Is it All Positive?
A Critical Analysis of the Current State of Psychological Capital Research

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ABSTRACT

This millennium has no doubt witnessed a growing emphasis on positivity within organisational behaviour research and literature. A positive organisational behaviour (POB) movement has emerged, along with constructs such as Psychological Capital (PsyCap), demonstrating promising relationships between positivity and individual, team and organisational level outcomes. However, the POB movement has been met with scepticism and criticism at both the conceptual and methodological levels. This paper aims to specifically review the current literature pertaining to the core construct of POB, PsyCap. A structured psychometric-focused review will provide the keystone to highlight several critical shortcomings of the field, along with some encouraging developments, before asserting possible directions for future research and the potential practical implications for managers.

Keywords: Emotions; Interpersonal Behaviour; Team Processes; Work Performance.
The notion of positivity in organisational research has rapidly gained momentum since the late 90s, and has recently been conceptualised as Positive Organisational Behaviour (POB; Luthans, 2002a). The emergence of POB has not been without controversy; with critics of the movement questioning its legitimacy as a useful paradigm and casting doubt over its contribution to the general organisational behaviour (OB) domain. This essay will specifically examine the theoretical development of the central POB construct of psychological capital (PsyCap), before critically reviewing the current state of PsyCap focused empirical research. To this end, the essay provides a structured psychometric review of the extant PsyCap literature in order to highlight a range of concerns. These concerns include an underdeveloped psychometric profile, limited research methodologies, and a lack of multi-level research. Empirical studies were identified from a PsycINFO literature search using ‘Psychological Capital’ and ‘PsyCap’ as key identifiers. As a result, 17 published studies (in English) investigating the relationship between PsyCap and a range of outcome variables have been included in the review presented in Table 1. Suggestions for future research directions for the construct of PsyCap will also be provided in order to enhance the developments of the PsyCap literature.

**The Inception of POB & PsyCap:**

In the past decade the notion of positivity has been proposed as a new lens through which to study organisational behaviour (Luthans, Avey & Patera, 2008b). The call for a more positive emphasis stemmed largely from a desire to enhance the quality of life for working individuals and has mirrored a trend in clinical psychology to shift the emphasis away from psychopathology and what is ‘wrong’ towards what is ‘right’ with people by developing and enhancing personal strengths (Seligman & Csikszentmihalyi, 2000). Hence, the concept of POB was introduced as a way to formally integrate positive psychology to the workplace arena (Avey, Luthans & Youssef, 2010). POB has been defined as “the study and application of positively oriented human resource strengths and psychological capacities” which meet criteria showing they “can be measured, developed, and effectively managed for performance
improvement in today’s workplace” (Luthans, 2002b; p54). POB is differentiated from the general area of positive psychology because it emphasises predictors of workplace performance, or state-like strengths that can be developed at an individual, group or organisational level (Luthans, 2002b).

Since the inception of POB criteria outlined above, several positive psychological capacities have been examined both conceptually and empirically for inclusion in the POB framework. To date, those deemed to best fit the POB inclusion criteria are self-efficacy, hope, optimism, and resiliency (Luthans, et al., 2007). While each of these positive psychological constructs has been studied individually for their POB potential (see Luthans, et al., 2007 for a full review of these studies), substantially more attention has been devoted to a higher order core construct, known as PsyCap.

In its simplest form, PsyCap can be understood as “who you are” and “what you can become in terms of positive development”. More specifically, PsyCap is defined as “an individual’s positive psychological state of development that is characterised by:

1) Self Efficacy - having confidence to take on and put in the necessary effort to succeed at challenging tasks;

2) Optimism - making a positive attribution about succeeding now and in the future

3) Hope - persevering towards goals and, when necessary redirecting paths to goals; and

4) Resiliency - when beset by problems and adversity, sustaining and bouncing back and even beyond to attain success” (Luthans, et al., 2007, p3).

These four dimensions are considered to meet the criteria for POB in that they are each positive, unique, developable, measurable and performance-related (Luthans & Youssef, 2004). Confirmatory factor analyses have consistently demonstrated support for a core underlying factor whereby the shared variance or commonality between each facet comprises the higher order factor, PsyCap (Luthans et al., 2007).
A key theoretical issue in the literature is that PsyCap, by definition is positioned as state-like in nature, which underpins its inclusion as a POB construct, as POB criteria dictates that a construct must be open to development. However, PsyCap proponents report an on-going battle to convince fellow theorists of the state-like nature of PsyCap and its components.

