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The search for explanatory mechanisms: psychological capital does not mediate the relations of entrepreneurial personality with its outcomes

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ABSTRACT

Entrepreneurial Personality (EP) is a collection of traits that make someone entrepreneurial and result in an inclination toward entrepreneurship. Due to its nascency, the explanatory mechanisms linking EP to its outcomes remain undiscovered, hampering scholarly investigations and practical applications. To resolve this tension, the current article heeds the calls of recent authors to integrate Psychological Capital (PsyCap) into the study of personality and entrepreneurship across the different stages of the entrepreneurial process (e.g. entry and management). By administrating two three-wave surveys, one to non-business owners and the other to business owners, our results show that both EP and PsyCap relate to entrepreneurial outcomes, but PsyCap is surprisingly not a viable explanatory mechanism for the relations of EP with its outcomes. While both EP and PsyCap are important to the entrepreneurial process, they play independent roles. Our discussion points researchers toward other theoretical lenses for the study of EP and PsyCap, namely behavioral learning theories. We also recommend that our investigation should be utilized as a template for leveraging nonsignificant results to advance theory-building and transparency, which has been a repeated call across many disciplines to strengthen both research and practice.

RÉSUMÉ

La personnalité entrepreneuriale (PE) est un ensemble de caractéristiques qui rendent une personne entrepreneuriale et la prédisposent à l'entrepreneuriat. En raison de son caractère naissant, les mécanismes explicatifs reliant la PE à ses résultats restent inconnus, ce qui entrave les recherches universitaires et les applications pratiques. Afin de résoudre cette tension, le présent article répond aux appels lancés par des auteurs récents en faveur de l'intégration du capital psychologique (PsyCap) dans l'étude de la personnalité et de l'entrepreneuriat à travers les différentes étapes du processus entrepreneurial (par exemple, l'entrée et la gestion). En conduisant deux enquêtes en trois vagues, l'une auprès de personnes non propriétaires d'entreprise et l'autre auprès de propriétaires d'entreprise, nous révélons que la PE et le PsyCap sont tous deux liés aux résultats entrepreneuriaux, mais que, de

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manière surprenante, le PsyCap n'est pas un mécanisme explicatif viable pour les relations entre la PE et ses résultats. Bien que la PE et le PsyCap soient tous les deux importants dans le processus entrepreneurial, ils jouent des rôles indépendants. Notre discussion oriente les chercheurs vers d'autres perspectives théoriques pour l'étude de la PE et du PsyCap, à savoir les théories comportementales d'apprentissage. Nous recommandons également que notre étude serve de modèle pour tirer parti des résultats non significatifs afin de faire progresser la construction théorique et la transparence, ce qui a été demandé à maintes reprises dans de nombreuses disciplines afin de renforcer à la fois la recherche et la pratique.

For decades, authors criticized the study of personality and entrepreneurship (Baum et al. 2014; Brockhaus & Horwitz, 2002; Gartner, 1988). These authors found other predictors to more strongly relate to entrepreneurial outcomes, believing that these other predictors better detail the entrepreneurship process. Recent years, however, have seen a resurgence of the study of entrepreneurship and personality (Clark et al. 2024; Howard, 2023; Schuh et al. 2024). These more recent authors recognize that other domains of business scholarship acknowledge the predictive capabilities of personality. For instance, the domains of management and human resources have known for decades that personality should be a part of the personnel selection process, as it aids in identifying who will be a better employee (see Salgado & De Fruyt, 2017). Although personality may not predict outcomes as strongly as certain other predictors, researchers of entrepreneurship now acknowledge that accounting for the variance explained by personality is preferred to ignoring its predictive abilities, even if it is somewhat incremental beyond other predictors (Clark et al. 2024; 2025; Freeman et al. 2024; Howard, 2023; Postigo et al. 2021; Singh et al. 2025). For this reason, the study of personality and entrepreneurship is expected to only grow in the future, with Entrepreneurial Personality (EP) emerging as a particularly promising conceptualization of traits relevant to entrepreneurship.

EP is a collection of the traits that make someone entrepreneurial and result in an inclination toward entrepreneurship (Altinay et al. 2022; De Vries, 1977; Vandor, 2021; Watson et al. 2020) *via* meta-analysis (Howard & Boudreaux, 2024) and scale development (Howard, 2023), EP has been supported to include seven traits: innovativeness, risk-taking propensity, achievement orientation, proactiveness, locus of control, (trait) self-efficacy, and autonomy orientation. As described by Howard (2023),

> 'An entrepreneurial person is forward-thinking and identifies opportunities (proactiveness). Because opportunities rarely have clear outcomes, and the person must also be willing to take risks (risk-taking propensity) and try new things (innovativeness). Entrepreneurship is often discouraging, however, and the person needs to believe that they control their future (locus of control), believe that they can achieve their goals (self-efficacy), and have a drive for achieving their goals (achievement orientation). Lastly, entrepreneurs must be comfortable with making decisions for themselves and others (autonomy orientation)' (p. 3).

Two conceptualizations have been proposed for the relations of EP's dimensions with entrepreneurial outcomes (Chapman, 2000; Howard, 2023; Rauch & Frese, 2007). The first is the Pillar Conceptualization, which proposes that the dimensions of EP broadly relate to all entrepreneurial outcomes. Their relations can be thought of as pillars holding up a ceiling; their effects are important at all times. The second conceptualization is the Wheel Conceptualization, which proposes that the dimensions of EP produce varying relations with entrepreneurial outcomes that depend on the phase of the entrepreneurial process. Their relations can be thought of as spokes in a wheel; their effects are important only at some times. Across five samples, Howard (2023) empirically supported the Wheel Conceptualization. The dimensions of innovativeness, risk-taking propensity, achievement orientation, and autonomy orientation relate to outcomes associated with earlier phases of the entrepreneurial process (e.g. entrepreneurial attitudes, intent, and status), whereas the dimensions of proactiveness, locus of control, and trait self-efficacy relate to outcomes associated with latter phases of the entrepreneurial process (e.g. entrepreneurial performance and entrepreneur well-being) (Howard, 2023).

Due to its nascency, no explanatory mechanism has been identified to understand the relations of EP. While EP is known to relate to important outcomes, it is unclear why it relates to those outcomes. This uncertainty hampers both scholarly investigations and practical applications. In research, it is presently difficult to ascertain which theories are viable lenses to investigate EP due to the lack of identified explanatory mechanisms. EP may be more closely associated with motivation theories (e.g. self-determination theory) (Ryan & Deci, 2020), resource-based theories (e.g. conservation of resources theory) (Halbesleben et al. 2014), or other perspectives (Kuratko, 2016), and research progress can be stifled without identifying applicable theory. In practice, it is difficult to harness the benefits of EP without clear insights into how it impacts the entrepreneurial process. While more refined perspectives have been developed regarding the influence of other conceptualizations of personality that are less central to entrepreneurship (e.g. Big Five) (Zhao & Seibert, 2006), it cannot be assumed that practices, procedures, and interventions developed from these conceptualizations can generalize to EP.

In a related but largely independent research stream, several authors have called for the integration of Psychological Capital (PsyCap) into the study of personality and entrepreneurship to provide novel theoretical insights and broad directions for future research (Bockorny & Youssef-Morgan, 2019; Chatterjee et al. 2022; Welter & Scrimpshire, 2021). PsyCap is a multidimensional construct reflecting expectations of success and positive outcomes, and it includes the dimensions of hope, resilience, optimism, and (state) self-efficacy[1] (Avey, 2014; Luthans et al. 2015; Newman et al. 2014). These authors propose that PsyCap is a valuable personal resource, and it could benefit both research and practice to identify which individual differences influence its occurrence to improve our understanding of related adaptive outcomes.

