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Adaptability: Does Students' Adjustment to University Predict Their Mid-Course Academic Achievement and Satisfaction?

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Abstract

Individual differences in 'adaptability' – cognitive, behavioral, and emotional adjustment in the face of change, novelty, and uncertainty – are theorized to influence students' academic achievement and course satisfaction; although the literature examining these relations in tertiary education is sparse. In the present study, first-year undergraduate students were surveyed for their adaptability, academic buoyancy, and academic motivation (predictor variables) along with their mid-course academic achievement and course satisfaction (outcome variables). Correlation analyses revealed that adaptability was significantly associated with all other variables in this study. Multiple regression analyses revealed that after controlling for individual differences in academic buoyancy and academic motivation, adaptability explained unique variance in both academic achievement and course satisfaction. These findings have important implications for researchers and educators seeking to understand first-year students' adjustment to university and the influence this may have on their educational outcomes.

Keywords: Adaptability, Buoyancy, Motivation, Achievement, Satisfaction, University

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Introduction

The commencement of university marks a period of great change, uncertainty, transition, and novelty for students (Collie and Martin 2016). It involves navigating a significantly less familiar learning environment, with increased independence and personal responsibility, a change in social networks, and demands for more autonomous, rather than dependent, learning (Lourenco and Casey 2013). The extent to which students are able to adjust to successfully navigate this change may play a role in their educational outcomes (Martin et al. 2012, 2013, 2015). A developing literature has begun to focus on the psychological construct of 'adaptability'; that is, cognitive, behavioral, and emotional adjustment in the face of change, novelty, and uncertainty (Martin et al. 2012, 2013). Findings have thus far shown that students' adaptability is positively predictive of academic achievement (Burns, Martin, and Collie 2017) and other educational outcomes, such as classroom participation, academic intentions, and school enjoyment (Martin et al. 2013). However, research has focused predominantly on primary and secondary education levels with only a minority of studies examining adaptability in higher education. This is problematic given that going to university can be considered a 'major transition milestone' (Martin and Burns 2014) where appropriate adjustment to the new environment may be of particular importance. Furthermore, no study to date has examined whether adaptability is predictive of first-year undergraduate university course satisfaction.

To fill the gap, in the present study, we examine the extent to which first-year university students' adaptability predicts their mid-course academic achievement and course satisfaction. The two outcome variables in this study are of paramount importance for

universities and students alike. Specifically, academic achievement (and degree classification) is an important determinant of graduates' first destination outcome, employment opportunities, and further educational opportunities (Di Pietro 2017). Student satisfaction is linked to student recruitment (Childers, Williams, and Kemp 2014), retention (Crosling, Heagney, and Thomas 2009; Schreiner and Nelson 2013), and academic achievement (Taylor et al. 2008).

In addition, given the importance of disentangling adaptability from other cognate psycho-educational factors (Martin et al. 2013), we specifically explored the relations among adaptability, academic achievement and course satisfaction after controlling for the effects of other constructs. This is so variance unique to adaptability can be estimated – beyond the effects of aligned variables that are correlated with it. Two such factors are academic buoyancy and academic motivation. Academic buoyancy refers to students' ability to successfully navigate 'everyday' or low-level academic setbacks, challenges, adversities, and pressures (Martin and Marsh 2008). Academic motivation is defined under a self-determination theory perspective and refers to the extent to which students' behavior regulation is perceived to be non-self-determined (controlled) or self-determined (autonomous) (Ryan and Deci 2007).

Conceptualizing the Construct of Adaptability

Adaptability focuses on the extent to which students are able to make the appropriate cognitive, behavioral, and emotional adjustments required to successfully navigate changing, novel, and uncertain circumstances or situations (Martin et al. 2012, 2013). Thus, adaptability is defined in terms of a 'tripartite' framework that involves the management, adjustment, and modification of one's cognitions (thoughts), behaviors (actions), and emotions (affect). Adaptability is grounded in a self-regulation framework whereby students monitor, control, and direct their own cognitions, behaviors and emotions, altering them in accordance with the

demands of the situation (Zimmerman 2002). Adaptability resonates most closely with Winne and Hadwin's (2008) fourth phase of self-regulation – termed 'adaptation' – whereby students, for example, evaluate their own performance to determine how best to modify their cognitive and behavioral, and more recently emotional, strategies in order to improve future performance. Finally, adaptability is also grounded in lifespan theory of control approaches (Heckhausen, Wrosch, and Schulz 2010) whereby students make cognitive and behavioral modifications in order to achieve more positive outcomes in their environment. Further, the notion of adapting one's cognitive, behavioral and emotional strategies in order to better negotiate demands in the environment resonates with individual functioning approaches (Buss and Cantor 1989). Such approaches contend that personal characteristics, conceivably, one's adaptability, influence the adoption and application of appropriate strategies in one's environment in order to produce more positive outcomes for the individual. Taken together, these different theoretical approaches and traditions provide a conceptual basis for the adaptability construct and provide reason to anticipate connections between students' adaptability and their educational outcomes at university.