“Convincing our colleagues that PsyCap is state-like has been challenging because all four constructs that make it up have been portrayed as being both trait-like and state-like” (Luthans & Avolio, 2009, p 300).

In order to clarify this issue at a conceptual level, Luthans and Youssef (2007) have proposed a continuum perspective of states and traits, with PsyCap being positioned as ‘mid-range’ and thus “state-like”. This continuum is represented in Figure 1, showing state-like psychological resources, such as PsyCap and it individual components closer to the state end of the continuum.

The benefits of this higher order construct of PsyCap in contemporary organisational settings have been demonstrated in an emerging, yet growing body of research (for a full review see Youssef & Luthans, 2010). For instance, it has been found that overall PsyCap consistently produces higher correlations with performance outcomes than any of its individual components by themselves (Luthans, Avolio, Walumbwa & Li, 2005; Luthans, Avolio, Avey & Norman, 2007). Thus, it is suggested that PsyCap appears to have a synergistic effect, whereby the whole (PsyCap) may be greater than the sum of its parts (i.e. efficacy, hope, optimism and resiliency; Luthans, et al., 2007). Moreover, PsyCap has been demonstrated to be a developable resource with several empirical studies demonstrating the utility of PsyCap interventions (Luthans, Avey, Avolio, Norman & Combs, 2006; Luthans, et al., 2007; Luthans, Avey & Patera, 2008b).

**Measurement of PsyCap:**

In developing a workplace specific measure of PsyCap, Luthans, Avolio and Avey (2007) drew from recognised, published measures of efficacy (Parker, 1998); hope (Synder et al.,
optimism (Scheier & Carver, 1985) and resilience (Wagnild & Young, 1993). As a result a 24 item measure, known as Psychological Capital Questionnaire (PCQ; Luthans, Avolio, et al., 2007) emerged and comprises the primary measure of PsyCap.

However, given the evolving nature of PsyCap and the PCQ, some of the studies included in this analysis predate the conception of the PCQ and subsequently have used individual assessment measures to capture the higher order construct of PsyCap. These studies have summed the z-scores from the individual scales to determine an overall PsyCap score. Where this has been the case it is noted in the ‘PsyCap measure’ column of our table. One more recent study (Cole, Daly & Mak, 2009) was omitted from this analysis as it implemented a proxy measure for PsyCap which included items unrelated to the PCQ or its scales of origin.

**PsyCap: A Valid Construct?**

A major criticism of the positive movement within OB research is that the field has grown too vast, too fast and as a result there is an over-saturation of seemingly similar positive concepts with minimal validity. In particular, it is argued that there is a general lack of attempt to explore the conceptual basis of the constructs and to probe how differently named, but seemingly similar concepts relate to one another theoretically and empirically by establishing the construct validity of these concepts (Hackman, 2009).

This argument can also be applied specifically to the current PsyCap literature. For instance, conceptual similarities appear evident between components of PsyCap and Core Self-Evaluations (CSEs). CSEs are defined as a multidimensional construct consisting of fundamental, subconscious self-appraisals, which include, self-esteem, generalized self-efficacy, locus of control and emotional stability that affect an individuals’ evaluation of themselves, their world and others and include (Judge & Bono, 2001). Thus, based on this definition alone, PsyCap appears to be merely a replica of CSEs, with seemingly obvious
overlap between construct (e.g. generalised and specific efficacy, locus of control and optimism, emotional stability and resilience).

However, PsyCap proponents have been eager to purport the convergent and discriminant validity between PsyCap and other positive constructs, such as CSEs. For example, while Avey, et al (2010) acknowledges the inherent conceptual similarities between PsyCap and CSEs they draw attention to empirical findings that support their distinction, with acceptable convergent and discriminant validity between PsyCap and CSEs being reported (see Luthans, Avolio et al., 2007).

