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# Psychological Capital: An Evidence-Based Positive Approach

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# Psychological Capital: An Evidence-Based Positive Approach

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## Abstract

The now recognized core construct of psychological capital, or simply PsyCap, draws from positive psychology in general and positive organizational behavior (POB) in particular. The first-order positive psychological resources that make up PsyCap include hope, efficacy, resilience, and optimism, or the HERO within. These four best meet the inclusion criteria of being theory- and research-based, positive, validly measurable, state-like, and having impact on attitudes, behaviors, performance and well-being. The article first provides the background and precise meaning of PsyCap and then comprehensively reviews its measures, theoretical mechanisms, antecedents and outcomes, levels of analysis, current status and needed research, and finally application. Particular emphasis is given to practical implications, which focuses on PsyCap development, positive leadership, and novel applications such as the use of video games and gamification techniques. The overriding theme throughout is that PsyCap has both scientific, evidence-based rigor and practical relevance.

**Keywords:** psychological capital, positive psychology, positive organizational behavior, PsyCap, positive organizational scholarship, Psychological Capital Questionnaire, psychological capital intervention, gamification

**Introduction**

The contributions of the field of psychology to well-being are widely recognized in a broad range of domains, including relationships, education, health, sports, military, work, and life in general. However, at the turn of the twenty-first century, Seligman & Csikszentmihalyi (2000) pointed out that since World War II, psychology has focused almost exclusively on "fixing" mental illness and dysfunctional behavior, rather than on understanding and facilitating normal functioning, as well as growth and development, in healthy individuals. This body of knowledge relevant to curing mental illness within this "disease model" is overwhelmingly found in widely-respected scholarly journals and applied in best practices. What is known about what makes healthy individuals function normally, however, and more importantly what makes them happy, productive, creative, and capable of living, working, and loving, remains limited, under-researched, and largely left to anecdotal evidence in the popular self-help literature. On the basis of this recognized gap, Martin Seligman in his now famous 1998 American Psychological Association presidential address made the call for a "positive psychology" that explicitly focuses on studying and understanding "normal" people's well-being, productivity, optimal functioning, and realizing one's full potential (Seligman et al. 2005).

This charge to the psychology field seemingly struck a chord with scholars and practitioners as evidence-based positive psychology research and applications increased exponentially. Over the past nearly two decades, there have been hundreds of articles in top-tier journals, several edited reference handbooks, special issues of journals, bestsellers, and even a dedicated journal, the Journal of Positive Psychology. Also, relevant to the fields of management and organizational behavior, several streams of research and practice emerged, applying positive psychology to the workplace (for the origins of this approach, see Luthans 2016, Luthans & Avolio 2009).

Going from general to specific, this review article includes (*a*) positive organizational scholarship (POS), (*b*) positive organizational behavior (POB), and (*c*) psychological capital (PsyCap). Luthans et al. (2015, p. 2) define PsyCap as "an individual's positive psychological state of development that is characterized by: (1) having confidence (efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about

succeeding now and in the future; (3) persevering toward goals and when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success. "This article emphasizes this PsyCap but first briefly introduces POS and POB to provide the broader context.

## Positive Organizational Scholarship

POS is a "movement in organizational science that focuses on the dynamics leading to exceptional individual and organizational performance such as developing human strength, producing resilience and restoration, and fostering vitality" (Cameron & Caza 2004, p. 731). POS is an umbrella concept that integrates a variety of positive scientific perspectives, including positive traits, states, processes, dynamics, and outcomes, all of which are of relevance to organizations.

Cameron & Spreitzer (2012) offer four characteristics for positive approaches that fit the POS framework. First, a positive approach should adopt a unique or alternative lens that alters the interpretation of phenomena, which by themselves may or may not be positive. For example, a problem or an obstacle can be interpreted as an opportunity for learning and growth. Second, this approach is characterized by extraordinary positive outcomes. This is framed in terms of positive deviance, as opposed to negative deviance or even normal or common results. A frequently cited example of such deviance is when under a positive approach the closure and cleanup of the infamous Rocky Flats Nuclear Arsenal greatly exceeded expectations by being 13 to 60 years ahead of schedule and $30 billion under budget (see Cameron & Lavine 2006). This notion of positive deviance could also be exemplified at the individual level with the recent work of Aguinis et al. (2016) on star performance. Third, a positive approach in POS has an affirmative bias, which places a higher weight on positive than negative constructs, dynamics, and outcomes. Fourth, a positive approach emphasizes understanding the best of the human condition, including flourishing, thriving, optimal functioning, excellence, virtuousness, forgiveness, compassion, goodness, and other life-giving dynamics. The emphasis is on positivity for its own sake, not just as a means toward other ends.

POS does not discount the value of negativity and negative constructs. However, similar to positive psychology and other positive perspectives, it acknowledges that positivity and negativity serve unique and different functions. They represent distinct constructs and processes, rather than being opposite ends on the same continuum. For example, Cameron (2008) observes that although humans tend to be attracted to what is positive and pleasant, there is also a prevalent bias toward negativity.

He provides four reasons for this negative bias. The first reason is intensity. Negative stimuli are perceived as threats that need to be addressed more immediately and resolutely, which causes them to be experienced more intensely than positive stimuli. This notion may have evolutionary roots. Second is novelty. Positive events are more common, so they tend to go unnoticed. Negative events stand out because they are often unusual or unexpected aberrations to everyday life. The third reason is adaptation. A negative stimulus is perceived as a signal of maladaptation and a need for change. Fourth is singularity. A single negative or defective element of a system can compromise the functioning of the whole system, but a properly functioning element cannot guarantee that the system will function adequately or effectively.

In other words, negativity tends to grasp more attention and resources because there is an urgent deficiency to be addressed and resolved. Positivity implies "business as usual," which provides limited motivation for change. The outcomes of positivity tend to be evasive because they are distal, vague, uncertain, and underspecified (Wright & Quick 2009), at least in the short term. Thus, balancing and optimizing the benefits of positivity and negativity requires amore intentional emphasis on positivity, in both research and application.

The POS approach robustly continues to build theory, conduct research and provide guidelines for effective application. The Center for Positive Organizational Scholarship at the University of Michigan continues to expand and serves as an effective focal point and repository for POS research and application. Their handbook (Cameron & Spreitzer 2012) has 79 entries organized into (*a*) positive individual attributes, (*b*) positive emotions, (*c*) strengths and virtues, (*d*) positive relationships, (*e*) positive human resource practices, (*f*) positive organizational practices, (*g*) positive leadership and change, (*h*) a positive lens on problems and challenges, and (*i*) expanding POS. These provide a very general topical outline of what is involved in POS.

**Positive Organizational Behavior**

As indicated above, whereas POS is an umbrella concept, POB focuses more on specific positive constructs. POB is defined as "the study and application of positively oriented human resources strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace" (Luthans 2002b, p. 59). This definition highlights several criteria for a psychological construct to be included in POB. First, it must be theory- and evidence-based, in order to lend itself to scientific study. Second, it must be positively-oriented and thus consistent with positive psychology, POS, and other positive research streams. Third, it should be validly and reliably measurable, again to allow for rigorous scientific study and research. Fourth, it needs to be open to development and management. Finally, it must be related to desired and measurable work attitudes, behaviors and performance criteria (Luthans 2002a,b).

After gaining a depth of understanding and using the above criteria to conduct a systematic analysis of the widely recognized constructs or capacities in positive psychology, the following four were determined to be the best fit: hope, efficacy, resilience, and optimism (Luthans 2002a,Luthans et al. 2004, Luthans & Youssef 2004).We later often summarize these using the acronym HERO. Drawing from Fredrickson's (2001, 2009) broaden-and-build notion that positivity can build psychological resources that can be tapped when needed and psychological resource theories (see Hobfoll 2002 for a review), we treat and subsequently refer to these four as positive psychological resources, which have an underlying common thread of meeting the inclusion criteria and are thus part of an interactive, synergistic resource set, rather than being in isolation and completely independent psychological constructs (see Luthans et al. 2015, pp. 31–32).

Hope is defined as "a positive motivational state based on an interactively derived sense of successful (a) agency (goal-directed energy) and (b) pathways (planning to meet goals)" (Snyder et al. 1991, p. 287). On the basis of this definition, hope includes two key dimensions: agency, which is the willpower or determination to pursue goals, and pathways, which is the "waypower" or ability to generate alternative paths to achieve goals when obstacles hinder plans. Hope

is rooted in Snyder's extensive theory-building and research and has been applied to numerous life domains (see Snyder 2000 and Lopez 2013 for comprehensive reviews).