These authors further propose that PsyCap is essential to goal striving, and it may be key in understanding how people navigate the entrepreneurial process—or choose to avoid or abandon it (Bockorny & Youssef-Morgan, 2019; Chatterjee et al. 2022; Welter & Scrimpshire, 2021). Namely, researchers have demonstrated that PsyCap

and its representative dimensions, such as resilience, influence whether people succeed in specific types of entrepreneurial endeavors and within certain contexts, namely difficult circumstances benefited by those who can maintain positive expectations. For instance, resilience has been shown to play a central role in entrepreneurial reentry after failure (Al-Alawi et al. 2025; Corner et al. 2017). Some authors have also suggested that PsyCap may be broadly important to entrepreneurship, as it is an inherently difficult process. People may broadly benefit from the capability to maintain positive expectations when pursuing entrepreneurial endeavors, even if the contexts are relatively conducive for entrepreneurship. Therefore, these proposals jointly suggest that PsyCap may be a valuable explanatory mechanism in the relation of various individual differences and entrepreneurial outcomes, as it is a potential outcome of the former and antecedent of the latter.

In the current article, we combine these two research streams on EP and PsyCap by assessing whether the relations of EP with outcomes are mediated by PsyCap. Those with greater capabilities are more likely to have elevated PsyCap, as their capabilities cause them to habitually believe that they can succeed across contexts (Avey, 2014; Newman et al. 2014). Due to their elevated positive beliefs and expectations, these people are more likely to set and strive toward more difficult goals (Avey et al. 2011; Loghman et al. 2023). In turn, those high in PsyCap achieve greater outcomes and reap the rewards (e.g. improved well-being) (Avey et al. 2011; Loghman et al. 2023). We argue that similar dynamics occur for EP and PsyCap.

Entrepreneurship is a difficult process that requires significant personal resources to succeed. Research on EP has suggested that it is related to entrepreneurial outcomes because it explicitly equips people with the tools necessary to succeed in entrepreneurial endeavors, ultimately enabling them to remain steadfast toward their difficult goals (Altinay et al. 2022; Howard, 2023; Howard & Boudreaux, 2024; Vandor, 2021; Watson et al. 2020). Likewise, PsyCap is conceptualized as an individual difference associated with the capability to strive toward difficult goals (Avey, 2014; Luthans et al. 2015; Newman et al. 2014). Because the representative dimensions of PsyCap specifically reflect an expectation and subsequent tendency to perform well despite obstacles, we argue that the natural proclivity for entrepreneurship of those high in EP causes them to have heightened expectations of success and positive outcomes (i.e. PsyCap), and these expectations cause them to be more likely to set entrepreneurial goals, strive toward these goals, and experience the associated benefits of attaining these goals.

Striving toward goals involves both motivational and emotional processes (Emmons & Kaiser, 2014; Schultheiss et al. 2008; Seo & Patall, 2021). People must remain motivated toward their goals, and they must regulate emotions to stay goal directed. EP equips people with tools that aid both processes during entrepreneurial goal striving, as evident in its representative dimensions associated with motivation and/or emotional regulation (Howard, 2023; Howard & Boudreaux, 2024). PsyCap likewise represents a capability to effectively manage motivational and emotional processes, as both are necessary to achieve difficult goals (Avey, 2014; Luthans et al. 2015). Some dimensions of PsyCap (e.g. self-efficacy) are associated with perceived capabilities to achieve goals (motivational), whereas others (e.g. hope, resilience, and

optimism) are associated with a tendency to positively assess situations (emotional). We suggest that EP is not the mechanism that directly enables people to remain goal focused and regulate emotions, as it is a stable individual difference. EP does not fluctuate along with the natural rhythms of motivational and emotional processes during entrepreneurial goal striving, and it conceptually cannot directly impact entrepreneurial outcomes. Instead, EP enables people to experience greater levels of PsyCap, which is an emergent personal resource that enables people to manage motivational and emotional processes. EP provides the capability to better manage these processes when striving toward entrepreneurial goals, but PsyCap is the necessary resource for people to manage these motivational and emotional processes.

Lastly, we test hypotheses associated with phases of the entrepreneurial process, as the Wheel Conceptualization indicates that the relations and mediators of EP may function differently across these phases. We first focus on the earlier phases associated with entry. With a sample of adults who are not business owners, we test whether PsyCap mediates the relations of EP with entrepreneurial goal setting, goal commitment, and goal attainment. We then focus on the latter phases associated with management. With a sample of those who own a business, we test whether PsyCap mediates the relations of EP with entrepreneurial performance and well-being. Lastly, we focus on differences between entrepreneurs and non-entrepreneurs. With both samples, we test whether PsyCap mediates the relation of EP with entrepreneurial status. By studying multiple contexts, we provide a robust test of whether PsyCap mediates the relations of EP, and we assess whether PsyCap is a particularly important mediator for certain phases of the entrepreneurial process—potentially aligning with the Wheel Conceptualization of EP.

Hypothesis 1: *For those who do not own a business, PsyCap mediates the relations between EP's dimensions and (a) entrepreneurial goal setting, (b) entrepreneurial goal commitment, and (c) entrepreneurial goal attainment.*

Hypothesis 2: *For those who own a business, PsyCap mediates the relations between EP's dimensions and (a) relative entrepreneurial performance, (b) general entrepreneurial performance, and (c) well-being.*

Hypothesis 3: *PsyCap mediates the relation between EP's dimensions and entrepreneurial status.*

Investigating these hypotheses provides several contributions for research and practice. First, by linking EP with PsyCap, our results can support whether frameworks used to study PsyCap are viable lenses to understand EP, particularly those associated with motivation and goal striving. For example, the challenge-hindrance stressor framework has been used to explain how PsyCap buffers the negative effects of stressors that may occur when striving toward goals at work (Min et al. 2015), and it may be generalized to suggest that EP may also buffer these negative effects *via* the mechanism of PsyCap. Second, we reinvestigate certain key aspects of EP, such as the Wheel Conceptualization, by testing multiple hypotheses across multiple samples, which satisfies calls across almost all domains of the social sciences to replicate prior findings to produce a more robust field of research (Shrout & Rodgers, 2018). Third, we provide further evidence regarding whether PsyCap is important to the

entrepreneurial process. By doing so, our results can either bolster or refute arguments that PsyCap is key in entrepreneurial goal setting and striving. Fourth, we satisfy broad calls to integrate PsyCap into the study of personality and entrepreneurship, and we satisfy specific calls for testing certain aspects of this integration (Bockorny & Youssef-Morgan, 2019; Chatterjee et al. 2022; Welter & Scrimpshire, 2021). Welter and Scrimpshire (2021), for instance, called for researchers to study PsyCap in various phases of the entrepreneurial process, which we satisfy in our studies. Therefore, the current article advances several domains of research on EP, PsyCap, and their integration.

Lastly, our two studies provide broad assessments of the relations of EP and PsyCap with entrepreneurial outcomes, studying the relations of the individual differences with general outcomes associated with entrepreneurial entry and management in a general sample. Our results are not expected to be universal or generalize across all contexts. PsyCap particularly is expected to have a heightened influence in specific contexts, namely those that may have greater barriers to entrepreneurial success. Likewise, certain contexts may call for alternative predictors to have a stronger influence than individual differences, such as social capital playing a larger role than personal capital in industries that are more socially oriented (Ghouse et al. 2024). Nevertheless, the present investigation provides an ideal initial investigation into our studied effects, testing whether they hold in general contexts. Future studies can build upon our observations, wherein authors can assess the boundary conditions to our results across contexts.