Adaptability as a Predictor of Educational Outcomes

Predicting Academic Achievement

Students' academic achievement at university, and their final degree classification in particular, has important consequences for their career prospects. A converging international literature has shown that a graduate's first destination outcome comprising the type of employment or further study students were engaged in six months after qualifying from their course, their employment opportunities, and their further educational opportunities, are all significantly influenced by their degree classification (Di Pietro 2017). For example, in a Graduate Recruitment Survey (Association of Graduate Recruiters, AGR, 2013) it was reported that 82.1% of AGR employers used degree classification as a screening tool and that

81.3% of them used a 2:1 classification as a cut off; that is, a British classification of 'Upper Second-Class Honors' reflecting an average mark of 60-70% on the assessed work the student has completed. Given that these outcomes (i.e., the average salary six months after the course, the percentage of those who go on to work and/or study, and employment six months after the course) are made publicly available and influence university league tables, academic achievement is of great importance for both universities and students alike.

A developing literature, mostly with students in primary or secondary education, has shown that adaptability is associated with academic engagement (Burns et al. 2017; Collie, Holliman, and Martin 2017; Martin et al. 2012, 2013, 2015). Academic engagement, in turn, has been consistently linked with academic achievement at secondary (Burns et al., 2017; Collie, Martin, and Curwood 2016; Martin et al. 2012, 2015) and tertiary education levels (Collie et al. 2017; Johnson et al. 2015; Hart 2012). Other studies with secondary school students (Burns et al. 2017) have also found that students' adaptability positively predicts both behavioral engagement and academic achievement. Due to its 'enabling capacity' (Martin et al. 2013), students higher in adaptability are more likely to monitor, control, direct, and adjust and adapt their cognitions, behaviors, and emotions to more effectively deal with the task/activity at hand (Martin et al. 2012, 2013) and attain higher academic performance as a result (Mega, Ronconi, and De Beni 2014). In the present study, we focus solely on the direct relation between adaptability and students' academic achievement to add to the sparse literature investigating the link between adaptability and university achievement.

Predicting Course Satisfaction

Alongside academic achievement, universities are increasingly focused on the student experience and satisfaction with and through their studies (Douglas et al. 2015) not least because of the increase in university tuition fees and greater expectations placed on graduate employability which is considered to have a significant impact on overall student satisfaction

scores (Bates and Kaye 2014; Kaye and Bates 2017). Introduced in 2005 in the UK, the most commonly used metric for student satisfaction is the National Student Survey (NSS). This comprises questions relating to different aspects of students' learning experience, with a final question that is often cited in rankings of university performance (Lenton 2015) and tends to be incorporated in most higher education analyses (viz. 'Overall, I am satisfied with the quality of the course'). Universities are therefore placing a greater emphasis on student satisfaction scores not least because higher student satisfaction also leads to greater retention (Schreiner and Nelson 2013) and higher academic success and completion rates (Taylor et al. 2008). Indeed, student satisfaction is also bound up with student engagement and academic achievement (Pike, 1991) and consistent links have been reported between academic achievement and university satisfaction (Green, Hood, and Neumann 2015).

The above commentary signifies the importance of student/course satisfaction for universities and underscores the importance of understanding the antecedents of student satisfaction in further detail (Wach et al. 2016). Accordingly, there have been efforts to identify factors that might influence course satisfaction. Some studies have focused on characteristics at higher education system levels (e.g., access, selectivity, financial support, opportunities for movement in the system), institutional levels (e.g., university culture, services, facilities, image, composition of the student body), teaching levels (e.g., teaching quality, style, expertise, affection, and assessment), and/or individual student levels (e.g., attitudes, and motivational characteristics) (Green et al. 2015; Vossensteyn et al. 2015). However, to date no research has investigated the link between adaptability and course satisfaction at university. In the present study, we focus on individual student-level characteristics (Green et al. 2015), to examine the impact of adaptability on university students' course satisfaction.

Aims, Rationale and Research Questions

In line with the above commentary, the present study sought to better understand the unique associations between adaptability and the outcome variables of academic achievement and course satisfaction, by controlling for two cognate constructs: academic buoyancy and academic motivation.

