

## The Mitigating Role of Trait Core Confidence on Psychological Distress in Entrepreneurship

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We conceptualize the mitigating role of trait core confidence on psychological distress in entrepreneurship manifested by occupational stress, anxiety, and depression. To facilitate field research, we first developed a short trait core confidence scale and validated it in six independent samples ( $N = 2,434$ ). To test our hypothesis that trait core confidence negatively relates to base-line levels of psychological distress as well as reduces fluctuations of distress in entrepreneurship, we collected data from a 3-day entrepreneurial event called Startup Weekend across seven occasions in the United States. High trait core confidence was related to lower psychological distress both at the start of the event on Friday and at the end of it on Sunday. Core confidence remained stable from Friday to Sunday, as well as 1 month following the event, affirming its trait properties. Additionally, we measured team confidence during the event and found that high team confidence reduced psychological distress of team members. This research contributes to the research on the role of dispositions in occupational health psychology and to a better understanding of how distress of aspiring entrepreneurs is mitigated by trait core confidence.

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## INTRODUCTION

Entrepreneurship is a driver of economic growth (van Praag & Versloot, 2008), and entrepreneurs are celebrated as risk-takers who tackle business and societal problems. Research has paid less attention, though, to the psychological perils of entrepreneurship (Frese & Gielnik, 2014). Despite monetary successes, the suicides of veteran entrepreneurs Anthony Bourdain and Kate Spade, and up-and-comers Aaron Swartz and Ilya Zhitomirsky, attest that entrepreneurship pursuits can generate a psychological toll resulting in tragic consequences (Beaver & Jennings, 2005; Hisrich, Langan-Fox, & Grant, 2007; Wach, Stephan, & Gorgievski, 2016). Growing evidence from multiple sources shows that psychological distress among entrepreneurs is widespread and that it can persist unaddressed until it is too late (Gorgievski & Stephan, 2016).

For example, a study of 242 entrepreneurs found that 49 percent suffered from psychiatric conditions (Freeman, Staudenmaier, Zisser, & Andresen, 2018). In another study surveying psychologically distressed entrepreneurs, 38.7 percent recorded past-month absenteeism and 82.5 percent worked while ill, undercutting their productivity by 50 percent (Cocker, Martin, Scott, Venn, & Sanderson, 2013). Because merciless competition demarcates entrepreneurship (Shane & Venkataraman, 2000), psychological stressors are unlikely to wane (Cardon & Patel, 2015; Parslow et al., 2004; Patzelt & Shepherd, 2011). This study examines the role of dispositions, specifically of trait core confidence, in mitigating psychological distress in entrepreneurship.

Mental health research shows that most people function with relatively stable and low psychopathological symptom levels over time (Kessler, Price, & Wartman, 1985). Some, however, are prone to marked symptom fluctuations (Ormel and Schaufeli, 1991). To explain these perturbations, Heady and Wearing (1989) suggested that exogenous forces, such as life events, trigger variations in symptoms, but these changes are only temporary because stable personality traits pull them back to more stable levels (Duncan-Jones, Fergusson, Ormel, & Horwood, 1990). That is, people generally recover from psychopathological disequilibrium, and the symptoms eventually revert to trait-based levels (Brown, Andrews, Harris, Adler, & Bridge, 1986; Gorgievski-Duijvesteijn, Bakker, Schaufeli, & Heijden, 2005; Ormel & Wohlfarth, 1991). We examine if core confidence of entrepreneurs as a personality trait can buffer against fluctuations in psychological distress experienced throughout a 3-day entrepreneurial event.

Research on the role of personality traits in entrepreneurship depicts a collage of unclear research designs, mixed results, and vague recommendations for practice (Davidsson, 2016; Stephan & Drencheva, 2017). In particular, Stephan (2018) reviewed the literature on well-being of entrepreneurs and

found that out of 27 studies on traits, only eight had a strong research design, and results were mixed. For instance, general self-efficacy and trait optimism were positively correlated with entrepreneurs' mental health, yet, Hmieleski and Corbett (2008) found that more efficacious entrepreneurs reported more mental health issues than less efficacious ones. Further, optimism has been linked to poorer subjective well-being in entrepreneurs because optimistic outlooks rarely materialize (Dawson, 2017; Hmieleski & Baron, 2009). Ayala and Manzano (2014) found it was not optimism that predicted entrepreneurial success but resilience. Taken together, research on traits related to psychological distress of entrepreneurs appears fragmented, sending unclear messages for research and practice (Frese & Gielnik, 2014; Stephan, 2018).

This line of research is developing but has yet to provide a theory-driven answer to the question of what can help people handle psychologically what it takes to be an entrepreneur. The "can-do" question is critical because cherished outcomes can be forsaken when entrepreneurs are riddled by doubt. Trait core confidence is a higher-order construct (Stajkovic, 2003, 2006) that is manifested by hope (Snyder, 2000), efficacy (Bandura, 1997), optimism (Peterson, 2000), and resilience (Coutu, 2002). These variables engage multiple adaptive mechanisms aimed at maintaining an equilibrium of psychological states. Agency and pathways of hope help one to develop coping strategies (Onwuegbuzie & Snyder, 2000). Self-efficacy tapers psychological distress following traumatic events (Benight, Freyaldenhoven, Hughes, Ruiz, & Zoschke, 2000). Optimism is linked with psychological adjustment, which sustains engagement and reduces the severity of psychological symptoms (Schmitt, Gielnik, Zacher, & Klemann, 2013). Resilience helps regain adaptive functioning after experiencing adversity (Bonanno, 2004). Stajkovic, Lee, Greenwald, and Raffiee (2015) found that these four observable variables share a 45 percent variance overlap, on average, across available studies, and they significantly load on their common, latent core of confidence. For this reason, we examine if high trait core confidence is related to lower base-line levels of and fluctuations in psychological distress during an entrepreneurial event.

The present research makes four contributions. First, we draw from multiple theory lenses and connect conceptualizations with rigorous methods and measurement to address psychological distress in entrepreneurship. Second, field data from Startup Weekend enables hypotheses testing under real competitive conditions (Shepherd, 2015; Welter, 2011; Zahra & Wright, 2011). Third, by measuring individual trait core confidence and psychological distress on Friday and Sunday and team-level confidence on Saturday, we contribute insight into team contagion effects (Stephan, 2018). Fourth, prior research used manifest variable scales consisting of 48-items to measure core confidence. Because using so many items can hinder field research, we

developed a short trait core confidence scale and validated it across six samples ( $N = 2,434$ ).

With these ideas in mind, we proceed as follows. First, we review the theory of trait core confidence. Next, we build theory and develop hypotheses to explain and predict the relationship between trait core confidence and psychological distress manifested as occupational stress, anxiety, and depression of aspiring entrepreneurs at a competitive field event. Third, we outline methods used in the seven field experiments, supplemented by the development and validation of the new psychometric confidence scale. Finally, we discuss implications of our findings for both theory and practice.

## THEORETICAL BACKGROUND

Stajkovic (2003, 2006) introduced core confidence latent construct with an aim to better understand employee motivation in rapidly changing organizations. He proposed that given unprecedented demands on organizations' most valuable resource—people—new conceptual development was needed to better understand what keeps people going in the face of mounting work challenges. Because entrepreneurial pursuits are laden with uncertainty (Stephan, 2018), we use such context to extend theory on core confidence and examine its effects on mitigating mental maladies of occupationally induced (cf. family, marital) stress, anxiety, and depression.

The four core confidence manifestations are prominent observable variables in social psychology and organizational behaviour literatures. Cumulatively, they have been referenced in more than 105,000 publications (PsychINFO search, July 17, 2018). Despite abundant research attention and many similarities, only 0.1 percent of these articles mention all four variables. In the rare case when they are considered together, they are often treated as separate with no discussion of interrelationships (e.g., Alavi & Gill, 2017; Denovan & Macaskill, 2017). Stajkovic et al. (2015), however, found that these four manifest variables load on a single factor—trait core confidence.

When an individual has high trait core confidence (henceforth, core confidence), measures of the four variables indicate this belief. Rather than a multidimensional aggregate construct, where a composite factor is composed of dimensions that may or may not be related (e.g., Luthans & Youssef, 2004), core confidence is a commonality among its indicator dimensions (Law, Wong, & Mobley, 1998). Hope, efficacy, optimism, and resilience are how core confidence manifests.

Core confidence is a reliable predictor of work outcomes. Greenwald (2010) found that core confidence positively relates to performance. In four studies, Stajkovic et al. (2015) linked core confidence to academic achievement, life satisfaction, job performance, and job satisfaction. Geil and Greenwald (2020)

related core confidence to leadership effectiveness in 21 countries. Gilstrap and Greenwald (2016) found that core confidence strengthens the relationship between psychological meaningfulness and engagement and weakens the relationship between low psychological availability and engagement. Holdorf and Greenwald (2018) proposed a relation between core confidence and the multidimensional construct of responsibility. Linderman-Hill and Greenwald (2019) found that individuals with high core confidence needed less feedback than people with low core confidence to become engaged in a task. They also found that those with high core confidence thrive under conditions characterized by high levels of job complexity.

