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Antecedents of academic performance of university students: academic engagement and psychological capital resources

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ABSTRACT

This study investigates the relationship between academic engagement, psychological capital (PsyCap) resources (efficacy, hope, optimism, resilience) and academic performance. Data were collected in two different universities, one in Spain (N = 389) and another in Portugal (N = 243). Undergraduate students completed self-report questionnaires regarding academic engagement and Psychological Capital. Academic performance was assessed through Grade Point Average, provided by the universities at the end of the exam period. Results showed a positive relationship between academic engagement, PsyCap, and academic performance in both samples. Results also supported PsyCap as a full mediator in the relationship between academic engagement and academic performance. Exploration of alternative models yielded a superior fit for the proposed model. Accordingly, academically engaged students were likely to experience higher levels of psychological resources, which in turn positively impacted their academic performance. The results point to the importance of considering psychological predictors, rather than the prevalent reliance on traditional predictors of academic performance.

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Predicting academic performance has been an important priority for students and parents (Cabrera & La Nasa, 2000), school and university administrators (Adelman, 2006), policymakers and taxpayers (Hauser & Johnston, 2016). However, as college spending continues to escalate, graduation rates continue to be low (National Center for Education Statistics, 2016; Organization for Economic Cooperation and Development, 2015), and loan default rates continue to rise (U.S. Department of Education, 2013). Traditional predictors of academic performance often used as college admission requirements and selection tools include standardized aptitude tests (e.g. SAT, ACT), Grade Point Average (GPA), essays, interviews, and extracurricular activities

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(Schmidt & MacWilliams, 2011; Truell, & Woosley, 2008; Young & Korbin, 2001). However, other important psychosocial and structural factors may influence students' abilities and motivation to succeed (Arce, Crespo, & Míguez-Álvarez, 2015; Richardson, Abraham, & Bond, 2012). For example, college life includes stressful changes such as being separated from friends and family, moving to a new location, establishing a new social network, responding to new teaching methods and evaluation systems, making important vocational choices, and preparing for the transition to the job market. For many students, these changes are successfully navigated, but for some students, these challenges can compromise their well-being and academic performance, even though these students may have met all of the traditional entrance requirements.

The purpose of this study is to begin to fill this gap. Specifically, we conceptualize and empirically examine two psychological states as predictors of academic performance, namely, psychological capital (PsyCap) resources (efficacy, hope, optimism, resilience) and academic engagement. Indeed, previous research supports psychological factors such as personality, motivation, perseverance, and self-efficacy as important predictors of academic performance (Enright & Gitomer, 1989; Oswald, Schmitt, Kim, Ramsay, & Gillespie, 2004; Salanova, Schaufeli, Martínez & Bresó, 2010, Zajacova, Lynch, & Espenshade, 2005). These studies highlight the need to take into account the role of students' psychological resources in the prediction of academic performance in higher education. Moreover, extensive cross-sectional, longitudinal, and experimental research supports positivity as an antecedent and a cause of numerous forms of success (Lyubomirsky, King, & Diener, 2005). Both PsyCap resources and engagement are positive constructs and rooted in positive psychology (Seligman & Csikszentmihalyi, 2000). Thus, investigating them in the context of academic performance is informed by existing theory and empirical evidence.

We also propose and test PsyCap as a mediator of the relationship between engagement and performance. There were only a few studies about the relationship between PsyCap and academic performance (Luthans, Luthans, & Jensen, 2012), as well as between PsyCap and academic engagement (Siu, Bakker, & Jiang, 2013), between student academic engagement and academic performance (Bakker, Sanz Vergel, & Kuntze, 2015; Jang, Kim, & Reeve, 2012; Kuh, Cruce, Shoupe, & Kinzie, 2008; Martin, 2009; Reeve & Lee, 2014; Salanova et al., 2010), and between academic engagement and motivation (Reeve & Lee, 2014). However, this is the first study to examine both psychological states concurrently in relation to academic performance and to test a mediated model of these relationships. Figure 1 summarizes the proposed model.

Overarching theoretical framework

We use three overarching theories to build the conceptual arguments for the hypothesized relationships in our proposed model: Conservation of Resources theory (COR; Hobfoll, 2002), Social Cognitive Theory (SCT; Bandura, 1986), and the Broaden-and-Build Model (BBM; Fredrickson, 2001). According to COR, the attainment and preservation of psychosocial resources are prime human motivations. Resources can be



Figure 1. Research model.

valuable in and of themselves (e.g. self-esteem, health), or utilized as a way to obtain other desired ends (e.g. money, power, success, coping with challenges). COR also discusses 'gain spirals' (Hobfoll & Shirom, 2000), in which positive reciprocal relationships occur between positively-oriented individual states. Resources travel together in 'resource caravans' and can be utilized synergistically to facilitate building other resources (gain spirals). As discussed in subsequent sections, both PsyCap and engagement are positive psychological resources that can be used in conjunction to promote success. Furthermore, each of these constructs is conceptualized to be a multidimensional construct that includes several psychological states. In addition, both resources are states that are malleable and open to development. Thus, COR is a particularly relevant theoretical framework in this study.

SCT is the second overarching theory that informs this study. SCT posits that behavior is the result of a dynamic interaction between social, cognitive, and personal factors. In addition to reflecting on past behavior and its consequences (i.e. behavioral reinforcement), behavior is also shaped through cognitive symbolizing of tasks and thought patterns; forethought and planning to achieve desired goals; self-regulation to allocate resources and avoid distractions; and learning from similar role models facing comparable situations (Bandura, 1997, 2001). These mechanisms are self-directed, dynamic, and socially facilitated, rather than inherent, passive, or mechanistically determined. They promote agentic adaptation and self-regulation of motivation and action in pursuit of increasingly challenging but personally meaningful goals and aspirations, rather than complacency, 'slacking,' or giving up (Bandura, 2012). Student performance tends to hinge to a great extent on this 'stamina' or 'staying power,' as well as the ability to muster the motivation and resourcefulness to achieve goals. Thus, SCT is particularly relevant to this study's investigation of the psychological antecedents of academic performance.

The third overarching theory is Fredrickson's (2001) BBM. According to this model, positivity broadens people's thought-action repertoires so that they can expand their perspective and consider more diversified goals and a wider range of courses of action. In contrast, negativity narrows one's perspective to tried-and-true paths, excluding viable but perhaps more creative and venturesome approaches. In addition, positivity facilitates the development (building) of additional physical, social, and psychological resources, which can be drawn upon in times of challenge or negativity.

Depleted inventories of resources are then replenished in subsequent times of positivity. College students deal with many life changes, as well as academic challenges. The broadening and building effects of positivity are necessary to overcome challenges and uncertainties while retaining focus and sustaining well-being, making BBM a relevant overarching theoretical framework for our model and population of interest, namely, college students.

Psychological capital resources

PsyCap is a multidimensional psychological resource that includes efficacy, hope, optimism, and resilience (Luthans, Youssef-Morgan, & Avolio, 2015; also see Luthans & Youssef-Morgan, 2017, for a comprehensive review). In line with COR (Hobfoll, 2002), PsyCap resources share a common theme, which is a 'positive appraisal of circumstances and probability for success based on motivated effort and perseverance' (Luthans, Avolio, Avey, & Norman, 2007, p. 550). Indeed, COR suggests that hope, efficacy, resilience, and optimism collectively act as 'a solid resource reservoir' (Hobfoll, 2002, p. 318).