Efficacy is defined as "the individual's conviction or confidence about his or her abilities to mobilize the motivation, cognitive resources or courses of action needed to successfully execute a specific task within a given context" (Stajkovic & Luthans 1998b, p. 66). Efficacy is rooted in Bandura's (1997) social cognitive theory, and its links to performance have been established in numerous life domains, including the workplace (Stajkovic & Luthans 1998a). Four approaches are recognized for efficacy development: mastery or success experiences, vicarious learning or modeling from relevant others, social persuasion and positive feedback, and physiological and psychological arousal (Bandura 1997).

Resilience is defined as "the capacity to rebound or bounce back from adversity, conflict, failure or even positive events, progress and increased responsibility" (Luthans 2002b, p. 702). It represents the deployment of positive adaptation patterns and processes to overcome adversities or risk factors by capitalizing on personal, social or psychological assets (Masten et al. 2009). Although extensively studied in developmental psychology, resilience research and applications are becoming more popular in organizational psychology. The Comprehensive Soldier and Family Fitness training program, established in 2008 by the United States Army to proactively build resilience in soldiers and their families as a preventative measure and a positive alternative to the prevailing reactive treatment programs, is one of many examples (Seligman & Matthews 2011).

Optimism is a positive explanatory style that attributes positive events to personal, permanent, and pervasive causes, and interprets negative events in terms of external, temporary, and situation specific factors. In contrast, a pessimistic explanatory style attributes positive events to external, temporary, and situation-specific causes, and negative events to personal, permanent, and pervasive ones (Seligman 1998). In addition, Carver et al. (2009) describes optimism as a generalized positive outlook that yields global positive expectancies. In other words, optimists are those who expect good things to happen. The latter, positive outlook view is more general, whereas the former, explanatory style view is more situation-specific. POB integrates both views.

Noticeable similarities between POS and POB are that they are both evidence-based, situated in the context of the workplace, and emphasize rigorous scientific methods. However, POB (and specifically PsyCap, discussed next) is much more specific, and thus may represent one concept or perspective under the umbrella of POS. For example, we provide the first chapter on PsyCap in the POS handbook previously outlined (see Cameron & Spreitzer 2012). However, more representative of POB has been its primary emphasis on the individual level and to a lesser—but increasing—extent, team or collective cPsyCap (see Broad & Luthans 2016) and organizational levels (oPsyCap; see Memili et al. 2013). Conversely, POS spans positive phenomena that mainly occur in organizational contexts at various levels of analysis.

## Psychological Capital

As formally defined in the introductory comments above, PsyCap integrates the four HERO positive psychological resources that best fit the POB inclusion criteria (Luthans et al 2004, Luthans & Youssef 2004, Luthans et al. 2015). When these four resources are combined, they form, and have been empirically supported (Luthans et al. 2007), as a higher-order core construct based on the shared commonalities of the four first-order constructs and their unique characteristics. As indicated above, this is also consistent with Hobfoll's (2002) notion of "resource caravans," i.e., psychological resources that may travel together and interact synergistically to produce differentiated manifestations over time and across contexts.

In terms of commonalities, hope, efficacy, resilience, and optimism share a sense of control, intentionality, and agentic goal pursuit. They also share the common theme of "positive appraisal of circumstances and probability for success based on motivated effort and perseverance" (Luthans et al. 2007, p. 550). For example, optimistic individuals will view their chances of success to be high. Being confident (i.e., having high efficacy), they will intentionally choose challenging goals and be motivated to achieve them. Hope will promote the generation and pursuit of multiple pathways toward those goals, and resilience will allow for recovery from setbacks when pathways are blocked. Together, these HERO resources will help maintain an internalized

sense of control and intentionality while goals are being pursued and accomplished.

However, the first-order positive psychological resources of hope, efficacy, resilience, and optimism also have unique characteristics (i.e., they have discriminant validity, Luthans et al. 2007). For example, hope, efficacy, and the positive outlook of optimism tend to be proactive in nature, whereas resilience and the explanatory style conceptualization of optimism are usually reactive and occur after a positive or negative situation has already been encountered. In addition, pathways or waypower are unique to hope. Moreover, hope and efficacy primarily share an internal focus, whereas optimism and resilience are more outwardly oriented, as external attributions and social resources are integral to those two psychological resources, respectively. Beyond these conceptual distinctions, discriminant validity of these constructs has also been established empirically, not only in the analysis of PsyCap (Luthans et al. 2007), but also in the positive psychology literature (e.g., see Alarcon et al. 2013, Bryant & Cvengros 2004, Gallaghar & Lopez 2009, Magaletta & Oliver 1999, Rand et al. 2011).

With the convergent and discriminant validity of the HERO components being determined, we do not make, nor have the studies over the years consistently found, a distinction between their relative importance or contribution. However, with recently emerging use of person-centered (versus commonly used variable-centered) latent profile analysis (LAP) of multidimensional constructs such as organizational commitment (see Meyer et al. 2013), it may be interesting to see if different combinations or profiles of the PsyCap components differentially affect outcomes. With this backdrop serving as a foundation, we now review and summarize what is known to date about PsyCap. **Figure 1** synthesizes this review in a very comprehensive conceptual framework and can serve as a visual outline for the discussion.

### *Psychological Capital as a State-Like Resource*

One of the most important POB criteria, and a distinguishing characteristic of PsyCap, is its plasticity or malleability and openness to change and development. Longitudinal studies support that PsyCap changes over time (Avey et al. 2010, Peterson et al. 2011). Experimental studies also support PsyCap development and change through
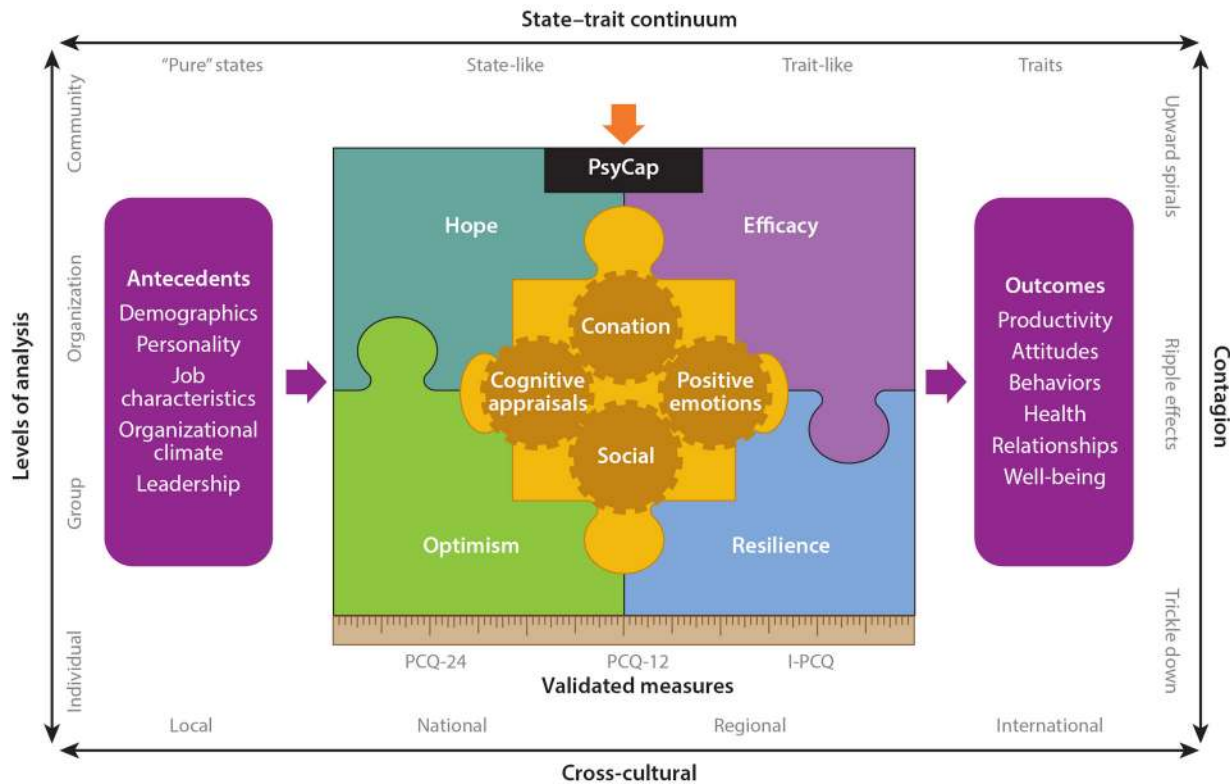
**Figure 1.** PsyCap conceptual framework. Abbreviations: I-PCQ, Implicit Psychological Capital Questionnaire; PsyCap, psychological capital.

relatively short training interventions (Dello Russo & Stoykova 2015; Demerouti et al. 2011; Ertosun et al. 2015; Luthans et al. 2006a, 2008b, 2010, 2014), including in a web-based intervention (Luthans et al. 2008b). In addition, interventions used in positive clinical psychology, which can be readily adapted for the development of PsyCap, have been shown to be effective in increasing positivity, alleviating negativity and enhancing well-being (Sin & Lyubomirsky 2009).