Study 1

Study 1 methods

Study 1 participants

Participants (age_{mean} = 42.08; age_{SD} = 14.68; 52% female; 100% United States, 0% business owners) were recruited from Prolific in return for monetary compensation.

Study 1 procedure

Participants enrolled *via* Prolific and immediately completed the first survey with demographic items and the Entrepreneurial Personality Scale (EPS) ($n = 269$). One week after the first survey, participants were emailed and completed a second survey with the PsyCap scale ($n = 222$). One week after the second survey, participants were emailed and completed a third survey with the outcome measures ($n = 202$). We removed 3 participants that failed more than one attention check per wave, and the sample sizes reported above reflect the sample after removing these participants. At each timepoint, participants provided their unique Prolific ID that enabled the authors to match participant responses across the three measurement occasions.

Study 1 measures

Unless otherwise noted, responses were on a 1 (Strongly Disagree) to 7 (Strongly Agree) scale.

Entrepreneurial Personality Scale. We gave the 28-item EPS, which was created *via* a multiple study process that produced substantial psychometric and validity support. An example item is, 'I am an innovative person' (Innovativeness) ($\alpha = 0.83$–0.95).

Psychological Capital. We applied the 12-item Compound PsyCap Scale (Lorenz et al. 2016), which has significant prior support as a measure of PsyCap. An example item is, 'Overall, I expect more good things to happen to me than bad' (Optimism) ($\alpha = 0.95$).

Entrepreneurial Goal Setting. We adapted a 3-item measure of Erez and Judge (2001). The three items were: 'Over the past year, I have set regular entrepreneurship goals', 'Over the past year, I have ser regular goals for running a business', and 'My entrepreneurship goals that I have set for myself are difficult to achieve' ($\alpha = 0.81$).

Entrepreneurial Goal Commitment. We adapted the 9-item measure of Hollenbeck et al. (1989) to assess entrepreneurial goal commitment. An example item is, 'I am strongly committed to pursuing entrepreneurship goals' ($\alpha = 0.90$).

Entrepreneurial Goal Attainment. We adapted the 2-item measure of Judge et al. (2005) to assess entrepreneurial goal attainment. The two items were: 'I have made considerable progress toward my business goals in the past few months' and 'I accomplished what I set out to do with my entrepreneurship goals in the past few months' ($\alpha = 0.88$).

Study 1 results

Table 1 provides Cronbach's alphas and correlations, whereas Table 2 includes linear regression analyses. We tested whether PsyCap was a mediator in the relations between the EP dimensions and outcomes. We used PLS-SEM to test these effects, as it enables the simultaneous estimation of all mediated paths, which would allow for the estimation of the dimensions' relations while controlling for the other dimensions. We created a partial mediation model; each dimension of the EPS predicted both PsyCap and the outcomes, and PsyCap was also modeled to predict each outcome. To conduct our analyses, we followed the suggestions of several prominent guides (Hair et al. 2019; 2020; Sarstedt et al. 2020; Shiau et al. 2019). We utilized bias-corrected and accelerated bootstrap estimates with 5000 subsamples. We used the confirmatory composite analysis approach to first assess the measurement model (outer loadings) and then assess the structural model (latent variable relations) (Hair et al. 2020).

We first analyzed the measurement model. One item for entrepreneurial goal commitment had a very poor factor loading (0.10), which was removed. The next lowest factor loading was an entrepreneurial goal setting item (0.51). Because this factor loading approached cutoffs and removing it would cause this construct to be represented by only two items, we chose to retain this item and all others. The measures' composite reliability were above .80, and their average variance extracted (AVE) were above 0.60. The 95% confidence interval for the heterotrait–monotrait (HTMT) ratios between all constructs excluding PsyCap's dimensions did not contain 1.00

Table 1. Correlations and Cronbach's alphas of Study 1.

	1	2	3	4	5	6	7	8	9	10	11
1.) Innovativeness	0.94										
2.) Risk-Taking Propensity	0.46**	0.91									
3.) Achievement Orientation	0.50**	0.46**	0.86								
4.) Proactiveness	0.56**	0.38**	0.61**	0.83							
5.) Locus of Control	0.28**	0.37**	0.55**	0.44**	0.95						
6.) Self-Efficacy	0.51**	0.42**	0.58**	0.65**	0.51**	0.92					
7.) Autonomy Orientation	0.23**	0.07	0.24**	0.28**	0.19**	0.33**	0.85				
8.) Psychological Capital	0.43**	0.30**	0.54**	0.52**	0.60**	0.75**	0.18**	0.95			
9.) Entrepreneurial Goal Set.	0.32**	0.35**	0.34**	0.22**	0.20**	0.25**	−0.01	0.26**	0.81		
10.) Entrepreneurial Commit.	0.35**	0.41**	0.36**	0.21**	0.26**	0.36**	0.08	0.28**	0.74**	0.90	
11.) Entrepreneurial Attain.	0.36**	0.47**	0.33**	0.41**	0.32**	0.36**	0.02	0.43**	0.43**	0.45**	0.88

Note. Cronbach's alphas are listed on diagonal. Entrepreneurial Goal Set.: Entrepreneurial Goal Setting; Entrepreneurial Commit.: Entrepreneurial Goal Commitment; Entrepreneurial Attain.: Entrepreneurial Goal Attainment.

*$p < 0.05$.

**$p < 0.01$.

Table 2. Linear regression results of the entrepreneurial personality Scale predicting outcomes in Study 1.

	Psychological capital		Entrepreneurial goal setting		Entrepreneurial goal commitment		Entrepreneurial goal attainment	
	β	t	β	t	B	t	B	T
1.) Innovativeness	0.10	1.82	0.18	2.07*	0.18	2.09*	0.10	1.14
2.) Risk-Taking Propensity	−0.13	−2.62**	0.20	2.60*	0.25	3.37**	0.32	4.33**
3.) Achievement Orientation	0.09	1.45	0.25	2.57*	0.21	2.35*	−0.03	−0.35
4.) Proactiveness	−0.03	−0.51	−0.11	−1.15	−0.27	−2.83**	0.20	2.19*
5.) Locus of Control	0.29	5.55**	−0.02	−0.26	0.01	0.07	0.10	1.27
6.) Self-Efficacy	0.59	9.81**	0.03	0.30	0.21	2.20*	0.02	0.24
7.) Autonomy Orientation	−0.05	−1.25	−0.10	−1.50	−0.03	−0.38	−0.08	−1.24
R^2		0.65**		0.19**		0.26**		0.29**

*$p < 0.05$.
**$p < 0.01$.

(Supplemental Material A). These results support the reliability and discriminant validity of the measures.

Next, we examined the structural model. The variance inflation factor (VIF) values were less than the common cutoff of 3.00, indicating that multicollinearity was not an issue. Locus of control ($\beta = 0.27$, $f^2 = 0.10$, $p < 0.01$) and self-efficacy ($\beta = 0.52$, $f^2 = 0.26$, $p < 0.01$) positively and significantly related to PsyCap, whereas risk-taking propensity negatively and significantly related to PsyCap ($\beta = -0.10$, $f^2 = 0.02$, $p = 0.03$). PsyCap significantly related to entrepreneurial goal setting ($\beta = 0.16$, $f^2 = 0.02$, $p = 0.04$) and goal attainment ($\beta = 0.36$, $f^2 = 0.11$, $p < 0.01$).

