



Study engagement among UK university students: the role of positive emotions and the personal resources ego-resilience, hope and academic self-efficacy

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### ABSTRACT

This project investigated the relationship between positive emotions, the personal resources ego-resilience, hope and academic self-efficacy and study engagement. An online questionnaire was created using Qualtrics. Participants were recruited from the participation pool and social media. This study aimed to integrate the Broaden-and-Build theory (B&B) and the Conservation of Resources theory (COR) into a research model concerned with study engagement for UK university students (N=82). Twenty-four male and fifty-eight female participants took part. This study tested ego-resilience, an established measure of how successful a person is at adapting to life tasks because of its links to the B&B theory and because it had not been investigated in relation to study engagement before. Pearson's correlation coefficients, a hierarchical regression analysis and a mediational analysis were carried out. The findings were consistent with previous research and with the B&B and COR theories' assumptions. Positive emotions were positively related to study engagement and to the three personal resources. The three personal resources were positively related to study engagement. Positive emotions were found to be predictive of study engagement at stage 1 of the regression and hope and academic self-efficacy were predictive of study engagement at stage 2. Interestingly, it was found through the mediational analysis that hope and academic self-efficacy mediated the relationship between positive emotions and study engagement. Although ego-resilience had a significant correlation with study engagement, it was not predictive of it. The applications, future directions and limitations are discussed.

KEY WORDS:	STUDY ENGAGEMENT	POSITIVE EMOTIONS	EGO-RESILIENCE	HOPE	ACADEMIC SELF-EFFICACY
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## Introduction

The factors that contribute to success have not received much attention in the past. Now however, this area is rapidly expanding due to the ever-growing positive psychology research into success, well-being and motivation. Figures from the Office for National Statistics found in 2011 that 11.3% of people in the UK aged 16 to 64 had no qualifications (Vasagar, 2011). One important concept that is both a predictor and a measure of success is engagement. Engagement is important for student motivation and engaged individuals have been found to perform better (Cotton et al, 2002) and to report higher life satisfaction (Shimazu et al, 2015). Gavin & Mason (2004) also found that happiness was associated with individual's engagement. Considering this, focusing on engagement would be a worthwhile effort in combating the significant number of people in the UK having no qualifications.

Engagement is a positive form of well-being defined as a positive relationship with one's work, characterised by a sense of meaning, competence and impact (Alacron & Lyons, 2011). Work engagement is a core component of organisational psychology and is defined as "...a positive, fulfilling, and work-related state of mind that is characterised by vigour, dedication and absorption" (Schaufeli & Bakker, 2004:209). It is viewed as being the opposite to burnout and "is characterised by a high level of energy and strong identification with one's work" (Bakker et al, 2008:188). Work engagement is considered an accurate indicator of how successful a person is in their job role as it has been linked to job performance (Shimazu et al, 2015). Interestingly, it has also been found to be related to life satisfaction, a decrease in ill health (Shimazu et al, 2015) and job satisfaction (Alacron & Lyons, 2011).

Being derived from work engagement, study engagement is also characterised by feeling vigorous, being absorbed in study-related tasks and being dedicated to one's studies (Schaufeli et al, 2002). Study engagement is a relatively new construct, but has been found positively linked to academic achievement (Salanova et al, 2010; Ganotice & King, 2013; Ketonen et al, 2016). From a psychological perspective, it is thought that the activities that students are required to take part in (completing assignments and attending classes) could be considered as 'work' in line with work engagement because they are coercive activities directed towards achieving something (obtaining a degree) (Salanova et al, 2010). Ketonen et al's (2016) study found engaged university students received the highest grades, and that even after two years they were still performing better than disengaged and undecided students. Webber et al (2013) found that students with higher levels of student engagement, characterized by either preparing for class or engaging in academic tasks, finished with a higher GPA and reported higher satisfaction, indicating that being engaged leads to better performance.

Study engagement is an effective predictor of academic achievement, meaning that academic performance can be studied in terms of its influences and effects without needing access to actual performance measures such as grades (Gallup, 2013). The Gallup Education Practice, an institution that has provided expertise and tools to school districts throughout the US for over 40 years, launched the Gallup student poll in March 2009, tracking the hope, engagement and well-being for students in grades 5 through to 12. According to the Gallup institute, these

constructs were selected because they are proven indicators of success with links to achievement scores, grades, retention and future employment (Gallup, 2013).

This quantitative project aimed to integrate two major psychological theories from positive psychology, the Broaden-and-Build theory (B&B) (Fredrickson, 1998) and the Conservation of Resources theory (COR) (Hobfoll, 1989), into a research model concerned with study engagement for current UK university students.

### **Positive emotions**

The B&B theory is concerned with the function and formation of a subset of emotions that are positive, such as joy, contentment and love (Fredrickson, 2004). Fredrickson (2004) maintains that positive emotions are not just a signal of optimal functioning, but that they also produce well-being in the short and long-term. This is because positive emotions are believed to broaden an individual's momentary thought-action repertoire, expanding the range of the thoughts and actions that come to mind (Fredrickson, 2004). For example, joy creates the urge to play, push the limits and be creative, whilst interest invokes the urge to explore, take in new information, and expand the self (Fredrickson, 2004). The effects of these urges are far-reaching, with joy's urges not only evident in social and physical behaviours, but also in intellectual and artistic behaviours (Fredrickson, 2004). The B&B theory maintains that positive emotions broaden one's mind-set in many ways and that engaging in these behaviours in-turn builds on and develops personal resources.

The broaden hypothesis has received empirical support from a range of experiments, with studies finding that induced positive emotions widened the scope of participants' visual attention and broadened their repertoires of desired action (Fredrickson and Branigan, 2005). The build hypothesis has also received empirical support, where it has been shown that over time, those who experienced more positive emotions than others had increased personal resources such as ego-resilience (Cohn et al, 2009) and optimism and tranquillity (Fredrickson, 2003).