More specifically, efficacy is '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, 1998, p. 66). In the educational context, it refers to learners' judgments of their ability to achieve their educational goals (Honicke & Broadbent, 2016). Efficacy is rooted in SCT. Unlike personality traits and other stable predictors of success (e.g. IQ or aptitude), efficacy is malleable and can be developed (Bandura, 1997). The relationship between efficacy and performance has been established in many life domains, including academic performance (Honicke & Broadbent, 2016, Pintrich & de Groot, 1990; Zajacova, et al., 2005; Zimmerman, Bandura, & Martinez-Pons, 1992). Agentic and efficacious goal pursuit is of key importance for mustering the self-motivation, effort, and perseverance necessary to succeed at school.

Similarly, hope and optimism have been linked to academic performance (Curry, Snyder, Cook, Ruby, & Rehm, 1997; Peterson & Barrett, 1987; Prola & Stern, 1984; Rand, Martin, & Shea, 2011). Hope is '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, Irving, & Anderson, 1991, p. 287). Agency is the willpower to pursue one's goals. Pathways are the 'waypower' or ability to generate alternative paths to achieve goals when original paths are blocked by obstacles (Snyder, 2000). Optimism is generalized positive future outlook (i.e. expecting good things to happen, in general, Carver, Scheier, Miller, & Fulford, 2009), as well as a positive explanatory style that internalizes positive events and externalizes negative ones (Seligman, 1998). Optimism is necessary to maintain positive expectancies about success.

Finally, resilience is 'the capacity to rebound or bounce back from adversity, conflict, failure or even positive events, progress and increased responsibility' (Luthans, 2002, p.702). Consistent with COR and SCT, resilient individuals capitalize on their personal, social and psychological assets, synergistically deploying them toward effective adaptation patterns and processes in order to overcome adversities or risk factors (Hobfoll, Johnson, Ennis, & Jackson, 2003; Masten, Cutuli, Herbers, & Reed, 2009). In line with the broadened thought-action repertoires and resource replenishment notions of BBM, resilience emphasizes 'bouncing back and beyond,' which means learning from, growing, and thriving through challenges.

PsyCap resources can contribute to academic performance in several ways. First, college students who cognitively evaluate their situation and probability of success more positively and maintain a positive outlook (optimism) are more likely to be motivated to invest the effort and perseverance necessary to succeed. Believing in themselves (efficacy) and determined to succeed (hope agency), they are more likely to exhibit higher agency, intentionality, and a sense of control (Youssef & Luthans, 2013; Youssef-Morgan & Luthans, 2013; Luthans, et al., 2015), all of which are necessary for academic performance. Second, high PsyCap students are likely to develop a wider range of pathways and strategies to overcome obstacles (hope) and to bounce back and learn from setbacks (resilience). Being more positive allows these students to have a broadened perspective and to draw from an expanded repertoire of physical resources (e.g. healthy diet, exercise, adequate sleep), social resources (e.g. seeking the help of professors and classmates), and psychological resources that can facilitate their performance. Indeed, recent research supports the relevance and impact of academic PsyCap on students' performance and wellbeing, as well as the high value of PsyCap, even when compared to important factors such as instructor and family support (Luthans, Luthans, & Avey, 2014; Luthans et al., 2012; Nielsen, Newman, Smyth, Hirst, & Heilemann, 2017). Thus, the following is hypothesized:

Hypothesis 1. Academic PsyCap is positively related to academic performance.

Academic engagement

Engagement is a positive state characterized by vigor, dedication, and absorption. Vigor represents high energy levels and mental agility, manifested in terms of willingness to invest effort, and persistence when faced with difficulties. Dedication is being deeply involved in one's work, thus experiencing enthusiasm, inspiration, pride, challenge, and a sense of significance. Absorption is being immersed and pleasantly engrossed in one's work, which makes time pass quickly and causes one to have difficulties with detaching an engaging activity (Schaufeli, Salanova, González-Romá, & Bakker, 2002). According to Hallberg and Schaufeli (2006), engagement is a positive state of well-being or fulfillment. Engaged individuals have high levels of energy, are enthusiastic about, and show strong identification with their tasks (Bakker, Schaufeli, Leiter, & Taris, 2008; Maslach, Schaufeli, & Leiter, 2001). Based on the Job Demands and Resources Model (JD-R), engagement involves a balance between the demands of a particular situation and the available resources to meet these demands. Adequate resources to meet demands can promote engagement, while excessive demands and limited resources lead to burnout (Bakker & Demerouti, 2007; Schaufeli, Bakker, & Van Rhennen, 2009; Schaufeli & Bakker, 2004)

Engagement has been studied extensively in the work context and there is strong empirical support for its relationship with job performance, profitability, and other important work outcomes (Harter, Schmidt, & Hayes, 2002). Engagement was also extended to the academic context and conceptualized in relation to students' tasks and activities (Schaufeli, Martínez, Margues-Pinto, Salanova, & Bakker, 2002). Engaged students feel energetic, identify strongly with their studies and are deeply involved in their academic life. Only a few studies exist about the relationship between academic engagement and academic performance but, overall, these studies corroborate the results that have been found in the workplace, that engagement is positively related to performance. For instance, Schaufeli, Martinez, et al. (2002) showed that engaged university students who are energetic and immersed in their studies, are more successful. A positive relationship between engagement and performance was also found in an experimental study with students performing a group task. More engaged student groups had higher group performance (Salanova, Llorens, Cifre, Martinez, & Schaufeli, 2003). Moreover, consistent with JD-R, engagement was found to mediate the relationship between obstacles (demands) and psychosocial facilitating factors (resources) on one hand and academic performance on another (Salanova, et al., 2010). Interestingly, although the presence of obstacles and the absence of facilitators were also related to burnout, burnout was not related to academic performance in this study, pointing to the importance of engagement.

In addition to this approach to academic engagement that is rooted in Europe, a different North American approach conceptualizing academic engagement as encompassing behavioral, cognitive and affective dimensions has also found strong positive associations among academic engagement and academic achievement (Cadima et al., 2016). For instance, a recent longitudinal study by Reeve and Lee (2014) showed that classroom engagement predicts longitudinal changes in motivations, psychological need satisfaction, and self-efficacy, and also in course achievement. Thus, research to-date supports that students who approach their studies with engagement are likely to be more successful. In line with these research findings to date, we hypothesize the following:

Hypothesis 2. Academic engagement is positively related to academic performance.

Engagement and psychological capital

In addition to the proposed favorable effects of engagement and PsyCap on academic performance, we aim to examine more closely the interrelationship between engagement and PsyCap as antecedents of academic performance. COR theory (Hobfoll, 2002) emphasizes the 'gain spirals' associated with the attainment and preservation of resources as central to human functioning (Hobfoll & Shirom, 2000). Accordingly, engaged students may be in a better position to invest their psychological resources such as PsyCap in a manner that can lead to positive outcomes such as academic performance. On the other hand, the possibility of gain spirals between psychological resources and engagement entails that they may mutually foster each other (Hakanen & Roodt, 2010; Hobfoll & Shirom, 2000). When resources are available, the level of engagement may be fostered and this may enhance the likelihood of taking advantage of the current resources and being able to create new ones. This notion may explain why people tend to invest more resources in positive endeavors (Salanova

et al., 2010) and consequently experience better performance (Bakker, 2009). Thus, the relationship between engagement and PsyCap may be reciprocal.