In doing so, the present study addressed two research questions:

1. What is the relationship between university students' adaptability, academic buoyancy, academic motivation, and their academic outcomes (mid-course academic achievement and satisfaction)?
2. Is university students' adaptability uniquely associated with their academic outcomes (mid-course academic achievement and satisfaction) beyond the influences of academic buoyancy and academic motivation?

Method

Participants and Procedure

All participants in this study (N = 90, representing approximately one-third of the total number of students eligible for this study) were opportunity sampled from a single higher education institution (university) in the West Midlands, UK. Students were first-year undergraduates enrolled in either a single honours psychology degree (BSc Psychology, n = 77) or a combined honours degree (BSc Sport Psychology, n = 7; BSc Psychology & Criminology, n = 6). Four-fifths (80%) of the sample were female (n = 72), students were aged between 18 and 48 years (M = 19.84, SD = 3.68), and were studying full-time. The selection criteria were not limited to any particular demographic or ability group; all students who attended a mandatory Level 1 psychology course were invited to participate in this research. All students completed a paper questionnaire to ascertain demographic details and to measure the core constructs in this study (i.e., adaptability, buoyancy, motivation, academic achievement, and course satisfaction), as detailed below.

Measures

Adaptability

Adaptability was measured using the Adaptability Scale (Martin et al., 2013). The scale consisted of nine items to assess cognitive (e.g., 'I am able to adjust my thinking or expectations to assist me in a new situation'), behavioral (e.g., 'In uncertain situations, I am able to develop new ways of going about things [e.g. a different way of asking questions or finding information] to help me through'), and emotional (e.g., 'I am able to reduce negative emotions [e.g., fear] to help me deal with uncertain situations') adaptability. For each item, a Likert scale response format was used with respondents rating themselves on a scale of 1 (strongly disagree) to 7 (strongly agree). In this study, the three types of adaptability (tripartite approach) were combined and averaged to provide a single estimate of adaptability: prior measurement work (e.g., Martin et al. 2012, 2013) has demonstrated that this approach (forming a global estimate) functions well due to the inter-relations between cognitive, behavioral, and emotional dimensions. Prior research has also demonstrated the validity of the scale via confirmatory factor analysis and adequate reliability (e.g., Collie et al. 2017; Martin et al. 2012, 2013, 2015). In this study, Cronbach's alpha was .86.

Academic Buoyancy

Academic buoyancy was measured using the Academic Buoyancy Scale (Martin and Marsh 2008). This scale consists of four items designed to assess students' ability to deal effectively with 'everyday' academic setbacks, challenges, adversities, and pressures (e.g., 'I think I'm good at dealing with schoolwork pressures'). For each item, a Likert scale response format was used with respondents rating themselves on a scale of 1 (strongly disagree) to 7 (strongly agree). Prior measurement work has demonstrated the psychometric properties of this scale, such as factor structure, invariance, and reliability (e.g., Martin and Marsh 2008).

As such, the four items were combined and averaged to provide a single estimate of buoyancy. In this study, Cronbach's alpha was .85.

Academic Motivation

Academic motivation was measured using the Academic Motivation Scale, AMS-C 28 – College CEGEP version (Vallerand et al., 1993). The scale consisted of 28 items and seven subscales to assess three types of internal (intrinsic) motivation (– to know; – toward accomplishment; – to experience stimulation), three types of external (extrinsic) motivation (– identified; – introjected; – external regulation), and amotivation. For each item, a Likert scale response format was used with respondents rating themselves on a scale of 1 (does not correspond at all) to 7 (corresponds exactly). Prior measurement work has demonstrated the validity of the constructs in this scale (e.g., Vallerand et al. 1989). In this study, Cronbach's alpha for each internal (intrinsic) motivation subscale was .86 (– to know); .78 (– toward accomplishment); .82 (– to experience stimulation); for external (extrinsic) motivation was: .71 (– identified); .81 (– introjected); .72 (– external regulation); and amotivation was .84. In order to obtain a Relative Autonomy Index (RAI; Ryan and Connell 1989), also known as the Self-Determination Index (Vallerand, 2007) – essentially a single estimate of the extent to which a student's behavior regulation is perceived to be non-self-determined (controlled) or self-determined (autonomous) (Ryan and Deci 2007) – we adopted the RAI BREQ scoring protocol (Ryan, and Connell, 1989) and its accompanying formula: $\sum$([External x -2] + [Introjected x -1] + [Identified x 1] + [Intrinsic x2]). Here, RAI scores with a larger positive weight indicate a greater autonomous regulatory style (i.e., self-determined motivation); RAI scores with a larger negative weight indicate a greater controlled regulatory style (i.e., non-self-determined motivation).