Luthans & Youssef (2007) conceptualize the malleability of various psychological characteristics and resources on a trait-state continuum (see **Figure 1**). At one end of the continuum, relatively "pure" states are momentary, changeable, and unstable. Examples of such states include moods and emotions. Next, state-like resources such as PsyCap are still malleable and open to development but relatively more stable than, for example, emotions (Luthans et al. 2007).Moving along the continuum, trait-like characteristics are relatively fixed and not

very malleable, at least in adults. Examples include personality traits (e.g., Big Five personality traits), core self-evaluations ( Judge & Bono 2001), and character strengths (Peterson & Seligman 2004). On the opposite end of the continuum, relatively pure traits are largely genetically based and very difficult to change. Examples include intelligence and heritable physical characteristics.

The positioning of PsyCap as a state-like resource is aligned with evidence from positive psychology that states and state-like characteristics still include a trait baseline (or set point). Analogously, although the nature-nurture debate continues to be lively and ongoing, new, promising research findings reveal that personality makeovers may be possible based on motivation, effort, exposure to an optimal mix of environmental factors or intentionally designed interventions, and a myriad of other factors (e.g. Hudson & Fraley 2015).However, research evidence from positive psychology to date suggests that nature and nurture (e.g., how one was raised as a child) determines approximately half of the variance in one's level of positivity and happiness. Moreover, circumstances (e.g., age, income, location, appearance) determine only ~10%. This leaves 40% of positivity under one's control, and thus is open to intentional development and purposeful shaping (Lyubomirsky 2007). Along with similar agentic (Youssef-Morgan & Luthans 2013b) and conative (Youssef & Luthans 2013) mechanisms in our theory building of PsyCap, we also draw from this 40% intentionality. Furthermore, nature and nurture also interact over time, so it is possible that this 40% estimate by Lyubomirsky (2007) may actually be conservative.

In addition, emerging evidence from neuroscience traces positivity and negativity to the prefrontal cortex, the part of the brain that processes higher-order rational thinking, rather than just primitive and volatile emotional reactions. This particular area of the brain also shows notable plasticity toward higher positivity (Davidson 2012). Thus, humans can become more positive, and sustain positivity over time, which is consistent with the state-like conceptualization of PsyCap. Neuroscientific evidence also supports differential susceptibility (variations in plasticity across individuals), with some people exhibiting more vantage sensitivity (heightened sensitivity to positive influences) than others (Pluess & Belsky 2013). This evidence implies that the trait-state mix may vary across individuals. There are also

promising specific neuro applications to PsyCap just emerging (Peterson et al. 2008, Quisenberry 2015).

These developments are why PsyCap is placed on a continuum of stability and referred to as being state-like rather than a state. This positioning is also supported by the recognized developmental potential of each of PsyCap's constituent resources. For example, hope has been conceptualized and measured as a malleable construct (Snyder et al. 1996). It can be developed through effective goal-setting, contingency planning, and mental rehearsals of important and challenging goals and pathways at the individual level, as well as the allocation of resources and support necessary at the group and organizational levels (Luthans et al. 2015, Youssef-Morgan & Dahms 2016).

As indicated, widely recognized approaches to efficacy development include mastery or success experiences, vicarious learning or modeling of relevant others, social persuasion and positive feedback, and physiological and psychological arousal (Bandura 1997).Resilience can be developed through asset-focused, risk-focused, and process-focused strategies, which emphasize the building and effective deployment of assets to mitigate risk factors (Masten et al. 2009). Finally, optimism can be developed through positive "self-talk" and learned thinking patterns that promote leniency for the past, appreciation for the present, and opportunity seeking for the future (Schneider 2001). Each of these developmental guidelines is then pulled together for relatively short PsyCap training interventions. The Practical Applications section at the end of this review provides details on what this looks like and how to conduct effective PsyCap development programs.

### *Psychological Capital Measures*

For PsyCap to be subject to rigorous scientific study and evidence-based applications, valid and reliable measures are necessary. As shown in **Figures 2** and **3**, there are currently both validated self-report and projective, implicit measures for PsyCap. An assessment of PsyCap by use of computer-aided text analysis has also been suggested (McKenny et al. 2013). This indirect method using speech or writing samples may have potential, especially for measuring organizational-level PsyCap, but because it is time consuming to collect and transcribe sufficient relevant data, this approach has not yet played a significant role in PsyCap research.

Instructions: These statements describe how you may think about yourself right now. Use the following scale to indicate your level of agreement or disagreement with each statement.

| Strongly Disagree 1 | Disagree 2 | Somewhat Disagree 3 | Somewhat Agree 4 | Agree 5 | Strongly Agree 6 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4. I feel confident helping to set targets/goals in my work area | | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. If I should find myself in a jam at work, I could think of many ways to get out of it. | | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. When I have a setback at work, I have trouble recovering from it and moving on. (R) | | | | | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. When things are uncertain for me at work, I usually expect the best. | | | | | 1 | 2 | 3 | 4 | 5 | 6 |

**Figure 2.** PCQ sample items.

In the following you will see a series of three statements. Your task is to invent stories about people you choose in order to answer these statements. Try to imagine what is going on. Think about what happened before, who the characters are, what they are thinking and feeling, what will happen next, and how will the story end. You don't need to write the story down; just think about it until it is clear in your mind. Then respond to the items after each of the three statements using your own thoughts about what the character is thinking and feeling. Plan to spend around 2–4 minutes per story. There are no right or wrong stories. Imagine whatever kind of story you like.

SOMEONE TALKS TO HIS/HER SUPERVISOR

Remember your task is to invent a story about someone in this statement. Again, you don't need to write the story down; just think about it until it is clear in your mind. Then respond to the following items using your own thoughts about what the character is thinking and feeling. Rate the degree to which the character in your story thinks or feels using the following scale:

| | The opposite is very true of this character | The opposite is somewhat true of this character | The opposite is slightly true of this character | Irrelevant thought/feeling for this character | Slightly true of this character | Somewhat true of this character | Very true of this character |
|---|---|---|---|---|---|---|---|
| 1. Feeling smart or intelligent | O | O | O | O | O | O | O |
| 2. Believing that he/she can accomplish his/her goal | O | O | O | O | O | O | O |
| 3. Expecting good things to happen in the future | O | O | O | O | O | O | O |
| 4. Feeling satisfied with his/her life | O | O | O | O | O | O | O |
| 5. Being concerned about being seen as important | O | O | O | O | O | O | O |
| 6. Feeling accepted by others | O | O | O | O | O | O | O |
| 7. Believing that he/she can bounce back from any setbacks that have occurred | O | O | O | O | O | O | O |
| 8. Feeling confident and self-assured in his/her ability | O | O | O | O | O | O | O |

**Figure 3.** The Implicit Psychological Capital Questionnaire (I-PCQ).

Up to the past few years when the shorter version and the implicit measure covered next began to be increasingly used, the widely recognized PCQ-24 self-report measure was used in almost all PsyCap research (Avey et al. 2011b, Newman et al. 2014). This instrument includes six items measuring each of the four resources with sample questions shown in **Figure 2** [also see Luthans et al. 2007 for validation of this scale and also Mind Garden (**http://www.mindgarden.com**) for additional information, supporting resources, and the permission process, which is free for researchers]. The systematically selected items used in this PCQ-24 have all been adapted from established measures of hope (Snyder et al. 1996), efficacy (Parker 1998), resilience (Wagnild & Young 1993), and optimism (Scheier & Carver 1985).Thus, there is an evidence-based track record for the selection and inclusion of these items. The primary wording adaptations are the inclusion of the context (e.g., "at work") to make the measure domain specific, as well as a sense of "here and now" (e.g., "how you think about yourself right now"). The items were selected to tap into state-like psychological resources, rather than traits and trait-like characteristics. Furthermore, this scale has been tested in other contexts beyond current employment, including job search (Chen & Lim 2012), academic and overall life (e.g., see Luthans et al. 2014).

A second increasingly used self-report measure is a shorter, validated 12-item version of PCQ- 24 [PCQ-12; see Avey et al. 2011a for validation of this shorter version and also Mind Garden (**http://www.mindgarden.com**)]. It utilizes 12 items psychometrically derived directly from the PCQ-24 items to measure each of PsyCap's four psychological resources (i.e., 4 items for hope, 3 for efficacy, 3 for resilience and 2 for optimism). In addition to the obvious pragmatic advantage of shorter length to get better cooperation and less fatigue from participants, the PCQ-12 has no reverse-scored items. Such items tend to be problematic in general (Barnette 2000, Merritt 2012, Tomas & Oliver 1999), and particularly in measuring positive constructs. There is substantial evidence that positive and negative constructs are not polar opposites of the same continuum, and thus should not be conceptualized or measured as such (Peterson & Chang 2002).