However, from our review provided in Table 1, it is evident that only three studies (# 1, 10 and 17) have attempted to demonstrate the convergent and/or discriminant validity of PsyCap. Study one purports findings pertaining to the discriminant validity between PsyCap and other psychological capacities, including CSEs, extraversion and conscientiousness, whereby PsyCap has a strong, positive relationship with CSEs ($r=.60$), and a moderate relationship with extraversion ($r=.36$) and conscientiousness ($r=.39$). Mitchell and Jolly (2004) advise that to establish discriminant validity between two unrelated constructs a near zero (anywhere from -.20 to + .20) is required; however, to establish discriminant validity between related constructs a near-zero correlation is not necessary. Luthans et al (2007) explain that given the theoretical overlap between PsyCap and CSEs some convergence is to be expected. However they cite findings from regression analysis as preliminary evidence of discriminant validity between PsyCap and these related constructs; whereby, PsyCap was shown to contribute greater variance in job satisfaction over and above that explained by conscientiousness, extraversion and CSEs.

Further evidence of the discriminant validity of the PsyCap construct is cited in study 17. This study reports a significant distinction between the collective PsyCap (self referent) of
followers and followers’ perceptions of transformational leadership (other referent). Confirmatory factor analyses and chi square comparisons provided support for two distinct factors. This study claims this finding extends the evidence of the validity of PsyCap, as it demonstrates discriminant validity between two constructs using two different referents, self and other. Moreover, study 10 purports PsyCap to be unrelated to human capital but significantly related to social capital, with a significant moderate correlation reported between PsyCap and social capital ($r = .422$).

While these initial findings are promising, it is suggested that three studies are insufficient evidence in establishing discriminant validity for a construct, particularly one which is rapidly gaining scholarly attention. Moreover, this lack of evidence regarding the discriminant validity of PsyCap is particularly worrisome given its acknowledged conceptual overlap with other constructs (Avey et al., 2010).

However, it is also clear from Table 1 that there has been an empirical focus on developing a portfolio of evidence for the other aspects of construct validity of PsyCap and the PCQ, with seven of the 17 studies reviewed demonstrating through confirmatory analysis the four factor structure of PsyCap. These CFA findings have also lent empirical support for the higher-order factor structure of overall PsyCap. It is also evident that substantial research energy has been dedicated towards demonstrating the predictive validity of PsyCap, particularly in relation to performance outcome measures. Five of the reviewed studies illustrate a direct, significant relationship between PsyCap and performance measures; while other studies have reported similar relationships between PsyCap and other outcome measures such as job satisfaction, organisational citizenship behaviours, intent to leave and leadership perceptions.

Thus, it is suggested that a similar portfolio of evidence now needs to be developed in regards to the convergent and more critically, the discriminant validity of PsyCap. This research needs to explicitly examine the relationship and distinction between PsyCap and other
seemingly similar constructs such as CSEs, emotional intelligence and locus of control. This line of research will not only expand and fortify the psychometric profile of PsyCap and the PCQ; but will have the added benefit of clarifying if and how PsyCap and PsyCap-related interventions can add value to the workplace over and above other psychologically focused interventions.

Future Research Direction 1: Further research should be dedicated to enhancing the psychometric profile of the PsyCap construct and the PCQ, with a particular emphasis on discriminant and convergent validity.

PsyCap: A Reliable Construct?

It is further evident from Table 1 that the current PsyCap research is somewhat limited in regards to its reliability psychometrics. This review reveals that adequate internal consistency reliability has been demonstrated for each of individual PsyCap components as well as the core construct of overall PsyCap across nearly each study reviewed. With the exceptions of optimism ($\alpha = .69$) and resilience ($\alpha = .66$) in study 1, overall PsyCap ($\alpha = .68$) in study 4; hope ($\alpha = .64$) and optimism ($\alpha = .56$) in study 7 and a lower end range ($\alpha = .64$) in study 10, every other study reviewed reports internal consistency reliabilities alphas above the generally accepted 0.7 level (Leary, 2008).

Yet, while the majority of the studies reviewed do report internal consistencies above the conventional standard, it must be acknowledged that these findings are limiting in their portrayal regarding PsyCap’s overall reliability. For instance, internal consistency reliabilities are generally considered to be the least conservative measure of reliability, particularly compared with measures of test-retest reliability (Carmines & Zeller, 1979). From the studies reviewed, only one study (#1) has specifically examined the test-retest reliability for PsyCap. Study one reports PsyCap to have lower test-retest reliability over a four-week period than more trait-like constructs of CSEs and conscientiousness, thus demonstrating the state-like nature of PsyCap. However, again it must be recognised that a
single study is not sufficient in portraying the overall test-retest reliability of a construct. Furthermore, this current ‘gap’ in the psychometric profile of PsyCap does little to address the frequently raised contentions regarding the state-like nature of PsyCap, as outlined earlier. As such, it is suggested a focus for future research is to extend reliability analyses beyond internal consistencies and to strive to replicate Luthans, Avolio et al (2007) findings between PsyCap and other more trait-like constructs such as emotional intelligence and locus of control.