The indirect effects of self-efficacy *via* PsyCap on entrepreneurial goal setting ($ab = 0.08$, $p = 0.04$) and goal attainment ($ab = 0.19$, $p < 0.01$) were statistically significant, and the indirect effect of locus of control on goal attainment was statistically significant ($ab = 0.10$, $p < 0.01$). No other indirect effects were statistically significant. Independent of PsyCap (i.e. direct effects), risk-taking propensity significantly related to entrepreneurial goal setting ($\beta = 0.22$, $f^2 = 0.05$, $p < 0.01$), goal commitment ($\beta = 0.24$, $f^2 = 0.05$, $p < 0.01$), and goal attainment ($\beta = 0.32$, $f^2 = 0.11$, $p < 0.01$); innovativeness significantly related to entrepreneurial goal setting ($\beta = 0.15$, $f^2 = 0.02$, $p = 0.02$) and goal commitment ($\beta = 0.20$, $f^2 = 0.03$, $p < 0.01$); proactiveness significantly related to goal attainment ($\beta = 0.19$, $f^2 = 0.03$, $p = 0.02$); and achievement orientation significantly related to entrepreneurial goal setting ($\beta = 0.19$, $f^2 = 0.02$, $p = 0.01$). Hypothesis 1 was largely not supported, as only a portion of the significant effects were mediated by PsyCap. The Q^2 values for all endogenous variables were: PsyCap = 0.48, entrepreneurial goal setting = 0.14, goal commitment = 0.14, and goal attainment = 0.19. Figure 1 presents a visual representation of our PLS-SEM results.

As a sensitivity test, we reconducted our PLS-SEM analyses excluding state self-efficacy from PsyCap. Because EP includes trait self-efficacy, the mediating effects of PsyCap may be due to the overlap of self-efficacy. When reconducted, all inferences remained consistent between the two sets of analyses, and only one additional mediated effect was supported.

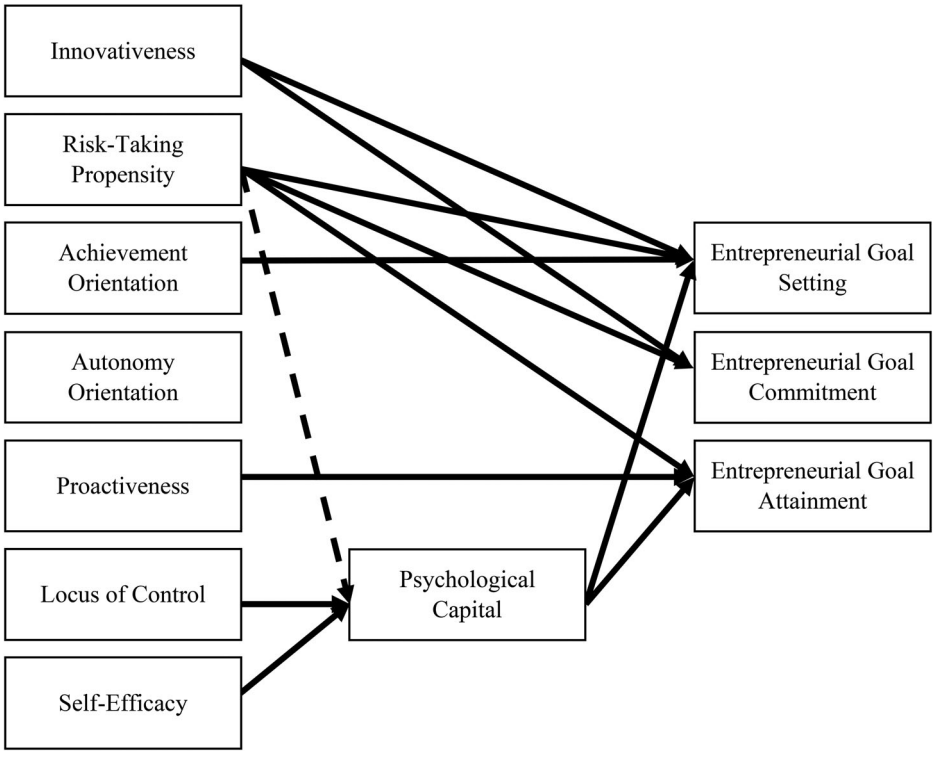

Figure 1. Visual representation of Study 1 results. Note: Solid lines are statistically significant positive relations. Dashed lines are statistically significant negative relations.

Study 2

Study 2 methods

Study 2 participants

Participants (age_{mean} = 42.31; age_{SD} = 13.71; 58% female; 100% United States, 100% business owners) were recruited from Prolific in return for monetary compensation. All participants reported currently owning and operating their own business. The average number of employees was 5.71 (*S.D.* = 15.29), and the average longevity was 7.72 (*S.D.* = 8.01).

Study 2 procedure

Participants enrolled *via* Prolific and immediately completed the first survey with demographic items and the EPS (n = 245). One week after the first survey, participants were emailed and completed a second survey with the PsyCap scale (n = 187). One week after the second survey, participants were emailed and completed a third survey with the outcome measures (n = 160). We removed 9 participants that failed more than one attention check per wave, and the sample sizes reported above reflect the sample after removing these participants. At each timepoint, participants provided their unique Prolific ID that enabled the authors to match participant responses across the three measurement occasions.

Study 2 measures

Unless otherwise noted, responses were on a 1 (Strongly Disagree) to 7 (Strongly Agree) scale.

Entrepreneurial Personality Scale. The 28-item EPS was administered ($\alpha = 0.86$–0.93).

Psychological Capital. We applied the 12-item Compound PsyCap Scale ($\alpha = 0.89$).

Relative Entrepreneurial Performance. We assessed relative entrepreneurial performance using the 3-item measure of Gillis et al. (2020). Participants indicated their performance relative to competitors over the past three years regarding: Growth in Sales, Profitability, and Market Share. Participants answered from '1 – About 30% or More Below Primary Competitors' to '7 – About 30% or More Above Primary Competitors' ($\alpha = 0.88$).

General Entrepreneurial Performance. We measured general entrepreneurial performance with 9 items of Babalola (1998) and Lanivich (2015). An example item is, 'I am a successful entrepreneur' ($\alpha = 0.92$).

Well-Being. We measured well-being using the 6-item measure of To et al. (2020) that focuses on well-being as an entrepreneur. An exam item is, 'You experience pleasant and meaningful entrepreneurial results' ($\alpha = 0.91$).

Study 2 results

Table 3 provides Cronbach's alphas and correlations, whereas Table 4 includes linear regression analyses. In Study 2, we conducted our PLS-SEM analyses in the same manner as Study 1. We first analyzed the measurement model. One item from the PsyCap measure had a poor factor loading (0.22), which we removed. The next lowest factor loading was 0.66, and we therefore retained all remaining items. The measures' composite reliabilities were all 0.69 or above, and the AVEs were all above 0.50. The 95% confidence interval for the HTMT ratios between all combinations excluding PsyCap's dimensions did not contain 1.00 (Supplemental Material A). These results support the reliability and discriminant validity of the measures.

