



## **The influence of instructor support, family support and psychological capital on the well-being of postgraduate students: a moderated mediation model**

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**The Influence of Instructor Support, Family Support and  
Psychological Capital on the Wellbeing of Postgraduate Students:  
A Moderated Mediation Model**

We examine the influence of instructor support, family support and psychological capital on the subjective wellbeing of postgraduate business students, including whether psychological capital mediates the proposed support – wellbeing relationship. We further investigate whether family support moderates this proposed mediated relationship. We find direct positive relationships between instructor support and wellbeing, and between psychological capital and wellbeing. We also find that psychological capital mediates the instructor support – wellbeing relationship. Finally, we find family support moderates this mediated relationship in such a way that the relationship is stronger among students with lower levels of family support.

The last decade has seen a growing demand for postgraduate business degrees the world over. In the United States, the number of conferred postgraduate business degrees increased about six percent annually in the decade to 2011 (US Census Bureau 2012). In Australia, which is the setting for the current study, growth in demand for postgraduate coursework degrees has been rapid since fee deregulation at the end of the 1980s (Forsyth et al. 2009). Postgraduate business degrees are particularly attractive to students from China and Southeast Asia given Australia's geographical proximity to the Asian region.

Increasingly, business schools are seen as – and in large part are – the “cash cows” that subsidize a range of activities across the university sector. The responsibility placed on business schools to generate large amounts of revenue through postgraduate enrolments has

precipitated a global response from schools seeking external confirmation of their quality through various accreditation bodies, such as the Association to Advance Collegiate Schools of Business and the European Quality Improvement System. As Wilkins and Huisman (2012) discussed, external accreditation is one informant of the many business school ranking systems that have proliferated around the world.

With postgraduate student numbers front and centre in the priorities of business schools, there is a critical need to understand the factors that enhance the wellbeing of this cohort in order to build institutional reputation, inform recruitment strategies, grow enrolments and fulfil duties of care to students. In this study we employ the job demands-resources (JD-R) framework (Bakker and Demerouti 2007; Demerouti et al. 2001) to investigate how instructor support influences the subjective wellbeing of postgraduate business students through development of their personal psychological resources of self-efficacy, hope, resilience and optimism (psychological capital). In addition, we examine how family support interacts with instructor support to predict subjective wellbeing through the mediating influence of psychological capital (PsyCap). Our results have implications for designing tailored support systems for postgraduate students, and point to the value of embedding interventions to strengthen psychological capital.

## **BACKGROUND AND CONTRIBUTIONS OF THE STUDY**

In January 2000, the now renowned special issue of the flagship American Psychological Association (APA) journal *American Psychologist*, guest-edited by former APA President Martin Seligman and his colleague Mihaly Csikszentmihalyi, set the foundation for what has become a refocus in psychological research on the “factors that allow individuals, communities and societies to flourish” (Seligman and Csikszentmihalyi 2000, 5). This so-called positive psychology paradigm has permeated psychological research across the spectrum. A search for

the key words positive psychology using the PsychINFO database returns 3,902 articles between 2000 and 2014. Empirical work on positive psychology began to flourish in the organizational psychology literature following Luthans' (2002a, 2002b) call for this refocus on optimal human functioning to be applied within the workplace context. Specifically, Luthans (2002b) referred to this application of positive psychology as positive organizational behavior. A key construct to emerge from Luthans' work in positive organizational behavior has been psychological capital (PsyCap) (Luthans and Youssef 2004), which Luthans, Youssef, and Avolio (2007, 3) defined as "an individual's positive psychological state of development". A recent review of the PsyCap literature by Newman et al. (2014) identified 66 empirical articles on PsyCap since the publication of Luthans and Youssef's (2004) seminal paper.

Given that PsyCap emerged directly from the positive organizational behavior field, it is not surprising that it has been applied overwhelmingly in studies within organizational contexts. In terms of outcome variables, the most commonly assessed outcomes in organizational settings have been individual attitudes, such as job satisfaction (Luthans et al. 2007) and organizational commitment (Larson and Luthans 2006); desirable individual and/or team behaviors (see Avey et al. 2011, for a meta-analysis) and performance (Luthans et al. 2007; Peterson et al. 2011). In addition, a small number of studies have focused on the relationship between PsyCap and subjective wellbeing in an organizational setting (Baron, Franklin, and Hmieleski 2013; Nguyen and Nguyen 2012). These studies have shown that an individual's positive psychological state of development is positively related to the quality of employees' work and personal lives. There is also some evidence that PsyCap positively impacts on the subjective wellbeing of individuals over time (Avey et al. 2010; Culbertson, Fullagar, and Mills 2010; Luthans et al. 2013). In addition, PsyCap has recently been demonstrated to be an important mechanism that mediates the relationship between a supportive organizational environment and employee outcomes. For example, Luthans et al.