Another advantage of the PCQ-12 is that its items lend themselves more readily to translation and use across cultures, as evidenced by the number of languages to which it has been translated to date [see

Mind Garden (**http://www.mindgarden.com**) for additional information and access to these translations]. Furthermore, measurement invariance across numerous cultures has been supported for most of the items of PCQ-12 (Wernsing 2014). Finally, similar to PCQ-24, the PCQ-12 has been readily adapted to other contexts beyond the workplace, such as health, relationships, and overall life in general (Luthans et al. 2013).

To help minimize the problems of social desirability and faking common to all self-report measures, but especially those purporting to measure one's positive characteristics such as PsyCap, Harms & Luthans (2012) developed and validated an implicit measure of PsyCap, the I-PCQ shown in **Figure 3**. This scale assesses the same four psychological resources as PCQ-24 and PCQ-12. However, implicit measures are intentionally designed to make the purpose of the survey less obvious to the participant (i.e., "invent stories about people you choose in order to answer these statements"), and thus are less amenable to faking and social desirability biases. This important feature of the I-PCQ has been demonstrated empirically (Krasikova et al. 2012).

There is considerable support that implicit measures generally allow assessment of a construct more accurately and comprehensively than self-reporting (Bing et al. 2007, LeBel & Paunonen 2011). However, the classic projective psychological instruments such as the Rorschach Inkblot or Thematic Apperception Test require considerable administrative commitment and skilled interpretation of subjective results. This problem is countered in the I-PCQ by simply using three researcher-determined trigger terms/events or prompts that are generally perceived as positive, neutral, and negative. Respondents are then asked objectively scored specific questions that project their HERO resources, surrounded by a few filler items (see **Figure 3**). Furthermore, this I-PCQ scale goes beyond PCQ-24 and PCQ-12 in its domain and situational specificity. By adapting the three prompts to the specific life domain or context in question, this implicit measure allows for introducing many more specific situations in assessing one's PsyCap. Thus, this measure has the potential to be more adaptable and situationally relevant for use in research and practice. For example, Harms et al. (2016) recently developed and validated an Implicit PsyCap Questionnaire with prompts specifically aimed at health [i.e., positive ("Someone is exercising"), neutral ("Someone goes to the hospital"), or negative ("Someone is sick")]. They found this IPCQ-H correlated with

an explicit measure of PsyCap Health (Luthans et al. 2013), thus supporting convergent validity, and also had predictive validity for several mental and physical health outcomes.

### *Psychological Capital Theoretical Mechanisms*

Scientific research requires answering questions of why and how to explain important phenomena, rather than just what (description) and when (prediction). Thus, it is important to identify and understand key theoretical mechanisms through which PsyCap operates. To date, agentic conation, cognitive appraisals, positive emotions, and social mechanisms are recognized for PsyCap (Youssef & Luthans 2013, Youssef-Morgan 2013b).

Conation is defined as "the personal, intentional, planful, deliberate, goal-oriented, or striving component of motivation, the proactive (as opposed to reactive or habitual) aspect of behavior . . . . It is closely associated with the concept of volition, defined as the use of will, or the freedom to make choices about what to do" (Huitt 1999, p.3). As introduced earlier, agency, intentionality, and personal control of motivation and effort are important underlying themes of PsyCap and its constituent positive psychological resources. Conation facilitates agency, sense of control, and intentionality, all of which are critical for PsyCap. Conation also facilitates goal-directed energy, which can trigger the motivation and resource deployment necessary for goal pursuit, and promote a positive, rather than negative, reaction when obstacles are encountered.

Positive cognitive appraisals are an important mechanism through which potentially negative or neutral situations are mentally reframed and reinterpreted in amore positive light. This reframing and reinterpretation process can render challenging goals more appealing and worthy of time, energy, and resource investment. It can also shield positive individuals from prevalent negativity biases (Baumeister et al. 2001, Cameron 2008). Such positive appraisals also promote perseverance, rather than giving up, when faced with obstacles and setbacks (Youssef & Luthans 2013), all of which are key underlying themes of PsyCap (Luthans et al. 2007).

PsyCap is also directly related to positive emotions (Avey et al. 2008). Positive emotions are a by-product of PsyCap and positivity in general. The positive nature of PsyCap can trigger positive affective

states that can facilitate broadening one's thought-action repertoires (Fredrickson 2001, 2009), leading to higher creativity (Luthans et al. 2011) and a broader range of pathways (Snyder 2000). In turn, positive emotions can facilitate the building and restoration of previously depleted physical, social, and psychological resources (Fredrickson 2001, 2009), including PsyCap and its constituent psychological resources.

Although PsyCap is agentic and internalized, it is not devoid of social mechanisms. For example, social support is an integral mechanism for building efficacy (Bandura 1997) and resilience (Masten 2001, Masten et al. 2009). Furthermore, reliance on others when one's resources are scarce or lacking can facilitate optimism and hope pathways (Luthans et al. 2015, Youssef-Morgan & Ahrens 2016). Relationships are related to overall PsyCap, satisfaction, and well-being (Luthans et al. 2013), and to positivity in general.

For example, in a recent conceptual framework linking PsyCap to well-being, Youssef-Morgan & Luthans (2015) propose several relevant mechanisms. First, well-being is primarily shaped by cognitive and affective appraisals. PsyCap facilitates positive cognitive appraisals of past, present, and future events. Second, well-being is based on satisfaction with important life domains. PsyCap has been shown to predict satisfaction with work, health, relationships, and life in general (Luthans et al. 2013). Third, well-being is shaped less strongly by objective life events than by selective memory retention of these events (Kim-Prieto et al. 2005). PsyCap can facilitate the processes necessary for attention, interpretation, and retention of positive and constructive memories that are conducive to well-being. Fourth, as a positive psychological resource, PsyCap can have a broadening and building effect (Fredrickson 2001, 2009) on positive affective states that can be drawn upon in times of adversity. Finally, PsyCap can help mitigate the prevalent negativity bias and hedonic adaptation, sustaining well-being over time (Cameron 2008).

### Antecedents and Outcomes of Psychological Capital

In addition to the mechanisms through which PsyCap operates, understanding and application of PsyCap from a systems perspective and as a developmental process requires thorough modeling of its

antecedents and outcomes. Beyond the recognition that most states and state-like resources have a trait baseline, there is limited research on the antecedents of PsyCap. A few studies support job characteristics, personality traits, supportive organizational climate, and leadership styles as antecedents of PsyCap and variables to be accounted for in PsyCap models (Avey 2014). Importantly, demographics such as age, gender, and tenure or work experience are often controlled, but rarely related to PsyCap, and if they are, the relationship is often weak (Avey 2014).

The outcomes of PsyCap are of critical importance, particularly in the business context. Despite the importance of positivity in its own right, managers and organizational decision makers need evidence-based answers in terms of how PsyCap can influence the bottom line. This bottom-line orientation is also consistent with the POB criterion of performance impact. Newman et al. (2014) review 66 PsyCap studies for performance, attitudinal, behavioral, and well-being outcomes at the individual, team, and organizational levels. Avey et al. et al.'s (2011b) meta-analysis of 51 independent samples, with more than 12,000 employees, supports PsyCap as a predictor of performance (self-rated, supervisor-rated, and objective) and desirable employee attitudes (job satisfaction, organizational commitment, and psychological well-being). They also found PsyCap negatively relates to undesirable attitudes (cynicism, turnover intentions, work stress and anxiety) and undesirable behavior (deviance) and positively with desirable organizational citizenship behaviors. Owing to space limitations, we do not review each of these individual studies here, but readers are strongly encouraged to refer to this meta-analysis and review each study included therein for its unique contributions. Suffice it to say that the studies span a wide range of organizations and employees in manufacturing, services, public organizations, and NGOs including in different cultures.

Another important finding of Avey et al.'s (2011b) meta-analysis is that the relationship between PsyCap and its outcomes is not necessarily consistent across contexts. Two boundary conditions are uncovered. PsyCap appears to be more influential in studies conducted in the United States than in other countries. PsyCap also appears to relate more strongly to its outcomes in the service sector, compared to the industrial sector.

Beyond these meta-analytic findings, which are based primarily on cross-sectional studies, Avey et al. (2010) found support for a longitudinal relationship between PsyCap and well-being, and Peterson et al. (2011) showed a longitudinal relationship between PsyCap and performance. Other studies explored PsyCap in different contexts and its relationship with broader outcomes. For example, Luthans et al. (2013) found PsyCap related to objective health outcomes such as BMI (body mass index consisting of height and weight) and cholesterol levels, as well as satisfaction with one's health. Similarly, PsyCap predicted satisfaction with one's relationships, as well as objective investment in one's relationships (time spent with family and friends). Krasikova et al. (2015) also favorably linked U.S. Army soldiers' PsyCap prior to deployment to post deployment diagnosed mental health and substance abuse.