## Core Confidence and Psychological Distress in Entrepreneurship

We define an entrepreneur as an individual who "... searches for change, responds to it, and exploits it as an opportunity" (Dees, 1998, p. 2). The context of our field study and the aim of attendees at Startup Weekend fit this definition. Startup Weekend focuses on the first phase of entrepreneurship—the pre-launch or opportunity identification phase (Baron, 2007). During this stage, uncertainty is at its highest (Zbierowski, 2014), change is frequent and abrupt (McMullen & Shephard, 2006), and entrepreneurs' psychological state fluctuates with waves of high and low distress. Research has yet to ascertain conclusively if psychological traits may "smooth out" these fluctuations in psychological distress experienced by entrepreneurs (Stephan, 2018).

Trait core confidence is a "can-do" belief, but it differs conceptually from entrepreneurial self-efficacy (ESE) that "...measures a person's belief in their ability to successfully launch an entrepreneurial venture" (McGee, Peterson, Mueller, & Sequeira, 2009, p. 965). Research has linked ESE to entrepreneurial intent (Zhao, Seibert, & Hills, 2005) and financial, marketing, and risk-taking perceptions (Forbes, 2005). Unlike ESE, core confidence endures in the background, making it more relevant to entrepreneurs' psychological state over time. That is, because ESE is task-and-context-specific (Bandura, 1997) it needs appraisal for each task and context. Instead of engaging in repetitive and time-consuming ESE appraisals every time the same task and context is encountered, individuals likely internalize these assessments over time, which then gradually firm up to resemble trait core confidence in the long run (Stajkovic, 2006; Stajkovic et al., 2015).

Further, unlike emotion (Cardon, Foo, Shepherd, & Wiklund, 2012) and entrepreneurial passion (Cardon, Gregoire, Stevens, & Patel, 2013; Gielnik, Spitzmuller, Schmitt, Klemann, & Frese, 2015), trait core confidence supports adaptive functioning in the face of difficulty. For instance, though entrepreneurial passion increases the levels of self-set goals (Drnovšek, Cardon, &

Patel, 2016), when entrepreneurs face negative feedback, passion results in “entrepreneurs mitigating growing threats to a strongly held identity by revising or disengaging from initial goals. Such action diminishes persistence on challenging goals” (Cardon, Wincent, Singh, & Drnovšek, 2009, p. 524). In contrast, “trait core confidence allows people to overcome temporal influences and determines if and how they continue the undertaking” (Stajkovic et al., 2015, p. 32).

In general, core confidence fosters functional preparedness; and, its antonym, doubt breeds apprehensions due to perceived inability to exert sufficient control over occupational demands which fuels stress, anxiety, and depression. Given that elevated levels of psychological distress are ostensibly inherent in entrepreneurship, core confidence as a stable trait may mitigate fluctuations in psychological distress. One way in which core confidence could lead to reduced distress is by prompting cognitive reframing of adverse events (Southwick & Charney, 2012). This increases a sense of control which shifts perceived threats into surmountable challenges (Dutton & Jackson, 1987; Wincent & Örtqvist, 2009). People with high trait core confidence form their psychological repertoire in contexts that foster opportunities to gradually master challenges. Consequently, they are more likely to engage in problem-solving strategies versus emotional coping (Wirback, Möller, Larsson, Galanti, & Engström, 2014). People with low core confidence have less tolerance for negative affect and less effective emotion regulation because low core confidence prevents them from acting to close negative feedback loops leaving setbacks and obstacles unaddressed (Stajkovic et al., 2015). Pressing forward despite unsettled mental impediments can heighten psychological distress (Bruder, 2013; Cardon & Patel, 2015). We hypothesize the following.

*Hypothesis 1a:* Core confidence negatively relates to psychological distress at the beginning of an entrepreneurial event.

*Hypothesis 1b:* Core confidence reduces fluctuations in psychological distress throughout an entrepreneurial event.

## Contagion of Psychological Distress Among Entrepreneurs

The systems theory of interdependence predicts that events affect the social network, not just the participating individuals (von Bertalanffy, 1975; Broderick, 1993). This is because emotional states produce arousal that prompts people to affiliate with others to better understand their state of mind and react appropriately (Schachter, 1959). Through affiliation, people share a common social reality, which leads to transmitting mental states from

one person to another, also known as contagion. For example, people's anxiety can be influenced by that of their partner, even when the partner does not face the same threat (e.g., terminal illness) (Gump & Kulik, 1997). These contagion effects occur when an agent's actions indirectly affect other agents' outcomes or feelings, either via peer effects, social interactions, externalities, or other inferences. This transfer is often automatic; the sender emits the input, the receiver catches it and then back-fits a perceived purpose and meaning to it, which, regardless of whether it is accurate or not, influences the receiver's subsequent behaviour and emotions (Hassin, Aarts, & Ferguson, 2005).

The more time spent with someone, the more opportunities for contagion exist. Shared social realities in entrepreneurship can serve as a conduit for a variety of contagion effects. The importance of collective emotional states has been established (Barsade, 2002), but less is known about contagion of psychological distress in entrepreneurship. Such effects are rarely examined, and when they are, the perspective is often from a caregiver-patient relationship (Adams, Boscarino, & Figley, 2006). For instance, one study found spillover effects from entrepreneurs' mental health onto their life partners (Gorgievski-Duijvesteijn, Giesen, & Bakker, 2000). Another found stress, workload, and time commitment of self-employed individuals negatively impacted their children's mental health (Wirback et al., 2014). Stephan (2018) highlighted the need to understand if psychological distress experienced by one entrepreneur can affect related others. We provide initial insight into this question by examining how an entrepreneur's initial psychological distress contributes to psychological distress experienced by his/her team members. We hypothesize that team-level core confidence will mitigate psychological distress of members, such that for teams with high core confidence, the psychological distress of individual members will be lower than those with low team confidence.

*Hypothesis 2a:* Entrepreneurs' level of psychological distress at the beginning of the entrepreneurial event crosses over to influence the distress of his/her team members.

*Hypothesis 2b:* High team confidence spills over to reduce the psychological distress of individual team members.

## METHOD

### Study Context and Participants

We collected data from attendees at seven Startup Weekend events (Twin Cities, MN; Iowa City, IA; Madison, WI; and Chicago, IL four times) over 1 year. Startup Weekend, organized by a world-wide non-profit organization,



provides opportunities for (aspiring) entrepreneurs to pitch ideas, find others interested in working together, and present initial concepts to judges who determine funding. Attendees sign up and pay a nominal fee, join the event on Friday evening, and are given 1 minute to pitch an idea for a startup to other attendees. Afterward, participants form teams organically, without formal introductions. Put simply, some ideas are sought out and others receive less interest. Attendees whose ideas fail to generate interest can try to join another team. A person can end up without a team if nobody wants to work with them or they choose to not work on someone else's idea. In both cases, because individual work is not allowed, they leave the event. Once formed, teams develop startup ideas. Mid-day Saturday, teams receive feedback from mentors who are entrepreneurs and potential investors. The teamwork continues until Sunday afternoon when the teams have 5 minutes to present their idea to the five judges.

## Procedures

Upon arriving at the Startup Weekend event, individuals were asked to participate in this study (approved by corporate Startup Weekend and individual event organizers) and to sign a consent form.<sup>1</sup> We obtained consent from 519 participants, but only 291 completed the Friday scales, providing a baseline measure of their trait core confidence, occupational stress, anxiety, and depression. Participants then engaged in the activities of Startup Weekend. On Saturday, each person was handed a core confidence scale in reference to their team. On Sunday evening, the judges announced the top three teams. To avoid participants rushing through the scales, we minimized the number of items to one page and allowed ample time (1–3 hours) to complete and return the surveys each day. One of the authors of this article was present at each venue in case participants had questions, minimizing the risk of inaccurate responses during this live event.

After the winners were announced on Sunday, 146 participants completed the individual scales again. Item wording on the distress scales was updated to accommodate the difference in perceptions following the event versus entering it (i.e. “very few stressful things happen to me at events like this” was altered to “very few stressful things happened to me at this event”). No changes were made to the wording of the individual trait core confidence scale. We found no differences in terms of age, gender, and the initial levels of stress, anxiety, depression, and trait core confidence between those who

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<sup>1</sup> The governing body of Startup Weekend manages registration, and we did not have access to the pre-registration data. Some participants registered in advance and some on-site. Because we could not obtain data before the event, we obtained the initial survey measurements when participants arrived on Friday.



completed both surveys and those who responded only to the first. The mean age of respondents was 29.02 years ( $SD = 8.40$ ), and 84 percent were male. Fifty-three percent of respondents had a college degree and 27 percent a master's degree. The same researcher oversaw data collection at all of the events to control for experimenter bias.

## Measures

*Trait Core Confidence.* Due to the field constraints of the Startup Weekend, a short scale (instead of using 48 items from the manifest variables) of trait core confidence was developed (see Table 1). The scale consisted of six items to capture agency (item 1) and pathways (item 2) of hope, self-efficacy (item 3), optimism (item 4), resilience (item 5), and overall confidence (item 6). Items were anchored on a 7-point Likert scale; participants responded by indicating the degree to which they agreed with the item description (1 “strongly disagree” to 7 “strongly agree”). Reliability for the core confidence scale on Friday was  $\alpha = 0.81$  and on Sunday was  $\alpha = 0.89$ . Validation procedures and accompanied tables are reported in the Online Appendix.