Fredrickson et al's (2008) study is direct support for the B&B as loving-kindness meditation was discovered to increase the prevalence of a range of positive emotions, which over the course of nine weeks, were linked to an increase in a range of personal resources including mindful attention, self-acceptance and ego-resilience. These gains in resources also enabled people to be more satisfied with their lives and to experience fewer symptoms of depression (Fredrickson et al, 2008). The findings suggest that experiencing positive emotions can have measurable impacts on well-being. The relationship between positive emotions and engagement is relatively unexplored, with much of the research into the B&B theory focusing on life satisfaction. A few studies however, have linked positive emotions to student engagement (Reschly et al, 2008) and study engagement (Ouweneel et al, 2011). According to the B&B theory, positive emotions should have a direct positive relationship with study engagement, however they are thought to mainly influence engagement through their 'building' effect on personal resources.

## Personal resources

The other theory being tested is Hobfoll's (1989) COR theory, which posits that personal resources, those resources that people can utilize, are functional for achieving goals and encourage growth and further development. Hobfoll (2002:307) defined resources as "... those entities that are either centrally valued in their own right, or act as a means to obtain centrally valued ends." The two main assumptions of COR theory are that individuals invest their resources in order to deal with threatening conditions and to prevent negative outcomes, and that individuals strive to protect and accumulate these resources (Hobfoll, 1989). Therefore, Hobfoll (1989) asserts the accumulation of resources in humans results in positive outcomes such as engagement.

Much of the research on work engagement has tended to focus on job resources such as self-efficacy and organisational-based self-esteem and consequently, the role of personal resources has overlooked somewhat. Xanthopoulou et al (2007) however, did find that personal resources were positively related to engagement and influenced the perception of job resources in a positive way, which facilitated engagement. Lorente et al's (2014) study also confirmed the mediating role of personal resources to job resources, finding that this lead to engagement. Ouweneel et al's (2011) investigation found that personal resources were related to study engagement and to positive emotions, finding a reciprocal relationship between all three constructs. This study will address the gap in research by directly investigating how the personal resources ego-resilience, hope and academic self-efficacy are related to study engagement.

Self-efficacy is defined by Bandura's social cognitive theory (SCT) as "one's belief in one's capabilities to organise and execute the course of action required to produce given attainments" (Bandura, 1997:3). Academic self-efficacy is employed in this study and it is thought to result in more absorption and task involvement as it leads to a greater willingness to spend energy and effort on one's studies (Ouweneel et al, 2011). Hobfoll (2002) recognised it as being one of the fundamental components of individual adaptability. Recent research has found that self-efficacy is vital in promoting students' engagement and it is explained to be a facilitator of cognitive, behavioural and motivational engagement in the classroom (Linnenbrink and Pintrich, 2010). Self-efficacy has also been linked to work engagement (Xanthopoulou et al, 2007) and academic self-efficacy to study engagement (Ouweneel et al's (2011). Robbins et al's (2004) meta-analysis found that academic self-efficacy was the strongest predictor of GPA and persistence among college students in the US out of nine constructs. It was expected that academic self-efficacy would have strong links to study engagement in this study.

Hope is defined by Snyder et al (1991:571) "as a cognitive set that is based on a reciprocally-derived sense of successful agency (goal directed determination) and pathways (planning to meet goals)." Hope is thought to drive a person to be engaged as it is what allows a person to direct their energy dedicatedly in the pursuit of a goal. Hope was found to be one of the mediators, along with resiliency and self-efficacy, of the positive relationship between self-reported mindfulness, work engagement and well-being (Malinowski & Lim, 2015). Also, Karatepe's (2014) study found that the impact of hope on job performance is fully mediated by engagement.

Hope is one of the proven indicators of success in the Gallup student poll, with links to achievement scores, grades, retention and future employment (Gallup, 2013). The results so far have found 72% of hopeful students are engaged, and hopeful students are more likely to be engaged. Hope has also been found by Ouweneel et al (2011), to be influenced by positive emotions and to have a positive relationship with study engagement. Hope was expected to be a strong predictor of engagement in this investigation.

Ego-resilience is the final personal resource being investigated and it is conceptualised as a central personality construct for understanding behaviour, motivation and emotion (Letzring et al, 2004). Described as the capacity that enables individuals to adapt to constantly changing environmental demands (Farkas & Orosz, 2015), ego-resilience was found to have two main functions. The first can be described as stability, in that when faced with distress ego-resilience keeps the personality system intact. The other can be described as flexibility that is responsible for changing the personality system when necessary due to environmental or internal demands (Farkas & Orosz, 2015).

Ego-resilience has been closely linked to positive emotions and to the B&B theory through a range of self-report, observational and longitudinal studies (Fredrickson, 2004). It is suggested that resilient people have energetic, optimistic and zestful approaches to life, are characterized by high positive emotionality and are open to new experiences (Block and Kremen, 1996; Klohnen, 1996). It also appears that a reciprocal relationship exists between positive emotions and ego-resilience as positive emotions have been found to build on ego-resilience, and to be an outcome of increased ego-resilience (Block and Kremen, 1996). Other evidence also indicates resilient people achieve their coping is through using positive emotions (Anthony, 1987; Werner and Smith, 1992). Cohn et al (2009) found that positive emotions and ego-resilience maintain and build on one another, suggesting that an upward spiral exists between the two constructs.

The protective effects of ego-resilience have been outlined, with Cole et al's (2015) study discovering that ego-resilience buffered the positive relationship between academic stress and anxiety. Seaton & Beaumont's (2015) discovered that ego-resilience partially mediated the relationship between positive emotions and well-being. Interestingly, the study found positive emotions predicted ego-resilience, thus supporting the 'build' hypothesis. Cohn et al's (2009) study found that ego-resilience accounted for the relation between positive emotions and increases in global life satisfaction. This study will investigate the well-established adaptive measure ego-resilience in relation to study engagement as this has not been explored. This should yield interesting results because of its close links to the B&B theory and academic stress.