In addition to a lack of research focusing on the test-retest reliability of PsyCap, it is also evident from Table 1 that no published studies have examined inter-rater reliability of PsyCap. This omission is curious given the existence of an ‘other rater’ version of the PsyCap Questionnaire (Other; Luthans, Avolio et al., 2007). This version of the PCQ presents items from the PCQ self rater version with a referent shift focus to the ‘other’ person being rated, with the intent for use by colleagues and supervisors. For example “This person feels confident analysing a long-term problem to find a solution”. The reason that no current research exists implementing this ‘other rater’ version of the PCQ is unclear. Whether it is simply a line of enquiry which has not yet been reached or whether there is a lack of construct validity for the ‘other’ rater version of the PCQ is unknown. Or perhaps, there is doubt concerning the acuity in which an ‘other’ rater can assess state-like constructs in another individual. Thus, further investigation into possible inter-rater reliability of PsyCap seems well warranted, not only to enhance the psychometric profile of the PsyCap construct, but to also widen our understanding of the construct (i.e. can it be accurately observed and assessed by others).

*Future Research Direction 2: Further research should be devoted to increasing the psychometric properties of PsyCap, with a particular focus on test-retest reliability and the*
PsyCap: Based on a Single Methodology:

In his critique on the current state of POB research, Hackman (2009) asserts that emerging POB research has been largely concerned with concepts and ideas and not concerned enough with rigorous and robust methodologies. As a result, it is maintained that a cascade of studies have been published which predominately rely on self-report outcome measures and correlational methods, which heighten the risk of common method variance and ultimately reduce the interpretability of the findings.

Luthans and other POB proponents readily defend the research methodologies of the POB paradigm. They assert that POB has evolved based upon a strong theoretical basis and understanding, operational definitions, accepted research methodologies and valid measures and adherence to the highest scientific standards (Luthans, 2002a). However, they do acknowledge that there are several potential biases in using self-report measures, particularly when measuring job performance, identifying the collection of objective performance data as “one of the most problematic issues facing organizational behavioural research” (Luthans, et al., 2007; p 228). Objective performance indicators can often be unavailable, too subjective, outdated, infrequent and inadequate. Subsequently, it is suggested that when objective performance measures are unavailable, multiple measures of performance may be adequate substitutes, even if some of these sources are also subjective.

However, despite this acknowledgement regarding the importance of integrating multiple measures of outcomes such as performance, there remains a tendency for PsyCap research to rely solely on self-report outcome measures. Table 1 reveals that only five of the reviewed studies (#1, 3, 4, 7 & 17) incorporate ‘other’ rated measures of performance; while three further studies incorporate ‘other’ rated outcome measures pertaining to authentic leadership (# 8 & 16) and employee commitment (# 12). Moreover, only three of the studies (# 1, 3 and 16) have incorporated three sources of outcome measurement, being self-report, other-rated and objective data (such as merit based salary information or sales based information).
This appears to leave much of the current PsyCap literature open to harsh criticism regarding the applicability of the current PsyCap outcome-related assertions, particularly those to job performance (Fineman, 2006). This is a critical predicament for PsyCap research given that one of the foundational criteria for a POB construct, such as PsyCap, is that it is related to performance and open to development. Therefore it is suggested that a reliance on a single source outcome measure, and in particular self-report performance measures is simple inadequate for future PsyCap research. While it is encouraging that the major proponents of PsyCap have recognised the pitfalls of single source outcome measures and self-report assessments, this awareness needs to extend to all PsyCap researchers, current and future.

*Future Research Direction 3: Future research should place greater emphasis on multiple source outcome measurement to complement self-report assessments.*

**PsyCap: Too One-Dimensional?**

Further criticisms relating to POB research methodologies, including PsyCap, have been raised in regards to the propensity to focus on individual level of analyses and to provide explanations pertaining to the individual employee with little to no regard for the structural and contextual factors that shape organisation members’ lives (Hackman, 2009). Proponents of POB, and particularly PsyCap, do not deny this observation. However, they claim that as PsyCap research grows and develops so too will its focus, in order to reflect the realities of today’s workplace (Avey, et al., 2010).