(2008) found that PsyCap mediates the relationship between organizational support and performance, while Nigah, Davis, and Hurrell (2012) demonstrated the mediating effects of PsyCap on the relationship between satisfaction with a buddying system for new recruits and workplace engagement.

While the body of research devoted to understanding the role of PsyCap in organizational settings has grown quickly in the past decade, there has been scant application of the PsyCap construct outside of organizational research. One obvious area of potential application is education, where input, throughput and outcome variables have striking parallels. For example, in education, environmental factors such as instructor support are analogous to the supervisor support variable employed commonly in the organizational behaviour literature. Similarly, student performance is analogous to job performance; and the subjective wellbeing of students is as critical to the study of educational psychology as the subjective wellbeing of employees is to organizational behavior. While many studies have looked at the relationship between the individual components of PsyCap on performance in educational settings (see Richardson, Abraham, and Bond (2012) for a broad review that includes reviews of the relationship between optimism and performance, and self-efficacy and performance among University students), only one prior study has looked at the relationship between PsyCap and academic performance. This study, by Luthans, Luthans, and Jensen (2012), found a positive relationship between PsyCap and the Grade Point Average of undergraduate business students. However, prior work has failed to investigate the role played by PsyCap in promoting student wellbeing, and its mediating effects on the instructor support – wellbeing relationship.

The current study builds on Luthans et al. (2012) in three main ways, and in so-doing contributes to the existing literature: First, it is the first to assess the underlying mechanisms linking instructor support to the subjective wellbeing of students. More specifically, building on the job demands-resources (JD-R) model the present study examines whether the

psychological resources of self-efficacy, hope, resilience and optimism, as captured by the higher-order factor of PsyCap, act as a mechanism that transmits the positive effects of instructor support on subjective wellbeing in an educational setting. The second contribution of the study is that it assesses whether family support moderates the mediated effects of instructor support on student wellbeing through PsyCap. This is an important advance in the PsyCap literature more broadly as it allows us to address the calls of researchers for more investigation of potential moderators of the relationship between PsyCap and its antecedents/outcomes (Newman et al. 2014). Finally, it makes a significant practical contribution by examining the role of different support mechanisms in the development of psychological resources (PsyCap) and subjective wellbeing among postgraduate business students, whom as discussed, represent a key source of revenue for modern business schools.

## **THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT**

The theoretical framework employed in this study is the job demands-resources (JD-R) framework (Bakker and Demerouti 2007; Demerouti et al. 2001). The JD-R framework separates the work environment into demands and resources. Whereas job demands require sustained physical, and psychological effort and may therefore be costly to individuals in physical and psychological terms, job resources are the physical, psychological, social, or organizational aspects of work that allow individuals to reduce their work demands, function effectively, and achieve their work goals (Bakker and Demerouti 2007; Demerouti et al. 2001). As well as buffering individuals from the negative effects of a stressful and demanding work environment, resources from the work environment can also be motivational and influence an individual's psychological state of development (Nigah, Davis, and Hurrell 2012). In this study we propose that instructor support will influence the subjective wellbeing of students through the generation of important personal psychological resources (PsyCap) that allow students to positively appraise their life circumstances and cope with the demands of their university study.

While we have situated this study within the JD-R framework, there are at least three other influential stress process models that have been employed in previous studies of subjective wellbeing. These are the Demand–Control Model (Karasek 1979), the Effort-Reward Imbalance Model (Siegrist 1996) and the Conservation of Resources Theory (Hobfoll 1989, 2001). These models are similar to the JD-R framework that we employ in that they are each ‘balance models’ that posit that strain and threats to wellbeing result from disturbances of the equilibrium between demands and resources (Bakker and Demerouti 2007). The Demand-Control Model proposes that excessive demands can heighten stress and have deleterious effects on subjective wellbeing. A distinguishing feature of this model is the proposed moderating role of discretion. Karasek (1979) argued that the effects of excessive demands would be felt most when there is less control over demands. In this sense, control buffers the negative impact of demands. The Effort-Reward Imbalance Model also rests on the assumption that excessive demands lead to strain and negative wellbeing in the absence of adequate resources (Bakker and Demerouti 2007). Where this framework differs from the Demand-Control Model is in its conceptualisation of resources, which the Effort-Reward Imbalance Model views in terms of rewards, such as salary and opportunities for advancement. Having a demanding job that presents poor promotion opportunities exemplifies an ‘imbalance’ within the Effort-Reward Imbalance Model and such a scenario would theoretically lead to strain and would negatively impact wellbeing.