To further examine the direction of causality between engagement and PsyCap, we tested two competing hypotheses. On one hand, we examined PsyCap as a proximal antecedent of academic performance and a mediator of the relationship between engagement and performance. On the other hand, we examined PsyCap as a distal antecedent with engagement mediating the relationship between PsyCap and performance. We offer competing arguments for these two alternative perspectives, which we then test empirically.

Engagement as an antecedent of PsyCap

Engagement has been conceptualized as a positive experience in itself (Schaufeli, Salanova, et al., 2002) and able to build and facilitate task-related and personal resources (Bakker & Demerouti, 2007; Hakanen, Schaufeli & Ahola, 2008). Research shows that engaged employees use resources such as optimism, self-efficacy, resilience, and an active coping style to assist them in managing their tasks more successfully (Bakker & Demerouti, 2008; Luthans, Norman, Avolio & Avey, 2008). The idea that engagement can enhance resources is consistent with the BBM (Fredrickson, 2001) as a primary premise of this model is that positive emotions broaden people's momentary thought-action repertories and build their personal resources, including physical, intellectual, social and psychological resources (Fredrickson, 2001; Fredrickson & Branigan, 2005). Accordingly, positive experiences, such as engagement can build people's personal resources, such as PsyCap.

Empirically, De Waal and Pienaar (2013) investigated the causal relationship between PsyCap and work engagement through a longitudinal and cross-lagged research design. Results showed that PsyCap at Time 1 did not predict engagement at Time 2, but engagement at Time 1 predicted PsyCap at Time 2. These findings are consistent with the notion that engagement can facilitate the mobilization of the task and personal resources (Bakker & Demerouti, 2007; Hakanen et al., 2008). Cordery (2007) also found engagement to predict hope, optimism, and self-efficacy. Thus, the following is hypothesized:

Hypothesis 3. Academic PsyCap mediates the relationship between academic engagement and academic performance.

PsyCap as an antecedent of engagement

In line with COR theory, as discussed earlier, it is also plausible that PsyCap promotes engagement, for several reasons. First, resources are important antecedents of engagement (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). Psychological resources such as PsyCap can play an important role in meeting demanding situations such as those encountered by college students, which can contribute to their engagement. Furthermore, PsyCap can shape students' appraisals of the demands of their situations. When high PsyCap students appraise challenges more favorably, they can perceive these situations to be less demanding in relation to their personal resources. Perceived balance between demands and resources is vital for engagement. Thus, the following competing hypothesis is offered:

Hypothesis 3.1. Academic engagement mediates the relationship between academic PsyCap and academic performance.

Methods

Sample and procedures

High rates of failure and drop-out have been identified as serious problems for higher education students all over the world, including Spain (Cabrera, Bethencourt, Alvarez Pérez, & González Afonso, 2006) and Portugal (GPEARI – MCTES, 2008). This study was conducted in two public universities, one in Spain and another in Portugal. The Faculty's local ethics committee (comparable to IRB) granted approval for this study. The data collection was carried out in May and June 2014. We recruited undergraduate psychology students from the University of Lisbon, Portugal, and Jaume I, Spain. In Spain, the questionnaires were answered in paper-pencil format. In Portugal, the questionnaires were answered online. Students were told that the questionnaire was related to various aspects of their student life and that there are no right or wrong answers. Students in both universities are familiar with this type of questionnaires. Students also signed informed consent to give researchers access to their grades. The questionnaire required about 15 min to complete.

Participation was voluntary. Students did not receive any compensation for participation. From a population of 522 Portuguese students, 294 questionnaires (56.32%) were collected. After excluding 51 incomplete questionnaires, the final sample consisted of 243 questionnaires. From a population of 479 Spanish students, 389 questionnaires (81.21%) were collected. All students accepted the use of their grades for the study.

Measures

Academic Engagement was measured using the Short (nine-item) Utrecht Work Engagement Scale (Schaufeli, Bakker & Salanova, 2006). Engagement includes three dimensions (vigor, dedication, and absorption). Each dimension was measured using three items (item examples include 'When I'm doing my work as a student, I feel bursting with energy.', 'My studies inspire me.', and 'I am immersed in my studies.'). All items were rated on a seven-point Likert scale that ranged from 0 (never) to 6 (every day). In this study, the Exploratory Factor Analysis showed a one-factor solution that explained 49.80 and 57.56% of the variance in the Spanish and the Portuguese samples, respectively. All items had factor loadings ranging from 0.52 to 0.78 and from 0.71 to 0.81 and good reliability (Cronbach's alpha = 0.87 and 0.91) on Spanish and Portuguese samples, respectively. This one-dimensional work engagement concept was also used in previous studies (e.g. Halbesleben & Wheeler, 2008; Sonnentag, Dormann, & Demerouti, 2010).

Psychological Capital was measured using a translated and adapted version of the 12-item Psychological Capital Questionnaire (PCQ-12), originally developed by Luthans, et al. (2007) as a 24-item scale and subsequently shortened by Avey, Avolio, and Luthans (2011). The questionnaire was translated into Spanish and Portuguese

according to the guidelines of Brislin (1980). Subsequently, both questionnaires phrasing was adapted to students. This scale includes four dimensions: efficacy (3 items, e.g. 'I feel confident contributing to discussions about strategies on my studies.'); hope (4 items, e.g. 'I can think of many ways to reach my current goals regarding my studies.'); resilience (3 items, e.g. 'I usually take stressful things in stride with regard to my studies.'); optimism (2 items, e.g. 'I'm optimistic about what will happen to me in the future as it pertains to my studies.'). Participants were asked to indicate the extent to which they agreed with the twelve statements on a seven-point scale from 0 (strongly disagree) to 6 (strongly agree). The factorial structure of the PsyCap was evaluated using exploratory factor analysis. One factor was extracted, explaining 38.06 and 44.75% of the variance and factor loadings of the matrix structure ranged from 0.45 to 0.73 and 0.46 to 0.77 on Spanish and Portuguese samples, respectively. In this study, Cronbach's alphas were 0.83 and 0.88 on Spanish and Portuguese samples, respectively.

Academic performance was assessed by the Grade Point Average (GPA), provided by the Universities at the end of the exam period, 4 or 5 months after submission of the questionnaire. According to Spanish and Portuguese system of qualifications, GPA ranged from 5 (poor) to 10 (excellent), and from 10 (poor) to 20 (excellent), respectively. To enhance comparability, we transformed Portuguese GPAs to a 5–10 scale.

Data analyses

The first stage involved carrying out descriptive analyses (means, standard deviations), analysis of variance (ANOVA) to study differences between both samples and correlational analyses between variables, using the SPSS 22.0. Secondly, since this study used self-reported measures of academic engagement and PsyCap, Podsakoff, MacKenzie, Lee, and Podsakoff (2003) recommendations were taken into account to test for common method variance. Harman's single factor test with CFA (e.g. lverson & Maguire, 2000) was computed for the variables in the study.