Academic achievement

Academic achievement was measured using a single scaled item to represent students' approximate grade point average after the first semester of study. For this item ('Which score range best reflects the grades you have been awarded so far on the course'), respondents rated themselves as either: 1 = <42; 2 = 42-48 (third class); 3 = 52-58 (lower second class); 4 = 62-68 (upper second class); or 5 = >72 (first class). We purposely elicited 'approximate' grade point averages to reduce the likelihood of mathematical error (although we acknowledge some of the limitations of this approach in the Discussion section). We also purposely focused on degree classification boundaries as graduates are ultimately awarded a degree classification (rather than percentage), which is the most important and meaningful academic achievement metric (outcome) for universities and students alike.

Course satisfaction

Course satisfaction was measured using the global item from the National Student Survey 2017 (NSS, http://www.thestudentsurvey.com/) – a survey completed by students at all publicly funded higher education institutions in the UK to gain insight from undergraduate students about their learning and teaching experience at university. For this item ('Overall, I am satisfied with the quality of the course') – the most influential item on the scale that is often cited in rankings of university performance (Lenton 2015) – a Likert scale response format was used with respondents rating themselves on a scale of 1 (definitely disagree) to 5 (definitely agree). We purposely selected this survey item as it is the item of course quality enabling comparison of an institution's provision with other institutions in the sector at both a discipline and institution level.

Results

Measures of central tendency and dispersion are reported for all core measures. This is followed by a correlation matrix between all core measures so that the associations can be observed. Findings from multiple regression analyses are then presented to assess the extent

to which students' adaptability (independent of academic buoyancy and motivation), can make a significant independent contribution to students' perceived academic achievement and their course satisfaction.

Descriptive Statistics

Table 1 shows the mean and standard deviation scores (and other distributional data) on all core assessments in this study.

<TABLE 1 NEAR HERE>

For the measure of academic achievement equated performance was in the high 2:2 (52-58%, lower second class) to 2:1 (62-68%, upper second class) range, which was generally expected at this stage of study. With regard to course satisfaction, the figure shows that students were generally happy with the overall quality in the delivery of their undergraduate course; although universities typically aim for 4+. The mean adaptability scores were generally in the upper range (4.83 out of 7, *SD* = .79) indicating that students felt somewhat in agreement that they were able to adapt in the face of novel or uncertain events. The mean buoyancy scores were in the middle to upper middle range. The mean motivation scores indicate that students were somewhat between autonomous (self-determined motivation) and controlled (non-self-determined motivation) regulatory styles (marginally more towards the latter), with a moderate standard deviation indicating was some variation.

Correlations

To investigate the relationships between all core variables in this study, correlation analyses (Pearson) were performed to ascertain the strength of relations among variables (see Table 2).

<TABLE 2 NEAR HERE>

It can be seen from Table 2 that while age did not correlate with any other variable, gender did correlate with buoyancy suggesting that females felt they were less able to cope

with academic setbacks and challenges than males. It can be seen that both the criterion variables (university academic achievement and course satisfaction) were positively correlated. Adaptability and motivation were significantly positively correlated with academic achievement and also positively correlated with course satisfaction. Buoyancy was also positively correlated with course satisfaction. Table 2 also shows that adaptability was significantly positively correlated with both buoyancy and motivation.

Predictors of Academic Achievement and Course Satisfaction at University

We then examined which predictor variables (university students' adaptability, buoyancy, motivation) are best at predicting, and are uniquely related to, academic achievement and course satisfaction. Two multiple regression analyses were conducted: the first explored predictors of students' academic achievement – grade point average (Table 3) and the second model explored predictors of students' course satisfaction (Table 4). For each, collinearity statistics were run and the variance inflation factor and tolerance statistics confirmed that multicollinearity was not an issue. Adaptability and its cognate covariates (buoyancy, and motivation) were entered in separate steps as predictors of academic achievement and course satisfaction to assess whether adaptability could explain a unique amount of variance after the effects of the other two variables had been controlled. Given the weak correlations in Table 2, neither age nor gender were entered into the regression analyses as predictors.