*Psychological Distress.* Although manifestations of psychological distress can vary, they are often associated with stress, anxiety, and depression (Holden, Scuffham, Hilton, Vecchio, & Whiteford, 2010; Kessler et al., 2002; Larsen, 2000; Massé, 2000; Prins et al., 2015; SAMHSA, 2018). Thus, we examined psychological distress as a second-order latent factor (Magee & St-Arnaud, 2012; Massé et al., 1998; Williams, May, Mason, Wang, & Pomana, 2016) with 10 items that encompassed occupational stress, anxiety, and depression as its observable manifestations. Items were anchored on a 7-point Likert scale; participants responded by indicating the degree to which they agreed with the item description (1 “strongly disagree” to 7 “strongly agree”). Occupational stress was measured with Motowidlo, Packard, and

TABLE 1  
Trait Core Confidence Scale

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Using the following 1–7 response options, please place the number that best represents your evaluation of each statement listed below in the space to the left of it.

1	2	3	4	5	6	7
Strongly disagree						Strongly agree
1. ____ I know what my goals in life are.						
2. ____ I know how to achieve these goals.						
3. ____ I can successfully perform specific tasks leading to my goals.						
4. ____ Reaching my goals will result in positive outcomes for me.						
5. ____ I can bounce back from occasional failures in a pursuit of my goals.						
6. ____ I am confident about achieving my goals in life.						

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Manning's (1986) four-item scale (e.g., "I felt a great deal of stress about this event"). Anxiety (e.g., "I panicked easily") and depression ("I often felt blue") were captured with items from Goldberg's (1999) five-factor model because the neuroticism personality factor differentiates items into anxiety and depression. Table 2 reports the internal reliabilities and correlations for the first-order measurement models for the psychological distress higher-order construct. Initially, occupational stress and depression indicated low reliability, but removing stress item 2 and depression item 3 boosted reliability to acceptable levels (see Table 2). Both items were reverse-coded questions, suggesting that participants may have misread items' negative wording, a psychometric problem commonly encountered in applied/field research (Brown, 2006). See the Online Appendix for confirmatory factor analysis supporting a higher-order model of distress.

Table 3 reports the means, standard deviations, and bivariate correlations for the three sub-scales used to capture psychological distress and the trait core confidence scale. These statistics are provided for each of the three points in time that the scales were administered.

## RESULTS

### Structural Model Fit and Hypothesis Testing

Structural equation modelling (SEM) was used to analyze the data with the "lavaan" package (version 0.5-23.1097; Rosseel, 2012) in "R" using maximum likelihood estimation. Exogenous co-variances were pre-estimated in the covariance matrix. Residuals for psychological distress on Friday (time 1) and Sunday (time 2) were allowed to correlate, all factor loadings in structural model (Figure 1) were significant, and reasonably good model fit was indicated: NFI = 0.83, CFI = 0.94, GFI = 0.88, AGFI = 0.83, RMSEA = 0.056 [90% CI: 0.037, 0.074], and SRMR = 0.07.

*Core Confidence and Psychological Distress Before the Event.* As hypothesized in Hypothesis 1a, core confidence related to initial psychological distress on Friday of the Startup Weekend. Less confident entrepreneurs reported higher baseline levels of distress ( $\beta = -0.45, p < .001$ ).

*Core Confidence and Psychological Distress after the Event.* Supporting its trait-like conception, core confidence on Friday highly covaried with core confidence on Sunday ( $\beta = 0.71, p < .001$ ). To examine if core confidence predicted psychological distress, we analyzed the degree to which core confidence predicted psychological distress on Sunday while controlling

TABLE 2  
Psychological Distress First-order Measurement Models

	STRESS				DEPRESSION				ANXIETY	
	Friday		Sunday		Friday		Sunday		Friday	Sunday
	3-item	4-item	3-item	3-item	3-item	2-item	3-item	2-item	3-item	3-item
$\alpha$	0.62	0.73	0.73	0.67	0.65	0.86	0.33	0.84	0.76	0.72
	<b>Pairwise Correlations<sup>d</sup></b>				<b>Pairwise Correlations<sup>d</sup></b>				<b>Pairwise Correlations<sup>d</sup></b>	
1. Item 1	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(3)	(1)	(2)
2. Item 2	0.03	0.16*	0.58***	0.33***	0.76***	0.74***	-0.02	0.11	0.37***	0.44***
3. Item 3	0.59***	0.08	0.11	0.30***	0.34***	0.2*	0.11	0.46***	0.69***	
4. Item 4	0.45***	0.21**	0.41***	0.31***						

<sup>a</sup>Friday correlations represented below the diagonal and Sunday correlations represented above the diagonal.  
\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ ; † $p < .10$ .

TABLE 3  
Descriptive Statistics and Bivariate Correlations

Construct	Scale	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
Psychological Distress	1. Stress 3-Item Scale: Friday	3.41	1.47	–											
	2. Stress 3-Item Scale: Sunday	3.6	1.38	.43***	–										
	3. Stress 3-Item Scale: Month Later	3.27	1.57	.65***	.78***	–									
	4. Depression 2-Item Scale: Friday	2.18	1.4	.13	.10	.37**	–								
	5. Depression 2-Item Scale: Sunday	1.58	0.97	-.05	.06	.11	.14 <sup>+</sup>	–							
	6. Depression 2-Item Scale: Month Later	2.03	1.45	.27 <sup>+</sup>	.30*	.33*	.47***	.11	–						
	7. Anxiety 3-Item Scale: Friday	3.0	1.44	.24***	.21**	.22	.56***	.23**	.26 <sup>+</sup>	–					
	8. Anxiety 3-Item Scale: Sunday	1.86	1.06	.08	.32***	.40	.21**	.45***	.23	.27***	–				
	9. Anxiety 3-Item Scale: Month Later	2.19	1.12	-.01	.13	.05	.26	.17	.35*	.17	.39*	–			
	10. TCC 6-Item Scale: Friday	5.87	0.87	-.14 <sup>+</sup>	-.06	-.23	-.31***	-.12	-.30*	-.29***	-.24***	-.51***	–		
	11. TCC 6-Item Scale: Sunday	5.91	0.90	-.04	-.08	-.15	-.27***	-.28***	-.17	-.26***	-.33***	-.64***	.57***	–	
	12. TCC 6-Item Scale: Month Later	6.02	0.96	-.23	-.16	-.34*	-.02	.05	-.09	-.66***	-.23	.38*	.25	–	

Note: N = 36–146 for the correlations, with the “month later” scale correlations representing the smaller sample sizes.  
<sup>+</sup>p < .10; \*p < .05; \*\*p < .01; \*\*\*p < .001.

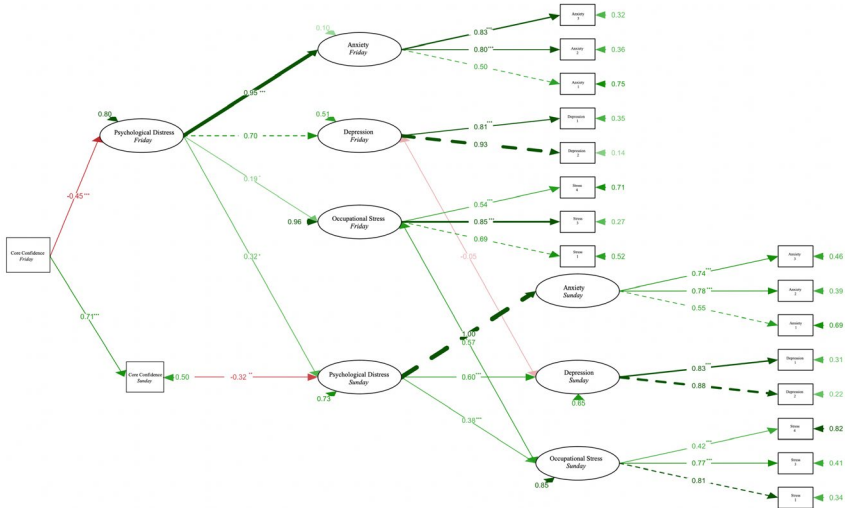


FIGURE 1. Structural Equation Model Results. *Note:* This figure was generated with “semPlot” (Epskamp & Stuber, 2014) in R, a visualization package that produces figures with SEM software (e.g., “lavaan”). This software allowed us to simultaneously depict: (a) psychological distress second-order measurement model; (b) hypothesized regressions involving confidence and distress; and (c) correlated residuals of first-order factors (bidirectional paths between Friday and Sunday anxiety, depression, and stress). The placement of the variables and residuals, as well as the coloring and thickness of the paths, were automatically determined by the software. To compute the optimal layout, the Reingold-Tilford (1981) algorithm is run on a slightly altered version. The path coefficients represent standardized parameter estimates. Green paths indicate a positive estimate and red a negative estimate. Each path is weighted by thickness and color to denote larger standardized parameter estimates with darker and thicker lines. \*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ ; + $p < .10$

for psychological distress on Friday. We found that attendees with high core confidence reported lower psychological distress on Sunday compared with those of low core confidence ( $\beta = -0.32, p < .01$ ). Markedly, this effect explained variance beyond the effect of Friday psychological distress as it related to Sunday distress ( $\beta = 0.31, p < .05$ ). In assessing the magnitude of the standardized estimates, these two effects nearly offset each other, suggesting the strength of the relationship between core confidence and psychological distress is strong enough to negate the spike in distress that occurred, on average, throughout the event, supporting Hypothesis 1b. In other words, variability in psychological distress was minimal, if not absent, for highly confident attendees; whereas, those with low core confidence experienced

both an increase in Sunday distress caused by Friday distress, as well as an increase caused by the low levels of their core confidence.