Next, we examined the structural model. Multicollinearity was not an issue (VIF $<$ 3.00). Risk-taking propensity ($\beta = 0.12$, $f^2 = 0.03$, $p = 0.03$) and self-efficacy ($\beta = 0.37$, $f^2 = 0.14$, $p < 0.01$) significantly related to PsyCap. PsyCap significantly related to the outcomes of general entrepreneurial performance ($\beta = 0.50$, $f^2 = 0.18$, $p < 0.01$) and well-being ($\beta = 0.62$, $f^2 = 0.41$, $p < 0.01$). The indirect effect of risk-taking propensity through PsyCap on general entrepreneurial performance ($ab = 0.06$; $p = 0.05$) and well-being ($ab = 0.07$; $p = 0.04$) were statistically significant, and the indirect effect of self-efficacy *via* PsyCap on general entrepreneurial performance ($ab = 0.18$; $p < 0.01$) and well-being ($ab = 0.23$; $p < 0.01$) were also statistically significant. Independent of PsyCap (i.e. direct effects), achievement orientation negatively and significantly related to relative entrepreneurial performance ($\beta = -0.27$, $f^2 = 0.04$, $p < 0.01$) and general entrepreneurial performance ($\beta = -0.21$, $f^2 = 0.03$, $p = 0.04$). Proactiveness ($\beta = 0.29$, $f^2 = 0.06$, $p < 0.01$) and locus of control ($\beta = 0.22$, $f^2 = 0.05$, $p < 0.01$) significantly related to relative entrepreneurial performance,

Table 3. Correlations and Cronbach's alphas of Study 2.

	1	2	3	4	5	6	7	8	9	10	11
1.) Innovativeness	0.93										
2.) Risk-Taking Propensity	0.33**	0.92									
3.) Achievement Orientation	0.47**	0.47**	0.87								
4.) Proactiveness	0.38**	0.29**	0.62**	0.86							
5.) Locus of Control	0.12	0.24**	0.40**	0.33**	0.94						
6.) Self-Efficacy	0.43**	0.37**	0.56**	0.56**	0.45**	0.90					
7.) Autonomy Orientation	0.31**	0.13*	0.30**	0.33**	0.26**	0.27**	0.90				
8.) Psychological Capital	0.34**	0.42**	0.55**	0.55**	0.47**	0.72**	0.20**	0.89			
9.) Relative Performance	0.01	0.09	0.02	0.24**	0.29**	0.19*	−0.06	0.22**	0.89		
10.) General Performance	0.18*	0.09	0.23**	0.37**	0.35**	0.37**	0.11	0.54**	0.53	0.92	
11.) Well-Being	0.31**	0.27**	0.52**	0.53**	0.39**	0.55**	0.26**	0.70**	0.30	0.75	0.91

Note. Cronbach's alphas are listed on diagonal.
*$p < 0.05$.
**$p < 0.01$.

Table 4. Linear regression results of the entrepreneurial personality Scale predicting outcomes in Study 2.

	Psychological capital		Relative entrepreneurial performance		General entrepreneurial performance		Entrepreneur well-being	
	β	t	β	t	β	t	β	t
1.) Innovativeness	0.03	0.55	0.02	0.20	0.09	0.98	0.02	0.24
2.) Risk-Taking Propensity	0.09	1.50	0.06	0.67	−0.10	−1.27	−0.05	−0.71
3.) Achievement Orientation	0.07	0.91	−0.30	−2.86**	−0.11	−1.03	0.20	2.30*
4.) Proactiveness	0.16	2.39*	0.32	3.31**	0.28	2.95**	0.23	2.83**
5.) Locus of Control	0.18	3.20**	0.31	3.77**	0.27	3.39**	0.17	2.37*
6.) Self-Efficacy	0.49	7.01**	0.06	0.62	0.18	1.85	0.23	2.67**
7.) Autonomy Orientation	−0.11	−1.96	−0.16	−2.04*	−0.05	−0.66	0.06	0.95
R^2		0.58**		0.19**		0.24**		0.43**

*$p < 0.05$.
**$p < 0.01$.

whereas autonomy orientation negatively and significantly related to relative entrepreneurial performance ($\beta = -0.14$, $f^2 = 0.02$, $p = 0.03$). Hypothesis 2 was largely not supported, as only a portion of the significant effects were mediated by PsyCap. The Q^2 values for all endogenous variables were: PsyCap = 0.38, general business performance = 0.04, relative business performance = 0.05, and well-being = 0.19. Figure 2 presents a visual representation of our PLS-SEM results.

As a sensitivity test, we reconducted our PLS-SEM analyses excluding state self-efficacy from PsyCap. All inferences remained consistent between the two sets of analyses, but fewer indirect effects *via* PsyCap were statistically significant.

Additional analysis

We conducted analyses comparing our samples from Studies 1 and 2 (i.e. non-business owners vs. business owners). A series of t-tests supported significant differences between the two groups regarding PsyCap and all EP dimensions apart from locus of control (Table 5). We used PLS-SEM to test if PsyCap mediated the relation of EP's dimensions and entrepreneurial status. All items produced appropriate factor loadings (≥0.64). All composite reliabilities were 0.82 or above, and the AVEs were all 0.59 or above. The 95% confidence interval for the HTMT ratios between all combinations excluding PsyCap's dimensions did not contain 1.00. Locus of control ($\beta = 0.19$, $f^2 = 0.05$, $p < 0.01$) and self-efficacy ($\beta = 0.43$, $f^2 = 0.17$, $p < 0.01$) significantly related to PsyCap, which significantly related to entrepreneurial status ($\beta = 0.09$, $f^2 = 0.02$, $p < 0.01$). The indirect effects of both locus of control ($ab = 0.02$, $p = 0.03$) and self-efficacy ($ab = 0.04$, $p < 0.01$) *via* PsyCap on entrepreneurial status were statistically significant. Independent of PsyCap (i.e. direct effects), risk-taking propensity ($\beta = 0.11$, $f^2 = 0.04$, $p < 0.01$), autonomy orientation ($\beta = 0.05$, $f^2 = 0.01$, $p = 0.03$), and proactiveness ($\beta = 0.09$, $f^2 = 0.02$, $p < 0.01$) positively related to entrepreneurial status, whereas locus of control ($\beta = -0.07$, $f^2 = 0.02$, $p < 0.01$) and self-efficacy ($\beta = -0.11$, $f^2 = 0.03$, $p < 0.01$) negatively related to entrepreneurial status. Hypothesis

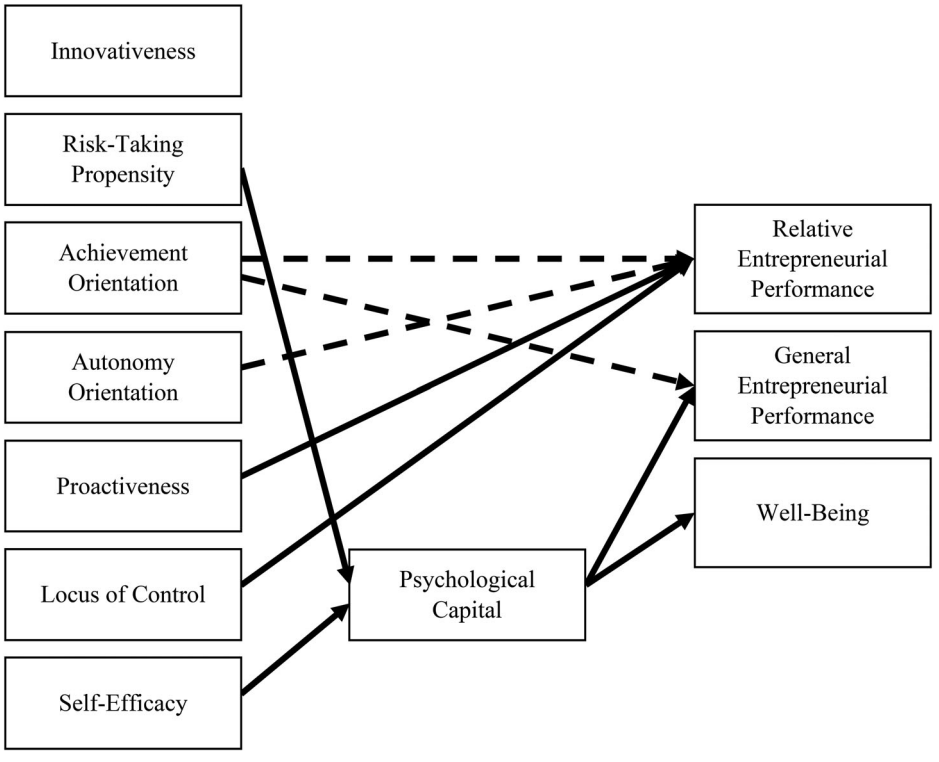

Figure 2. Visual representation of Study 2 results. Note: Solid lines are statistically significant positive relations. Dashed lines are statistically significant negative relations.