This evidence is consistent with the extensive longitudinal and experimental support for positivity as an antecedent that causes success in numerous life domains, which goes against conventional wisdom that perhaps success is what causes positivity (Lyubomirsky et al. 2005).This new paradigm thinking of positivity leading to success instead of the other way around is sometimes in positive psychology referred to as the Copernican Effect. This is in recognition of Copernicus's dramatic discovery in the 1500s that the Earth actually revolved around the sun rather than people's at the time common sense assumption of the reverse.

### *Psychological Capital Across Levels of Analysis*

As indicated, PsyCap has been primarily conceptualized and measured at the individual level. However, there is emerging evidence that PsyCap is also relevant at higher levels of analysis. For example, Dawkins et al. (2015) and Broad & Luthans (2016) conceptually analyzed PsyCap at the collective level (*c*PsyCap), and team/unit PsyCap has also been empirically examined (Clapp- Smith et al. 2009, Mathe-Soulek et al. 2014, Peterson & Zhang 2011). There have also been a few PsyCap studies at the organizational level (*o*PsyCap) (McKenny et al. 2013, Memili et al. 2013).

It is not hard to conceptualize PsyCap at higher levels of analysis. In fact, each of PsyCap's constituent resources has been examined in the past at the collective level. For example, collective efficacy is defined

as "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments" (Bandura 1997, p.477). Two meta-analyses support a relationship between collective efficacy and performance at the group level, especially among teams with higher task interdependence (Gully et al. 2002, Stajkovic et al. 2009).

Similarly, Hamel & Välikangas (2003) define organizational resilience as the ability to reinvent business models and strategies dynamically in response to change, and resilience scholars recognize that organizational resilience is not simply the outcome of a group of resilient individuals working together. It has to do with the dynamic structures and processes that enable an organization to anticipate, prepare for, and withstand challenges and disruptions while maintaining coherence so that it can bounce back, survive, and remain competitive in an uncertain and risky environment (Horne & Orr 1998, Youssef & Luthans 2005). These dynamics are facilitated through developing resilient organizational cultures, by investing in leaders, employees at all levels, clients, and innovation, even in times of adversity (Everly 2011). Luthans et al. (2015) also conceptually discuss the characteristics of the optimistic organization, the hopeful organization, and a culture of hope.

Even though these inroads are being made, conceptualizing a construct such as PsyCap beyond the individual level of analysis still presents some challenges. Specifically, the "theory borrowing" (Whetten et al. 2009) necessary for a construct to be elevated to a higher level of analysis requires ascertaining conceptual and functional isomorphism. Conceptual isomorphism refers to the extent to which the operationalization and nomological network of the construct are stable across levels of analysis. Functional isomorphism refers to the extent to which the construct predicts the same outcomes as various levels of analysis. Moreover, elevating a construct to a higher level of analysis requires careful consideration of the appropriate level at which questions of what, how, when, where and why (or why not) can be best answered (Kozlowski & Klein 2000).

Applied to PsyCap, the construct appears to be conceptually viable and practically useful, but not perfectly isomorphic at different levels of analysis. Thus, when elevated to higher levels, it requires some adaptation. For example, in terms of Chan's (1998) alternative models, additive and direct consensus models (using the sum, average, or level of

agreement of group members' PsyCap self-ratings) are not necessarily appropriate operationalizations of group PsyCap. This is because a group's cPsyCap level is not necessarily best represented by the consistency of its members' individual PsyCap levels. However, in line with the definition of collective efficacy above as a shared belief in the group's conjoint abilities, referent shift models may be more appropriate.

Referent shift models replace lower-level referents with higher-level referents when assessing the higher-level construct. For example, instead of asking participants to rate their level of confidence in their own abilities to do a particular task, referent shift models ask them to rate their level of confidence in their team's collective abilities to perform the same task. To date, this has been the most common approach to elevating PsyCap to higher levels of analysis. Other models for elevating constructs include dispersion models, which focus on variability rather than agreement, and process models, which focus on dynamic or episodic change processes and the mechanisms through which these processes transfer across levels of analysis (Chan 1998). Although having seeming promise conceptually, these models are challenging to operationalize and apply empirically.

## Current Status and Future Research Directions

PsyCap research has truly taken off over the past 15 years. Scholars and evidence-based practitioners all over the world have embraced PsyCap, and positivity in general, beyond expectations. Positive organizational research is now featured in top journals and has dedicated sessions at well-attended conferences and venues in mainstream management and psychology conferences. Professional groups such as the International Positive Psychology Association have been established to promote positive research and practices, and have attracted large numbers of members. However, this work is far from complete and PsyCap continues to take an inquiry rather than an advocacy perspective (Luthans & Avolio 2009). A few years ago, Australian positive researchers led by Sarah Dawkins conducted a thorough psychometric review and critical analysis of PsyCap (Dawkins et al. 2013). Youssef-Morgan (2014) summarized their conclusions and added many more recommendations. These are shown in **Table 1** and the following discussion highlights some of these areas.

**Table 1.** Future directions for advancing PsyCap research[a]

| Dawkins et al.'s (2013) directives | Youssef-Morgan's (2014) additional recommendations |
|---|---|
| Further theorization and investigation are needed to affirm the nature of each of the components of PsyCap and to further explore their relationships with more trait-like conceptualizations and with coping processes. | • Conduct additional experimental and longitudinal research to investigate the malleability of PsyCap and its impact on performance and other desirable outcomes over time<br>• Further investigate differential susceptibility, vantage sensitivity, and diatheses-stress, which may expand or reduce sensitivity to positive and/or negative influences<br>• Explore mechanisms through which PsyCap can alter existing traits and long-held beliefs |
| Continued conceptual development of PsyCap is warranted; however, any potential expansion should follow refinement of the construct as it currently stands and needs to be undertaken cautiously and methodically, with strong reference to relevant theoretical frameworks. | • Remain true to the POB inclusion criteria to ensure rigor<br>• Periodically reevaluate the current mix of psychological resources in light of new evidence<br>• Revalidate PsyCap measures with the addition, deletion, or substitution of any constructs |
| Future research should be aimed at further establishing the psychometric properties of PsyCap, with a particular focus on test–retest reliability and within-subject variability implementing true longitudinal designs. | • An added emphasis on longitudinal research<br>• Recognize the state-like nature of PsyCap in test–retest reliability (six months or less)<br>• Where possible, avoid negatively worded items or conduct additional analyses to evaluate their impact |
| Further research should be dedicated to enhancing the construct validity profile of PsyCap, with a particular emphasis on discriminant and convergent validity of overall PsyCap and on alternate factor structures of PsyCap to reflect the conceptualization of each PsyCap component. | • Focus on the conceptual side of this issue first then the empirical side<br>• Consider convergence in light of PsyCap's position on the trait–state continuum, and thus the potential for full or partial mediation by more proximal states |
| More sophisticated analyses of the PCQ are warranted to gain a better understanding of the interplay between the subcomponents of PsyCap and to further validate the use of a composite PCQ score. | • Utilize CFA and SEM when multidimensional constructs are being investigated for more rigor and accuracy |
| Ancillary analysis using the individual component scores of PsyCap should be incorporated in future research so as to enhance predictive validity and increase understanding regarding mechanisms of effect of PsyCap and potential neutralizers of PsyCap. | • Quantitatively and/or qualitatively (mixed methods) explore extreme examples of individuals who may be particularly low on one or more subcomponents and high on others<br>• Investigate the interplay between PsyCap's subcomponents and any differential outcomes that these discrepancies in PsyCap profiles may yield<br>• Consider interaction, substitutive, and/or compensatory mechanisms among PsyCap's psychological resources |

*Abbreviations:* CFA, confirmatory factor analysis; PCQ, Psychological Capital Questionnaire; POB, positive organizational behavior; PsyCap, psychological capital; SEM, structural equation modeling.

a. This table was adapted from Dawkins et al. (2013) and Youssef-Morgan (2014).

### How Does PsyCap Actually Work?

Although we earlier identified several potential mechanisms through which PsyCap operates, these are conceptual in nature and have not yet been fully operationalized or closely examined  empirically. For example, researchers have yet to explore how specific patterns of positive cognitive appraisals operate to promote hope, efficacy, resilience, and optimism over time. Similarly, the emergence and sustenance of positive emotions as an element and by-product of PsyCap, and the resultant broadening and building effects, are worthy of further empirical exploration. The same applies to the conation and social mechanisms. Qualitative and mixed-methods research may be more conducive to a deeper understanding of these mechanisms than typical quantitative studies, even those that are experimental or longitudinal.