*Contagion Effects.* To test whether an entrepreneur's Friday level of distress crossed over to influence team members' distress on Sunday, we first calculated a measure of team members' psychological distress.<sup>2</sup> Because degrees of freedom to model team distress latently were unavailable, we calculated this variable in two steps. First, to avoid individual measurement inflating team-level measurement, we computed the average of the team scores (excluding the individual) for each item on occupational stress, anxiety, and depression scales from Sunday. Second, we used the sum of eight team-level items to calculate team members' psychological distress on Sunday ( $\alpha = 0.67$ , 95% CI [0.57, 0.78]). Likewise, we calculated individual psychological distress on Friday ( $\alpha = 0.75$ , 95% CI [0.67, 0.83]). To account for interdependence of team members' distress within each team and to examine a cross-level interaction of entrepreneurs' initial distress on Friday and team confidence on team members' distress on Sunday, we used a linear mixed-effects model to nest individuals within teams. We mean-centered entrepreneur's distress on Friday and included it in the model with team core confidence and their interactions. In this analysis, we included data from teams with at least two members who reported distress on Friday and Sunday along with team confidence; this resulted in 82 observations nested within 25 teams.

The effect of an entrepreneur's initial distress on his/her team members' psychological distress on Sunday was not significant ( $p = .21$ ), rejecting Hypothesis 2a. The effect of team core confidence on team members' psychological distress was significant,  $F(1, 24) = 9.92$ ,  $p = .004$ , such that team members' distress decreased by 11.82 percent for every one-point increase in team confidence. This finding implies that team core confidence mitigates the psychological distress experienced by team members in this high-pressure context, supporting Hypothesis 2b. The cross-level interaction was not significant ( $p = .245$ ), suggesting that the magnitude of the team confidence effect on team members' distress is not impacted by an entrepreneur's initial level of distress.

*Longitudinal Effects.* One month after each event, participants were sent the core confidence and psychological distress scales again. Thirty-six responded (12.3% response rate). Despite low power, SEM revealed that Friday core confidence negatively related to psychological distress 1 month

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<sup>2</sup> For example, if a team had members A, B, and C, for individual A, the team members' psychological distress on Sunday would be the average on each item for individuals B and C.

later ( $\beta = -0.91, p = .023$ ). Friday core confidence also predicted core confidence 1 month later ( $\beta = 0.68, p = .015$ ).

## DISCUSSION

The present research contributes to the broader literature on the role of dispositions in occupational health psychology and, specifically, to a better understanding of how psychological distress of aspiring entrepreneurs is impacted by trait core confidence. Building on this line of inquiry, we conceptualized the role of trait core confidence in maintaining equilibrium of psychological distress at a competitive event. Studying entrepreneurial pursuits affords for an understanding of how psychological variables operate in a real-life setting unique in complexity and fluid competitive conditions. Our research contributes to this literature by showing that when hope, efficacy, optimism, and resilience are considered manifestations of core confidence, psychological distress of aspiring entrepreneurs at an emulous event is not only reduced by having high trait core confidence, but it also fluctuates less longitudinally over 3 days.

We further contribute conceptual parsimony to a literature that has been criticized for incoherent psychological theory foundation and inadequate precision and consistency of derived predictions and hypotheses (Busenitz et al., 2003). Instead of considering manifestations of core confidence as they relate to entrepreneurship, as before, our framework offers greater insights by considering these four variables as observable manifestations of a confidence core. Coalescing theory around core confidence can help reduce mixed findings in extant research regarding the effects of similar observable variables in the study of entrepreneurship.

Understanding factors that mitigate occupational stress, anxiety, and depression is not trivial given that human functioning is easily disordered by these mental states (Lechat & Torres, 2017; Holden et al., 2010; Mathiesen, Nome, Eisemann, & Richter, 2012). The finding that confidence of a team partially offsets psychological distress for its individual members is good news for low core confidence entrepreneurs; if they surround themselves with confident others, fluctuations in distress during high-pressure pursuits can, at least partially, be attenuated.

## Limitations and Future Research

First, although our findings supported the hypotheses, we did not measure mediating processes, leaving the door open for alternative explanations. It could be that those with low core confidence experience greater cognitive depletion in competitive settings. That is, running a business, receiving negative feedback, and coping with psychological distress is a multifaceted process the



mind continually gauges because it demands trade-offs among the conflicted areas of cognitive functioning. This could result in less cognitive resources available. Thus, future research could examine if low core confidence is linked to attention depletion.

Second, we could not account for all differences among Startup Weekend participants. Participants self-selected into the event, and some registered in advance and some registered at the event. Thus, motivation might be a confound if it systematically varied. In our informal conversations with participants, many were looking for an opportunity to test their idea and a chance to learn more about startups. Additionally, Startup Weekend is convened under an ethos of cooperation, which may have impacted the level of competitive pressures participants felt compared to other real-life scenarios. To address these potential limitations, we re-conducted all analyses controlling for the number of startups participants were previously involved with, and we observed no changes in results. Number of startups previously participated in had no effect on core confidence either, providing further support for it being a relatively stable trait.

Third, entrepreneurs employ various knowledge structures to identify and evaluate opportunities (Mitchell et al., 2002). Understanding learning differences among entrepreneurs might shed further light on how they form intentions, make faster decisions, arrive at better conclusions, or pivot when needed (Krueger, 2017). For instance, Startup Weekend embodies a problem-based approach to entrepreneurial learning (Krueger, 2007), and learning via self-managed field projects has been shown to foster quality of entrepreneurial cognitive processing (Krueger, 2003; Souitaris, 2005). As project-based events like Startup Weekend, ostensibly, mirror uncertainty and time pressures faced by entrepreneurs, researchers have suggested that such events can influence how entrepreneurs learn, as well as their mindsets (Krueger, 2017).

Building on the finding from the present research that core confidence mitigates psychological distress during Startup Weekend, future research could investigate if these positive effects of core confidence likewise enhance participants' entrepreneurial mindsets (see also Dweck, 2008) at competitive events that include a learning or educational component. Baron (2019) recently argued that how entrepreneurs acquire knowledge is one of the central questions in the field, and trait core confidence might offer some answers. Applying reasoning from cognitive psychology, the less entrepreneurs ruminate over doubts, the more cognitive processing capacity that remains available for their learning and education. Said differently, events like Startup Weekend not only move the educational needle in entrepreneurship (Krueger, 2017), but they may be doing so at the deeper cognitive level when considered in tandem with traits that influence adaptive self-regulation, such as core confidence (Stajkovic et al., 2015).

Numerous scholars have called for a greater emphasis on psychological science in the study of entrepreneurship (Baron, 2019; Davidsson, 2016; Frese & Gielnik, 2014; Gielnik et al., 2015; Hisrich et al., 2007; Krauss, Frese, Friedrich, & Unger, 2005; Krueger, 2003, 2007, 2017; Mitchell et al., 2002; Shepherd, 2015; Stephan, & Drencheva, 2017). We echo the calls to enhance our understanding of entrepreneurs' cognition, affect, and behaviour by deepening knowledge about their psychological causes. We offered trait core confidence as a fruitful variable in predicting psychological phenomena pertinent to entrepreneurs and entrepreneurship.

## Practical Implications

Our findings highlight the importance of fit between dispositions and potential for psychological distress. That is, deciding whether to engage in an activity could be informed, *ceteris paribus*, by one's trait core confidence. As reported by a CEO in Marano (2003):

The CEO's position is very isolating... it's a very tough, aggressive world. That supposedly makes it a very unemotional world. But in fact, there are tons of emotions running around. They just don't get dealt with.

As illustrated, many going through the mental darkness of stress, anxiety, and depression, unfortunately, do not make it out (Bruder, 2013; Strenger & Burak, 2005). According to Kessler et al. (2002, p. 960), "... up to half of the general population meet the criteria for one or more... [mental health] disorders... and up to one-fifth carry a diagnosis at any one point in time." In addition to economic uncertainty (Gorgievski, Bakker, Schaufeli, van der Veen, & Giesen, 2010; Sörensson & Dalborg, 2017) and gruelling job demands (Hessels, Rietveld, & Van der Zwan, 2017), traits play a role in how entrepreneurs respond to psychological distress (Berglund, Johanasson Sevä, & Strandh, 2016). The present research suggests that entrepreneurs respond differently to business uncertainty and complexity. For this reason, we suggest that entrepreneurs consider and assess their trait core confidence prior to embracing such professional undertakings.

A number of methods have been designed to modify psychological appraisals, such as positive emotion exercises (Foo, Uy, & Baron, 2009), social interactions (Fernet, Torrès, Austin, & St-Pierre, 2016), development of coping skills and changes in coping strategies (Drnovšek, Örtqvist, & Wincent, 2010; Örtqvist, Drnovšek, & Wincent, 2007; Uy, Foo, & Song, 2013), positive feedback (Lechat & Torrès, 2017), conflict avoidance (Schonfeld & Mazzola, 2015), stimulating creativity (Weinberger, Wach, Stephan, & Wegge, 2018), and boosting self-efficacy (Blonk, Brenninkmeijer, Largerveld, & Houtman,

2006). Although these interventions can be effective, they may be temporary and, thus, are less likely to address deeper-seated personal beliefs, such as those about confidence across domains of related activities over time.