Thirdly, AMOS 19.0 was employed to implement SEM methods using Maximum Likelihood Estimation to test the relationships between variables. Following Mathieu and Taylor (2006), we started by testing the direct paths from the independent variable (Academic Engagement in Model 1; Academic PsyCap in Model 2), to the dependent variable (Academic Performance). Testing mediation, we tested two full-mediation models (Model 3 and Model 5) with direct structural paths from independent variable (Academic Engagement in Model 3; PsyCap in Model 5) to the mediators (PsyCap in Model 3; Academic Engagement in Model 5), and from mediator to dependent variable (Academic Performance). Models 4 and Model 6 were partial-mediation models, where structural paths from the independent variable (Academic Engagement in Model 5) to dependent variable (Academic Engagement in Model 5), and from mediator to dependent variable (Academic Performance). Models 4 and Model 6 were partial-mediation models, where structural paths from the independent variable (Academic Engagement in Model 4; PsyCap in Model 6) to dependent variable (Academic Performance) were added to the previous model. SEM analyses derive from nested model comparisons, allowing us to hone in on the specific parameters of interest and to contrast a given pattern of effects against viable alternatives.

The models were compared based on chi-square difference tests and other fit indices: namely, the Comparative Fit Index (CFI), Incremental Fit Index (IFI), Root Mean

Square Error of Approximation (RMSEA), and Standardized Root Means Square Residuals (SRMR). Levels of 0.90 or higher for CFI and IFI indicate a good fit. RMSEA of 0.05 or lower in combination with SRMR values below 0.09 indicate excellent fit, whereas values below 0.08 and 0.10, respectively, indicate good fit (Byrne, 2010). The different competing models were compared by means of the χ 2 difference test.

Results

Confirmatory factor analysis

The measurement model with two latent factors (i.e. academic engagement and psychological capital) corresponding to our Theoretical Model showed an acceptable fit $[\chi^2 (180) = 378.47, p < .01, SRMR = 0.05, CFI = 0.94, IFI = 0.94, RMSEA = 0.05; \chi^2 (180)=431.70, p < .01, SRMR = 0.06, CFI = 0.91, IFI = 0.91, RMSEA = 0.08, on Spanish and Portuguese samples, respectively]. In comparison with an alternative tested one-factor model – where all items loaded on a single latent variable – an unacceptable fit of the latter was verified <math>[\chi^2 (181)=611.94, p < .01, SRMR = 0.07, CFI = 0.86, IFI = 0.86, RMSEA = 0.08; \chi^2 (181)=599.39, p < .01; SRMR = 0.08, CFI = 0.84, IFI = 0.85, RMSEA = 0.10, on Spanish and Portuguese samples, respectively]. Furthermore, the difference between our theoretical model and the one-factor model was significant <math>(\Delta \chi^2 (1)=233.47, p < .01; \Delta \chi^2 (1)=167.69, p < .01$ on Spanish and Portuguese samples, respectively) and confirmed that our theoretical model represented the best fit for both samples.

Descriptive statistics

The means, standard deviations, and correlation matrix are presented in Table 1. Considering the results of both samples, Spanish students presented higher scores on academic engagement (M = 4.01, SD = 0.86; M = 3.47, SD = 0.95, on Spanish and Portuguese samples, respectively, considering a seven-point Likert scale), as well as on PsyCap (M = 4.15, SD = 0.80; M = 4.09, SD = 0.95) than Portuguese students. Analyzing the inter-correlations among the studied variables (see also Table 1), we found positive relationships between all variables in each sample.

Analysis of variance (ANOVA) to study differences between samples (Portuguese and Spanish), showed significant differences in engagement (F = 55.49, p < .000) and academic performance (F = 10.52, p < .001), with Spanish students showing

Table 1. Means, standard deviations and correlations among variables, Spanish students (N = 389) and Portuguese students (N = 243).

	Spain			Portugal					
	М	SD	Min–Max	М	SD	Min–Max	1	2	3
1. PsyCap.	4.15	0.80	1.33–6	4.09	0.93	0–5.37	-	0.55**	0.29**
2. Academic engagement	4.01	0.86	1–6	3.47	0.95	0–6	0.62**	-	0.16**
3. Academic Performance	7.21	0.71	5.5–9.4	7.47	0.64	5.5–9.4	0.16**	0.14*	-

Note: Right of the diagonal shows Spanish students' results. Left of the diagonal shows Portuguese students' results. *p < .05, **p < .01.

significantly higher levels of engagement and Portuguese students significantly higher academic performance. There were no significant differences in PsyCap.

Structural equation models

As shown in Table 2, the direct path models (Models 1 and 2) did not fit the data well, which supports the importance of including paths leading to or stemming from the mediator (Mathieu & Taylor, 2006). Furthermore, significant direct associations were found between academic engagement and academic performance (Spanish sample: $\beta = 0.19 \ p < .01$, B = 0.16, SE = 0.05; Portuguese sample: $\beta = 0.15$, p < .01, B = 0.26, SE = 0.12) and between PsyCap and academic performance (Spanish sample: $\beta = 0.32$, p < .01, B = 0.36, SE = 0.07; Portuguese sample: $\beta = 0.21$, p < .01, B = 0.32, SE = 0.10). Thus Hypotheses 1 and 2 were supported.

Our next step was to test which mediated model (partial or full mediation) better fit the data for each sample. As shown in Table 2, Model 3 (full mediation of the relationship between academic engagement and academic performance by PsyCap) showed an acceptable fit. Model 4 (partial mediation, including the direct path from academic engagement to academic performance) also provided an adequate fit for the data for both samples. Thus, Hypothesis 3 was supported. We then compared the partial and full mediation models and observed that they did not differ significantly (Spanish sample: $\Delta \chi^2$ (1) = 0.53, n.s.; Portuguese sample: $\Delta \chi^2$ (1) = 1.09, n.s.). Therefore, the full mediation model (Model 3) was favored because it is more parsimonious and had the lowest AIC values. The standardized and unstandardized regression coefficients and standard errors are shown in Figure 2. As shown in Figure 2(b), the direct path from academic engagement to academic performance in Model 4 was not significant in either sample, supporting full mediation (Model 3).

In addition, in order to test hypothesis 3.1 (the reverse-causal relationship between academic engagement and PsyCap), we tested another set of full (Model 5) and partial (Model 6) mediation models, with academic engagement mediating the relationship between PsyCap and academic performance. As shown in Table 2, these two models also showed adequate fit in both samples. Thus, the reverse-causal relationship is also plausible and Hypothesis 3.1 was supported. However, when comparing the partial and full mediation

Model	χ^2	df	р	SRMR	CFI	IFI	RMSEA	AIC
Spanish Sample M1 (Engagement=>performance)	629.43	201	.01	0.18	0.87	0.87	0.07	733.43
M2 (PsyCap=>performance)	608.55	201	.01	0.18	0.87	0.87	0.07	712.55
M3 (PsyCap as full mediator)*	460.22	200	.01	0.06	0.92	0.92	0.06	566.22
M4 (PsyCap as partial mediator)	459.79	199	.01	0.06	0.92	0.92	0.06	567.79
M5 (engagement as full mediator)	478.27	200	.01	0.06	0.91	0.91	0.06	584.27
M6 (engagement as partial mediator)	459.79	199	.01	0.06	0.92	0.92	0.06	567.79
Portuguese sample	639.95	201	.01	0.23	0.84	0.84	0.10	743.95
M1 (Engagement=>Performance)								
M2 (PsyCap=>Performance)	635.00	201	.01	0.22	0.84	0.84	0.09	739.01
M3 (PsyCap as full mediator)*	488.32	200	.01	0.07	0.90	0.90	0.08	594.32
M4 (PsyCap as partial mediator)	487.23	199	.01	0.07	0.90	0.90	0.08	596.17
M5 (engagement as full mediator)	492.23	200	.01	0.07	0.89	0.89	0.08	598.23
M6 (engagement as a partial mediator)	488.25	199	.01	0.07	0.89	0.89	0.08	596.25

Table 2. Goodness-of-fit indices for the SEM models.