This investigation hopes to replicate the findings of Ouweneel et al's (2011) longitudinal study which found that positive emotions and the personal resources self-efficacy, hope and optimism were predictive of study engagement for Dutch students. A reciprocal relationship was also discovered between the variables, therefore supporting the B&B and COR theories. This investigation, however, will instead focus on UK university students, with the addition of ego-resilience which will provide a more robust test of the B&B theory as it is closely linked to it.

## **Rationale**

Applying the B&B & COR theories to a study setting is important as this is a relatively unexplored area. If personal resources are found to meaningfully influence study engagement then engagement could arguably be largely accounted for by the resources a person can utilize. If positive emotions are also found to meaningfully influence personal resources, then ways of facilitating development and combating the significant number of UK adults without qualifications could be by introducing interventions that increase positive emotions and personal resources. Implementing the Penn Resiliency Program (PRP), one of the most extensively studied preventions of depression in young people, is one option. This intervention's goal is to teach students to better handle day-to-day stressors, promoting optimism and teaching assertiveness, decision making and several other coping and problem solving skills (Seligman et al, 2009). Gallup (2013) also suggest implementing strengths-based interventions is worthwhile as they enhance hope and engagement. As the relationships between engagement and performance, life satisfaction, ill health and success (Cotton, et al, 2002; Gavin & Mason, 2004; Shimazu et al, 2015) have already been discussed, introducing aforementioned techniques could also have colossal impacts on individuals' general well-being, as well as on engagement and performance.

## **Aims and Hypotheses**

This current study will investigate the relationship between positive emotions, study engagement and the personal resources ego-resilience, hope and academic self-efficacy among current UK university students. Based on the theories and the discussion of the previous literature, the four hypotheses are as follows: Firstly, that positive emotions will be positively related to study engagement. Secondly, that personal resources will be positively related to study engagement. Thirdly, that positive emotions will be positively related to personal resources. Finally, that there will be a predictive relationship between positive emotions and personal resources in regard to study engagement.

## **Methodology**

### **Design**

A non-experimental cross-sectional design was implemented where each participant completed an online questionnaire containing fifty-five questions taken from five established questionnaires. The predictor variables were positive emotions and the personal resources: ego-resilience, hope and academic self-efficacy. The criterion variable was study engagement.

### **Participants**

82 participants were recruited by opportunity sample via the participation pool and social media. More participants took part in the questionnaire, meeting Green's (1991) recommendation of 90 arrived at by calculating 50 plus 8 times the number of predictors however, some participants did not complete the questionnaire in full and

so had to be omitted. The remaining 24 male and 58 female participants were all current undergraduate students between the ages of 18 and 29.

## Materials

Five well-established questionnaires comprised the fifty-five questions, each questionnaire covering one variable. Self-report measures were used because they are an inexpensive way of obtaining data, and because they can be easily implemented to large samples (Hoskin, 2012). Participants were recruited using the Manchester Metropolitan University participation pool and social media. These were suitable methods of reaching students as the participation pool is used by undergraduate students to take part in studies and because students populate social media.

## Measures

This study used five questionnaires obtained from the public domain which are as follows;

### The Ego-Resilience Scale

The Ego-Resilience Scale (APPX 3) developed by Block & Kremen (1996) is a 14-item measure of how successful a person can adapt to constantly changing environmental demands. It is scored on a 4-point Likert scale. The responses where 1 = “*does not apply at all*” 2 = “*applies slightly*” 3 = “*applies somewhat*” and 4 = “*applies very strongly*.” An example item is “I am generous with my friends.” Block & Kremen (1996) reported a Cronbach’s alpha coefficient of .76

### Adapted Version of The Positive and Negative Affect Schedule (APPX4)

An adapted version of The Positive and Negative Affect Schedule (APPX 4) developed by Watson et al (1988) was used, which only included positive emotion questions. It was scored on a 5-point Likert scale. The responses where 1 = “*very slightly or not at all*” 2 = “*a little*” 3 = “*moderately*” 4 = “*quite a bit*” and 5 = “*extremely*.” Participants were asked to respond regarding how much they feel/have felt positive emotions over the past month. An example item is “Interested.” Watson et al (1988) reported a Cronbach’s alpha coefficient of .86 to .90 for the 10 positive emotion items. Retest reliability measures at .79

### The State Hope Scale

The State Hope Scale (APPX 5) developed by Snyder et al (1991) is a 12-item measure of a respondent’s level of hope. It is scored on an 8-point Likert scale. The responses where 1 = “*Definitely false*” 2 = “*Mostly false*” 3 = “*Somewhat false*” 4 = “*Slightly false*” 5 = “*Slightly true*” 6 = “*Somewhat true*” 7 = “*Mostly true*” and 8 = “*Definitely true*.” An example item is “I energetically pursue my goals.” Snyder et al, (1991) reported a Cronbach’s alpha coefficient of .88. Retest reliability measures at .80. Items 3, 5, 7 and 11 required reverse scoring.



## The Academic Efficacy Scale

The Academic Efficacy Scale (APPX 6) developed by Midgely et al (2000) is a 5-item measure of the respondent's perception of their competencies in their university work. It is scored on a 5-point Likert scale. The responses are 1 = "*strongly disagree*" 2 = "somewhat disagree" 3 = "neither agree or disagree" 4 = "somewhat agree" and 5 = "*strongly agree*." An example item is "Even if the work is hard I can learn it." Midgely (2000) reported a Cronbach's alpha coefficient of .78.

## The Utrecht Work Engagement Scale for Students

The Utrecht Work Engagement Scale for Students (APPX 7) developed by Schaufeli et al (2003) is a measure of how engaged the respondent is regarding their studies. It is scored on a 7-point Likert scale. The scoring was 1 = "*never*" 2 = "almost never" 3 = "rarely" 4 = "sometimes" 5 = "often" 6 = "very often" and 7 = "*always*." The version used in this study was the Spanish version, which contains 14-items. An example item is "I can continue for a long time when I am studying." Casuso-Holgado et al (2013) reported a Cronbach's alpha coefficient of .84

## Procedure

Once the idea and plan for the investigation was decided upon, ethical approval was granted by Manchester Metropolitan University (APPX 9). As the five questionnaires were in the public domain, permission did not need to be obtained for their usage. The online questionnaire was produced using Qualtrics, where the five questionnaires, information sheet, consent form and debrief sheet were also created.

