and stable psychological trait (Alipour *et al.*, 2017; Chen, 2021; Hecht and Allen, 2005; Kirchberg *et al.*, 2015; Mohammed and Harrison, 2013), others regard it as an individual state that can be cultivated (Bluedorn, 2002; Bluedorn *et al.*, 1999; Waller *et al.*, 1999). Entrepreneurship educators who seek to develop ESE among students could do so indirectly by raising students' comfort level with a more polychronic orientation and working on multiple tasks simultaneously.

Our findings regarding decentralized decision-making offer some practical implications for practicing entrepreneurs. While venture founders often have a hard time letting go of decision-making power, our findings suggest that sharing decision-making power with others could strengthen ESE beliefs among founding team members. Indeed, Brettel *et al.* (2010) show that while micro-involvement may be beneficial in the early stages of venture development, lower levels of micro-involvement in venture operations at later stages are linked to venture growth. This suggests a potentially positive relationship between an entrepreneur's willingness to let go and delegate decision-making power and a venture's long-term performance. As mentioned above, having efficacious founding team members could contribute to overall venture performance, because strong ESE perceptions lead individuals to persist in the face of obstacles and not shy away from challenges.

Finally, our findings carry some practical implications for venture leaders operating in dynamic environments that require agile decision-making capabilities at the organizational level. Entrepreneurs operating in such environments may benefit from considering polychronicity as a selection criterion. Building a management team that includes individuals, who have a polychronic orientation and can actively participate in decision-making, may enhance perceived self-efficacy and offer motivation in the face of obstacles and challenges.

#### *Limitations and suggestions for future research*

Despite its contributions to the literature and to practice, this study has some limitations, leaving certain unanswered questions to be addressed in future studies. First, this study's design implies that self-efficacy exists in a "casually reciprocal" relationship with behavior and the environment (Bandura, 1997). This study focuses on how perceptions of contextual and individual antecedents foster ESE by examining polychronic orientation and decision-making decentralization. Exploring other organizational and contextual components, such as environmental dynamism and resource allocation, will further advance our understanding of the ways in which organizational and contextual components influence ESE. Future research could explore what boundary conditions influence the relationship between decision-making power and ESE within founding teams. Second, while we collected primary data (surveys 1

and 2) at two different times (times 1 and 2) and conducted CFA tests to mitigate CMV, this study would be strengthened by collecting other objective outcome variables to solidify the results, such as venture performance, for example. Last, the generalizability of our findings might be of concern outside the cultural and institutional contexts of our research study and sample, which consists of venture founders in Wenzhou, China. While we benefitted from a unique opportunity to study practicing entrepreneurs, and the Chinese context can serve as an opportunity to draw valuable insights for other developing economies, the generalizability of our findings beyond the Chinese context to different societal cultural contexts may be limited.

Future research could further examine whether the ability to handle multiple tasks at once and having a more flexible view of schedules also contributes to enhanced venture performance. While we show that entrepreneurs who have a polychronic temporal orientation, and whose ventures practice decision-making decentralization, tend to feel more efficacious about running a venture, this does not directly speak to actual venture performance. Indeed, Chen (2021) finds that polychronicity is negatively related to firm innovation when firms operate in less dynamic environments. Other studies indicate a decline in accuracy when multitasking (Lin et al., 2016). Therefore, a future research path would be to explore both positive as well as undesirable consequences of a polychronic orientation.

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