*Best filling model.



partial mediation). (c) Model 5 (PsyCap-Engagement-Performance – full mediation). (d) Model 6 (PsyCap-Engagement-Performance – partial mediation). Note: Values above the arrow correspond to results of Spanish sample, while values below the arrow correspond to results of Portuguese Sample. Values within Figure 2. Estimates for alternative models. (a) Model 3 (EngagementPsyCap-Performance – full mediation). (b) Model 4 (Engagement-PsyCap-Performance – brackets correspond to unstandardized estimates. **p < .01; *p < .05.

models, they differed significantly (Spanish sample: $\Delta \chi^2$ (1) = 16.93, *p*<.001; Portuguese sample: $\Delta \chi^2$ (1)=3.98, *p*<.05). The partial mediation model (Model 6) was more favorable based on fit indices because it had lower chi-square and AIC values. However, as shown in Figure 2, the path from academic engagement to academic performance was not significant. On the other hand, both paths of the full mediation model (Model 5) were significant, thus favoring full mediation and supporting Hypothesis 3.1.

The final step was to compare Models 3 and 4 to Models 5 and 6 in order to determine the most likely causal sequence. When the models to be compared are not nested, a fit index to compare the fit of statistical models is AIC. Model 3 was the model that showed the lowest AIC value, supporting Hypothesis 3. Thus, the relationship between academic engagement and academic performance is fully mediated by PsyCap. The model explained 45% of psychological capital and 10% of academic performance on Spanish sample, and 58% of psychological capital and 5% of academic performance on Portuguese sample. Sobel test was also used to further examine Model 3. The results supported full mediation (Z = 4.38, p < .01 and Z = 2.89, p < .01 on Spanish and Portuguese samples, respectively). Finally, a multi-group analysis that included both samples in order to inspect invariance between the two groups of participants were performed. We found significant differences between the two samples in the relationship between academic engagement and PsyCap (Z spanish vs. Portuguese = 3.17, p < .01), but not between PsyCap and academic performance (Z spanish vs. Portuguese = 0.19, n.s.).

Discussion

The purpose of this study was to examine the role of psychological factors, namely academic engagement and PsyCap, as predictors of academic performance. Drawing from Conservation of Resources theory (COR; Hobfoll, 2002), Social Cognitive Theory (SCT; Bandura, 1986), and the Broaden-and-Build Model (BBM, Fredrickson, 2001), these two antecedents were conceptualized and empirically tested.

Furthermore, PsyCap was explored as a mediating mechanism that may explain how students capitalize on their academic engagement to achieve higher academic performance. Specifically, the vigor, dedication, and absorption dimensions of academic engagement can promote positive spirals of psychological resource building, replenishment, and deployment, as well as PsyCap's positive cognitive appraisals that facilitate motivation, effort, and ultimately performance.

Alternatively, a competing model was also examined, in which academic engagement mediates the relationship between PsyCap and academic performance. Consistent with the Job Demands and Resources (JD-R) model, psychological resources may help balance the demands and challenges of academic life or at least allow students to appraise them as more manageable, which can facilitate engagement and in turn high performance. Furthermore, the positive dimensions of PsyCap such as efficacy, hope, optimism, and resilience can also trigger active and intentional engagement in academic goal setting and goal pursuit with vigor, dedication, and absorption, which can enhance the probability of high academic performance.

Results of the SEM analysis across two samples support our hypotheses that college students' academic engagement positively relates to their psychological resources

(PsyCap), which in turn are positively related to their academic performance. Furthermore, and of special relevance, SEM results also show that college students' PsyCap mediates the effects of academic engagement on academic performance. It is also plausible that academic engagement mediates the relationship between PsyCap and academic performance. However, among six alternative models examined in two samples, PsyCap as a full mediator of the relationship between academic engagement and academic performance was the model that received the strongest support.

Altogether, these findings offer important contributions to theory, research, and practice regarding academic performance. First, as discussed in detail in the introduction, traditional predictors of academic performance such as high school grades and admission tests, currently the main factors considered both in North America, Europe, and around the world (Richardson et al., 2012, Trapmann, Hell, Hirn, & Schuler, 2007), are becoming increasingly ineffective, as evidenced by the dismal college completion rates. These trends point to the need for a wider range of predictors of academic performance. Our results indicate that psychological factors such as academic engagement and personal resources (PsyCap) are important predictors of academic performance. These results are also consistent with other studies with students (e.g. Enright & Gitomer, 1989; Luthans, et al., 2012; 2014; Oswald et al., 2004; Salanova et al. 2010, Zajacova, et al., 2005). Thus, our results broaden the knowledge of antecedents of academic performance and encourage academic researchers, educators, and administrators to pay further attention to these psychological factors.

Second, this study supports and extends previous research on the interrelationships between engagement, PsyCap, and performance (e.g. Luthans et al., 2012; De Waal & Pienaar, 2013; Siu et al., 2013), which supports PsyCap as a mediator in the engagement – performance relationship. This result contributes to the theoretical understanding and empirical support regarding the antecedents of PsyCap (Avey, 2014), the conditions in which PsyCap may be manifested and the mechanisms through which engagement operates to promote success, particularly in the context of academic studies. Specifically, more engaged students are more likely to experience higher levels of PsyCap, which in turn positively impacts their performance.

Strengths and limitations

This study has some notable strengths. First, large sample size increases the statistical power of this study. Second, drawing samples from different universities in two different countries, both of which are outside the United States where most of the previous research on PsyCap has taken place, adds to the external validity of the findings. Similarly, most of the research on engagement and PsyCap to-date focuses on the workplace. Examining these variables in the context of academic performance tests the boundaries of existing theories. Finally, utilizing objective academic performance outcomes collected from different sources and at different points in time (GPA based on grades assigned by multiple professors in multiple classes) is a strong point of this study. It adds to the robustness of our findings and reduces common-source and common-method biases (Podsakoff et al., 2003).