The undergraduate participants (N = 82) were recruited through the participation pool and social media, were a brief explanation and link to the study were provided. Upon clicking on the link the participant was brought to the participant information sheet (APPX 1) where the study was explained. Once they had read the information sheet and clicked continue, they were brought to the consent form (APPX 2) which contained eight yes or no questions relating to the participant's rights regarding the study. Participants were to click 'yes' if they understood. The final question was "I consent to take part."

On completion of the last scale, the participants were presented with the Debrief sheet (APPX 8) which reiterated the nature of the study and thanked the participants for their participation. Participants were also directed to a similar study and finally were asked to create a unique personal code so they could be identified if they wished to withdraw. The debrief sheet also contained Samaritans contact information for anyone distressed by the study, although this was unlikely.

Once the data was collected the results were analysed using SPSS-21 (IBM Corp, 2012). Descriptive statistics were produced for each questionnaire as they each measured one variable and Pearson's correlation coefficients were computed so the relationships between the variables would be outlined. A hierarchical regression analysis was also carried out. At stage 1, only positive emotions and study engagement were included. At stage 2, the personal resources ego-resilience, hope and academic self-efficacy were included to assess the relationship between

all five variables, thus testing the B&B and COR theories. This meant a model summary was produced, including  $r^2$  values and  $r^2$  change values for both levels. Beta scores and Standard Error Beta values were also produced from the coefficients.

## Results

### Reliability Analysis

Following internal consistency analysis, the Cronbach's alpha for the study engagement scale was  $\alpha = .91$ , meaning it was higher than Casuso-Holgado et al's (2013) findings. The Cronbach's alpha for the three study engagement subscales of vigor, dedication and absorption were  $\alpha = .87$ ,  $\alpha = .85$  and  $\alpha = .80$  respectively. The positive emotions scale's alpha score was  $\alpha = .89$ , meaning it is consistent with Watson et al's (1988) findings. The Cronbach's alpha for the ego-resilience scale was  $\alpha = .87$ , higher than that reported by Block and Kremen (1996). The Cronbach's alpha for the academic self-efficacy scale was  $\alpha = .88$  respectively, which is higher than Midgely et al's (2000) findings. Finally, the hope scale was measured at  $\alpha = .84$ . This was slightly lower than the findings of Snyder et al (1991). As can be seen, all scales were above the recommended threshold of .7 (Nunally, 1978) and thus were internally consistent.

### Descriptive Statistics

Study engagement had the highest mean ( $M = 61.08$ ), which is consistent with Robins et al's (2015) ( $M = 63.12$ ). Hope ( $M = 45.65$ ) also had a high mean, higher than Snyder et al's (1996) ( $M = 37.15$ ). Ego-resilience ( $M = 38.70$ ) was also high. Positive emotions had a high mean ( $M = 30.81$ ), being consistent with Gloria and Steinhardt's (2016) ( $M = 24.23$ ). Academic self-efficacy also had a high mean ( $M = 20.26$ ), although was lower than Davids (2011) ( $M = 33.41$ ).

A medium positive correlation was found between positive emotions and study engagement,  $r(75) = .39$ ,  $p < .001$ . This supports hypothesis 1, as positive emotions was expected to be positively related to study engagement.

A small positive correlation was found between ego-resilience and study engagement,  $r(75) = .27$ ,  $p = .007$ . A large positive correlation was found between hope and study engagement,  $r(75) = .63$ ,  $p < .001$ . A large positive correlation was found between academic self-efficacy and study engagement,  $r(75) = .53$ ,  $p < .001$ . The relationships between ego-resilience and study engagement, hope and study engagement and academic self-efficacy and study engagement support hypothesis 2, as these three personal resources were expected to be positively related to study engagement.

A medium positive correlation was found between positive emotions and ego-resilience,  $r(75) = .38$ ,  $p < .001$  and between positive emotions and academic self-efficacy,  $r(75) = .36$ ,  $p < .001$ . Finally, a large positive correlation was found between positive emotions and hope,  $r(75) = .53$ ,  $p < .001$ . The relationships between positive emotions and ego-resilience, positive emotions and academic self-

efficacy and positive emotions and hope support hypothesis 3, as positive emotions was expected to be positively correlated with these three personal resources.

The relationships between ego-resilience and hope, ego-resilience and academic self-efficacy and hope and academic self-efficacy were  $p < .001$ , meaning the constructs were interrelated. VIF and tolerance figures showed there were no issues of multicollinearity.

**Table 1.**  
**Means (M), Standard Deviations (SD) and Pearson's correlation coefficients for all variables**

Variable	Mean	SD	1	2	3	4	5
1 Study engagement	61.08	12.29		.39**	.27*	.63**	.53**
2 Positive emotions	30.81	7.8			.38*	.53*	.36*
3 Ego-resilience	38.70	6.5				.53*	.36*
4 Hope	45.65	7.4					.49*
5 Academic Self-efficacy	20.26	3.3					

Note. \* $p < .05$  \*\* $p < .001$

### Regression Analysis

A hierarchical regression analysis was performed to test the extent to which the variables, ego-resilience, hope and academic self-efficacy uniquely contributed to the relationship between positive emotions and study engagement among university students. This was examined over two stages.

At stage 1, 'positive emotions' was entered to investigate whether it was predictive of 'study engagement' on its own. Using the 'enter' method, a significant model emerged  $F(1,77) = 14.11, p < .001$ ). The relationship between the variables was strong ( $R = 0.39$ ) and the model could explain approx. 16% (adjusted  $r^2 = 14\%$ ) variance in 'study engagement' scores. 'Positive emotions' significantly predicted 'study engagement' at stage 1 ( $t(75) = 3.76, p < .001$ : CI).