For example, research shows that self-efficacy predicts outcomes independently and jointly with traits (Stajkovic, Bandura, Locke, Lee, & Sergent, 2018). Despite a developmental appeal of state variables, traits may be irreplaceable in turbulent business settings because they are less malleable to environmental influences. Initial evidence on a contagion effect provides a middle-ground solution; entrepreneurs low in core confidence can surround themselves with others high in it because team confidence can mitigate individual psychological distress. Thus, developing healthy work relationships with others can aid self-regulation as convergence unfolds over time among people in proximity (Anderson, Keltner, & John, 2003).

## CONCLUSION

Work motivation research has long maintained that skill and will are fundamental components of action (Latham, 2012; Pinder, 1998). Both are necessary for optimal functioning, but unless individuals believe in their ability to succeed, they are likely to cease efforts or to push forward without closing negative feedback loops—amplifying symptoms of psychological distress. In this way, trait core confidence is both an enabler of an individual's existing potential and is a psychological buffer against mental health symptoms in entrepreneurship.

## REFERENCES

<sup>†</sup>cited in Online Appendix

- Adams, R.E., Boscarino, J.A., & Figley, C.R. (2006). Compassion fatigue and psychological distress among social workers: A validation study. *American Journal of Orthopsychiatry*, *76*, 103–108.
- Alavi, S.B., & Gill, C. (2017). Leading change authentically: How authentic leaders influence follower responses to complex change. *Journal of Leadership and Organizational Studies*, *24*, 157–171.
- Anderson, C., Keltner, D., & John, O.P. (2003). Emotional convergence between people over time. *Journal of Personality and Social Psychology*, *84*, 1054–1068.
- Ayala, J.C. and Manzano, G. (2014) The resilience of the entrepreneur. Influence on the success of the business. A longitudinal analysis. *Journal of Economic Psychology*, *42*, 126–35.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman & Company.
- Baron, R.A. (2007). Behavioral and cognitive factors in entrepreneurship: Entrepreneurs as the active element in new venture creation. *Strategic Entrepreneurship Journal*, *1*, 167–182.

- Baron, R.A. (2019, November 14). It's time for psychological science to become more entrepreneurial. *Observer*. Retrieved from: <https://www.psychologicalscience.org/publications/observer/obsonline/its-time-for-psychological-science-to-become-more-entrepreneurial.html>.
- Barsade, S.G. (2002). The ripple effect: Emotional contagion and its influence on group behavior. *Administrative Science Quarterly*, 47, 644–675.
- Beaver, G., & Jennings, P. (2005). Competitive advantage and entrepreneurial power: The dark side of entrepreneurship. *Journal of Small Business and Enterprise Development*, 12, 9–23.
- Benight, C.C., Freyaldenhoven, R.W., Hughes, J., Ruiz, J.M., Zoschke, T.A., & Lovallo, W.R. (2000). Coping self-efficacy and psychological distress following the Oklahoma city bombing 1. *Journal of Applied Social Psychology*, 30, 1331–1344.
- Berglund, V., Johansson Seva, I., & Strandh, M. (2016). Subjective well-being and job satisfaction among self-employed and regular employees: Does personality matter differently? *Journal of Small Business and Entrepreneurship*, 28, 55–73.
- Blonk, R.W.B., Brenninkmeijer, V., Lagerveld, S.E., & Houtman, I.L.D. (2006). Return to work: A comparison of two cognitive behavioural interventions in cases of work-related psychological complaints among the self-employed. *Work and Stress*, 20, 129–144.
- <sup>+</sup>Bollen, K.A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods and Research*, 17, 303–316.
- Bonanno, G.A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, 59, 20–28.
- Broderick, C.B. (1993). *Understanding family process*. Newbury Park, CA: Sage.
- Brown, G.W., Andrews, B., Harris, T., Adler, Z., & Bridge, L. (1986). Social support, self-esteem and depression. *Psychological Medicine*, 16, 813–831.
- <sup>+</sup>Brown, T.A. (2006). *Confirmatory factor analysis for applied research*. New York: Guilford Press.
- Bruder, J. (2013). The psychological price of entrepreneurship. *Inc.5000*.
- Busenitz, L.W., West, G.P. III, Shepherd, D., Nelson, T., Chandler, G.N., & Zacharakis, A. (2003). Entrepreneurship research in emergence: Past trends and future directions. *Journal of Management*, 29, 285–308.
- Cardon, M.S., Foo, M.-D., Shepherd, D., & Wiklund, J. (2012). Exploring the heart: Entrepreneurial emotion is a hot topic. *Entrepreneurship Theory and Practice*, 36, 1–10.
- Cardon, M.S., Gregoire, D.A., Stevens, C.E., & Patel, P.C. (2013). Measuring entrepreneurial passion: Conceptual foundations and scale validation. *Journal of Business Venturing*, 28, 373–396.
- Cardon, M.S., & Patel, P.C. (2015). Stress-related health and wealth trade-offs for entrepreneurs. *Applied Psychology*, 64, 379–420.
- Cardon, M.S., Wincent, J., Singh, J., & Drnovšek, M. (2009). The nature and experience of entrepreneurial passion. *Academy of Management Review*, 34, 511–532.
- <sup>+</sup>Chen, G., Gully, S.M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, 4, 62–83.

- Cocker, F., Martin, A., Scott, J., Venn, A., & Sanderson, K. (2013). Psychological distress, related work attendance, and productivity loss in small-to-medium enterprise owner/managers. *International Journal of Environmental Research and Public Health, 10*, 5062–5082.
- Coutu, D.L. (2002). How resilience works. *Harvard Business Review, 80*, 46–56.
- Davidsson, P. (2016). A “business researcher” view on opportunities for psychology in entrepreneurship research. *Applied Psychology, 65*, 628–636.
- Dawson, C. (2017). Financial optimism and entrepreneurial satisfaction. *Strategic Entrepreneurship Journal, 11*, 171–194.
- Dees, J.G. (1998). Enterprising nonprofits. *Harvard Business Review, 76*, 54–69.
- Denovan, A., & Macaskill, A. (2017). Stress, resilience and leisure coping among university students: Applying the broaden-and-build theory. *Leisure Studies, 36*, 852–865.
- Drnovšek, M., Cardon, M.S., & Patel, P.C. (2016). Direct and indirect effects of passion on growing technology ventures. *Strategic Entrepreneurship Journal, 10*, 194–213.
- Drnovšek, M., Örtqvist, D., & Wincent, J. (2010). The effectiveness of coping strategies used by entrepreneurs and their impact on personal well-being and venture performance. *Proceedings of Rijeka Faculty of Economics, 28*, 193–220.
- Duncan-Jones, P., Fergusson, D.M., Ormel, J.O., & Horwood, L.J. (1990). A model of stability and change in minor psychiatric symptoms: Results from three longitudinal studies. *Psychological Medicine (Monograph Suppl.)*, 18, 3–28.
- Dutton, J.E., & Jackson, S.E. (1987). Categorizing strategic issues: Links to organizational action. *Academy of Management Review, 12*, 76–90.
- Dweck, C.S. (2008). *Mindset: The new psychology of success*. New York, NY: Ballantine Books.
- Epskamp, S., & Stuber, S. (2014). SemPlot: Path diagrams and visual analysis of various SEM packages’ output. R package version.
- Fernet, C., Torrs, O., Austin, S., & St-Pierre, J. (2016). The psychological costs of owning and managing an SME: Linking job stressors, occupational loneliness, entrepreneurial orientation, and burnout. *Burnout Research, 3*, 45–53.
- <sup>†</sup>Ferris, D.L., Brown, D.J., Berry, J.W., & Lian, H. (2008). The development and validation of the workplace Ostracism scale. *Journal of Applied Psychology, 93*, 1348–1366.
- Foo, M.-D., Uy, M.A., & Baron, R.A. (2009). How do feelings influence effort? An empirical study of entrepreneurs’ affect and venture effort. *Journal of Applied Psychology, 94*, 1086–1094.
- Forbes, D.P. (2005). The effects of strategic decision making on entrepreneurial self-efficacy. *Entrepreneurship Theory and Practice, 29*, 599–626.
- Freeman, M.A., Staudenmaier, P.J., Zisser, M.R., & Andresen, L.A. (2018). The prevalence and co-occurrence of psychiatric conditions among entrepreneurs and their families. *Small Business Economics, 1–20*.
- Frese, M., & Gielnik, M.M. (2014). The psychology of entrepreneurship. *Annual Review of Organizational Psychology and Organizational Behavior, 1*, 413–438.