On the other hand, this study also has several limitations. First, a convenience sample was used, which may have introduced selection biases that can compromise the generalizability of the results. Second, academic engagement and PsyCap data were obtained through self-report measures, which may have caused common-method bias (Podsakoff et al., 2003). However, our findings were in line with theoretical predictions and earlier findings and Harman's one-factor test suggests that common method variance should not be a serious threat in our study. Third, the data are cross-sectional. Although SEM analysis provides some information about the possible direction of the relationships and testing competing hypotheses provided empirical support for the proposed model, cross-sectional study designs do not allow one to draw firm conclusions regarding the causal ordering among the variables studied. Finally, there are many factors for this study did not account, including personality, socioeconomic factors, and traditional predictors of academic performance, all of which could have been contributing factors. However, this data was not accessible for the study samples.

Implications for future research

This study provides important theoretical and empirical contributions to the knowledge on variables and mechanisms that contribute to the academic performance of college students, namely, the mediating role of PsyCap in the academic engagement – performance relationship. Future research should examine these relationships longitudinally and experimentally to ascertain magnitude and causal direction. Furthermore, research should examine these psychological antecedents alongside traditional predictors of academic performance such as high school academic performance, entrance exams, extracurricular activities, and others. Future research should also control for personality traits such as cognitive mental abilities (i.e. intelligence; Schmidt, 2009), the Big Five personality traits (conscientiousness, extroversion, emotional stability, agreeableness, and openness to experience; Barrick & Mount, 1991), core self-evaluations (generalized selfefficacy, self-esteem, neuroticism, and locus of control; Judge & Bono, 2001) all of which have been supported in past research as important predictors of performance. Including traditional and trait antecedents as control variables can help determine the relative contributions of psychological predictors such as engagement and PsyCap.

In addition, engagement and PsyCap may interact meaningfully with these predictors. They may make their relationships with performance stronger, highlighting the multiplicative role of traditional, personality, and psychological factors. For example, alternatively, they may buffer these relationships such that psychological predictors may neutralize or substitute for traditional or personality antecedents. For example, engagement or PsyCap may 'make up' for low scores on standardized tests. Future research should examine these competing hypotheses to determine the interactive role of various predictors of academic performance

Implications for practice

Unlike many trait predictors of academic performance (and success in general) such as intelligence and personality, PsyCap and engagement are 'state-like' (Luthans, et al.,

2007). This means that they are malleable enough to be open to development, yet more stable and persistent than momentary states such as fleeting moods and emotions. Research in the work context has shown that organizations can actively stimulate work engagement by optimizing employees' job demands and job resources (Bakker, 2015). PsyCap can also be developed through targeted interventions (Dello Russo & Stoykova, 2015; Demerouti, Erick, Snelder, & Wild, 2011; Ertosun, Erdil, Deniz, & Lutfihak, 2015; Luthans, Avey, Avolio, Norman, & Combs, 2006; Luthans, Avey, Avolio, & Peterson, 2010; Luthans, Avey, & Patera, 2008; Luthans, et al., 2014). Furthermore, employees may also proactively 'craft' job and personal characteristics to influence their own work engagement and PsyCap (Bakker, 2015).

Teachers, parents, mentors, and academic administrators should take these evidence-based findings into consideration in the development processes they utilize to prepare students for college. Instead of only focusing on academics and test scores, they should also incorporate development interventions to promote students' academic engagement and PsyCap, in order to foster their academic performance. Fortunately, these development interventions are inexpensive, effective, relatively easy to implement, and do not require special innate abilities. In addition, the development of academic engagement and PsyCap should be ongoing in order to boost students' motivation and morale as they face the day-to-day challenges of academic life.

Engagement and PsyCap hold promise in terms of predicting and promoting academic performance. The time may have come to incorporate psychological factors such as these in college selection criteria. Indeed, students who approach their academic goals with vigor, dedication, and absorption are more likely to be confident, hopeful, optimistic, and resilient. They are more likely to believe in themselves and their chances of success, and to invest the necessary time, energy, and motivation to achieve their goals and conquer challenges. These psychological factors can add value beyond innate cognitive abilities, personality traits, or standardized test scores, in predicting academic performance.

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References

Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college.* Washington, DC, U.S.: Department of Education.

Arce, M., Crespo, B., & Míguez-Álvarez, C. (2015). Higher education drop-out in Spain-particular case of universities in Galicia. *International Education Studies*, 8, 247–264. doi:10.5539/ ies.v8n5p247

- Avey, J. B. (2014). The left side of psychological capital: New evidence on the antecedents of PsyCap. *Journal of Leadership and Organizational Studies*, 21, 141–149. doi:10.1177/ 1548051813515516
- Avey, J. B., Avolio, B. J., Luthans, F. (2011). Experimentally analyzing the impact of leader positivity on follower positivity and performance. *Leadership Quarterly*, 22(2) 282–294. doi:10.1016/ j.leaqua.2011.02.004
- Bakker, A. B. (2009). Building engagement in the workplace. In C. L. Cooper & R. J. Burke (Eds.), *The peak performing organization* (pp. 50–72). Oxon UK: Routledge.
- Bakker, A. B. (2015). A job demands resources approach to public service motivation. *Public Administration Review*, 75, 723–732. doi:10.1111/puar.12388
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal* of Managerial Psychology, 22, 309–328. doi:10.1108/02683940710733115
- Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International*, *13*, 209–223. doi:10.1108/13620430810870476
- Bakker, A. B., Sanz Vergel, A. I., & Kuntze, J. (2015). Student engagement and performance: A weekly diary study on the role of openness. *Motivation and Emotion*, *39*, 49–62. doi:10.1007/s11031-014-9422-5
- Bakker, A. B., Schaufeli, W. B., Leiter, M. P., & Taris, T. W. (2008). Work engagement: An emerging concept in occupational health psychology. *Work and Stress*, 22, 187–200. doi:10.1080/ 02678370802393649
- Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, *52*, 1–26. doi:10.1146/annurev.psych.52.1.1
- Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, 38, 9–44. doi:10.1177/0149206311410606
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1–26. doi:10.1111/j.1744-6570.1991.tb00688.x
- Byrne, B. M. (2010). Structural equation modeling with AMOS. New York, NY: Routledge.
- Brislin, R. W. (1980). Translation and Content Analysis of Oral and Written Material. In: H. C. Triandis & J. W. Berry (Eds.), *Handbook of cross-cultural psychology* (pp. 389–444). Boston: Allyn & Bacon.
- Cabrera, L., Bethencourt, J. T., Álvarez Pérez, P., & González Afonso, M. (2006). The dropout problem in University Study. *Relieve*, *12*, 2. http://www.uv.es/RELIEVE/v12n2/RELIEVEv12n2_1.htm
- Cabrera, A. F., & La Nasa, S. M. (2000). Understanding the college choice of disadvantaged students. New Directions for Institutional Research, 107, 5–22. doi:10.1002/ir.10701
- Cadima, I., Marques-Pinto, A., Lima, S., Rego, S., Pereira, J., & Ribeiro, I. (2016). Well-being and academic achievement in secondary school pupils: The unique effects of burnout and engagement. *Journal of Adolescence*, *53*, 169–179. doi:10.1016/j.adolescence.2016.10.003
- Carver, C. S., Scheier, M. F., Miller, C. J., & Fulford, D. (2009). Optimism. 2nd ed. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology*, (pp. 303–311). Oxford: Oxford University Press.
- Cordery, J. (2007). Accentuating the positive. Building hope, optimism, confidence and resilience in organisations. Wembley, Western Australia: Australian Institute of Management.
- Curry, L. A., Snyder, C. R., Cook, D. I., Ruby, B. C., & Rehm, M. (1997). The role of hope in student-athlete academic and sport achievement. *Journal of Personality and Social Psychology*, 73, 1257–1267. doi:10.1037//0022-3514.73.6.1257
- De Waal, J. J., & Pienaar, J. 2013. Towards understanding causality between work engagement and psychological capital. *SA Journal of Industrial Psychology*, *39*(2), 1113. doi:10.4102/sajip.v39i2.1113
- Dello Russo, S., & Stoykova, P. (2015). Psychological Capital Intervention (PCI): A Replication and Extension. *Human Resource Development Quarterly, 26*, 329–347. doi:10.1002/hrdq.21212