A key point of departure between the Demand-Control Model, the Effort-Reward Imbalance Model, and the JD-R framework is that the JD-R framework does not, like its comparators, restrict itself to specific demands or resources (Schaufeli and Taris 2014). Both the Demand-Control Model and the Effort-Reward Imbalance Model specify well-defined sets of demand-type and resource-type variables, which limit their applicability. On the other hand, the JD-R framework, as a dual process model, has the capacity to include all of the demand

and resource variables peculiar to a study setting, including, importantly, personal resources. In this sense, the JD-R framework both encompasses and extends the Demand-Control Model and the Effort-Reward Imbalance Model (Bakker and Demerouti 2007). The JD-R framework hence has the flexibility to enable it to be tailored to a range of contexts, making it the preferable theoretical lens to adopt relative to both the Demand-Control Model and the Effort-Reward Imbalance Model in nuanced educational studies.

The Conservation of Resources Theory is similar to the JD-R framework in that both posit that threats to wellbeing occur in the face of inadequate resources. The core tenet of the Conservation of Resources Theory is that people are motivated to increase and protect their resources (Hobfoll 1989, 2001). When resources are inadequate to meet demands, Hobfoll (2001, 354) argued that “loss begets further loss” of resources, suggesting that depleted resources can lead to an inability to cope, which in turn reduces the opportunities that one capitalises on to recoup the lost resources. While the processes outlined in the Conservation of Resources Theory are similar to those underlying the JD-R model, a key difference is in the treatment of demands. While the JD-R model explicitly includes demands as distinct contributors to the stressor-strain relationship, the Conservation of Resources theory views demands simply as processes that reduce resources, as distinct from being sources of stress in and of themselves. Due to the different views that these two frameworks take of demands, the nature of the process they describe also differs. The JD-R framework is dual process, proposing both an affective and a motivational path to reduced wellbeing (Demerouti et al., 2001), whereas Conservation of Resources Theory posits only motivational processes. In studies such as the current study, where demands and resources are conceptually distinct, the JD-R framework hence provides the preferable lens for understanding the complex interaction of these variables.



## **Linking instructor support to subjective wellbeing**

In the present study subjective wellbeing is defined as the extent to which an individual is satisfied with his/her general life circumstances (Diener 1984). Alongside negative and positive affect, satisfaction with life has been amongst the most widely utilized measures of subjective wellbeing (Kong, Zhao, and You 2013). There is growing agreement that although subjective wellbeing is relatively stable over time, it is malleable to a certain degree by external factors including the provision of social support from others in one's social network (Brannan et al. 2013; Chu, Saucier, and Hafner 2010; Daniels and Guppy 1994; Gallagher and Vella-Brodrick 2008; Siedlecki et al. 2014). As highlighted by Cohen (2004), social support refers to the provision of both psychological and material resources that assist recipients to cope with stressful events in their daily lives. In line with the JD-R framework we examine whether one dimension of social support; namely, instructor support, will lead university students to experience higher levels of wellbeing through having a positive influence on their psychological state of development. Based on previous work, which looks at the effects of social support more generally, we propose that instructor support will be positively related to student's subjective wellbeing for two main reasons. First, as prior work has highlighted how social support furnishes recipients with socio-emotional assistance in the form of comfort, caring, encouragement and/or sympathy (Sarason, Sarason, and Pierce 1994), instructor support should have a motivational effect by leading the recipient to more positively appraise the challenging circumstances they face. Second, as instructor support also involves the transfer of material resources to the recipient, such as the provision of practical advice and assistance in how to deal with issues related to study, it should make the recipient feel better able to deal with the demands faced in their university study and daily life. Recent empirical work on university students generally suggests that social support assists individuals to deal with the demands of study (Alarcon, Edwards, and Menke 2011; Ouweneel, LeBlanc, and Schaufeli

2011), although this work does not measure the effects of instructor support. For example, empirical findings indicate that access to adequate resources in the form of social support from friends, family or a significant other influences the ability of students to cope with university demands and develop greater educational engagement (Alarcon, Edwards, and Menke 2011). Recent work also demonstrates that social support is positively related to subjective wellbeing among university students (Kong, Zhao, and You 2013).