<TABLE 3 NEAR HERE>

<TABLE 4 NEAR HERE>

The first regression model (Table 3), which accounted for 14% of the overall variance, showed that only adaptability was a significant unique predictor of students' university academic achievement, such that beyond the effects of buoyancy and motivation, adaptability was a unique predictor of academic achievement. In the second model (Table 4),

which predicted students' course satisfaction, both buoyancy and motivation were found to be significant predictors, suggesting a small but important impact on overall course satisfaction. Adaptability scores, when entered separately, were found to account for an additional 4% of unique variance, suggesting that beyond the effects of buoyancy and academic motivation, adaptability significantly predicted higher course satisfaction.

Discussion

Adaptability and Academic Outcomes

In line with our expectations concerning the importance of adaptability for students' academic achievement (Burns et al. 2017; Collie et al. 2017; Martin et al. 2012, 2013, 2015), university students' adaptability was found to positively predict academic achievement, beyond the effects of academic buoyancy and academic motivation (cognate covariates). Further, in line with the literature offering tentative links between students' adaptability and satisfaction (Martin et al. 2013), adaptability was found to predict students' course satisfaction, beyond the effects of cognate covariates (academic buoyancy and academic motivation). Academic motivation and buoyancy were found to make a weaker, but significant, contribution to their overall course satisfaction.

These findings might indicate that students who can more ably regulate their thoughts, behaviors, and emotions (i.e., adapt) to effectively deal with change, uncertainty, and novelty in academic tasks, activities, and situations at university (Martin et al. 2012, 2013), tend to attain higher levels of perceived academic grade performance. These students may also be more likely to show greater course satisfaction (Martin et al. 2013) and feel more optimistic about their course of study. As noted above, the significant role of adaptability occurred over and above the roles played by academic buoyancy and motivation, suggesting something unique about adaptability in relation to undergraduate student's perceived academic outcomes. This aligns with prior research about the significance of adaptability (Burns et al.

2017; Collie et al. 2017; Martin et al. 2012, 2013, 2015), while also augmenting it to show the significant role of adaptability in achievement and course satisfaction at first-year undergraduate degree level.

Practical Implications

The results have several important implications for researchers and educators (administrators and faculty) who may wish to improve students' academic achievement and course satisfaction. Unlike some constructs such as age, gender, and to some extent socio-economic status and intelligence, adaptability is an alterable construct (van Rooij, Jansen and van de Grift 2017). The findings in the present study indicate that there might be value in giving greater consideration to university students' adaptability, particularly in the first year of study. The findings from this study may similarly have important implications for researchers and educators seeking to understand first-year university students' adjustment and its potential influence on educational outcomes at university. Students' adaptability might be measured at the start of the course in order to identify those who may be at risk of struggling to adjust (cognitively, behaviorally, and emotionally) to the change, novelty, and uncertainty that university typically brings. Intervention work might then seek to enhance levels of adaptability in order to potentially improve academic engagement and achievement, and also students' academic achievement and course satisfaction.

Crossling and colleagues (2009) identify the course induction as a key opportunity for institutions to engage their students in a dialogue to help them understand all that university life brings (with a view to supporting the adjustment and to ease the transition). It may be useful to adopt Martin and colleagues (2015) suggestions to (a) help students first identify and recognize situations of change, uncertainty, and novelty that might require an appropriate regulatory response, (b) show students how to adjust their cognition, behavior, and emotions to the demands of the situation, and (c) help students to recognize the importance of these

regulatory responses with a view to sustaining them for future occasions when adaptability is required. According to Martin et al (2013), these intervention efforts might ultimately enable the student to respond more positively and constructively to a variety of diverse and unforeseen academic circumstance, and by implication, improve their educational outcomes. This, in turn, may have important implications for understanding student transition into future employment and how students' adaptability might assist them to adjust to novel, uncertain and relatively unfamiliar work environments (Koen et al. 2012).

Limitations and Future Directions

There are some limitations that are important to recognise when interpreting the present findings and which have potential implications for future research. First, as this research utilized quantitative methodology, the levels of 'understanding' are somewhat limited. Future research might incorporate qualitative approaches to gain a richer, more insightful understanding of how and when adaptability, academic buoyancy, and academic motivation may operate, for example, in a higher-education context. Relatedly, not unlike other work in this area (Sears et al. 2017), the outcome variables were assessed using self-reports on single-item measures. Although self-reported achievement is highly correlated with actual achievement (Hattie 2009) and the single-item course satisfaction measure has often been cited in rankings of university performance (Lenton 2015), future work might consider alternative constructs to incorporate a more multi-dimensional focus (e.g., Collie et al. 2017; Martin et al. 2012, 2013; Respondek et al. 2017).