- Demerouti, E., Erik, V. E., Snelder, M., & Wild, U. (2011). Assessing the effects of a "personal effectiveness" training on psychological capital, assertiveness and self-awareness using selfother agreement. *Career Development International*, 16, 60–81. doi:10.1108/ 13620431111107810
- Enright, M. L., & Gitomer, D. (1989). *Toward a description of successful graduate students* (GRE Boards Report N°. 85-17R). Princeton, NJ: Educational Testing Service. https://www.ets.org/ Media/Research/pdf/RR-89-09-Enright.pdf
- Ertosun, O. Z., Erdil, O., Deniz, N., & Lutfihak, A. (2015). Positive psychological capital development: A field study by the Solomon four group design. *International Business Research*, *8*, 102–111.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-andbuild theory of positive emotions. *American Psychologist*, *56*, 218–226. doi:10.1037//0003-066X.56.3.218
- Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and* Emotion, *19*, 313–332. doi:10.1080/02699930441000238
- Gabinete de Planeamento, Estratrégia, Avaliação e Relações Internacionais Ministério da Ciência, Tecnologia e Ensino Superior (GPEARI MCTES). (2008). Procura de emprego dos diplomados com habilitação superior (Employment search of Higher Education graduates: Reports and data). Retrieved from http://www.estatisticas.gpeari.mctes.pt
- Halbesleben, J. R. B., & Wheeler, A. R. (2008). The relative roles of engagement and embeddedness in predicting job performance and intention to leave. *Work and Stress*, *22*, 242–256. doi: 10.1080/02678370802383962
- Hallberg, U., & Schaufeli, W. B. (2006). "Same same" but different? Can work engagement be discriminated from job involvement and organizational commitment? *European Psychologist*, *11*, 119–127. doi:10.1027/1016-9040.11.2.119
- Hakanen, J. J., & Roodt, G. (2010). Using the job demands-resources model to predict engagement: Analysing a conceptual model. In A. B. Bakker, & M. P. Leiter, (Eds.). Work engagement, a handbook of essential theory and research (pp. 85–101). Great Britain: Psychology Press.
- Hakanen, J. J., Schaufeli, W.B., & Ahola, K. (2008). The Job Demands-Resources model: A threeyear cross-lagged study of burnout, depression, commitment, and work engagement. *Work Stress*, 22, 224–241. doi:10.1080/02678370802379432
- Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, *87*, 268–279. doi:10.1037//0021-9010.87.2.268
- Hauser, D., & Johnston, A. (2016). Public costs, relative subsidies, and repayment burdens of federal us student loan plans: Lessons for reform. *Higher Education Policy*, *29*, 89–107. doi: 10.1057/hep.2014.25
- Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, 6, 307–324. doi:10.1037/1089-2680.6.4.307
- Hobfoll, S. E., Johnson, R. J., Ennis, N., & Jackson, A. P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. *Journal of Personality and Social Psychology*, 84, 632–643. doi:10.1037//0022-3514.84.3.632
- Hobfoll, S. E., & Shirom, A. (2000). Conservation of resources theory: Applications to stress and management in the workplace. In R. T. Golembiewski (Ed.), *Handbook of organization behavior* (pp. 57–81). New York: Dekker.
- Honicke, T., & Broadbent, J. (2016). The relation of academic self-efficacy to university student academic performance: A systematic review. *Educational Research Review*, *17*, 63–84. doi: 10.1016/j.edurev.2015.11.002
- Iverson, R. D., & Maguire, C. (2000). The relationship between job and life satisfaction: Evidence from a remote mining community. *Human Relations*, 53, 807–839. doi:10.1177/00187267 00536003

- Jang, H., Kim, E.-J., & Reeve, J. (2012). Longitudinal test of self determination theory's motivation mediation model in a naturally occurring classroom context. *Journal of Educational Psychology*, *104*, 1175–1188. doi:10.1037/a0028089
- Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits-self-esteem, generalized self-efficacy, locus of control, and emotional stability-with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, *86*, 80–92. doi:10.1037//0021-9010.86.1.80
- Kuh, G., Cruce, T., Shoupe, R., & Kinzie, J. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *Journal of Higher Education*, *79*, 540–563. doi: 10.1353/jhe.0.0019
- Luthans, F. (2002). Positive organizational behavior: Developing and managing psychological strengths. *Academy of Management Executive*, *16*, 57–72. doi:10.1177/0149206307300814
- Luthans, B. C., Luthans, K. W., & Avey, J. B. (2014). Building the leaders of tomorrow: The development of academic psychological capital. *Journal of Leadership and Organizational Studies*, *21*, 191–200. doi:10.1177/1548051813517003
- Luthans, B. C., Luthans, K. W., & Jensen, S. (2012). The impact of business school students' psychological capital on academic performance. *Journal of Education for Business*, *87*, 253–259. doi:10.1080/08832323.2011.609844
- Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. J. (2006). Psychological capital development: Toward a micro-intervention. *Journal of Organizational Behavior*, *27*, 387–393. doi:10.1002/job.373
- Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, *21*, 41–66. doi:10.1002/hrdq.20034
- Luthans, F., Avey, J. B., & Patera, J. L. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning and Education*, 7, 209–221. doi:10.5465/amle.2008.32712618
- Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Psychological capital: Measurement and relationship with performance and job satisfaction. *Personnel Psychology*, *60*, 541–572. doi:10.1111/j.1744-6570.2007.00083.x
- Luthans, F. Norman, S. M., Avolio, B. J., & Avey, J. B. (2008). The mediating role of psychological capital in the supportive organizational climate employee performance relationship. *Journal of Organizational Behavior*, *29*, 219–238. doi:10.1002/job.507
- Luthans, F., & Youssef-Morgan, C. M. (2017). Psychological capital: An evidence-based positive approach. *American Psychologist*, *4*, 339–366. doi:10.1146/annurev-orgpsych-032516-113324
- Luthans, F., Youssef-Morgan, C. M., & Avolio, B. (2015). *Psychological capital and beyond*. New York: Oxford University Press.
- Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, *131*, 803–855. doi:10.1037/0033-2909.131.6.803
- Martin, A. (2009). Motivation and engagement across the academic life span: A developmental construct validity study of elementary school, high school, and university/college students. *Educational and Psychological Measurement*, *69*, 794–824. doi:10.1177/0013164409332214
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. Annual Review of Psychology, 52, 397–422. doi:10.1146/annurev.psych.52.1.397
- Masten, A. S., Cutuli, J. J., Herbers, J. E, & Reed, M. G. J. (2009). Resilience in development. 2nd ed. In S. J. Lopez & C. R. Snyder (Eds.), *Oxford handbook of positive psychology* (pp. 117–131). New York: Oxford University Press.
- Mathieu, J. E., & Taylor, S. R. (2006). Clarifying conditions and decision points for mediational type inferences in organizational behavior. *Journal of Organizational Behavior*, *27*, 1031–1056. doi:10.1002/job.426
- National Center for Education Statistics. (2016). Undergraduate retention and graduation rates. Retrieved August 11, 2016 from: http://nces.ed.gov/programs/coe/indicator_ctr.asp.
- Nielsen, I., Newman, A., Smyth, R., Hirst, G., & Heilemann, B. (2017). The influence of instructor support, family support and psychological capital on the well-being of postgraduate students:

A moderated mediation model. *Studies in Higher Education*, *42*, 2099–2115. doi:10.1080/03075079.2015.1135116

- Organization for Economic Cooperation and Development. (2015). Graduation and entry rates. Retrieved August 11, 2016 from: http://stats.oecd.org/Index.aspx?datasetcode=EAG_GRAD_ ENTR_RATES#
- Oswald, F. L., Schmitt, N., Kim, B. H., Ramsay, L. J., & Gillespie, M. A. (2004). Developing a biodata measure and situational judgment inventory as predictors of college student performance. *Journal of Applied Psychology*, 89, 187–207. doi:10.1037/0021-9010.89.2.187
- Peterson, C., & Barrett, L. (1987). Explanatory style and academic performance among university freshmen. *Journal of Personality and Social Psychology*, *53*, 603–607. doi:10.1037/0022-3514.53.3.603
- Pintrich, P., & de Groot, E. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, 82, 33–40. doi:10.1037//0022-0663.82.1.33
- Podsakoff, P. M., MacKenzie, S. C., Lee, V., & Podsakoff, N. P. (2003). Common method biases in behavioral research. *Journal of Applied Psychology*, 88, 879–903. doi:10.1037/0021-9010.88.5.879
- Prola, M., & Stern, D. (1984). Optimism about college life and academic performance in college. *Psychological Reports*, *55*, 347–350. doi:10.2466/pr0.1984.55.2.347
- Rand, K. L., Martin, A. D., & Shea, A. (2011). Hope, but not optimism, predicts academic performance of law students beyond previous academic achievement. *Journal of Research in Personality*, 45, 683–686. doi:10.1016/j.jrp.2011.08.004
- Reeve, J., & Lee, W. (2014). Students' classroom engagement produces longitudinal changes in classroom motivation. *Journal of Educational Psychology*, *106*, 527–540. doi:10.1037/a0034934
- Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, *138*, 353–387. doi:10.1037/a0026838
- Salanova, M., Llorens, S., Cifre, E., Martínez, I. M., & Schaufeli, W. (2003). Perceived collective efficacy, subjetive well-being and task performance among electronic groups. *Small Group Research*, *34*, 43–73. doi:10.1177/1046496402239577
- Salanova, M., Schaufeli, W., Martinez, I., & Breso, E. (2010). How obstacles and facilitators predict academic performance: The mediating role of study burnout and engagement. *Anxiety, Stress,* and Coping, 23, 53–70. doi:10.1080/10615800802609965
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293–315. doi:10.1002/job.248
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Education and Psychological Measurement*, *66*, 701–716. doi:10.1177/0013164405282471
- Schaufeli, W. B., Bakker, A. B., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior*, 30, 893–917. doi:10.1002/job.595
- Schaufeli, W. B., Martínez, I. M., Marques-Pinto, A., Salanova, M., & Bakker, A. (2002). Burnout and engagement in university students. A cross-national study. *Journal of Cross-Cultural Psychology*, 33, 464–481. doi:10.1177/0022022102033005003
- Schaufeli, W. B., Salanova, M., Gonzalez-Roma, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71–92.
- Schmidt, B., & MacWilliams, B. (2011). Admission criteria for undergraduate nursing programs: A systematic review. *Nurse Educator*, *36*, 171–174. doi:10.1097/NNE.0b013e31821fdb9d
- Schmidt, F. (2009). Select on intelligence. 2nd ed. In E. Locke (Ed.), *Handbook of principles of organizational behavior* (pp. 3–17). West Sussex, UK: Wiley.
- Seligman, M. E. P. (1998). Learned optimism. New York: Pocket Books.

- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology. *American Psychologist*, 55, 5–14. doi:10.1037//0003-066X.55.1.5
- Siu, O. L., Bakker, A., & Jiang, X. (2013). Psychological capital among university students: Relationships with study engagement and intrinsic motivation. *Journal of Happiness Studies*, *15*, 979–994. doi:10.1007/s10902-013-9459-2
- Snyder, C. R. (2000). Handbook of hope. San Diego: Academic Press.
- Snyder, C. R., Irving, L., & Anderson, J. (1991). Hope and health: Measuring the will and the ways. In C. R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 285–305). Elmsford, NY: Pergamon.
- Sonnentag, S., Dormann, C., & Demerouti, E. (2010). Not all days are created equal: The concept of state work engagement. In A. B. Bakker & M. P. Leiter (Eds.), *Work engagement: Recent developments in theory and research* (pp. 25–38). New York: Psychology Press.
- Stajkovic, A. D., & Luthans, F. (1998). Social cognitive theory and self-efficacy: Going beyond traditional motivational and behavioral approaches. *Organizational Dynamics*, 26, 62–74. doi: 10.1016/S0090-2616(98)90006-7
- Trapmann, S., Hell, B., Hirn, J. W., & Schuler, H. (2007). Meta-analysis of the relationship between the big five and academic success at university. *Journal of Psychology*, 215, 132–151. doi: 10.1027/0044-3409.215.2.132
- Truell, A., & Woosley, S. (2008). Admission criteria and other variables as predictors of business student graduation. *College Student Journal*, 42, 348–356.
- U.S. Department of Education. (2013). Default rates continue to rise for federal student loans. Retrieved August 11, 2016 from: http://www.ed.gov/news/press-releases/default-rates-continue-rise-federal-student-loans.
- Young, J., & Korbin, J. (2001). Differential validity, differential prediction and college admission testing: A comprehensive review and analysis. Retrieved August 22, 2016 from: http:// research.collegeboard.org/publications/content/2012/05/differential-validity-differential-predictionand-college-admission
- Youssef, C. M., & Luthans, F. (2013). Developing psychological capital in organizations: Cognitive, affective and conative contributions of happiness. In S. A. David, I. Boniwell, & A. C. Ayers (Eds.), Oxford handbook of happiness (pp. 751–766). New York: Oxford University Press.
- Youssef-Morgan, C. M., & Luthans, F. (2013). Psychological capital theory: Toward a positive holistic model. Vol. 19. In A. B. Bakker (Ed.), *Advances in positive organizational psychology* (pp. 145–166). Bingley, UK: Emerald.
- Zajacova, A., Lynch, S. M., & Espenshade, J. E. (2005). Self-efficacy. stress, and academic success in college. *Research in Higher Education*, *46*, 677–706. doi:10.1007/s11162-004-4139-z
- Zimmerman, B., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, 29, 663–676. doi:10.2307/1163261