Although prior work has typically focused on examining the direct effects of social support on subjective wellbeing more generally (Chu, Saucier, and Hafner 2010), scholars have begun to point out mechanisms that may link social support to subjective wellbeing (Au et al. 2009; Cohen and Wills 1985; Karademas 2006; Tian et al. 2013). For example, Cohen and Wills (1985) argue that social support is related to wellbeing as it reinforces individual's self-efficacy and self-esteem. Empirical studies have also shown that self-efficacy, optimism and self-esteem may act as mechanisms linking social support to subjective wellbeing (Au et al. 2009; Karademas 2006; Kong, Zhao, and You 2013; Tian et al. 2013).

### **The mediating role of psychological capital**

Building on existing work, which links social support to subjective wellbeing through the mediating mechanisms of self-efficacy and optimism (Au et al. 2009; Karademas 2006), and highlights how a supportive organizational environment may play a critical role in the development of an individual's personal psychological resources (Luthans et al. 2008; Nigah, Davis, and Hurrell 2012), we propose that instructor support will generate resources for students in the form of greater psychological capital, which in turn will translate the effects of instructor support on subjective wellbeing. As highlighted earlier, PsyCap represents an individual's positive state of psychological development (Newman et al. 2014), and is conceptualized as a higher-order factor, made up of four dimensions; self-efficacy, optimism,

hope and resilience (Luthans, Luthans, and Luthans 2004). Individuals high in PsyCap have the confidence (self-efficacy) to deal with challenging tasks they face at work, believe that they will be able to succeed in tackling such challenges (optimism), redirect paths to facilitate goal achievement (hope), and bounce back when faced with adversity (resilience) (Luthans et al. 2007). In the JD-R framework these dimensions have been referred to as personal psychological resources from which individuals can draw upon to meet the demands placed on them in their working lives, and realize their objectives (Nigah, Davis, and Hurrell 2012; Xanthopoulou et al. 2007). Instructor support may engender higher levels of subjective wellbeing through providing the positive conditions needed for different dimensions of PsyCap to flourish. For example, the provision of encouragement and material resources in the form of advice and information by the instructor will lead students to feel confident in their ability to do well in their studies and cope with the demands of university work, therefore leading to higher levels of self-efficacy. Similarly, when employees feel supported by their instructor, they will be more likely to utilize the pathway generation characteristic of hope to try out different approaches to meeting their study goals (Luthans et al. 2008). In addition, instructor support will also influence individual's resiliency through acting as a contextual resource which individuals can draw upon when faced with challenges. For example, when faced with a setback, instructor support in the form of advice and encouragement will allow them to put the setback behind them and persevere with the task at hand (Luthans et al. 2008).

The positive psychological state of development (characterized by the four PsyCap resources of self-efficacy, hope, optimism and resilience) that is elicited by instructor support, will in turn lead students to experience higher levels of subjective wellbeing, as the four resources work in tandem to assist individuals to deal with the demands they face in their daily lives and allow them to function positively. This is consistent with Luthans and colleagues' conceptualization of PsyCap, in which self-efficacy, optimism, hope and resilience are seen as

personal psychological resources that allow an individual to function effectively and happily at work (Luthans et al. 2007; Luthans and Youssef 2004). As Avey et al. (2010, 19) put it: “the presence of [individuals’] positive beliefs and agentic intentions (Bandura 2008), such as represented by their PsyCap, serve as cognitive resources and a reservoir from which they can draw to influence their wellbeing”. In other words PsyCap will act as a mediating mechanism linking the provision of instructor support to the subjective wellbeing of students. Although no study has directly examined the mediating effects of support mechanisms on wellbeing through the underlying mechanism of PsyCap, there is growing evidence that individuals high in PsyCap experience higher levels of subjective wellbeing. This leads us to develop the following hypothesis:

Hypothesis 1: The positive relationship between instructor support and student subjective wellbeing will be mediated by psychological capital

### **The moderating role of family support**

In addition to support from instructors, social support from family members has been shown to influence the subjective wellbeing of university students and young adults (Brannan et al. 2013). As well as furnishing recipients with socio-emotional support through the provision of advice, encouragement, caring and sympathy, family members may also assist students by providing material resources to enable individuals to deal with the demands of study, for example by enabling them to concentrate on their study by taking on extra household responsibilities on their behalf (Aryee et al. 1999). Empirical work has generally highlighted a positive relationship between family support and student’s subjective wellbeing. For example, Brannan et al. (2013) find that support from family members enhanced subjective wellbeing amongst university students in Iran, Jordan and the US. Similarly, Tian et al. (2013) found that

support from parents positively influenced the subjective wellbeing of students in China. Meta-analytical work also revealed a strong association between social support from family members and student's subjective wellbeing (Chu, Saucier, and Hafner 2010). In the organizational behaviour literature empirical work has also highlighted the role of family support in buffering the effects of work demands on subjective wellbeing (Adams, King, and King 1996; Gryzwacz and Marks 2000).