Table 5. T-test results comparing Study 1 and Study 2 samples.

	Study 1 sample		Study 2 sample		
	Mean	SD	Mean	SD	*p*
1.) Innovativeness	4.90	1.37	5.73	1.07	<0.01
2.) Risk-Taking Propensity	3.67	1.43	4.68	1.46	<0.01
3.) Achievement Orientation	5.07	1.19	5.81	1.07	<0.01
4.) Proactiveness	4.97	1.20	5.70	0.97	<0.01
5.) Locus of Control	5.38	1.34	5.59	1.20	0.07
6.) Self-Efficacy	5.21	1.25	5.63	1.09	<0.01
7.) Autonomy Orientation	6.13	0.76	6.42	0.75	<0.01
8.) Psychological Capital	4.92	1.28	5.57	0.85	<0.01

Note: Study 1 sample consisted of people who did not own a business, whereas Study 2 sample consisted of people that owned a business.

3 was largely not supported, as only a portion of significant effects were mediated by PsyCap. The Q^2 values for all endogenous variables were: PsyCap = 0.46 and entrepreneurial status = 0.13. All inferences remained consistent between analyses when excluding state self-efficacy from PsyCap as a sensitivity test.

Discussion

Using a sample of non-business owners in Study 1, we found that innovativeness, risk-taking propensity, achievement orientation, proactiveness, and self-efficacy

significantly related to outcomes associated with earlier phases of the entrepreneurial process, but PsyCap only mediated the effects of self-efficacy. Using a sample of business owners in Study 2, we found that risk-taking propensity, proactiveness, locus of control, and self-efficacy significantly related to outcomes associated with latter phases of the entrepreneurial process, but PsyCap only mediated the effects of risk-taking propensity and self-efficacy. In comparing the two samples, we found that risk-taking propensity, autonomy orientation, proactiveness, locus of control, and self-efficacy significantly related to entrepreneurial status, but PsyCap only mediated the effects of locus of control and self-efficacy. PsyCap is not a viable explanatory mechanism for the relations between EP and its outcomes, indicating that other theoretical lenses are necessary to understand EP. Nevertheless, these results provide many contributions for research and practice.

Theoretical and practical implications

Non-significance of PsyCap

We argued that those high in EP may be more confident in their entrepreneurial abilities, causing them to be more optimistic regarding their capabilities for success (i.e. PsyCap) in entrepreneurial endeavors. In turn, this optimism would cause these people to strive toward and ultimately succeed in entrepreneurial endeavors, as this is often the rationale provided for the importance of PsyCap in explaining other individual differences (Bockorny & Youssef-Morgan, 2019; Chatterjee et al. 2022; Welter & Scrimpshire, 2021). Most dimensions of EP, however, did not significantly relate to PsyCap, suggesting that those high in EP may not necessarily view their capabilities for success in this habitually optimistic manner. While those high in EP have natural characteristics that benefit them for entrepreneurial endeavors, they may still view entrepreneurship as a challenge with uncertain outcomes. This perspective may ultimately benefit them, as they may be less complacent regarding their entrepreneurial goal striving.

Untested moderating effects may have also tempered the observed relation between EP and PsyCap. Theories of fit (see Venkatraman, 1989) suggest that people experience the most beneficial outcomes in contexts that match their characteristics, including both psychological well-being and goal attainment. These theories also suggest that constructs produce stronger effects in conducive contexts. PsyCap is known to be particularly influential when overcoming difficulties, whereas it is less important when tasks are easy (Altinay et al. 2022; De Vries, 1977; Vandor, 2021; Watson et al. 2020). This is because the representative dimensions (e.g. optimism and resilience) specifically reflect a tendency to perform well despite obstacles. While it is often assumed that entrepreneurship is always a difficult endeavor, this may not always be the case. Those high in EP naturally succeed at entrepreneurial endeavors, and possessing the cognitive resources to overcome difficulties (e.g. PsyCap) may be less relevant for these people. This may be especially true when environmental uncertainty (and other detrimental contextual factors) is minimized, as the ecosystem may be conducive to entrepreneurial endeavors. In this context, EP may cause people to obtain better entrepreneurial outcomes, but PsyCap may not be the reason for these

outcomes—as seen in the current article. Based on this rationale, environmental uncertainty (and other detrimental contextual factors) may moderate the relation of EP and PsyCap, wherein the relation is weak when the environment is conducive and strong when the environment is threatening. Thus, these effects may be explained by theories of fit.

It should be emphasized that extant theoretical rationales—including the rationale discussed above—argue that EP is relevant to all entrepreneurial contexts, whereas PsyCap may be only relevant to particular contexts (Bockorny & Youssef-Morgan, 2019; Chatterjee et al. 2022; Welter & Scrimpshire, 2021). While EP is broadly important, PsyCap is relevant to outcomes in specific contexts that particularly benefit from positive assessments of potential results. In turn, extant theoretical rationales suggest that the adaptive nature of PsyCap causes it to relate to entrepreneurial outcomes in contexts that pose significant barriers (e.g. lack of resources) or following setbacks (Avey, 2014; Luthans et al. 2015; Newman et al. 2014), as people may need positive perceptions regarding their potential of success to persist through these circumstances to obtain beneficial outcomes. Our results coincide with this perspective. In two time-separated studies, PsyCap did not significantly mediate the relations of EP with broad and general indicators of entrepreneurial success. Similarly, extant empirical investigations have found significant relations between PsyCap and specifically relevant outcomes (e.g. sustainable entrepreneurial outcomes) and general outcomes in specifically relevant contexts (Baluku et al., 2018, 2016;Tang, 2020). For this reason, our work also corresponds to empirical investigations, and these results cumulatively suggest that PsyCap is influential in certain types of entrepreneurial environments or under specific pressures. Therefore, our results do not disagree with extant theoretical or empirical works, but they suggest that a more nuanced perspective is needed in understanding the relation of PsyCap and entrepreneurial outcomes.

Future researchers should assess whether this notion is true, again guided by theories of fit (Venkatraman, 1989). A particularly important avenue is to further probe our observed effects, which may result in substantial revisions to extant theory. Namely, researchers should perform meta-analyses to provide aggregated inferences into the relations of PsyCap. These analyses can determine which outcomes do and do not produce significant relations with PsyCap across many empirical investigations, and they can also determine which contexts cause PsyCap to systematically produce—or not produce—significant relations with relevant entrepreneurial outcomes. For instance, researchers may find that studies conducted in countries with less conducive environments for entrepreneurial endeavors produce stronger relations of PsyCap, whereas those in more conducive countries produce weaker relations. *via* this investigation, these researchers could not only advance present theoretical lenses of entrepreneurship, but they could also guide practitioners to contexts that may benefit from leveraging EP and PsyCap.