According to Luthans and Avolio (2009), POB has traditionally developed in an inductive way from individual (i.e. Luthans & Avolio, 2003, on authentic leadership development); to group (i.e. West, Patera & Carsten, 2009, on group level PsyCap) to organizational (i.e. Avey, Wernsing, Luthans, 2008, on positive organizational change) levels of analysis. Thus, while at this stage POB multi-level research is still in its infancy and not yet at the extent of other paradigms, both multi-level theory building and examining behaviour in context are important research agendas for POB. Luthans and Avolio (2009) concur that there is a definite need to
go beyond the individual level, but that this must be done in a progressive and methodical manner in order to build out the science of POB.

To illustrate this argument, it is clear from the reviewed literature that PsyCap researchers thus far have strived to be progressive and methodical in regards to the samples utilised. From Table 1 it is clear that a variety of samples have been utilised in individual-level PsyCap research so far. These include student pilot studies, cross cultural samples, cross industry samples and cross level samples (employees, leaders, entrepreneurs). For such a young and developing research paradigm, the current PsyCap literature is gaining broad representation in terms of the sample populations studied; thus adding weight to the assertion that the PsyCap paradigm is being ‘built out’ in a progressive and systematic way by demonstrating the utility of the PsyCap (and PCQ) across multiple samples of individual employees prior to expanding the major research focus to the group and organizational level (Luthans & Avolio, 2009).

However, our review also indicates that the developing PsyCap literature has almost exclusively focused on individual level research, with the exception of two studies (# 9 & 16). Of these two studies only the latter incorporated a field sample (retail employees), while study nine was a pilot study with students and only included three of the four individual constructs of PsyCap. Therefore to date, there has been very little research conducted within a field context investigating the relationship between group level PsyCap and group level performance and other outcome measures important to organisations.

While it is acknowledged that the PsyCap paradigm is still in the early stages of evolution, it is suggested that a greater portion of subsequent research needs to investigate the possibility of PsyCap at the group and organizational levels. This is particularly critical given the growing reliance on work teams within today’s workplace (West et al., 2009). For instance, one potential area for multi-level PsyCap research to develop is to simply extend the work of West and colleagues (2009) to a field setting and implementing the PCQ with a referent shift
approach (Chan, 1998); whereby the target of the item is changed to the team rather than the individual. Other future lines of multi-level inquiry may include developing team PsyCap interventions (based on those already evidenced at an individual level; see Luthans, Avey, Avolio, Norman & Combs, 2006) and possible PsyCap contagion as similar processes have been demonstrated with team affect (see Totterdell, Kellett, Teuchman & Briner, 1998; Totterdell, 2000).

Future Research Direction 4: Future research should extend the current research knowledge and assessment of PsyCap to the group and organisational level.

Conclusion:

This essay set out to undertake a critical examination of the extant PsyCap literature in terms of where it has come from, where it sits now and more importantly, where to next? It is clear from this review that PsyCap is a positive construct that has ignited scholarly interest and excitement, with a growing portfolio of studies and researchers dedicated to understanding more about the construct and its potential in today’s workplace. However, it is also evident from this review that there are some critical gaps surfacing in the current PsyCap literature, which if left unattended, run the risk of exposing the PsyCap construct and the POB research paradigm to increased scepticism and possible scholarly disparagement. As such, four principle recommendations for future directions for PsyCap research have been made which relate to expanding the psychometric profile of the PsyCap construct, particularly in regards to discriminant validity and alternate forms of reliability over and above internal consistencies; greater investigation implementing multiple sources of outcome measurement and extending the current PsyCap knowledge to group and organizational levels. Addressing these issues in the first instance is imperative so that future research can transition to encompass a greater focus on the practical application and evaluation of PsyCap interventions with a stronger theoretical grounding; and subsequently deliver greater potential benefit to the overall field of management.
References:


Figure 1: The Trait-State Continuum as Proposed by Luthans & Youssef (2007)