However, no prior work has examined how family support may interact with other forms of support to predict subjective wellbeing. In the present study we examine whether high levels of family support weaken the positive influence of instructor support on subjective wellbeing through PsyCap, given the provision of socio-emotional support and material assistance by family members to meet the demands of study are likely to reduce the reliance on instructor support by students. In other words, when there are low levels of family support, the effects of instructor support on subjective wellbeing through psychological capital are likely to be stronger. This reasoning leads us to propose the following hypothesis:

Hypothesis 2: The mediating role of psychological capital on the relationship between instructor support and subjective wellbeing will be moderated by family support, such that the mediated relationship will be stronger when the student has less family support

## **METHODS**

### **Data and Sample**

The participants in this study were postgraduate students studying business in their first semester at a large Australian university. Students were enrolled in a management class in which data was collected for this study. All students in the class were taught by the same instructor. Three weeks into the semester students completed a paper survey in class in which they rated measures of social support, their psychological capital and their wellbeing. Out of

157 students enrolled in the class 143 fully completed the study, leading to a response rate of 91 percent. We compared the demographic characteristics of those who completed the study and those who did not, and found no significant difference. Around 43.3 percent of the students were female, around 8.4 percent were married and they had spent an average of 2 years at the university. The average age of students was just under 25 years. They ranged from 22 to 44 years of age.

## **Measures**

**Instructor Support** Support from university instructors was self-rated by students using an adapted version of Shanock and Eisenberger's (2006) 6-item Perceived Organizational Support measure, where the referent 'organization' was replaced with that of 'instructors'. Consistent with extant literature, we used a 5-point Likert-type scale (where 1 = strongly disagree and 5 = strongly agree). Sample items include 'My instructors strongly consider my goals and values' and 'My instructors show a great deal of concern for me'.

**Family Support** Family support was self-rated by students by using an adapted version of the 5-item scale developed by Aryee et al. (1999). Consistent with extant literature, we used a 5-point Likert-type scale (where 1 = strongly disagree and 5 = strongly agree). Sample items included 'My family members are very supportive of my participation in higher education', and 'If my study gets very demanding, my family members usually take on extra household or child care responsibilities'.

**Psychological Capital** Psychological capital was self-rated by students using an adapted version of the 12-item short-PCQ scale developed and validated by Luthans, Youssef, and Avolio (2007). In line with Luthans, Luthans, and Jensen (2012) the items were adapted to suit the education context. Consistent with extant literature, we used a 6-point Likert-type scale (where 1 = strongly disagree and 6 = strongly agree). The measure was treated as a higher-

order factor where items loaded onto their respective sub-dimension of self-efficacy, hope, resilience and optimism.

**Subjective Wellbeing** Subjective wellbeing was self-rated by students using Diener et al.s (1985) 5-item satisfaction with life scale on a 5-point Likert-type scale (where 1 = strongly disagree and 5 = strongly agree). Sample items included ‘I am satisfied with my life’ and ‘In most ways my life is close to ideal’.

**Control Variables** The effects of marital status, length of time at the university and gender were controlled for. Whereas length of time were measured as a continuous variable, marital status and gender were measured using dummy variables (where 0 = single and 1 = married, and 0 = female and 1 = male respectively). Due to limited variability in age of the participants we did not control for age.

## RESULTS

Table 1 presents the means, standard deviations and alpha reliabilities of each continuous variable in the study and correlations between variables.

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Before data analysis was undertaken the data were screened for non-normality, and no problems were detected. To ensure univariate normality, Kline (2011) argues that a distribution is non-normal if the skewness value exceeds 3 and/or the kurtosis value exceeds 10. In this study univariate skewness for each item ranged from -2.622 to 0.142, and univariate kurtosis ranged from -.658 to 8.512, indicating that the responses were relatively normally distributed. In addition, relative multivariate kurtosis as reported in the output from LISREL 8.8 was 1.208.