Once these contexts have been identified, researchers could develop interventions to enhance EP and PsyCap to maximize success. Many authors have suggested that adaptive interventions are beneficial for multidimensional individual differences (Hardeman et al. 2019; Wang & Miller, 2020). Adaptive interventions assess the attributes of participants and provide catered intervention elements. For instance, a

person who scores low on all EP or PsyCap dimensions may receive an intervention that includes elements for all dimensions, whereas a person who scores low on only the dimension of risk taking would receive an intervention that only includes an element for risk taking. By doing so, people can receive focused interventions that may produce better outcomes, but the interventions are also optimized to reduce unnecessary elements to save costs. In testing interventions, researchers should continue seeking novel theory to study EP and PsyCap. While our findings did not support the applied perspective, they can nevertheless guide future researchers toward these appropriate theoretical lenses.

Alternative mediators of entrepreneurial personality

We tested PsyCap as a mediator because our theoretical rationale suggested that EP may relate to entrepreneurial outcomes due to motivational and emotional mechanisms that emerge through PsyCap. While PsyCap includes a dimension more associated with motivational mechanisms (e.g. self-efficacy), the other dimensions are more associated with positive assessments (e.g. hope, resilience, and optimism), which is an emotional mechanism. As PsyCap was not a reliable mediator for the effects of EP, researchers should consider theoretical domains that focus more on motivational rather than emotional explanatory mechanisms.

Further, two dimensions of EP associated with motivational mechanisms and goal setting, self-efficacy and risk-taking, produced significant effects in our studies. We specifically recommend that mediators associated with goal setting and goal regulation may be particularly relevant to the study of EP, and these investigations may be guided by goal systems theory (Kruglanski et al. 2018; 2023). This theoretical perspective recognizes that people have both stable tendencies to strive toward goals and fluctuations in their goal striving, resulting in a model of both between- and within-person differences. In applying this theory, researchers can assess stable and momentary assessments of the entrepreneurial process and ecosystem may alter perceptions of capabilities (i.e. self-efficacy) and threats (i.e. risks). For example, goal systems theory can identify how traits may impact the cost-benefit assessment that is inherent in behavioral decision making (including entrepreneurial action), which is directly associated with the tendency to take risks (i.e. risk-taking) and perceived capability to handle risks (i.e. self-efficacy). Individual differences that aid people in taking and handling risks may mediate the effects of EP as guided by this theoretical lens, such as the tendency to achieve long-term goals (i.e. grit) that are inherent in the entrepreneurship process. Mechanisms of goal regulation may also mediate the effects of EP, as they could explain how people manage short-term fluctuations in their assessments of risk and their capabilities to handle these risks.

Behavioral learning theories may also be relevant to EP. Social cognitive theory proposes that environmental reinforcement is a primary determinant of behavior (Bandura, 1991, 2001). Those high in EP may recognize their natural proclivities after repeated positive feedback at activities similar to entrepreneurship. In turn, they may choose to become entrepreneurs, be more committed to entrepreneurship, and ultimately experience greater success. Social cognitive theory has been applied in a similar manner to explain vocational career choice and success more generally (Lent et al.

1994; 2022), encouraging its application to investigate EP. It has also been used to understand goal striving in contexts that the actor has sufficient skill but remains persistent and avoids being complacent or overconfident (Bandura, 1991, 2001), which coincides with the current results regarding the non-significant relations of EP and PsyCap. Therefore, these behavioral learning theories may be particularly apt for understanding EP.

Our results also replicated prior findings on EP. Study 1 replicated that innovativeness, risk-taking propensity, and achievement orientation are associated with the earlier phases of the entrepreneurial process, and Study 2 replicated that proactiveness, locus of control, and self-efficacy are associated with the latter phases of the entrepreneurial process. These findings are consistent with Howard (2023), further supporting the Wheel Conceptualization of EP. At the same time, some results differed. Study 1 found significant relations between self-efficacy are outcomes associated with earlier phases, whereas Study 2 found significant relations between risk-taking propensity and outcomes associated with latter phases. While these two findings are not strong enough to cast doubt on the Wheel Conceptualization, future researchers should continue to reinvestigate these relations to determine whether these two dimensions may relate to both earlier and latter phases of the entrepreneurial process. Extant research has only supported associations of dimensions with either earlier or later phases, but there is not presently a theoretical justification that a dimension cannot be associated with both.

PsyCap and entrepreneurship

While not a mediator, PsyCap significantly related to most entrepreneurial outcomes in each studied phase of the entrepreneurial process, even when tested alongside EP. Future researchers should heed the call of prior researchers to integrate PsyCap into entrepreneurship scholarship, given its clear importance to the entrepreneurial process (Chatterjee et al. 2022; Welter & Scrimpshire, 2021). To conduct this research, researchers should apply the theory associated with both goal setting and striving, as PsyCap was presently supported to be relevant to outcomes associated with both entrepreneurial entry and management. Notably, goal-setting theory explicates the loftier goals that those higher in PsyCap are known to set (Avey et al. 2011; Loghman et al. 2023), as the theory suggests that challenging goals can elicit greater motivation (Locke & Latham, 2019). Those higher in PsyCap may create a motivation feedback loop; that is, they may set higher goals causing them to be more motivated, and their enhanced motivation may then cause them to set higher goals. Therefore, while PsyCap did not mediate the relations of EP, it may still prove to be important in understanding entrepreneurial success.

Many authors have highlighted that hypotheses are almost always supported in the social sciences, suggesting that a vast number of results may be left in researchers' file drawers (Cairo et al. 2020; Kepes et al. 2022; Kepes & McDaniel, 2013). This poses large concerns. The greater willingness of academic outlets to publish significant findings results in the more frequent publication of spurious findings, causing published effects to be systematically larger than the true effect within the population (Bergh et al. 2017). Researchers and academic outlets, however, can counteract these effects

by publishing non-significant results, and the current article abides by these recommendations made across the social sciences. By showing that PsyCap does not significantly relate to most EP dimensions, the current results can be balanced with future publications that may find support for these relations. When these multiple findings are cumulatively interpreted, whether *via* a qualitative review or quantitative meta-analysis, researchers can have a more accurate understanding of the true relations of EP and PsyCap.

Lastly, while PsyCap did not produce a mediating effect in our investigation, some authors have demonstrated that similar constructs may moderate the relations of other individual differences and entrepreneurial outcomes. For instance, Ghouse et al. (2024) demonstrated that self-efficacy moderates the relations between other predictors and entrepreneurial outcomes, as people are more likely to devote their resources into entrepreneurial endeavors if they feel capable at those endeavors. PsyCap may serve a similar role in understanding entrepreneurial outcomes, wherein the capability to maintain positive assessments of outcomes causes people to more fully dedicate their resources toward entrepreneurial endeavors. Therefore, while we did not support a mediating effect of PsyCaop, future research should investigate whether this collection of individual differences may moderate predictors of entrepreneurial outcomes.

Limitations

Methodological

We presented two studies that used time-separated research designs to partially address concerns with common-method biases (Zhou & Long, 2004), which meets or exceeds current practices for modern research on personality and entrepreneurship. At the same time, our data was obtained *via* self-reported surveys. PsyCap is often believed to be best measured *via* self-report, as people are often considered to provide the most accurate insights in their internal states; however, authors have argued that personality may be more appropriately assessed *via* other-reports, as people often have biased interpretations of themselves (Connelly & Ones, 2010; Miller et al. 2005). Recent authors have argued that different theoretical rationales may be necessary for the study of self- vs. other-reported personality, as the former represents self-assessments and the latter represents reputation (Smith et al. 2024). Future research should replicate the current results using alternative measurement techniques, such as obtaining other-reports for EP or objective indicators for outcomes. Equally important, future investigations should also integrate theory relevant to the applied research design, as seen in the study of reputation for example. While we believe that the current results would be replicated when using these alternative measurement approaches, performing these studies could nevertheless support the robustness of our findings and identify novel directions for future theoretical integrations.