- Geil, M.A., & Greenwald, J. (2020). An investigation of characteristics of effective global leaders. *Journal of Business & Industrial Marketing*. <http://dx.doi.org/10.1108/jbim-01-2019-0035>
- Gielnik, M.M., Spitzmuller, M., Schmitt, A., Klemann, D.K., & Frese, M. (2015). "I put in effort, therefore I am passionate:" Investigating the path from effort to passion in entrepreneurship. *Academy of Management Journal*, *58*, 1012–1031.
- Gilstrap, R., & Greenwald, J.M. (2016). *Creating an inimitable resource: An analysis of engagement, core confidence, and performance*. Paper presented at Midwest Academy of Management, Fargo, N.D.
- Goldberg, L.R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. *Personality Psychology in Europe*, *7*–28.
- Gorgievski, M.J., Bakker, A.B., Schaufeli, W.B., van der Veen, H.B., & Giesen, C.W. (2010). Financial problems and psychological distress: Investigating reciprocal effects among business owners. *Journal of Occupational and Organizational Psychology*, *83*, 513–530.
- Gorgievski, M., & Stephan, U. (2016). Advancing the psychology of entrepreneurship: Review of the psychological literature and an introduction. *Applied Psychology*, *65*, 437–468.
- Gorgievski-Duijvesteijn, M., Giesen, C., & Bakker, A. (2000). Financial problems and health complaints among farm couples: Results of a 10-yr follow-up study. *Journal of Occupational Health Psychology*, *5*, 359–373.
- Gorgievski-Duijvesteijn, M.J., Bakker, A.B., Schaufeli, W.B., & van der Heijden, G.M. (2005). Finances and well-being: A dynamic equilibrium model of resources. *Journal of Occupational Health Psychology*, *10*, 210–224.
- Greenwald, J.M. (2010). Antecedents of core confidence latent construct: Direct and reciprocal links. *Dissertation Abstracts International Section A*, *72*, 270.
- Gump, B.B., & Kulik, J.A. (1997). Stress, affiliation, and emotional contagion. *Journal of Personality and Social Psychology*, *72*, 305–319.
- Hassin, R.R., Aarts, H., & Ferguson, M.J. (2005). Automatic goal inferences. *Journal of Experimental Social Psychology*, *41*, 129–140.
- Heady, B., & Wearing, A. (1989). Personality, life events, and subjective well-being: Toward a dynamic equilibrium model. *Journal of Personality and Social Psychology*, *57*, 731–739.
- Hessels, J., Rietveld, C.A., & Van der Zwan, P. (2017). Self-employment and work-related stress: The mediating role of job control and job demand. *Journal of Business Venturing*, *32*, 178–196.
- <sup>†</sup>Hinkin, T.R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*, 104–121.
- Hisrich, R., Langan-Fox, J., & Grant, S. (2007). Entrepreneurship research and practice: A call to action for psychology. *American Psychologist*, *62*, 575–589.
- Hmieleski, K.M., & Baron, R.A. (2009). Entrepreneurs' optimism and new venture performance: A social cognitive perspective. *Academy of Management Journal*, *52*, 473–488.

- Hmieleski, K.M., & Corbett, A.C. (2008). The contrasting interaction effects of improvisational behavior with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction. *Journal of Business Venturing, 23*, 482–496.
- Holden, L., Scuffham, P., Hilton, M., Vecchio, N., & Whiteford, H. (2010). Psychological distress is associated with a range of high-priority health conditions affecting working Australians. *Australian and New Zealand Journal of Public Health, 34*, 304–310.
- Holdorf, W.E., & Greenwald, J.M. (2018). Toward a taxonomy and unified construct of responsibility. *Personality and Individual Differences, 132*, 115–125.
- <sup>†</sup>Judge, T.A., Erez, A., Bono, J.E., & Thoresen, C.J. (2003). The core self-evaluations scale: Development of a measure. *Personnel Psychology, 56*, 303–331.
- Kessler, R.C., Andrews, G., Colpe, L.J., Hiripi, E., Mroczek, S., Normand, L.T., Walters, E.E., & Zaslavsky, A.M. (2002). Short screening scales to monitor population prevalence and trends in non-specific psychological distress. *Psychological Medicine, 32*, 959–976.
- Kessler, R.C., Price, H., & Wortman, C.B. (1985). Social factors in psychopathology: Stress, social support and coping processes. *Annual Review of Psychology, 36*, 531–572.
- Krauss, S.I., Frese, M., Friedrich, C., & Unger, J.M. (2005). Entrepreneurial orientation: A psychological model of success among southern African small business owners. *European Journal of Work and Organizational Psychology, 14*, 315–344.
- Krueger, N. (2003). Thinking entrepreneurially: Entrepreneurial cognition. In Z. Acs (Ed.) *International handbook of entrepreneurship*. Dordrecht, the Netherlands: Kluwer.
- Krueger, N. Jr. (2007). What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship Theory and Practice, 31*, 123–138.
- Krueger, N.F. (2017). Entrepreneurial intentions are dead: Long live entrepreneurial intentions. In M. Brännback & A. Carsrud (Eds.), *Revisiting the entrepreneurial mind* (Vol. 35, pp. 13–34). Cham: Springer.
- Larsen, R.J. (2000). Toward a science of mood regulation. *Psychological Inquiry, 11*, 129–141.
- Latham, G.P. (2012). *Work motivation: History, theory, research, and practice*. Thousand Oaks, CA: Sage Publications.
- Law, K.S., Wong, C.S., & Mobley, W.M. (1998). Toward a taxonomy of multidimensional constructs. *Academy of Management Review, 23*, 741–755.
- Lechat, T., & Torrs, O. (2017). Stressors and satisfactors in entrepreneurial activity: An event-based, mixed methods study predicting small business owners' health. *International Journal of Entrepreneurship and Small Business, 32*, 537–569.
- Linderman-Hill, K. and Greenwald, J.M. (2019). The effect of trait core confidence on the relationship between job characteristics and engagement. *Academy of Management Proceedings* (No. 1, p. 12926). Briarcliff Manor, NY 10510: Academy of Management.
- Luthans, F., & Youssef, C.M. (2004). Human, social, and now positive psychological capital management: Investing in people for competitive advantage. *Organizational Dynamics, 33*, 143–160.



- Magee, W., & St-Arnaud, S. (2012). Models of the joint structure of domain-related and global distress: Implications for the reconciliation of quality of life and mental health perspectives. *Social Indicators Research, 105*, 161–185.
- Marano, H.E. (2003). Even CEOs get the blues. *Psychology Today*. Retrieved from <https://www.psychologytoday.com/articles/200303/even-ceos-get-the-blues>.
- Massé, R., Poulin, C., Dassa, C., Lambert, J., Bélair, S., & Battaglini, A. (1998). The structure of mental health: Higher-order confirmatory factor analyses of psychological distress and well-being measures. *Social Indicators Research, 45*, 475–504.
- Massé, R. (2000). Qualitative and quantitative analysis of idioms of distress: Complementarity or incommensurability of ethnosemantic, content and confirmatory factor analyses. *Qualitative Health Research, 10*, 411–423.
- Mathiesen, E.F., Nome, S., Eisemann, M., & Richter, J. (2012). Drinking patterns, psychological distress and quality of life in a Norwegian general population-based sample. *Quality of Life Research, 21*, 1527–1536.
- McGee, J.E., Peterson, M., Mueller, S.L., & Sequeira, J.M. (2009). Entrepreneurial self-efficacy: Refining the measure. *Entrepreneurship Theory and Practice, 33*, 965–988.
- McMullen, J.S., & Shepherd, D.A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review, 31*, 132–152.
- Mitchell, R.K., Busenitz, L., Lant, T., McDougall, P.P., Morse, E.A., & Smith, J.B. (2002). Toward a theory of entrepreneurial cognition: Rethinking the people side of entrepreneurship research. *Entrepreneurship Theory and Practice, 27*, 93–104.
- Motowidlo, S.J., Packard, J.S., & Manning, M.R. (1986). Occupational stress: Its causes and consequences for job performance. *Journal of Applied Psychology, 71*, 618–629.
- Onwuegbuzie, A.J., & Snyder, C. (2000). Relations between hope and graduate students' coping strategies for studying and examination-taking. *Psychological Reports, 86*, 803–806.
- Ormel, J.O., & Schaufeli, W.B. (1991). Stability and change in psychological distress and their relationship with self esteem and locus of control: A dynamic equilibrium model. *Journal of Personality and Social Psychology, 60*, 288–299.
- Ormel, J.O., & Wohlfahrt, T. (1991). How neuroticism, long-term difficulties, and life situation change influence psychological distress: A longitudinal model. *Journal of Personality and Social Psychology, 60*, 744–755.
- Örtqvist, D., Drnovsek, M., & Wincent, J. (2007). Entrepreneurs' coping with challenging role expectations. *Baltic Journal of Management, 2*, 288–304.
- Parslow, R.A., Jorm, A.F., Christensen, H., Rodgers, B., Strazdins, L., & D'Souza, R.M. (2004). The associations between work stress and mental health: A comparison of organizationally employed and self-employed workers. *Work & Stress, 18*, 231–244.
- Patzelt, H., & Shepherd, D.A. (2011). Negative emotions of an entrepreneurial career: Self-employment and regulatory coping. *Journal of Business Venturing, 26*, 226–238.
- Peterson, C. (2000). The future of optimism. *American Psychologist, 55*, 44–55.