Although there is no standard cut-off for this index, it is recommended that multivariate normality can be assumed if this value is lower than 3 (Pellegrini and Scandura 2005). In addition, even if non-normality exists in our data, the analytical technique used in our study, bootstrapping, enabled us to estimate standard errors and confidence intervals even in situations where the assumption of multivariate normality is not satisfied.

### **Confirmatory Factor Analysis**

A confirmatory factor analysis (CFA) was conducted using LISREL 8.80 on our proposed 4-factor model (instructor support, family support, psychological capital and subjective wellbeing) in order to determine the construct validity of variables used in our study. We examined goodness-of-fit through a number of indices that capture both absolute fit (RMSEA) and relative fit (TLI, IFI and CFI). Excellent model fit is indicated with an RMSEA of less than 0.06, and a Tucker-Lewis index (TLI), IFI and CFI above .95. Given the small sample in our study we decided against using alternative absolute fit indices such as chi-squared and GFI as these have been found to be more sensitive to sample size than RMSEA (Gatignon 2009). The 4-factor model had excellent goodness-of-fit statistics ( $\chi^2 (df = 164) = 245.28$ ; RMSEA = .059 [90% confidence interval = 0.043-0.074], NNFI = 0.962, CFI = 0.968), IFI = .96, CFI = .96). We then compared the 4-factor model to that of two alternative 3-factor models, one in which the underlying indicators for PsyCap and subjective wellbeing were loaded onto a single factor and the other in which the underlying indicators for instructor and family support were loaded onto a single factor. The 3-factor models resulted in significantly poorer fit ( $\chi^2 (df = 167) = 436.27$ ; RMSEA = .107 [90% confidence interval = 0.094-0.120], IFI = .90, CFI = .89) and ( $\chi^2 (df = 167) = 498.07$ ; RMSEA = .118 [90% confidence interval = 0.110-0.130], IFI = .87, CFI = .87) respectively. These results suggest adequate discriminant and convergent validity between study variables.



Single-site, single administration cross-sectional designs are often subject to common method variance (CMV), whereby observed variance is actually attributable to the measurement method rather than to the construct(s) of interest. CMV has the potential to cause artificial covariance, which can provide an alternative explanation for the observed relationships between measures that is independent of the hypothesised explanation. CMV has been demonstrated to be one of the main sources of systematic measurement error, being particularly powerful when data from the independent and dependent variables are obtained from the same person in the same measurement context using the same item context and similar item characteristics. A multi-trait multi-method meta-analysis by Cote and Buckley (1987) demonstrated that method correlations between sets of attitude, personality, aptitude, satisfaction and performance measures were in the order of .40 to .50. The results of our CFA, reported above, loading all items onto an exploratory factor and examining the unrotated solution, provide us with confidence that common method bias is not a problem in the present study.

### **Method of Analysis**

Ordinary least squares (OLS) regression with the path-analytic conditional process modeling (PROCESS) macro for SPSS designed by Andrew Hayes was used to test the study hypotheses (Hayes 2013). PROCESS was chosen as it allows for testing of indirect and conditional indirect effects in moderated mediation models, and bootstrapping of the indirect and conditional indirect effects. Prior to analysis all variables were z-standardized to limit problems associated with multicollinearity in the analysis (Tabachnick and Fidell 2007).

## Mediation

To test Hypothesis 1 we conducted mediated regression analyses with bias-corrected bootstrapping of the indirect (mediated) effect based on the recommendations of Preacher and Hayes (2008). The results of regression and bootstrapping analysis are presented in Tables 2 and 3.

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Bootstrapping was used over alternative tests (e.g. the Sobel test) as it allows us to avoid Type 1 errors that may arise from non-normal distributions of an indirect effect (MacKinnon, Lockwood, and Williams 2004). As can be seen in Table 3, bias-corrected bootstrap of 1000 resamples revealed that the indirect effects of instructor support on subjective wellbeing through PsyCap was .08 (95% CI = .02 to .15). As zero is not contained in the 95% confidence interval for the indirect effect, Hypothesis 1 was supported.

We then tested whether PsyCap fully or partially mediated the relationship between instructor support and subjective wellbeing by examining whether the direct effect of instructor support on subjective wellbeing (controlling for PsyCap) was statistically significant. As can be seen in Model 2 of Table 2, the direct effect of an instructor support on subjective wellbeing was not statistically significant when the mediator was included ( $\beta = .13$ ,  $p > .10$ ), supporting an inference of full mediation.