Moreover, in the present study, academic achievement and satisfaction were measured mid-course as first-year university has been identified as a time in which adaptability might be of greatest importance (Crossling et al. 2009). However, ultimate achievement and course satisfaction are not entirely known until the end of the course, so the associations in the present study may be subject to change over time. Future research might thus use longitudinal

designs with multiple assessments at different time points (see Collie et al. 2017; Pekrun et al. 2017). Another recognition is the relatively small sample size which meant some parameters attained marginal significance when in fact their absolute value would be considered meaningful. For example, using Keith's (2006) benchmarks for standardized betas, the effect of academic buoyancy to course satisfaction ($\beta = .22$) may be considered a moderate effect size (bordering a large effect size), when significant at $p < .10$.

Finally, although the focus of this study was restricted to individual characteristics connected to self-regulatory processes, it is important to note that other variables were not included in this study including nationality, ethnicity and work status. Also, macro factors at the teaching and institution level including course structure and course size (Green et al. 2015; Vossensteyn et al. 2015) were not considered. For instance, in the current work, while an educationally-meaningful portion of variance in students' academic achievement (14%) and course satisfaction (28%) was explained, considerable variability was left unaccounted for. Future research might include a more comprehensive assortment of predictor variables to help account for some of this unexplained variance.

Conclusion

The present study showed that, beyond the effects of academic buoyancy and academic motivation, adaptability had unique positive associations with both academic achievement and course satisfaction. Greater understanding of the factors (e.g., adaptability) that influence academic outcomes at university will allow universities to better direct their resources to realize and maximize the benefits (to universities and students alike) that higher education promises. Taken together, these findings hold important implications for researchers and educators who may seek to understand how students manage the transition to university and the potential influence this may have on their academic outcomes.

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Disclosure Statement

We can confirm here that no financial interest or benefit has arisen from the direct applications of this research.

References

Association of Graduate Recruiters (2013). Graduate Recruitment Survey 2013. http://www.agr.org.uk/write/Documents/Surveys/The_AGR_Graduate_Recruitment_Survey_2013_Winter_Review.pdf [accessed 21 June 2017]

Bates, E. A., and L.K. Kaye. 2014. "I'd be expecting caviar in lectures": the impact of the new fee regime on undergraduate students' expectations of Higher Education." *Higher Education* 67(5): 655-673. https://doi.org/10.1007/s10734-013-9671-3

Burns, E. C., A.J. Martin, and R.J. Collie, R. 2017. "Understanding the role of adaptability and personal best (PB) goals in students' academic outcomes: A social cognitive perspective." *British Journal of Educational Psychology Monograph Series II*, 12: 111-143.

Buss, D.M. and N. Cantor. 1989. "Introduction". In *Personality psychology: Recent trends and emerging directions*, edited by D. M. Buss and N. Cantor, 1-12. New York, NY: Springer.

Childers, C., K. Williams, and E. Kemp. 2014. "Emotions in the classroom: Examining environmental factors and student satisfaction". *Journal of Education for Business* 89: 7-12. doi: http://dx.doi.org/10.1080/08832323.2012.738258

Collie, R.J., and A.J. Martin. 2016. "Adaptability: An Important Capacity for Effective Teachers. Educational Practice and Theory." 38: 27-39. doi: 10.7459/ept/38.1.03.

Collie, R. J., A.J. Holliman, and A.J. Martin. 2017. "Adaptability, engagement and academic achievement at university." *Educational Psychology* 37(5): 632-647. http://dx.doi.org/10.1080/01443410.2016.1231296

Collie, R. J., A.J. Martin, and J.S. Curwood. 2016. "Multidimensional motivation and engagement for writing: Construct validation with a sample of boys." *Educational Psychology* 36: 771-791. http://dx.doi.org/10.1080/01443410.2015.1093607

Crosling, G., M., M. Heagney, and L. Thomas. 2009. "Improving student retention in higher education: Improving teaching and learning." *Australian Universities' Review* 51(2): 9-18.

Di Pietro, G. 2017. "Degree classification and recent graduates' ability: Is there any signalling effect?" *Journal of Education and Work* 30(5):501-514. http://dx.doi.org/10.1080/13639080.2016.1243230

Douglas, J. A., A. Douglas, R.J. McClelland, and J. Davies. 2015. "Understanding student satisfaction and dissatisfaction: An interpretive study in the UK higher education context." *Studies in Higher Education* 40: 329-349.

Green, H. J., M. Hood, and D.L. Neumann. 2015. "Predictors of student satisfaction with university psychology courses: A review." *Psychology Learning and Teaching* 14(2): 131-146. doi: https://doi.org/10.1177/1475725715590959

Hart, C. 2012. "Factors associated with student persistence in an online program of study: A review of the literature". *Journal of Interactive Online Learning* 11(1): 19-42.