In addition, as explained earlier, research is just beginning to scratch the surface on the mediators and moderators of PsyCap. Some of the identified conceptual mechanisms can be operationalized into measurable mediators that can be tested for a better understanding of how PsyCap operates to lead to its desired outcomes. PsyCap research is also in need of a fuller understanding of moderators, which represent optimal conditions within which it thrives, and boundary conditions that present discontinuities or inflection points.

Moreover, antecedents of PsyCap need further exploration. Antecedents should not be relegated to a list of "usual suspects" that are often simply included as control variables in empirical studies with little justification (Bernerth & Aguinis 2016). In the case of PsyCap and other positive variables, antecedents are key factors in shaping a person's inventory of positive resources and "resource caravans" (Hobfoll 2002), and thus should be given extensive thought and attention in positive research. For example, almost 15 years ago Luthans & Avolio (2003; also see Avolio & Luthans 2006) conceptualized an authentic leadership model, in which PsyCap and a positive organizational context are antecedents of authentic leadership development. However, only recently has this notion been tested empirically (Petersen 2015).

Relatedly, despite the slowly emerging experimental and longitudinal evidence, there is still heavy reliance on cross-sectional studies, which precludes conclusive evidence regarding causal direction.

For example, meta-analytic evidence suggests that the causal influence from past performance to efficacy is stronger than that from efficacy to performance (Sitzmann & Yeo 2013). Conceptually, the contribution of mastery and success (performance) to efficacy has been recognized. However, the direction and strength of the relationship between efficacy and performance has notable research and practical implications that should not be overlooked.

Importantly, antecedents, mediators, and moderators are often assumed to influence PsyCap in a linear manner. However, the relationships between PsyCap and its outcomes in fact may not be linear. Nonlinear relationships need to be explored. For example, there is evidence for "too much of a good thing" in terms of overconfidence (Yeo & Neal 2006), false hope (Polivy & Herman 2002), and unrealistic optimism (Peterson & Chang 2002, Schneider 2001). Although the debate is ongoing regarding these anomalies (Bandura 2012, Snyder & Rand 2003), the conflicting evidence indicates that potential nonlinear trends and boundary conditions need to be further explored, or at least accounted for in future research.

### Elevating Psychological Capital to Higher Levels of Analysis

As discussed earlier, focusing on more than levels of agreement within a group can promote future understanding of the dynamics of *c*PsyCap. For example, Kozlowski & Klein (2000) offer interesting, unique models such as "fuzzy compilation," "minimum/maximum emergence," or "patterned emergence." Applied to PsyCap, these models would seem to be able to help address many unanswered questions and shed additional light on new territories in PsyCap research and practice. Relevant research questions include whether the PsyCap of every team member is equally important, or whether some key positions contribute disproportionately to *c*PsyCap (i.e., fuzzy composition). Is cPsyCap as strong as the weakest link, in the sense that the team members with the lowest PsyCap level can drag the rest of the team down (i.e., minimum emergence)? Is one high PsyCap member, or a critical mass of high PsyCap members, sufficient to pull the whole team up (maximum emergence)? Is there an optimal pattern or profile of PsyCap that can render an optimal PsyCap mix in a team (patterned emergence)?

### How Does Psychological Capital Spread and Become Contagious?

An important area for future exploration in PsyCap research, and in positive research more generally, is the mechanisms through which positivity spreads. Upward spirals, downward spirals, ripple effects, and contagion effects have been recognized conceptually in positive research (Cameron et al. 2003, Fredrickson 2001, Luthans et al. 2006b, Youssef & Luthans 2005, Youssef-Morgan & Luthans 2013a, Youssef-Morgan & Stratman 2016). Preliminary empirical evidence is also emerging. For example, Avey et al. (2011a) found that leader positivity can trickle down to followers, enhancing their PsyCap and their performance. Similarly, Haar et al. (2014) found that leaders' PsyCap can influence their teams' PsyCap. Importantly, they also found that followers' PsyCap can influence leaders' PsyCap. Furthermore, Story et al. (2013) also found that global leaders' PsyCap was positively related to their follower's PsyCap despite being at a distance (physical distance and interaction infrequency), and that leader PsyCap buffered the negative effects of distance on the quality of leader-follower relationships.

The contagion mechanisms through which PsyCap spreads downward (from leaders to followers), upward (from followers to leaders), or laterally (among team members) remain largely unexplored. For example, it is possible that the trickle-down effects from leaders to followers, and possibly between those at the same level, are produced through behavioral modeling. For example, Aguinis & Bradley (2015) suggest star performers can spread positivity throughout an organization. Mimicry is another one of the most basic and widely recognized social mechanisms for emotional contagion, and emerging neuroscientific evidence supports what has been called "the mirror neuron system," which facilitates this mimicry (Cattaneo & Rizzolatti 2009). However, PsyCap, and positivity in general, involve more complex cognitive and conative mechanisms that are unlikely to be explained through just behavioral modeling or primitive mimicry.

Similar to the levels-of-analysis discussion above, it is important to examine where PsyCap emerges and where it can be nurtured most effectively to yield optimal contagion effects. Further understanding of the mechanisms through which PsyCap spreads can be challenging and requires multilevel, multimethod, and longitudinal research. However,

it can have important practical implications in terms of resource allocation and maximum impact for PsyCap selection and development.

### Other Potential Psychological Resources

Hope, efficacy, resilience, and optimism are the first four psychological resources to be incorporated in PsyCap, due to their best fit with its theory,measurement, development, and performance impact inclusion criteria.However, this was never meant to be a conclusive list. Many other positive psychological resources have considerable potential to be included in PsyCap. Examples include creativity, flow, mindfulness, gratitude, forgiveness, emotional intelligence, spirituality, authenticity, and courage (see Luthans et al. 2015, chapters 7 and 8, for a systematic review of each of them according to the POB inclusion criteria). Further research of these and other psychological resources can help determine the adequacy of their fit within the PsyCap framework.

The most prominent example to date is the authentic leadership stream of research, which started with a conceptual framework delineating the linkages between leader PsyCap and authenticity, as well as the contextual and personal antecedents and outcomes across levels of analysis (Avolio & Luthans 2006, Luthans & Avolio 2003). This proposed relationship yielded substantial conceptual (Avolio & Gardner 2005) and empirical support (Walumbwa et al. 2008), but there is plenty of room for future research to further explore the characteristics, boundary conditions, and cross-level linkages of authentic leadership (Banks et al. 2016, Yammarino et al. 2008).

Examples of emerging empirical research examining other positive psychological resources include Roche et al.'s (2014) examination of the joint effects of mindfulness and PsyCap in predicting leaders' well-being, Bockorny's (2015) investigation of courage as a dimension of PsyCap and its contribution to predicting entrepreneurial success, and Ahrens' (2016) investigation of gratitude as a dimension of PsyCap in predicting work stress among teachers and school administrators. Systematic examination of current and potential PsyCap resources can facilitate the expansion of PsyCap's taxonomy and enhance understanding of the inner workings within and across PsyCap's constituent resources.

We recommend Luthans et al.'s (2015) approach for conceptual assessment of any potential psychological resource. This approach assesses the construct's fit with the inclusion criteria of being theory- and research- based, positive, validly measurable, open to development, and related to desirable work outcomes. It also examines the extent to which a construct is subject to agency, personal control, and intentional actions. Finally, it examines the role of positive cognitive appraisals in facilitating the construct's underlying mechanisms, promoting motivation, effort, and perseverance. Additionally, we recommend Luthans et al.'s (2007) approach, also used by Bockorny (2015) and Ahrens (2016), for empirical validation of new or modified measures to incorporate these new psychological resources into an expanded PsyCap framework.

### Cross-Cultural Implications

PsyCap and positive psychology in general have been successfully applied in numerous countries, with positive results and linkages to desirable outcomes in the work, social, and political arenas. Examples include China (Luthans et al. 2008a, Huang & Luthans 2015, Wang et al. 2014), South Africa (Cascio & Luthans 2014, Reichard et al. 2014), the Middle East, North Africa, and Egypt (Youssef 2011, Badran & Youssef-Morgan 2015), Brazil, Germany, India, Italy, Mexico, Poland, Sweden, Turkey, United Kingdom (Wernsing 2014),Hong Kong (Siu et al. 2014), Spain (Salanova et al. 2012), and with global leaders and organizations (Story et al. 2013, Youssef & Luthans 2012, Youssef-Morgan & Luthans 2013a).