The moderated mediation relationship proposed in Hypothesis 2 was then tested using the approach adopted by Preacher, Rucker, and Hayes (2007) and Hayes (2013). As highlighted earlier we expect family support to moderate the path from instructor support to PsyCap. In other words, the moderation effect is expected to occur at the first stage of the mediation model (independent variable to mediator), Model 7 in Hayes's (2013) PROCESS software. To test our hypothesis, the mediator (PsyCap) was first regressed on the control variables, family support, instructor support and the interaction term (instructor support x family support). A first and necessary condition for moderated mediation to exist is that the path between the independent variable to the mediator should be moderated (Preacher, Rucker, and Hayes 2007). As can be seen in Model 1 of Table 2, the interaction between family support and instructor support was marginally significant at the 10 percent level of significance ( $\beta = -.17, p < .10$ ). This provides initial support for Hypothesis 2.

Given the marginally significant interactions, we proceeded to calculate the conditional (moderated) indirect effect of instructor support on subjective wellbeing through the mediator (PsyCap) at different levels of the moderator (family support) (Preacher and Hayes 2007). We examined the significance of the indirect effect through the mediator at the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup> and 90<sup>th</sup> percentiles of the moderator. As can be seen in Table 3, a bias-corrected bootstrap using 1000 resamples revealed that the conditional indirect effect through PsyCap was insignificant at the 75<sup>th</sup> and 90<sup>th</sup> percentiles (relatively high levels of family support). The conditional indirect effect through PsyCap was significant at the 50<sup>th</sup> percentile of family support (median level of family support), stronger at the 25<sup>th</sup> percentile of family support and strongest at the 10<sup>th</sup> percentile of family support (relatively lower levels of family support). Overall, these results are supportive of Hypothesis 2.

## **DISCUSSION**

The present research drew upon the JD-R framework to develop and test predictions about the role of different forms of social support in influencing students' subjective well-being through the development of their PsyCap. As well as illustrating the role played by instructor support in influencing student wellbeing through building PsyCap, our research suggested that family support compensates for low levels of instructor support. Such findings are important in that they illustrate how different types of social support may interact to help reduce demands on students through enhancing their key psychological resources. Moreover, it shows above and beyond the involvement of family members, the support students obtain from instructors plays a significant role in building their key psychological resources and wellbeing. The theoretical implications and limitations follow.

First, by establishing that the positive relationship between instructor support and student subjective wellbeing was mediated by psychological capital (Hypothesis 1), we identified a key mechanisms linking instructor support to wellbeing. Just as in the organizational context where researchers have found that micro PsyCap interventions lasting up to three hours (Luthans et al. 2006) and on-line training interventions (Luthans, Avey, and Patera 2008) increase participants' PsyCap, our findings suggests that PsyCap can be developed in the classroom through the provision of support by the instructor. Although recent work has highlighted that the PsyCap of undergraduate business students can be developed through short focused interventions such as gratitude exercises, vicarious learning and physical and mental wellbeing training (Luthans, Luthans, and Avey 2014), this study was the first to investigate PsyCap as a mediating mechanism linking instructor support to students' subjective wellbeing.

Second, drawing upon the JD-R framework we predicted, and found, partial support for the idea that when the student has less family support the influence of instructor support on students' PWB through PsyCap is stronger (Hypothesis 2). In doing so we found an important

boundary condition of the instructor support/wellbeing relationship mediated by PsyCap. Our findings suggest that it is important to consider how the availability of contextual support in individuals' professional and private lives interact to influence their psychological resources and subjective wellbeing. Although prior work in an organizational context has looked at how support from both inside and outside the workplace influence work outcomes (Madjar, Oldham, and Pratt 2002), our study is the first to examine how support in the work (study) and non-work (study) domain interact to predict wellbeing through enhancing their psychological resources. In particular our results suggest that work and non-work support may act as substitutes for one another. More specifically, in line with recent work, which highlights the benefits of peer support to the wellbeing of students (Brannan et al. 2013), our study suggests that when there are low levels of family support, instructor support is effective in enhancing the wellbeing of students through PsyCap. Anecdotal evidence from participants in the study indicates that subjective wellbeing is maintained through instructor support when students are living away from their homes and families i.e. when overall family support is low.

Our research has important practical implications for higher education institutions. In order to enhance the wellbeing of postgraduate students it is important for higher education institutions to encourage instructors to provide additional socio-emotional support to students in the form of pastoral care, and academic support in the form of smaller tutorials and one-to-one sessions where students are able to seek individualized feedback. Instructors may also consider incorporating PsyCap training into their classes where relevant. For example, our own development work with post-graduate students highlights several particularly useful techniques that may be incorporated into classroom activities with the aim of developing students' PsyCap. These include having students challenge negative thinking traps, having students write daily diaries where they recall three positive events at the end of each day, and helping students articulate their strengths, especially in relation to how these can be used in their daily lives.