Hattie, J. 2009. "*Visible learning: A synthesis of over 800 meta-analyses relating to achievement."* New York, NY: Routledge.

Heckhausen, J., C. Wrosch, and R. Schulz. 2010. "A motivational theory of life-span development." *Psychological Review* 117: 32-60. http://dx.doi.org/10.1037/a0017668

Johnson, M. L., G. Taasoobshirazi, G., J.L. Kestler, and J.R. Cordova. 2015. "Models and messengers of resilience: A theoretical model of college students' resilience, regulatory strategy use, and academic achievement." *Educational Psychology* 35: 869-885. http://dx.doi.org/10.1080/01443410.2014.893560

Kaye, L. K., and E.A. Bates. 2017. "The impact of higher fees on psychology students' reasons for attending university." *Journal of Further and Higher Education* 41(3): 379-392. DOI: 10.1080/0309877X.2015.1117597

Keith, T. Z. 2006. "*Multiple regression and beyond*." Boston, MA: Pearson Education.

Koen, J., U.C. Klehe, and A.E. Van Vianen. 2012. "Training career adaptability to facilitate a successful school-to-work transition." *Journal of Vocational Behavior* 81(3): 395-408.

Lenton, P. 2015. "Determining student satisfaction: An economic analysis of the National Student Survey." *Economics of Education Review* 47: 118-127. doi:10.1016/j.econedurev.2015.05.001

Lourenco, F., and B.J. Casey. 2013. "Adjusting behavior to changing environmental demands with development." *Neuroscience & Biobehavioral Reviews* 37(9): 2233-2242. doi.org/10.1016/j.neubiorev.2013.03.003

Martin, A. J., and E.C. Burns. 2014. "Academic buoyancy, resilience, and adaptability in students with ADHD." *The ADHD Report* 22, 1-9. http://dx.doi.org/10.1521/adhd.2014.22.6.1

Martin, A. J., and H.W. Marsh. 2008. "Academic buoyancy: Towards an understanding of students' everyday academic resilience." *Journal of School Psychology* 46: 53-83. doi: 10.1016/j.jsp.2007.01.0902

Martin, A. J., H. Nejad, S. Colmar, and G.A.D. Liem. 2012. "Adaptability: Conceptual and empirical perspectives on responses to change, novelty and uncertainty." *Australian Journal of Guidance and Counselling* 22: 58-81. http://dx.doi.org/10.1017/jgc.2012.8

Martin, A. J., H. Nejad, S. Colmar, and G.A.D. Liem. 2013. "Adaptability: How students' responses to uncertainty and novelty predict their academic and non-academic

outcomes." *Journal of Educational Psychology* 105: 728-746. http://dx.doi.org/10.1037/a0032794

Martin, A. J., H. Nejad, S. Colmar, G.A.D. Liem, and R.J. Collie. 2015. "The role of adaptability in promoting control and reducing failure dynamics: A mediation model." *Learning and Individual Differences* 38: 36-43. http://dx.doi.org/10.1016/j.lindif.2015.02.004

Mega, C., L. Ronconi, and R. De Beni. 2014. "What makes a good student? How emotions, self-regulated learning, and motivation contribute to academic achievement. "Journal *of Educational Psychology* 106(1): 121-131. http://dx.doi.org/10.1037/a0033546

Pekrun, R., S. Lichtenfeld, H.W. Marsh, K. Murayama, and T. Goetz. 2017. "Achievement emotions and academic performance: Longitudinal models of reciprocal effects." *Child Development* 88(5): 1653-1670 doi: 10.1111/cdev.12704

Pike, G. R. 1991. "The effects of background, coursework, and involvement on students' grades and satisfaction." *Research in Higher Education* 32: 15-30. https://doi.org/10.1007/BF00992830

Respondek, L., T. Seufert, R. Stupnisky, and U.E. Nett. 2017. "Perceived Academic Control and Academic Emotions Predict Undergraduate University Student Success: Examining Effects on Dropout Intention and Achievement." *Frontiers in Psychology* 8: 243. https://doi.org/10.3389/fpsyg.2017.00243

Ryan, R. M., and J.P. Connell. 1989. "Perceived locus of causality and internalization: examining reasons for acting in two domains." *Journal of Personality & Social Psychology* 57: 749-761. doi:10.1037/0022-3514.57.5.749.