As is the case with any still emerging stream of research, positive psychology has been seriously scrutinized for its applicability and transferability across cultures, because the meaning and manifestations of positivity may be different or even contradictory (Fineman 2006). Specifically, what is considered positive in one culture may not necessarily be considered positive in another culture. For example, confidence may be viewed as a sign of arrogance and conceit in cultures that place a high value on humility. Moreover, being positive in general is not necessarily perceived favorably across cultures. Some cultures place a higher weight on realism, or even cynicism and melancholy, which may be perceived as a sign of responsibility,

knowledgeability, wisdom, and life experience. Also, hedonistic ideas tend to be dominant in western, individualistic cultures, where pursuit of happiness is a recognized personal and social goal, which is not the case in collectivistic cultures. Indeed, positive psychological interventions have been found to be more effective in individualistic cultures than in collectivistic cultures (Sin & Lyubomirsky 2009).

Future research needs to take into consideration these cultural differences, not only as control variables or nuances to be accounted for, but as interesting and worthwhile boundary conditions to be further explored for a better understanding of how positivity can be manifested and leveraged across cultures. This understanding is critical for building a human-based competitive advantage in a global economy, where large numbers of organizational members, customers, and other stakeholders come from diverse backgrounds.

**Table 2** summarizes the discussion above. It identifies the major questions for future research, specific topics which need future study and testing, and some expected challenges and useful suggestions. Again, this represents the continued inquiry rather than advocacy perspective taken by PsyCap.

## Practical Applications

Similar to positive research, positive applications have expanded exponentially. We have seen positivity and positive interventions applied in small, medium, and some of the largest organizations across the world, spanning manufacturing, hospitality, franchises, banking, insurance, marketing, healthcare, telecommunications, shipping, aerospace, military, police, sports, oil and gas, education, government, NGOs, and nonprofits, among others. For example, as mentioned earlier, the U.S. Army and Air Force made large investments in developing resilience (Seligman & Matthews 2011), and empirical studies provide preliminary evidence to support the efficacy of these initiatives in building positivity, buffering negativity, and promoting well-being among those serving in stressful and mission-critical roles (Krasikova et al. 2015, Schaubroeck et al. 2011). Similarly, Harvard Medical School is now exploring PsyCap applications in the context of sports-related concussions and athletes' personal conduct with the goal of enhancing

**Table 2.** Summary of needed future PsyCap research

| Major research questions | Topics of study and testing | Challenges and suggestions |
|---|---|---|
| How does PsyCap actually work? | • Complex mechanisms such as positive cognitive appraisals, emotions, and conation (intentions)<br>• Mediators and moderators<br>• Antecedents<br>• Nonlinear relationships | • Very difficult to quantify and may require mixed and qualitative studies<br>• Off to a good start and can take advantage of increasing use of advanced methods such as moderated mediation models<br>• Largely overlooked and require experimental and longitudinal research to indicate causal links<br>• Linear assumptions need to be tested on each of the HERO resources with available and emerging analysis techniques |
| What insights can be gained from higher levels of analysis? | • Dynamics of collective PsyCap (*c*PsyCap) and organizational PsyCap (*o*PsyCap) such as the following: Is every team equally important? Is *c*PsyCap as strong as the weakest link? Can one or a critical mass be sufficient to pull a whole team up or is there an optimal profile of PsyCap? | • Need to test unique models that go beyond simple levels of agreement in a group/team or organization such as types of emergence<br>• Needs unique methods and analysis |
| What are the mechanisms through which positivity in general and PsyCap in particular spread or becomes contagious? | • Leader to follower, follower to leader, and lateral contagion<br>• Complex conative and cognitive mechanisms | • Role of behavioral modeling and mimicry<br>• Requires multilevel, multimethod, and longitudinal research |
| What are other potential psychological resources that may be included in PsyCap? | • Creativity, flow, mindfulness, gratitude, forgiveness, emotional intelligence, spiritually, authenticity, and courage<br>• Authentic leadership | • Must measure up to all the PsyCap inclusion criteria, also subject to agency, personal control, intentional actions, and the role of positive cognitive appraisals<br>• Started off closely related to PsyCap but needs to further explore characteristics, boundary conditions, and cross-level linkages |
| What are the cross-cultural implications of PsyCap? | • Cultural differences and similarities in terms of positivity in general and PsyCap in particular | • Need to examine, not just as control variables, but as end in itself in order to have PsyCap be leveraged across cultures for competitive advantage in the global economy |

*Abbreviations:* HERO: hope, efficacy, resilience, and optimism.

their well-being, alleviating psychosomatic symptoms and improving life skills. And, of course, starting with Seligman's (1998) classic experiments with optimism in insurance sales, showing that optimists outsell pessimists (even when they lack technical knowledge and fail an industry test), there is a plethora of PsyCap studies cited in this review that have direct and indirect practical applications.

The key to PsyCap's relevance to the workplace is mainly derived from its openness to development through relatively short and easy-to-implement training interventions. Because of the very low cost of development (mainly for the trainer, trainee time away from the job, and minimal training materials) the return on PsyCap development as we indicated has been shown to be very high (Luthans et al. 2006a, 2015; Youssef & Luthans 2007). Most organizations today aspire to be more positive and to enhance employee well-being, but the appeal of these bottom-line, dollars and cents results makes PsyCap particularly attractive to practitioners. Furthermore, the evidence-based foundation of PsyCap distinguishes it from the many management fads and the marketing hype that often tends to dominate the self-development and corporate training market.

### How Can Psychological Capital Be Effectively Developed?

For PsyCap development interventions to be effective, they need to be administered in the right environment. Unlike technical training, which focuses on developing specific skill sets and behavioral patterns, PsyCap development promotes positive thinking patterns that can challenge and replace deep-seated assumptions and beliefs over time. This transformation requires surrounding employees with a positive organizational climate that nurtures, or at least welcomes and accepts, the employee's newfound agency, intentionality, mindfulness, and sense of control.

For example, if the developing employee is faced with rigid structures, limited autonomy, toxic leadership, ineffective team dynamics, unreasonable pressures, or insufficient resources, PsyCap is unlikely to be manifested in this environment or yield its desired outcomes in terms of positive attitudes, behaviors, and performance excellence. If, however, the developing employee is supported, empowered, recognized, appreciated, rewarded, allowed to be authentic and innovative,

and treated fairly, PsyCap is likely to thrive and yield its desired outcomes (Petersen 2015). These outcomes can extend beyond the workplace, and can have spillover and crossover effects on other life domains, leading to higher levels of well-being at the individual, team, organizational, family, and even community levels.

In PsyCap development interventions, which typically last 2–3 hours, widely recognized developmental approaches for each of the four psychological resources covered earlier are integrated synergistically, and tailored to the specific workplace context. This "shotgun" approach is recognized as more effective than individual positivity-boosting strategies or activities (Seligman et al. 2005, Sin & Lyubomirsky 2009).Moreover, because of the shared commonalities across PsyCap's constituent resources, developing one resource tends to boost the other resources as well. A typical PsyCap development intervention includes goal-setting, generation of pathways, mental rehearsals of goal pursuit through various generated pathways, and contingency planning to overcome obstacles. Approach-oriented goals (e.g., "I will do this") are emphasized over avoidance-oriented goals (e.g., "I will stop doing that"). Specific and measurable goals, and frequent milestones, are encouraged. Small groups are used for added perspectives, social support and encouragement, and shared experiences. Through these activities, participants simultaneously develop their hope, efficacy, resilience, and optimism. Activities are customized to the specific organizational, job, and/or personal context.

**Figure 4** shows a simplified Psychological Capital Intervention (PCI) model. The PCI that is used must be adaptable to several training parameters including the size of the group, whether they are an intact or stranger group, and the nature of the work or activity in which the participants are engaged. Importantly, conducting a PCI is not rocket science nor does it involve a secret formula. Instead, an effective PCI should utilize sound group dynamics and team-building skills and also incorporate the dimensions exemplified in **Figure 4**: (*a*) focus on the process of developing all the HERO resources based on an understanding of the essence of each, (*b*) incorporate tried and true personal and group development exercises and tools largely drawn from positive psychology, team building, and human resource development, (*c*) periodic use of coaching and emerging e-technology applications after the training to maintain sustainability and help solve