- Pinder, C.C. (1998). *Work motivation in organizational behavior*. Upper Saddle River, NJ: Prentice Hall.
- Prins, S.J., Bates, L.M., Keyes, K.M., & Muntaner, C. (2015). Anxious? Depressed? You might be suffering from capitalism: Contradictory class locations and the prevalence of depression and anxiety in the USA. *Sociology of Health and Illness*, 37, 1352–1372.
- Rosseel, Y. (2012). *Lavaan: An R package for structural equation modeling and more*. Version 0.5–12 (BETA). Ghent, Belgium: Ghent University.
- SAMHSA: Substance Abuse and Mental Health Services Administration. (2018). *Key substance use and mental health indicators in the United States: Results from the 2017 National Survey on Drug Use and Health* (HHS Publication No. SMA 18–5068, NSUDH Series H-53). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHFFR2017/NSDUHFFR2017.pdf>.
- Schachter, S. (1959). *The Psychology of Affiliation*, Stanford, CA: Stanford University Press.
- <sup>+</sup>Scheier, M.F., & Carver, C.S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology*, 4, 219–247.
- Schmitt, A., Gielnik, M.M., Zacher, H., & Klemann, D.K. (2013). The motivational benefits of specific versus general optimism. *Journal of Positive Psychology*, 8, 425–434.
- Schonfeld, I.S., & Mazzola, J.J. (2015). A qualitative study of stress in individuals self-employed in solo businesses. *Journal of Occupational Health Psychology*, 20, 501–513.
- <sup>+</sup>Schwab, D.P. (1980). Construct validity in organizational behavior. *Research in Organizational Behavior*, 2, 3–43.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25, 217–226.
- Shepherd, D.A. (2015). Party on! A call for entrepreneurship research that is more interactive, activity based, cognitively hot, compassionate, and prosocial. *Journal of Business Venturing*, 30, 489–507.
- Snyder, C.R. (2000). *Handbook of hope: Theory, measures, and applications*. San Diego, CA: Academic Press.
- <sup>+</sup>Snyder, C.R., Cheavens, J., & Sympson, S.C. (1997). Hope: An individual motive for social commerce. *Group Dynamics: Theory, Research, and Practice*, 1, 107–118.
- Sörensson, A., & Dalborg, C. (2017). Female entrepreneurs in nature-based businesses: Working conditions, well-being, and everyday life. *Society, Health & Vulnerability*, 8, 1306905.
- Souitaris, V. (2005). *The value-added of entrepreneurship education*. Paper presented at the Academy of Management annual meetings, Honolulu, HI.
- Southwick, S.M., & Charney, D.S. (2012). The science of resilience: Implications for the prevention and treatment of depression. *Science*, 338, 79–82.
- Stajkovic, A.D. (2003). *Introducing positive psychology to work motivation: Development of a core confidence model*. Paper presented at the Academy of Management, Seattle, WA.

- Stajkovic, A.D. (2006). Development of a core confidence-higher order construct. *Journal of Applied Psychology, 91*, 1208–1224.
- Stajkovic, A.D., Bandura, A., Locke, E.A., Lee, D., & Sergent, K. (2018). Test of three conceptual models of influence of the big five personality traits and self-efficacy on academic performance: A meta-analytic path-analysis. *Personality and Individual Differences, 120*, 238–245.
- Stajkovic, A.D., Lee, D., Greenwald, J.M., & Raffiee, J. (2015). The role of trait core confidence higher-order construct in self-regulation of performance and attitudes: Evidence from four studies. *Organizational Behavior and Human Decision Processes, 128*, 29–48.
- Stephan, U. (2018). Entrepreneurs' mental health and well-being: A review and research agenda. *Academy of Management Perspectives, 32*, 290–322. <https://doi.org/10.5465/amp.2017.0001>
- Stephan, U., & Drencheva, A. (2017). The person in social entrepreneurship: A systematic review of research on social entrepreneurial personality. In T.K.G. Ahmetoglu, T. Chamorro-Premuzic, & B. Klinger (Eds.) *The Wiley handbook of entrepreneurship* (pp. 205–30). Chichester, UK: Wiley.
- Strenger, C., & Burak, J. (2005). The Leonardo effect: Why entrepreneurs become their own fathers. *International Journal of Applied Psychoanalytic Studies, 2*, 103–128.
- Uy, M.A., Foo, M.-D., & Song, Z. (2013). Joint effects of prior start-up experience and coping strategies on entrepreneurs' psychological well-being. *Journal of Business Venturing, 28*, 583–597.
- Van Praag, C.M., & Versloot, P.H. (2008). The economic benefits and costs of entrepreneurship: A review of the research. *Foundations and Trends in Entrepreneurship, 4*, 65–154.
- von Bertalanffy, L. (1975). *Perspectives on general systems theory: Scientific-philosophical studies*. New York, NY: Braziller.
- Wach, D., Stephan, U., & Gorgievski, M. (2016). More than money: Developing an integrative multi-factorial measure of entrepreneurial success. *International Small Business Journal, 34*, 1098–1121.
- <sup>+</sup>Wagnild, G., & Young, H. (1993). Development and psychometric. *Journal of Nursing Measurement, 1*, 165–17847.
- Weinberger, E., Wach, D., Stephan, U., & Wegge, J. (2018). Having a creative day: Understanding entrepreneurs' daily idea generation through a recovery lens. *Journal of Business Venturing, 33*, 1–19.
- Welter, F. (2011). Contextualizing entrepreneurship—Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice, 35*, 165–184.
- Williams, A.M., May, P.E., Mason, S.T., Wang, C., & Pomana, L. (2016). Quality of life across medical conditions and psychological factors: Implications for population health management. *Quality of Life Research, 25*, 1475–1485.
- Wincent, J., & Örtqvist, D. (2009). A comprehensive model of entrepreneur role stress antecedents and consequences. *Journal of Business and Psychology, 24*, 225–243.
- Wirback, T., Möller, J., Larsson, J.O., Galanti, M.R., & Engström, K. (2014). Social factors in childhood and risk of depressive symptoms among adolescents—a longitudinal study in Stockholm, Sweden. *International Journal for Equity in Health, 13*, 96.

- Zahra, S.A., & Wright, M. (2011). Entrepreneurship's next act. *Academy of Management Perspectives*, 25, 67–83.
- Zbierowski, P. (2014). Well-being of entrepreneurs—International comparison based on GEM data. *Journal of Positive Management*, 5, 89–100.
- Zhao, H., Seibert, S.E., & Hills, G.E. (2005). The mediating role of self-efficacy in development of entrepreneurial intentions. *Journal of Applied Psychology*, 90, 1265–1272.

## SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article at the publisher's web site.

## Online Appendix

### Scale Validation for Trait Core Confidence Scale

*Trait Core Confidence.* We ensured the scale included items that succinctly captured the content domains of the four manifest variables of core confidence (see scale in Table 1 of the manuscript). As empirical tests of construct validity of the new measure, we focused on these five measure characteristics, which are necessary to ascertain construct validity: (1) reliability, (2) factor dimensionality, (3) convergent validity, (4) discriminant validity, and (5) criterion-related validity. First, we assessed reliability through internal consistency and temporal stability. Temporal stability is particularly relevant given the trait-like nature of core confidence. Second, we examined factor structure of the scale with principle component analysis. Consistent with the nature of the construct representing a core of manifest variables, we expected one-factor scale dimensionality. Third, we assessed convergent validity of the new scale by its factor correlations with the four manifest variables and a related construct, core-self-evaluations (CSE), in CFA. See Table 1A for assessments of reliability, factor dimensionality, and convergent validity.

[Insert Table 1A about here]

Fourth, we tested discriminant validity of the new scale by first constructing a 7-factor measurement model of core confidence, four manifest variables, core self-evaluation as another theoretically related variable, and task interdependence as a theoretically unrelated variable. We then conducted chi-square difference tests comparing the 7-factor model with constrained models in which core confidence and each of the five related variables (four manifest and CSE) were merged together. The results of discriminant validity assessment are reported in Table 2A.

[Insert Table 2A about here]

Finally, we tested criterion-related, or incremental predictive validity of the scale, using job performance of car salespersons as the criterion. We examined whether core confidence makes a unique contribution in predicting performance over 5 months, controlling for such variables as past performance and CSE. These results are presented in Table 3A.

[Insert Table 3A about here]

Together, the new scale demonstrated satisfactory results in all five tests necessary for construct validity. It showed high internal consistency reliability and consistent single factor solution across six samples. It also indicated high test-retest reliability over both short (5 day) and longer (5 week) time-intervals, high convergent validity with the four manifest variables and CSE, discriminant validity from those theoretically related but distinct constructs, and significant criterion-related validity by incrementally predicting job performance over a five-month period.

***Psychological distress.*** We assessed model goodness-of-fit (MGFI) for the second-order latent measurement model of psychological distress. Different MGFI use different estimation procedures and are not always directly comparable. Therefore, we report multiple MGFI (Bollen, 1989). First, the Bentler-Bonett Non-Normed Fit Index (NFI) (also known as the Tucker-Lewis Index) represents the proportion of improvement in fit relative to the null model. Suggested value indicating good model fit is  $NFI > .90$ . The Comparative Fit Index is another incremental fit index, with the same suggested value  $CFI > .90$ . CFA indicated good incremental model fit for Friday, [NFI = 0.86, CFI = 0.98] and Sunday, [NFI = 0.91, CFI = 0.96].

Second, model fit based on residuals estimate the magnitude of the difference between the fully-identified model and the estimated model and are typically represented by two indexes: GFI (goodness-of-fit index) and AGFI (adjusted goodness of fit index). The GFI represents the proportion of covariance explained, and the AGFI is its adjusted for cross-validation version

(thus, it is always smaller). Suggested value indicating good model fit for both is  $> .90$ . CFA indicated good model fit based on residuals for psychological distress second-order factor model for Friday, [GFI = 0.96, AGFI = .92], and for Sunday [GFI = 0.95, AGFI = 0.90].