Higher education institutions may also consider establishing peer mentoring schemes as these have shown to enhance PsyCap in an organizational context and may substitute for other forms of support (Nigah, Davis, and Hurrell 2012). Our findings suggest that the provision of support by instructors might be most beneficial when targeted to postgraduate students with lower levels of family support, such as international students who are away from home and are unable to rely on family for day-to-day support. It is important for higher education institutions to identify these students early on and provide them with appropriate support.

## **LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH**

The study has several limitations. One is the relatively small size of the sample. In order to alleviate concerns that the small sample size may have produced significant effects by chance we calculated effect sizes and statistical power of the individual regressions (Cohen 1988). Our findings of small to moderate effect sizes and adequate statistical power suggest that small sample size was not a concern in this study. However, in order to determine the generalizability of our findings to the wider population we acknowledge the need to replicate our study with different student populations. A further limitation results from the fact that the sample may be biased towards those with higher levels of PsyCap since those students who did not attend class and failed to complete the study may have had lower levels of PsyCap. Another limitation is the self-report and single source design of the study which resulted in the potential for common method variance. In future research, data on the independent, mediator and outcomes variables may be collected at different time points and from multiple sources to reduce the likelihood of common method variance. For example, in line with recommendations of Newman et al. (2014) future research may use other-report measures of PsyCap (e.g. from fellow students or close family members). Finally, given that all variables were collected at the same time we cannot rule out reverse causality given that individuals with high PsyCap might evaluate instructor

and family support more highly. However, in order to test for this possibility we examined whether instructor and family support mediated the effects of PsyCap on subjective wellbeing. Our findings demonstrated they did not, suggesting that the relationships work in the hypothesized direction.

As well as extending this research to different populations and collecting data from additional sources, future research might also seek to untangle the differential effects of various dimensions of support (e.g. tangible and instrumental helping behavior or emotional and social support) on individuals' PsyCap and wellbeing. In addition, researchers may conduct longitudinal research to track how student perceptions of support influence PsyCap and wellbeing as they progress through postgraduate study. We might expect the effects of support to be stronger towards the end of their studies as students are faced with pressure to prepare for exams and complete work on their dissertations.

## **CONCLUSION**

Increasingly there is recognition of the significance of an individual's psychological resources in enhancing their wellbeing. This study extends prior research by showing that beyond enhancing students' wellbeing, PsyCap can be developed by individuals' class-room experiences, especially when they are faced low levels of family support.

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**Table 1: Descriptive Statistics, Alpha Coefficients and Correlations amongst Continuous Study Variables**

Variable	Mean	S.D.	1	2	3	4	5
1. Length of time at university	2	1.81					
2. Instructor support	3.70	.77	.074	(.895)			
3. Family support	4.42	.70	-.089	.317**	(.838)		
4. PsyCap	4.35	.71	.229**	.272**	.028	(.762)	
5. Subjective wellbeing	3.46	.69	.014	.169*	.270**	.327**	(.767)

Note: Numbers in parentheses are the coefficient alphas, \* and \*\* indicate significance at the 5% and 1% levels, respectively.

**Table 2: Results of regression analyses**

	<b>Model 1</b> Psychological capital	<b>Model 2</b> Subjective wellbeing
<b>Level-1</b>		
Marital status	.10	.12
Length of time at the university	.24***	-.03
Gender	.16*	-.02
Instructor support	.31***	.13
Family support	-.08	
Psychological capital		.24***
Instructor support x family support	-.17*	
$R^2$	.18***	.12***

*Note.* Standardized regression coefficients reported. \* $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

**Table 3: Conditional indirect effects results**

Model	Subjective Wellbeing				
	Family Support	Boot indirect effect	Boot SE	LL 95% CI	UL 95% CI
Instructor support via psychological capital on subjective wellbeing	10 <sup>th</sup> Percentile	.12	.06	.00	.25
	25 <sup>th</sup> Percentile	.10	.05	.01	.20
	50 <sup>th</sup> Percentile	.06	.03	.01	.13
	75 <sup>th</sup> Percentile	.04	.03	-.01	.12
	90 <sup>th</sup> Percentile	.04	.03	-.01	.12

*Note.* Bias-corrected and accelerated confidence intervals are reported. Bootstrap sample size = 1000, CI = confidence interval; LL = lower limit; UL = upper limit.