At stage 2, the personal resources 'ego-resilience', 'hope' and 'academic self-efficacy' were entered to test if they were predictive of 'study engagement' and to outline whether they uniquely contributed to the relationship between 'positive emotions' and 'study engagement.' A significant model emerged ( $F(4,74) = 17.56, p < .001$ ). The relationship between the variables was strong ( $R = 0.69$ ) and the model could explain approx. 49% (adjusted  $r^2 = 45.9\%$ ) variance in 'study engagement' scores. Out of the variables, 'hope' was the strongest predictor of 'study engagement' ( $t(75) = 4.66, p < .001$ : 95% CI), followed by 'academic self-efficacy' ( $t(75) = 3.14, p < .005$ : 95% CI). 'Ego-resilience' was not predictive of 'study engagement' ( $t(75) = -1.35, p > 0.05$ : CI). At stage 2, 'positive emotions' became not significant ( $t(75) = 0.74, p > 0.05$ : CI). There was a significant change in the  $r^2$  change between stage 1 ( $r^2$  change = .16) and stage 2 ( $r^2$  change = .33). This shows

that the addition of the personal resources significantly added to the regression. These results support hypotheses 4, as positive emotions and personal resources were expected to be predictive of study engagement.

**Table 2.**  
**Summary of Hierarchical Regression Analysis for the prediction of study engagement**

Variable	Stage 1			Stage 2		
	B	SE B	$\beta$ (beta score)	B	SE B	$\beta$ (beta score)
Study engagement	42.08	5.21		5.79	7.79	
Positive emotions	.62	.16	.39***	.07	.16	.05
Ego-resilience				-.26	.19	-.14
Hope				.87	.19	.53***
Academic self-efficacy				1.13	.36	.30**
$R^2$	.16***			.49***		
$R^2$ change	.16***			.33***		

Note. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Given that the significance in positive emotions drops once ego-resilience, hope, and academic self-efficacy are entered into the regression relationship at stage 2, it was suspected there may be a mediation at work.

### Mediational Analysis

To assess the role of the personal resources in the relationship between positive emotions and study engagement a mediational analysis was performed. Preacher and Hayes' (2008) INDIRECT macro was used with bootstrapping. With engagement as the outcome, results indicated that a significant direct path existed between positive emotions and ego-resilience ( $b = .32, p < .001$ ), between positive emotions and hope ( $b = .51, p < .001$ ), between positive emotions and academic self-efficacy ( $b = .15, p < .001$ ), and between positive emotions and study engagement ( $b = .62, p < .001$ ).

The direct relationship between positive emotions and engagement was non-significant once resources were included ( $b = .07, p = .63$ ), which indicates that personal resources mediated the relationship between positive emotions and engagement. In relation to the different resources, the indirect effect of positive emotions on engagement through ego-resilience was not significant at the 95% confidence level across bias corrected (95% CI =  $-.29$  to  $.05$ ) and percentile (95% CI

= -.25 to .08) point estimates. The indirect effect of positive emotions on study engagement through hope was significant at the 95% confidence level across bias corrected (95% CI = .22 to .72) and percentile (95% CI = .19 to .69) point estimates. The indirect effect of positive emotions on study engagement through academic self-efficacy was significant at the 95% confidence level across bias corrected (95% CI = .26 to .44) and percentile (95% CI = .13 to .40) point estimates.

The overall model accounted for 48.7% ( $R^2_{adj} = 45.9\%$ ) of the total variance in study engagement. These results overall support Hypothesis 4 by suggesting that there is a predictive relationship between positive emotions and study engagement and the personal resources and study engagement, and even more important is that the results show that the personal resources hope and academic self-efficacy mediate the relationship between positive emotions and study engagement.

## Discussion

This study aimed to integrate the B&B theory (Fredrickson, 2005) and the COR theory (Hobfoll, 1998) into a research model concerned with study engagement for current UK university students. The four hypotheses being tested were; Firstly, that positive emotions would be positively related to study engagement. Secondly, that positive emotions would be positively related to the three personal resources ego-resilience, hope and academic self-efficacy. Thirdly, that the three personal resources would be positively related to study engagement. Finally, that there would be a predictive relationship between positive emotions and personal resources in regard to study engagement.

The five scales that measured the predictor and criterion variables had high internal consistency, meaning they were reliable measures. Pearson's correlation coefficients confirmed the first three hypotheses. Positive emotions were found to be positively related to study engagement, which was consistent with previous findings including Ouweneel et al's (2011) study, and with the B&B theory which states that positive emotions produce well-being (Fredrickson, 2004). Positive emotions were also found to be positively related to the three personal resources, which again is consistent with previous research, including Ouweneel et al's (2011) and with the B&B theory assumption that positive emotions develop personal resources (Fredrickson, 2004). The three personal resources were found to be significantly positively related to study engagement. This is also consistent with previous research including Ouweneel et al's (2011) and with COR theory assumptions which state that people utilize the resources they have available to attain a desired goal and that personal resources lead to engagement (Hobfoll, 2002).

The 4<sup>th</sup> hypothesis was confirmed through a hierarchical regression analysis. Positive emotions were found to be predictive of study engagement at stage 1, and hope and academic self-efficacy were found to be predictive of study engagement at stage 2. Positive emotions being predictive of study engagement is consistent with the literature. Fredrickson's (2004) B&B theory maintains that positive emotions signal optimal functioning and produce well-being. As positive emotions were found to be predictive of study engagement, this investigation supports previous findings (Reschly et al, 2008; Ouweneel et al, 2011).

Hope being predictive of study engagement is also consistent with Ouweneel et al's (2011) findings. This study supports the Gallup institutes findings where hope was found to be strongly related to academic achievement and most hopeful students were found to be engaged (Gallup, 2013). This study's findings are also consistent with previous research linking hope to engagement (Karatepe's, 2014; Malinowski & Lim, 2015).