Third, population error of approximation model fit is typically represented by RMSEA (root-mean error of approximation) index, a standardized version of the population discrepancy function. Suggested value indicating good model fit is  $RMSEA < .10$ . CFA indicating good model fit for this measure on Friday,  $RMSEA = 0.055$  [90% CI: 0.00, 0.099], and on Sunday,  $RMSEA = 0.074$  [90% CI: 0.028, 0.116]. Finally, the standardized root mean-square residual (SRMR) is an absolute measure of fit and is defined as the standardized difference between the observed and predicted correlation. Suggested value indicating good model fit is  $< 0.08$ . CFA indicated good model fit for Friday,  $SRMR = 0.042$ , and Sunday,  $SRMR = 0.069$ .

*Model comparisons.* To determine if hypothesized model of psychological distress fit the data, we compared it to four alternative nested models. In the first three models, psychological distress remained a second-order factor, but we used different combinations of items to model two first-order factors: Model 1 combined stress and depression items into one factor with anxiety items as the second factor, and the hypothesized model continued to be a better fit,  $\Delta\chi^2 = 100.7$ ,  $\Delta df = 1$ ,  $p < .001$ ; Model 2 combined anxiety and depression items into one factor with stress items as the second factor, and the hypothesized model was a better fit,  $\Delta\chi^2 = 54.98$ ,  $\Delta df = 1$ ,  $p < .001$ ; and Model 3 combined stress and anxiety together as one factor with depression as the second factor, and the hypothesized model was a better fit,  $\Delta\chi^2 = 85.96$ ,  $\Delta df = 1$ ,  $p < .001$ . Alternative Model 4 tested psychological distress as a first-order factor with items from stress, anxiety, and depression loading onto a single factor, and the hypothesized model continued to be a better fit,  $\Delta\chi^2 = 147.66$ ,  $\Delta df = 2$ ,  $p < .001$ . The hypothesized model fit the data better than all



alternative models for Friday psychological distress (as reported above) as well as for Sunday psychological distress: (Model 1,  $\Delta\chi^2 = 140$ ,  $\Delta df = 1$ ,  $p < .001$ ), (Model 2,  $\Delta\chi^2 = 59.62$ ,  $\Delta df = 1$ ,  $p < .001$ ), (Model 3,  $\Delta\chi^2 = 61.06$ ,  $\Delta df = 1$ ,  $p < .001$ ), (Model 4,  $\Delta\chi^2 = 132.44$ ,  $\Delta df = 2$ ,  $p < .001$ )].

This evidence supports our conception of psychological distress as a second-order latent factor.

Table 1A

*Trait Core Confidence Scale Validation*

					Internal Consistency	Dimensionality			Test-re-test Reliability			Convergent Validity Confirmatory Factor Analysis			
						$\alpha$	$\Phi$	Principle Component Analysis % of total-item variance	Interval	$\alpha$		Factor Loading of Six Items on TCC Scale <sup>6</sup>	<i>r</i>		
TCC Measure 1	TCC 1	TCC 2	TCC 2	TCC 1 & 2	Average [lowest, highest]								TCC and manifest variables <sup>7</sup>	Among the manifest variables	TCC and core self-evaluation <sup>8</sup>
<i>n</i>	Participant Type	<i>M</i> <sub>age</sub>	% F												
1	271	Student <sup>1</sup>	23.48	49	0.89	1	63.98	-	-	-	-				
2	34	Employee <sup>2</sup>	46.73	53	0.88	1	63.52	62.9	5 days	0.87	0.93				
3	196	Student <sup>1</sup>	22.51	48	0.83	1	54.58	62.01	5 weeks	0.88	0.76				
4	339	Student <sup>3</sup>	21.09	52	0.88	1	61.76					.73 [.61, .83]**	0.75	0.67	
5	1592	Employee <sup>4</sup>	51.72	78	0.85	1	57.78					.70 [.55, .83]**	0.65	0.66	
6	102	Employee <sup>5</sup>	45.45	10	0.95	1	80.98					.86 [.72, .94]**	.72**	0.68	0.66

\*\*  $p < .01$ <sup>Φ</sup> Number of factor solutions<sup>1</sup> Undergraduates at a Southwestern university in the United States<sup>2</sup> Employees at a multinational company in Midwestern U.S. that specializes in the design and the production of technological solutions for the aerospace and defense industries.<sup>3</sup> Undergraduates at a Midwestern university in the United States.<sup>4</sup> Employees in a nonprofit and governmental organization. This sample was collected using a membership database from a large national nonprofit association. Employee positions ranged from school district superintendents, purchasing agents, church pastors, teachers, and administrative assistants, to presidents of large nonprofit organizations.<sup>5</sup> Employees were sales associates employed by a privately held, retail auto company, with annual revenues of approximately \$500 million. The auto company operates 20 car dealerships in 16 cities in North America (the Midwest and Eastern United States as well as one in Canada). Through consultations with managers and human resource officers at dealerships, we determined that the jobs of the sales associates were similar across all dealerships as car sales is the essential function of the organization. We disseminated surveys to all 189 sales associates employed through email addresses provided by the company, and usable surveys were returned by 142 salespersons (75% response rate). Job performance data were obtained from company records and were available for only 102 of the 142 respondents for the period of five months following survey data collection.<sup>6</sup> Initially 30 items were generated to cover core confidence as indicated by the four manifest variables. To reduce the number of items, we used a deductive approach (Hinkin, 1998; Schwab, 1980). Specifically, each item was screened for its depiction of confidence in relation to goals (Stajkovic, 2006) because confidence relies on its relationship to goals. Next, following Ferris, Brown, Berry, and Lian (2008), we eliminated redundant items. This process led us to the final six items (see Table 4).<sup>7</sup> Trait hope was measured with the 8-item hope scale from Snyder, Cheavens, & Sympson (1997); ( $\alpha$ ) reliabilities were .89, .85, and .79. General self-efficacy was measured with the 8-item scale from Chen, Gully, and Eden (2001); ( $\alpha$ ) reliabilities were .93, .92, and .92. Trait optimism was measured with the 8-item scale from Scheier and Carver (1985); ( $\alpha$ ) reliabilities were .80, .80, and .83. Dispositional resilience was measured with the 25-item scale from Wagnild and Young (1993); ( $\alpha$ ) reliabilities were .90, .92, and .89.<sup>8</sup> This trait was measured with the 12-item Core Self-Evaluation Scale from Judge, Erez, Bono, and Thorensen (2003); ( $\alpha$ ) reliability was .88.

Table 2A

*Discriminant Validity Tested in Sample 6*

Model <sup>1</sup>	$\chi^2$ (df)	$\Delta\chi^2$ ( $\Delta df$ )	RMSEA	NFI	CFI	SRMR
Original 7-factor model	305.65 (254)		0.045	0.95	0.99	0.049
Model with core confidence & hope merged	354.00 (260)	48.35 (6)**	0.06	0.95	0.98	0.058
Model with core confidence & general-efficacy merged	517.88 (260)	212.23 (6)**	0.099	0.93	0.97	0.069
Model with core confidence & optimism merged	464.20 (260)	158.55 (6)**	0.088	0.93	0.97	0.081
Model with core confidence & resilience merged	502.15 (260)	199.50 (6)**	0.096	0.93	0.97	0.075
Model with core confidence & core self-evaluations merged	445.36 (260)	139.71 (6)**	0.084	0.97	0.97	0.078

*Note.* RMSEA = root mean square error of approximation; NFI = normed fit index; CFI = comparative fit index; SRMR = standardized root mean square residual.

<sup>1</sup> For discriminant validity, we measured core self-evaluation and task interdependence and compared the proposed 7-factor measurement model with more constrained alternative models. Merging confidence and each of the five theoretically related variables (four manifest and CSE) resulted in five model comparisons. A chi-square difference test revealed that the original model fitted the data significantly better in all comparisons, indicating that confidence is not redundant with its manifest variables or CSE. These results indicate that core confidence cannot be replaced by any of the related variables even though it is theoretically and empirically associated with them. We also examined the latent factor correlation between confidence and task interdependence, a theoretically unrelated variable. The factor correlation was negligible ( $\phi = -.03$ ,  $p > .70$ ). This result demonstrates discriminant validity, in that the measure of TCC was unrelated to a variable it is supposed to be unrelated to, and it also helps rule out the alternative explanation that the correlations between TCC and related variables were due to common method variance.

Table 3A

*Predictive Validity for Job Performance over 5 Months in Sample 6*

Variable	Model 1	Model 2 <sup>1</sup>
Age	-0.01	-0.02
Gender	-0.03	-0.01
Organizational tenure	-0.05	-0.03
Industry experience	-0.11	-0.09
Past performance	0.83**	0.84**
Core self-evaluations	0.03	-0.04
Trait core confidence		0.14*
R <sup>2</sup>	0.69**	0.71**
$\Delta R^2$		0.02*

Note.  $N = 102$ . Standardized coefficients are reported.

\*  $p < .05$ . \*\*  $p < .01$ .

<sup>1</sup> TCC predicted job performance in the presence of core self-evaluations ( $\beta = .14$ ,  $p < .05$ ), past performance, age, gender, organizational tenure, and industry experience. A significant change in the explained variance of job performance ( $\Delta R^2 = .02$ ,  $p < .05$ ) when TCCS was included in the model indicated that core confidence made a unique contribution to predicting job performance beyond the control variables (Model 2). In addition, past performance predicted (subsequent) job performance, but core self-evaluations did not. Considering these analyses, our findings indicate that TCCS contributed to the prediction of job performance above and beyond other related measures.