We applied a specific conceptualization of personality, EP, in our studies. PsyCap may mediate the effects of alternative conceptualizations of personality, whether general (e.g. Big Five) or specific (e.g. Individual Entrepreneurial Orientation). Researchers should replicate our results using other conceptualizations and

operationalizations of personality. While PsyCap was not a viable explanatory mechanism in the current article, it may pose useful in future research.

Both EP and PsyCap include dimensions representing self-efficacy. Although not a limitation of our investigation, the inclusion of trait self-efficacy in EP and state self-efficacy in PsyCap merits further consideration. Whole trait theory (Fleeson & Jayawickreme, 2015; Jayawickreme et al. 2019) argues that traits include two portions, the trait portion and the state portion. The trait portion is represented by the mean value of the trait, wherein between-person differences are represented by their average standing on the trait. For instance, a person's average standing on their self-efficacy causes them to be labeled as having either high or low self-efficacy, as these descriptions are relative to other people. The state person is represented by the variance of the trait, wherein within-person differences are represented by their fluctuations on the trait. For instance, a person may have low state self-efficacy at a certain moment, but they may have higher state self-efficacy at a later moment. These fluctuations are inherent in all states by definition. In turn, traits and states of the same construct are different phenomenological emergences of the same underlying latent process, but it is these differences in their emergence that causes them to have differing impacts on the individual. Both are able to predict behaviors, but their differences in how they predict behaviors causes them to incur differing theoretical and practical ramifications. Traits may call for greater between-person theory, whereas states may call for greater between-person, within-person, or both levels of theory. By investigating both in the current article, we provide assessments whether the state emergence of the construct informs the relations of its trait emergence, providing a more complete depiction of the personal influences of self-efficacy – both as a trait and as a state.

Contextual

Our participants were solely representative of the United States, but our studied relations may differ across cultures. Future research should first replicate the current results in other cultures, certain cultural influences may alter our observed effects. Namely, research has supported that the individualist/collectivist orientation of cultures alter how people choose to work together, altering how tasks are completed in the workplace (Farrukh et al. 2019; Fujimoto & Härtel, 2006; Sarkar, 2009). Some research has supported that the individualist/collectivist orientation of a culture also alters whether and how people traverse the earlier phases of the entrepreneurial process (Farrukh et al. 2019; Pinillos & Reyes, 2011), suggesting that traits beneficial to entrepreneurship may differ between these cultures. Entrepreneurs in collectivist cultures may benefit more from traits associated with collaboration and delegation, as decisions are expected to be made together and tasks are expected to be completed together. It is expected that the Wheel Conceptualization will replicate across cultures, as only certain traits are still believed to be influential at specific phases of the entrepreneurial process; however, researchers should assess whether different traits emerge as most relevant to the phases of the entrepreneurial process, such as relationship-oriented traits being more important in collectivistic cultures. This investigation could identify boundary conditions of EP and its representative dimensions.

We solely focused on characteristics of entrepreneurs in our studies. Research has shown that contextual influences may moderate the effects of entrepreneur characteristics (Brockhaus & Horwitz, 2002; Pérez-Fernández et al. 2022), suggesting that our results may differ in differing contexts. Researchers should investigate theoretically driven comparisons of EP across contexts, as guided by trait activation theory (Tett et al. 2013; 2021). Trait activation theory suggests that traits produce stronger relations in weak situations, as the context does not interfere with the effects of individual differences. On the other hand, strong situations overpower the effects of individual differences, causing traits to produce much smaller effects. Contexts with few opportunities for entrepreneurship and/or many opportunities for other employment may be a strong situation, wherein EP has little relation to entrepreneurial outcomes because the context dictates any effects; however, contexts with many opportunities for entrepreneurship and/or few opportunities for other employment (giving rise to necessity entrepreneurship) may be a weak situation, wherein the outcomes of entrepreneurs may rely more strongly on their traits. For this reason, the Wheel Conceptualization may be broadly applicable, as it has been supported that only certain traits are relevant at each phase of the entrepreneurship process; at the same time, contextual influences may dampen or strengthen the effect of traits at any given portion of the entrepreneurship process, as guided by trait activation theory. By supporting this potential effect, future researchers could uncover that trait activation theory may be essential for understanding EP, which could both explain prior findings in the entrepreneurship literature and link EP with broader perspectives stemming from trait activation theory (Meyer et al. 2010). Therefore, context may not only be an important aspect to consider for replication purposes, but it may also be a significant driver of future theoretical integrations for the study of EP.

Lastly, studies have demonstrated that entrepreneurs must engage in differing processes to achieve beneficial outcomes depending on their context. These differences can be seen when comparing Western and non-Western samples, and they can also be seen when comparing resource-rich and resource-constrained contexts (Durrah et al. 2024; Ghouse et al. 2023). These differences further suggest that our observed results may differ across contexts, but they also suggest that future investigations probing the explanatory mechanisms that explain the influence of EP and/or PsyCap on entrepreneurial outcomes must account for these differences. For instance, Durrah et al. (2024) demonstrated that women in Oman were particularly driven to entrepreneurial endeavors by external motivations, such as financial needs and dissatisfaction with current employment, whereas these may not be the primary motivations in alternative contexts. Therefore, the study of EP and PsyCap in the entrepreneurial process would particularly benefit from context-specific perspectives.

Conclusion

We performed two studies to determine whether PsyCap is a viable mediator for the relations of EP. Across both studies, the mediating role of PsyCap was largely not supported, indicating that it is not an appropriate lens to understand the effects of EP. Despite this surprising finding, we utilized our results to suggest future research

directions for the study of EP, such as the incorporation of behavioral learning theories. Although researchers often abandon studies that fail to support hypotheses (Cairo et al. 2020; Kepes et al. 2022), these studies provide valuable insights into theory-building and transparency, as demonstrated in the current article. We urge authors to similarly leverage studies that produce non-significant results, which can rule out non-viable theoretical lenses. Namely, our findings advance research by narrowing the scope of potentially applicable perspectives to understand EP, which has been a repeated call across the social sciences to utilize non-significant findings to advance research and practice (Cairo et al. 2020; Kepes et al. 2022; Kepes & McDaniel, 2013). Therefore, we also urge authors to satisfy these calls in the study of entrepreneurship, personality, and beyond.

Note

1. It should be acknowledged that EP includes trait self-efficacy and PsyCap includes state self-efficacy, and the discriminant validity of these constructs and their dimensions should be emphasized. First, both constructs include many other distinct dimensions. This causes the multidimensional constructs to demonstrate differing relations and appropriate discriminant validity. A similar phenomenon can be seen in research comparing PsyCap and core self-evaluations, two constructs that also share the dimension of self-efficacy (Gibson & Hicks, 2018; Howard, 2017). Second, self-efficacy in EP is a trait conceptualization, whereas self-efficacy in PsyCap is a state conceptualization. As argued by whole trait theory and supported by many empirical investigations (Fleeson & Jayawickreme, 2015; Jayawickreme et al., 2019), people have an average level of self-efficacy (trait), but they also demonstrate momentary fluctuations in self-efficacy (state). While the two are related, research has also shown that operationalizations of these two conceptualizations are distinct, as discussed below. Thus, the dimensions of self-efficacy in EP and PsyCap are distinct from both a theoretical and empirical perspective.

Author contributions

CRediT: **Matt C. Howard**: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

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