Academic self-efficacy being predictive supports Hobfoll's (2002) recognition of self-efficacy as one of the fundamental components of adaptability, and is consistent with Robbins et al's (2004) meta-analysis which found that academic self-efficacy was strongly related to GPA. The links between self-efficacy and engagement (Xanthopoulou et al's, 2007) and academic self-efficacy and study engagement (Ouweneel et al, 2011) are supported, and this study is consistent with Linnenbrink and Pintrich's (2010) research which deemed self-efficacy as being vital for student engagement. This investigation is evidence that being hopeful and confident leads to increased engagement.

Interestingly, ego-resilience was not predictive of study engagement. This was surprising given its close links to the B&B theory (Fredrickson, 2004), to academic stress and anxiety (Cole et al, 2015), well-being (Seaton & Beaumont, 2015) and given its significant positive relationship to study engagement found in this investigation. Possible reasons for this may be that ego-resilience is not as applicable to engagement as it is to stress, well-being and life satisfaction (Cohn et al, 2009). Ego-resilience may be more about problem solving and building resources, and therefore may be a personal resource where the benefits are experienced when dealing with negative phenomena (such as stress) instead of being a functional resource for attaining positive outcomes (such as engagement). Ego-resilience's links to other types of well-being and life satisfaction may be explained through its two main functions outlined by Farkas & Orosz (2015), of keeping the personality system stable and flexible when faced with stressors. Research is needed to confirm this.

Nevertheless, this study alone cannot preclude that ego-resilience is not predictive of study engagement as it was found to be positively correlated with study engagement, positive emotions and the other personal resources. Perhaps the sample size in this study was influential to this finding as it was just below the recommended size of ninety following Greens (1991) recommendation. Perhaps future research with a larger sample size may find ego-resilience to be predictive of study engagement. Future investigations may want to test ego-resilience in relation to negative phenomena and positive outcomes as this may yield intriguing results.

Another interesting finding of this investigation is that hope and academic self-efficacy were found to significantly mediate the relationship between positive emotions and study engagement. This means that students who experience more positive emotions are more likely to be engaged, but this is influenced indirectly with how hopeful and confident they are regarding their studies. This finding is consistent with Ouweneel et al's (2011) findings which suggested that personal resources may mediate the relationship between positive emotions and study engagement and therefore should be considered as further evidence for personal resources being a mediator. Hope and academic self-efficacy taking precedence over positive emotions

regarding study engagement supports the central role of personal resources in regard to the positive emotions and study engagement relationship and is direct support for the fundamental assumption of the B&B theory, that positive emotions build personal resources which leads to well-being (Fredrickson, 2004). The fundamental COR assumption that personal resources are functional in attaining goals and that people utilize them to attain goals is also directly supported (Hobfoll, 2002).

All four hypotheses were derived from the B&B and COR theories, meaning this study has successfully integrated the theories. This study supports the two theories because it indicates the more resources a person can utilize, the more likely that person is to be engaged. This study also indicates that engagement can be largely accounted for by personal resources, and so attempts to increase personal resources are worthwhile.

### **Practical implications**

As engagement is strongly linked to achievement scores, grades, retention and future employment (Gallup, 2013), increasing students' engagement in schools or universities is important as it could result in more people gaining qualifications. As engagement is linked to happiness (Gavin & Mason (2004) and life satisfaction (Shimazu et al, 2015), this could also result in increased well-being. The PRP, which teaches students to better handle day-to-day stressors, is a viable way of addressing this. The PRP has been demonstrated to build resilience, well-being and optimism, and so implementing this would be worthwhile as it would better equip young people to handle set-backs regarding their studies and would lead to more engagement through optimism and well-being (Seligman et al, 2009). Implementing strengths-based education through the VIA-IS is another practical option as this is proven to enhance hope and engagement (Gallup, 2013). The VIA-IS questionnaire is also free and accessible through the internet, meaning all students could participate regardless of the school system or socioeconomic background.

### **Limitations and future directions**

A three-wave longitudinal investigation is required to confirm the mediating effect of personal resources to the positive emotions and study engagement relationship. This is the immediate direction that follow-up research should take. The findings of this study however, are consistent with Ouweneel et al's (2011) findings, and should be regarded as support for the mediating effect. In terms of generalizability, it would have been beneficial to have a bigger sample size as it was just below Green's (1991) recommendation. Follow up studies could address this. As a large portion of the sample were females (70.73%), a study with a more equal balance of gender may be more generalizable to the whole student population. Nevertheless, that is not to diminish the results found here. Other than the predictive relationship between ego-resilience and study engagement, all other results had a *p* value of less than 0.01. Although beneficial, self-report measures also have issues. A common critique is the potential for social desirability bias, where participants want to be seen in a favourable light and so do not answer honestly, and it is also possible that participants may interpret rating scales differently and may lack the introspective ability to give an accurate response (Hoskin, 2012). Self-report measures however,

are the most suitable method of measuring personality constructs such as ego-resilience, especially in questionnaire formats.

## **Conclusion**

This present study has investigated how influential positive emotions and the personal resources ego-resilience, hope and academic self-efficacy are of study engagement among current UK undergraduate students. Positive correlations were found between positive emotions and study engagement, positive emotions and the three personal resources and the three personal resources and study engagement. Positive emotions were found to be predictive of study engagement at stage one, however hope and academic self-efficacy were found to take precedence in being predictive at stage 2, with positive emotions not being predictive when all the variables were tested together. This indicated the personal resources mediated the relationship between positive emotions and study engagement. A mediational analysis confirmed this. Hope and academic self-efficacy were found to be mediating the relationship between positive emotions and study engagement, meaning that people who experience more positive emotions are more likely to be engaged, mainly because this builds on personal resources which in-turn leads to engagement. Being hopeful and confident is shown as being directly related to increased engagement. Ego-resilience was interestingly found to not be predictive of study engagement and reasons for this were discussed. Signature strength training and the PRP were proposed as effective ways of increasing engagement through increasing positive emotions and personal resources. Increasing engagement was discussed as a worthwhile method of addressing the number of people in the UK without qualifications. Limitations of the study, such as sample size and balance were discussed along with the issues associated with self-report measures. Future directions were also considered, and it was explained that this investigation is consistent with the research in this area, specifically the findings of Ouweneel et al (2011) and is direct support for the postulations of B&B and COR theories.