- Pure Positive Traits
  - E.g. Intelligence
- Trait-like Constructs
  - E.g. Core Self Evaluations
- State-like Psychological Resources
  - E.g. PsyCap
- Positive States
  - E.g. Moods & Emotions
<table>
<thead>
<tr>
<th>Study</th>
<th>PsyCap Measure</th>
<th>Data Type</th>
<th>Sample</th>
<th>Validity</th>
<th>Reliability</th>
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<td>Convergent &amp; Discriminant</td>
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<td>Predictive</td>
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<tr>
<td>1. Luthans, Avolio, Avey &amp;</td>
<td>PCQ</td>
<td>Self</td>
<td>Study 1: 167 Students&lt;br&gt;Study 2: 115 Engineers&lt;br&gt;Study 3: 170&lt;br&gt;</td>
<td>Study One Sample 2&lt;br&gt;</td>
<td>Study Two Sample 1 (N=115)</td>
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<tr>
<td>Norman (2007)</td>
<td></td>
<td>Report (SR)</td>
<td>Students &amp; Technicians&lt;br&gt;900 Service Employees&lt;br&gt;404 Students&lt;br&gt;</td>
<td>Performance r=.33**</td>
<td>Performance r=.22*</td>
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<td>Other</td>
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<td>Data (OD)</td>
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<td>Study 1:</td>
<td>SR</td>
<td>132 managers, leaders &amp; supervisors</td>
<td>CFI = .93&lt;br&gt;RMSEA = .06</td>
<td>Performance&lt;br&gt;β = .25**&lt;br&gt;ΔR² = .06*</td>
<td>Study 1: PsychCap α = .89&lt;br&gt;PsychCap α = .91</td>
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<td>Study 2:</td>
<td>SR</td>
<td>132 managers, leaders &amp; supervisors</td>
<td>CFI = .93&lt;br&gt;RMSEA = .06</td>
<td>Performance&lt;br&gt;β = .26**&lt;br&gt;ΔR² = .05*</td>
<td>Study 2: PsychCap α = .89&lt;br&gt;PsychCap α = .91</td>
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<td>Study 3:</td>
<td>SR</td>
<td>132 managers, leaders &amp; supervisors</td>
<td>CFI = .93&lt;br&gt;RMSEA = .06</td>
<td>Performance&lt;br&gt;β = .32**&lt;br&gt;ΔR² = .07*</td>
<td>Study 3: PsychCap α = .91&lt;br&gt;PsychCap α = .91</td>
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<td>2. Avey, Wernsing &amp; Luthans</td>
<td>PCQ</td>
<td>SR</td>
<td>132 managers, leaders &amp; supervisors</td>
<td></td>
<td>Performance&lt;br&gt;β = .25**&lt;br&gt;ΔR² = .06*</td>
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<td>(2008)</td>
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<td>132 managers, leaders &amp; supervisors</td>
<td>CFI = .93&lt;br&gt;RMSEA = .06</td>
<td>Performance&lt;br&gt;β = .25**&lt;br&gt;ΔR² = .06*</td>
<td>Study 2: PsychCap α = .89&lt;br&gt;PsychCap α = .91</td>
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<td>3. Luthans, Norman, Avolio &amp;</td>
<td>PCQ</td>
<td>SR OR OD</td>
<td>Study 1: 404 Students&lt;br&gt;Study 2: 163 insurance employees&lt;br&gt;Study 3:</td>
<td></td>
<td>Study 1: PsychCap α = .89&lt;br&gt;PsychCap α = .91</td>
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<tr>
<td>Avey (2008)</td>
<td></td>
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<td>170 engineers &amp; technicians</td>
<td>Study 1: β = .25**&lt;br&gt;ΔR² = .06*</td>
<td>Study 2: PsychCap α = .89&lt;br&gt;PsychCap α = .91</td>
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<td>Study 2: β = .26**&lt;br&gt;ΔR² = .05*</td>
<td>Study 3: PsychCap α = .91&lt;br&gt;PsychCap α = .91</td>
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<td>Study Details</td>
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<td>4.</td>
<td>Luthans, Avey, Clapp-Smith &amp; Li (2008)</td>
<td>456 Chinese mining employees</td>
<td>β = .260**, ∆R² = .07**</td>
<td>.68</td>
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<td>5.</td>
<td>Luthans, Avey &amp; Patera (2008b)</td>