| Focus on process of HERO development | Examples of developmental tools | Proximal outcomes: Individual PsyCap, *c*PsyCap, *o*PsyCap | Sustainability examples | Distal evidence-based desirable outcomes |
|---|---|---|---|---|
| **Hope**<br>Goals and pathways design<br>Implementing scenario and obstacle planning<br><br>**Efficacy**<br>Experiencing success and modeling relevant others<br>Persuasion, positive feedback, and arousal<br><br>**Resilience**<br>Identifying and building assets/avoiding risks<br>How to affect the influence process<br><br>**Optimism**<br>Interpret, attribute events positively<br>Glass half full<br>Developing positive expectancy | SMART goal setting<br>Goal setting exercise<br>• Goals<br>• List barriers<br>• List ways around barriers<br>Do three positive things/inter-actions each day<br>• Use rubber bands on wrist to remind<br>Keep nightly log/diary of three things to be grateful for each day<br>Use contingent positive reinforcement<br>• Recognition<br>• Appreciation<br>• Positive feedback<br>Write gratitude letter<br>• Hand-write<br>• More than thank-you note<br>• Relative, teacher, mentor, friend, co-worker, boss<br>Balanced well-being<br>• Relationships<br>• Exercise, relax, exercise<br>• Meditate and Yoga<br>• Hydrate and eat right | **HOPE**<br><br>**EFFICACY/ CONFIDENCE**<br><br>**RESILIENCE**<br><br>**REALISTIC OPTIMISM**<br><br>**Further development and replenishment of one's psychological resources or the**<br><br>**H**<br><br>**E**<br><br>**R**<br><br>**O**<br><br>**within** | Periodic coaching<br>• Face-to-face<br>• Online<br>Apps<br>• Scheduled reminders<br>• "Happify" usage<br>Periodic inspirational videos<br>• TED talks<br>• Sports<br>• Music<br>Video/smartphone games<br>• "SuperBetter"<br>• Interactive, strategic<br>Gamification for continual PsyCap engagement<br>• Tracking<br>• Achievements<br>• Social networking<br>• Challenges and competing | **HIGHER PERFORMANCE** and<br>Satisfaction<br>Happiness<br>Commitment<br>Well-being<br>Engagement<br>Mindfulness<br>Creativity<br>Innovation<br>Hardiness<br>Identification<br>Citizenship<br>Relationship satisfaction<br>Health satisfaction<br>Voice<br>Problem-solving<br>Safety<br><br>**LOWER**<br>Stress<br>Anxiety<br>Depression<br>Burnout<br>Substance abuse<br>Negative affect<br>Cynicism<br>Turnover intent<br>Deviance<br>Work-family conflict<br>BMI (body mass index) |

**Figure 4.** Psychological Capital Intervention (PCI) model.

the vexing transfer of training back to the job problem, and (*d*) evaluate to ensure that desired results are being realized, and if not, recycle and correct.

Youssef-Morgan & Sundermann (2014) identify four characteristics of an effective PsyCap development intervention. First, the intervention should lead to recognized, desirable outcomes that are clearly caused by the intervention. This distinguishes evidence-based PsyCap development interventions from management fads, short-lived "pep talks," and "flavor of the month" training programs that are so common in practice. Second, the intervention should focus on manipulating malleable individual, group, and/or organizational strengths, thus aligning with the state-like nature of PsyCap. Third, a PsyCap development intervention should be different from and add value beyond existing, mainstream programs and interventions, even those that are

evidence-based. Finally, the benefits of the intervention should outweigh its cost to yield a positive return on investment. For example, utility analysis was used to calculate a very high 270% return on investment of an actual PsyCap training program for engineers in a high-tech manufacturing firm (Luthans et al. 2006a, 2015).

Very recently, to help combat the transfer of training problem noted above and obtain a degree of sustainability and continued engagement after PsyCap development programs, in addition to periodic follow-up coaching, we have been suggesting and are beginning to use a new type of PsyCap boosters. To take advantage of the exploding gaming craze now facilitated by the use of hand-held devices, especially for relatively younger participants, we suggest the use of existing well-known positive video games [e.g., see Jane McGonigal's (2015) "Super Better"] and inspirational YouTube videos (mostly consisting of clips from well-known sports films such as Rocky or Hoosiers).

In addition to video games, one could use extensively developed smartphone apps such as "Happify" and tailor-made gamification techniques. Although these still need to be developed and researched, they seem to have tremendous potential impact for engagement and sustainability of PsyCap development. To date, gamification in marketing utilizing video game design principles and contingent reinforcement have been very successfully used in industries such as airlines and hotels to attract, engage, and grow their customer base. Although just starting to be used in HR training, Kinley & Ben-Hur (2015, p. 154) recently noted that gamification "can boost people's motivation, ability, and psychological capital."

### The Role of Positive Leadership

Leaders play an important role in the transformation processes underlying PsyCap development. Leaders themselves need to be transformed, through PsyCap development, to become more positive, authentic, transparent, and trustworthy in order to model PsyCap to their employees and facilitate the climate and resources necessary for them to lead their own PsyCap development journey (Avolio & Luthans 2006, Luthans & Avolio 2003, Youssef & Luthans 2012, Youssef-Morgan & Luthans 2013a). Thus, positive leadership development is a key factor in PsyCap development and management.

Leaders need to be "all in" to the overall value of positivity (Youssef-Morgan & Stratman 2016).This can be a major hurdle in organizations where negative cultures, abusive leadership, and organizational politics are dominant. Positivity requires a mindset of openness, inquiry (Luthans & Avolio 2009), and appreciative leadership (Whitney et al. 2010). This goes well beyond paying lip service to the adage "people are our most important asset." Genuine, authentic belief in the value of people, and motivation and the desire to build employees' strengths and psychological resources, are necessary for PsyCap development. However, for those who truly believe in the importance of human capital and are willing to act upon their beliefs by developing their own and their employees' positivity, PsyCap offers an evidence-based approach. PsyCap development uniquely combines rigor, relevance, and real answers to everyday leadership dilemmas such as increasing productivity, boosting employee satisfaction, engagement and well-being, promoting ethical behavior and social responsibility, and making work overall a more meaningful and civil place where people want to, rather than have to, spend time and energy.

### *Novel Applications*

As we noted above in discussing new and exciting sustainability boosters for PsyCap development programs, gamification may be a potentially powerful novel application to positivity in general and PsyCap in particular. As indicated, gamification involves the application of gaming principles to nongame settings. For example, McGonigal's (2015) "SuperBetter" game is designed to develop resilience and facilitate bouncing back from and overcoming life challenges. By playing for just a few minutes a day, more than half a million players are currently leveraging this game to increase their well-being and build their physical, mental, emotional, social resilience. Players can also connect to a virtual community in cyberspace, providing support to each other (e.g., "League of Legends" is a strategy game involving interacting teammates with reportedly 67 million players worldwide). Skills learned in such games are expected to transfer to real life, and there is initial scientific evidence they do help achieve desired outcomes (Kinley & Ben-Hur 2015, McGonigal 2015).

Scientific evidence is emerging on the positive effects of gamification in general, but there are still important discrepancies in the effectiveness of gamification across contexts and user groups (Hamari et al. 2014). Gamification is based on the traditional behavioral psychology principles of positive feedback and contingent reinforcement which may or may not involve actual games. For example, the long-standing frequent flier programs that most airlines (and now hotels) have are based on gamification principles. Gamification transforms mundane or routine tasks through the use of trackers, point systems, frequent and tiered rewards (e.g., badges), support communities, and competitive activities. For example, Fitbit users can track their diet, exercise, and sleep patterns, set challenging goals, and share their accomplishments with others, on their computers, tablets, or smartphones. Nike has explored similar applications (installing trackers in running shoes). There are also workplace applications. For example, Ford utilized gamification principles to motivate employees to use online learning material, and T-Mobile did the same to promote the use of customer service tools, with notable improvements in customer satisfaction (Kinley & Ben-Hur 2015).

Gamification seems highly relevant to positivity and PsyCap applications because of its positive orientation. The emphasis is on motivation, rewards, and development of strengths and personal, social, and psychological resources, which aligns with positive psychological principles. However, a key to successful workplace applications of gamification is employee consent. If involvement is mandatory, it seems that gamification tends to lose its attractiveness and effectiveness (Mollick & Rothbard 2014). Novelty is another factor. Games lose their attractiveness over time, so continuous development and change become necessary. Nevertheless, advances in technology and connectivity, wide access to smartphones and other electronic devices, and the technological adeptness of new generations that now dominate the workforce make gamification of positivity and PsyCap development a natural and necessary progression in organizational applications.

**A Final Word**

After providing the backdrop of POS and POB as a point of departure, this comprehensive review in turn covered (*a*) the meaning, measures, theoretical mechanisms, antecedents, outcomes, and levels of analysis of PsyCap; (*b*) the current status and future directions of PsyCap encompassing higher levels of analysis, contagion effect, other potential psychological resources, and cross-cultural implications; and (*c*) practical implications giving special attention to PsyCap development, the role of positive leadership, and novel applications such as gamification.

In conclusion, PsyCap is an evidence-based core construct and positive approach that scholars and practitioners can leverage to tap into still largely unchartered territories of human strengths, thriving, and excellence. Emphasis on the criteria of being positive, theory- and research- based, validly measurable, developmental, and related to desirable work outcomes has helped PsyCap to grow and maintain its scientific rigor and practical relevance. Many directions remain to be explored, but the solid foundation established over the past 15 years, and reviewed in this article, supports PsyCap, and positivity in general, as a valuable capital resource for individuals, teams, and organizations.

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