## References:

- Alacron, G. M. & Lyons, J. B. (2011) 'The Relationship of Engagement and Job Satisfaction in Working Samples.' *The Journal of Psychology*, 145(5) pp. 463-480.
- Anthony, E. J. (1987) 'Risk, vulnerability, and resilience: an overview.' In Anthony, E. J. and Cohler, B. J. (ed.) *The invulnerable child*. New York: Guilford pp. 3-48.
- Bakker, A. B., Schaufeli, W. B., Leiter, M. P. and Taris, T. W. (2008) 'Work engagement: An emerging concept in occupational health psychology.' *Work and Stress*, 22(3) pp. 187-200.
- Bandura, A. (1997) *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Block, J. & Kremen, A. (1996) 'IQ and Ego-Resiliency: Conceptual & Empirical Connections and Separateness' *Journal of Personality and Social Psychology*, 70(2) pp. 349-361.
- Casuso-Holgado, M. J., Cuesta-Vargas, A. I., Moreno-Morales, N., Labajos-Manzanares, M. T., Baron-Lopez, F. J. & Vega-Cuesta, M. (2013) 'The association between academic engagement and achievement in health sciences students.' *BMC Medical Education*, 13(1) p.1.
- Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A. and Conway, A. M. (2009) 'Happiness Unpacked: Positive emotions Increase Life Satisfaction by Building Resilience.' *Emotion*, 9(3) pp. 361-368.
- Cole, N. N., Nonterah, C. W., Utsey, S. O., Hook, J. N., Hubbard, R. R., Opare-Henaku, A. & Fischer N. L. (2015) 'Predictor and Moderator Effects of Ego Resilience and Mindfulness on the Relationship Between Academic Stress and Psychological Well-Being in a sample of Ghanaian College Students.' *The Journal of Black Psychology*, 41(4) pp. 340-357.
- Cotton, S., Dollard, M. & Jonge, J. D. E. (2002) 'Stress and student job design: Satisfaction, well-being, performance in university students.' *International Journal of Stress Management*. 9, pp. 147-162.
- Davids, A. (2011) *The Relationship Between Work Engagement, Self-Efficacy and optimism among call centre agents*. MComm. University of the Western Cape.
- Farkas, D. & Orosz, G. (2015) 'Ego-Resiliency Reloaded: A Three Component Model of General Resiliency.' *PLOS ONE*, no page range.
- Fredrickson, B. L. (2004) 'The Broaden-and-Build Theory of Positive Emotions.' *The Science of Well-being: Integrating Neurobiology, Psychology and Social Science*, 359(1449) pp. 1367-1377.

Fredrickson, B. L. and Branigan, C. (2005) 'Positive Emotions Broaden the Scope of Attention and Thought-Action Repertoires.' *Cognition and Emotion*, 19(3) pp. 313-332.

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J. & Finkel, S. M. (2008) 'Open Hearts Build Lives: Positive Emotions, Induced Through Loving-Kindness Meditation, Build Consequential Personal Resources.' *Journal of Personal and Social Psychology*, 95(5) pp. 1045-1062.

Gallup (2013) *MEASURING THE HOPE, ENGAGEMENT, AND WELLBEING OF AMERICA'S STUDENTS*. Unknown place of publication. Gallup. [Online] [Accessed on 10<sup>th</sup> April] <http://www.gallup.com/services/176723/measuring-hope-engagement-wellbeing-america-students.aspx>

Ganotice, F. A. & King, R. B. (2013) 'Social Influences on Students' Academic Engagement and Science Achievement.' *Psychological studies*, 59(1) pp. 30-35.

Gavin, J. H. & Mason, R. O. (2004) 'The Virtuous Organisation: The Value of Happiness in the Workplace.' *Organizational Dynamics*, 33, pp. 379-392.

Gloria, C. T and Steinhardt, M. A. (2016) 'The direct and mediating roles of positive emotions on work engagement among postdoctoral fellows.' *Studies in Higher Education*, 1, pp. 1-13.

Green, S. B. (1991) 'How Many Subjects Does It Take To Do A Regression Analysis.' *Multivariate Behavioural Research*, 26(3) pp. 499-510.

Hobfoll, S. E. (1989) 'Conservation of resources. A new attempt at conceptualising stress.' *American Psychologist*, 44(3) pp. 513-24.

Hobfoll, S. E. (2002) 'Social and psychological resources and adaption.' *Review of General Psychology*, 6 pp. 307-324.

Hoskin, R. (2012) *The dangers of self-report*. 3<sup>rd</sup> March. Science Brainwaves. [Online] [Accessed on 10<sup>th</sup> April] <http://www.sciencebrainwaves.com/the-dangers-of-self-report/>

IBM Corp. (2012) *IBM SPSS Statistics for Windows, Version 21.0*. Armonk, NY: IBM Corp.

Karatepe, O. M. (2014) 'Hope, Work Engagement, and Organizationally Valued Performance Outcomes: An Empirical Study in the Hotel Industry.' *Journal of Hospitality Marketing & Management*, 23, pp. 678-698.

Ketonen, E. E., Muhonen, A. H., Hirsto, L., Hanninen, J. J., Wahala, K. & Lonka, K. (2016) 'Am I in the right place? Academic engagement and study success during the first years at university.' *Learning and Individual Differences*, 51, pp. 141-148.

Klohnen, E. C. (1996) 'Conceptual analysis and measurement of the construct of ego-resiliency.' *Journal of Personality and Social Psychology*, 70, pp. 1067-1079.