<td>364 employees from manufacturing, service, sales and government industries</td>
<td>SRMR = .048, RMSEA = .054, CFI = .958</td>
<td>.92, .87, .83, .77, .93</td>
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<td>6.</td>
<td>Avey, Luthans &amp; Youssef (2010)</td>
<td>336 employees from wide cross section of organizations &amp; industries</td>
<td>SRMR = .05, RMSEA = .05, CFI = .96</td>
<td>Cynicism β = -.42*, R² = .32* \nIntent to Quit β = -.27*, R² = .38* \nOCB-Indiv β = .17 \nR² = .38* \nOCB – Org β = .22* \nR² = .49* \nCWB β = -.32* \nR² = .29*</td>
<td>Self-efficacy = .92 \nHope = .87 \nResilience = .83 \nOptimism = .77 \nPsyCap = .95</td>
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<td>7.</td>
<td>Luthans, Avolio, Walumbwa &amp; Li (2005)</td>
<td>422 Chinese factory employees</td>
<td>GFI = .92, CFI = .88, RMSEA = .04</td>
<td>Cynicism β = -.42*, R² = .32* \nIntent to Quit β = -.27*, R² = .38* \nOCB-Indiv β = .17 \nR² = .38* \nOCB – Org β = .22* \nR² = .49* \nCWB β = -.32* \nR² = .29*</td>
<td>Hope = .64 \nOptimism = .56 \nResilience = .84 \nPsyCap = .80</td>
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<td>8.</td>
<td>Jensen &amp; Luthans (2006)</td>
<td>148 business founders &amp; owners</td>
<td>Authentic Leadership Self Perceptions β = .421**, R² = .287</td>
<td>Optimism = .72 \nResilience = .82 \nHope = .89</td>
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<td>9.</td>
<td>West, Patera &amp; Carsten (2009)</td>
<td>112 X 3-4 student teams (N = 343)</td>
<td>Project 1 Cohesion</td>
<td>Project 1 Team Efficacy = .94</td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Measure/Concept</td>
<td>Sample Size</td>
<td>R² Values</td>
<td>Alpha Values</td>
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<td>10. Larson &amp; Luthans (2006)</td>
<td>Efficacy (Parker, 1998) Hope (Synder et al., 1996) Optimism (Schier &amp; Carver, 1985) Resiliency (Block &amp; Kremen, 1996)</td>
<td>SR 74 production workers</td>
<td>R² = .30** Cooperation R² = .27** Coordination R² = .33** Satisfaction R² = .30** Conflict R² = .11*</td>
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<td>11. Avey, Patera &amp; West (2006)</td>
<td>PCQ</td>
<td>SR 105 engineering managers</td>
<td>CFI = .981 RMSEA = .025 SRMR = .065</td>
<td>Efficacy α = .82 Hope α = .81 Resilience α = .78 Optimism α = .65 PsyCap α = .90</td>
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<td>12. Luthans &amp; Jensen (2005)</td>
<td>Efficacy (Parker, 1998) Hope (Synder et al.,)</td>
<td>SR 71 nurses</td>
<td>R² = .169** Commitment R² = .169** Intent to Stay</td>
<td>Efficacy α = .89 Optimism α = .80 Hope α = .82 PsyCap α = .89</td>
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<tr>
<td>Study</td>
<td>Research Design</td>
<td>Sample Characteristics</td>
<td>Variables</td>
<td>Findings</td>
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</table>
| 13. Hmieleski & Carr (2007) | Optimism (Scheier, Carver & Bridges, 1994), Efficacy (De Noble et al., 1999), Resilience (Wagner & Young 1993), Hope (Snyder et al., 1996) | 144 Top Management Team Leaders & Business Founders | Job Satisfaction | $R^2 = .56$  
  
  Job Search Behavior | $eta = -.16^{**}$ |
  
  Job Search Behavior | $eta = -.16^{**}$ |
  
  Health | $eta = .12^{*}$  
  
  $R^2 = .59$  
  
  $R^2 = .34$ |
  
  Performance: | $\beta = .16$  
  
  Follower Perception of Leadership | $\beta = .84^{*}$  
  
  OCB-Ind | $\beta = .65^{*}$  
  
  OCB-Org | $\beta = .63^{*}$  
  
  $\alpha = .88-.89$ |
| 17. Gooty, Gavin, Johnson, Frazier & Snow (2009) | PCQ | 158 Marching Band Members | Follower Perception of Leadership | $\beta = .56^{**}$ |

* $p < .05$  
  ** $p < .01$  
  ^ Measures translated into Chinese