Letzring, T. D., Block, J. & Funder, D. (2004) 'Ego-control and ego-resiliency: Generalizations of self-report scales based on personality descriptions from acquaintances, clinicians, and the self.' *Journal of Research and Personality*, 39 pp. 395-422.

Lorente, L., Salanova, M., Martinez, I. M. & Vera, M. (2014) 'How personal resources predict work engagement and self-rated performance among construction workers: A social cognitive perspective.' *International Journal of Psychology*, 49(3) pp. 200-207.

Linnenbrink, E. A. and Pintrich, P. R. (2003) 'The role of self-efficacy beliefs in student engagement and meaning in the classroom.' *Reading & Writing Quarterly*, 12(2) pp. 119-137.

Malinowski, P. & Lim, H. J. (2015) 'Mindfulness at Work: Positive Affect, Hope, and Optimism Mediate the Relationship Between Dispositional Mindfulness, Work Engagement, and Well-being.' *Mindfulness*, 6(6) pp. 1250-1262.

Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Anderman, L., Freeman, K. E., Gheen, M., Kaplan, A., Kumar, R., Middleton, M. J., Nelson, J., Rosser, R. & Urdan, T. (2000) *Manual for the Patterns of Adaptive Learning Scales*. Unknown place of publication. University of Michigan. [Online] Accessed on 27<sup>th</sup> November 2016] [http://www.umich.edu/~pals/pals/PALS%202000\\_V13Word97.pdf](http://www.umich.edu/~pals/pals/PALS%202000_V13Word97.pdf)

Nunnally, J. C. (1978) *Psychometric theory*. 2<sup>nd</sup> ed., New York: McGraw-Hill

Ouweneel, E., Blanc, P. M. L. & Schaufeli, W. B. (2011) 'Flourishing students: A longitudinal study on positive emotions, personal resources and study engagement.' *The Journal of Positive Psychology*, 6(2) pp. 142-153.

Reschly, A. L., Huebner, E. S., Appleton, J. J. and Antaramian, S. (2008) 'Engagement as Flourishing: The Contribution of Positive Emotions and Coping to Adolescents' Engagement at School and With Learning.' *Psychology in the Schools*, 45(5) pp. 419-431.

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R. and Carlstrom, A. (2004) 'Do psychosocial and study skill factors predict college outcomes? A meta-analysis.' *Psychological Bulletin*, 130(2), pp. 261-288.

Robins, T. G., Roberts, R. M. and Sarris, A. (2015) 'Burnout and Engagement in Health Profession Students: The Relationships Between Study Demands, Study Resources and Personal Resources.' *Australasian Journal of Organisational Psychology*, 8(1) pp. 1-13.

Salanova, M., Schaufeli, W., Martinez, I. and Bresó, E. (2010) 'How obstacles and facilitators predict academic performance: the mediating role of study burnout and engagement.' *Anxiety, Stress and Coping*. 23(1) pp. 53-70.

- Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M. & Bakker, A. B. (2002) 'BURNOUT AND ENGAGEMENT IN UNIVERSITY STUDENTS A Cross National Study.' *Journal of Cross-Cultural Psychology*, 33(5) pp.464-481.
- Schaufeli, W. B. & Bakker, A. (2003) *UWES Utrecht Work Engagement Scale*. Unknown place of publication. Utrecht University. [Online] [Accessed on 27<sup>th</sup> November 2016]  
[https://www.beanmanaged.com/doc/pdf/arnoldbakker/articles/articles\\_arnold\\_bakker\\_87.pdf](https://www.beanmanaged.com/doc/pdf/arnoldbakker/articles/articles_arnold_bakker_87.pdf)
- 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 Behaviour*, 25(3) pp. 293-315.
- Seaton, C. L. & Beaumont, S. L. (2015) 'Pursuing the good life: A short-term follow-up study of the role of positive/negative emotions and ego-resilience in personal goal striving and eudaimonic well-being.' *Motivation and Emotion*, 39(5) pp. 813-826.
- Seligman, M. E. P., Ernst, R. M., Gillham, J., Reivich, K. and Linkins, M. (2009) 'Positive education: positive psychology and classroom interventions.' *Oxford Review of Education*, 35(3) pp. 293-311.
- Shimazu, A., Schaufeli, W. B., Kamiyama, K. & Kawakami, N. (2015) 'Workholism vs Work Engagement: the Two Different Predictors of Future Well-being and Performance.' *International Journal of Behavioural Medicine*, 22(1) pp. 18-23.
- Snyder, C. R., Harris, C., Anderson J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T. & Harney, P. (1991) 'The will and the ways: Development and validation of an individual-differences measures of hope.' *Journal of Personality and Social Psychology*, 60, pp. 570-585.
- Snyder, C. R., Sympson, S. C., Ybasco, F. C., Borders, T. F., Babyak, M. A. and Higgins, R. L. (1996) 'Development and validation of the State Hope Scale.' *Journal of Personality and Social Psychology*, 70(2) pp. 321-335.
- Vasagar, J. (2011) 'One in nine adults has no qualifications.' *The Guardian*. [Online] 22<sup>nd</sup> July [Accessed on 7<sup>th</sup> April 2017]  
<https://www.theguardian.com/education/2011/jul/22/one-in-nine-no-qualifications>
- Watson, D., Clark, L. A. & Tellegen, A. (1988) 'Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales.' *Journal of Personality and Social Psychology*, 54(6) pp. 1063-1070.
- Webber, K. L., Krylow, R. B., Zhang, Q. (2013) 'Does Involvement Really Matter? Indicators of College Student Success and Satisfaction.' *Journal of College Student Development*, 54(6) pp. 591-611.
- Werner, E. and Smith, R. (1992) *Overcoming the odds: High-Risk Children from Birth to Adulthood*. New York: Cornell University Press.

Xanthopoulou, D., Bakker, A. B., Demerouti, E. & Schaufeli, W. B. (2007) 'The Role of Personal Resources in the Job Demands-Resources Model.' *International Journal of Stress Management*, 14(2) pp. 121-141.