Ryan, R. M., and E.L. Deci. 2007. "Active human nature: self-determination theory and the promotion and maintenance of sport, exercise, and health". In *Intrinsic motivation and*

self-determination in exercise and sport, edited by M. S. Hagger, and N. L. D. Chatzisarantis, 1-19. Champaign, IL: Human Kinetics

Schreiner, L. A., and D.D.Nelson. 2013. "The contribution of student satisfaction to persistence." *Journal of College Student Retention* 15: 73-111. doi: http://dx.doi.org/10.2190/CS.15.1.f

Sears, C. R., M.A. Boyce, S.D. Boon, V.M. Goghari, K. Irwin, and M. Boyes. 2017. "Predictors of student satisfaction in a large psychology undergraduate program." *Canadian Psychology* 58(2): 148-160. doi: http://dx.doi.org/10.1037/cap0000082

Taylor, J., R. Brites, F. Correia, M. Farhangmehr, B. Ferreira, M. Machado, C. Sarrico, and M. Sá. 2008. "Strategic enrolment management: Improving student satisfaction and success in Portugal." *Higher Education Management and Policy*, 20: 129-145. http://dx.doi.org/10.1787/17269822

Vallerand, R. J. 2007. "A hierarchical model of intrinsic and extrinsic motivation for sport and physical activity". In *Self-determination theory in exercise and sport*, edited by M. S. Hagger, and N. Chatzisarantis, 255-280. Champaign, IL: Human Kinetics.

Vallerand, R. J., M.R. Blais, N.M. Briere, and L.G. Pelletier. 1989. "Construction and validation of the Motivation Toward Education Scale." *Canadian Journal of Behavioural Science Revue Canadienne* 21: 323-349.

Vallerand, R. J., L.G. Pelletier, M.R. Blais, N.M. Briere, C. Senecal, and E.F. Valliéres. 1993. "On the assessment of intrinsic, extrinsic, and amotivation in education: Evidence on the concurrent and construct validity of the Academic Motivation Scale." *Educational & Psychological Measurement* 53: 159-172. https://doi.org/10.1177/0013164493053001018

van Rooij, E. C. M., E.P.W.A. Jansen, and W.J.C.M. van de Grift. 2017. "Secondary school students' engagement profiles and their relationship with academic adjustment

and achievement in university." *Learning and Individual Differences* 54, 9-19. doi: 10.1016/j.lindif.2017.01.004

Vossensteyn, H., A. Kottmann, B. Jongbloed, F. Kaiser, L. Cremonini, B. Stensaker, E. Hovdhaugen, and S. Wollscheid. 2015. "Dropout and completion in higher education in Europe: Main report." http://doc.utwente.nl/98513/1/dropout-completion-he_en.pdf [accessed 21 June 2017]

Wach, F. S., J. Karbach, S. Ruffing, R. Brünken, and F.M Spinath. 2016. "University students' satisfaction with their academic studies: Personality and motivation matter." *Frontiers in Psychology* 7(55). doi:10.3389/fpsyg.2016.00055

Winne, P. H., and A.F. Hadwin. 2008. "The weave of motivation and self-regulated learning." In *Motivation and self-regulated learning: Theory, research, and application*, edited by D. H. Schunk, and B. J. Zimmerman, 297-314. New York, NY: Routledge.

Zimmerman, B. J. (2002). "Achieving self-regulation: The trial and triumph of adolescence." In *Academic motivation of adolescents*, edited by F. Pajares, and T. Urdan, 1-27. Greenwich, CT: Information Age Publishing.

Table 1: *Descriptive Statistics for Substantive Variables*

Variables	Mean	Skewness	Kurtosis	Std. Dev.
Adaptability	4.83	-0.01	0.308	0.79
Buoyancy	4.01	-0.11	-0.679	1.36
Motivation	-0.89	0.08	0.689	3.00
Achievement	3.41	-1.17	-0.81	0.73
Satisfaction	3.78	-0.26	1.114	1.01

Table 2: *Correlations (Pearson) Between Variables*

Variables	1	2	3	4	5	6
1. Age						
2. Gender	-.052					
3. Adaptability	.161	-.041				
4. Buoyancy	-.083	-.242*	.563**			
5. Motivation	.201	-.139	.324**	.343**		
6. Achievement	.116	-.099	.347**	.175	.236*	
7. Satisfaction	-.063	.001	.435**	.428**	.361**	.306**

* $p < .05$; ** $p < .01$

Table 3: *Predictors of Academic Achievement*

	B	SE *B*	β	Tolerance	VIF
Step 1					
Buoyancy	.574	.595	.106	.882	1.133
Motivation	.486	.269	.199	.882	1.133
Step 2					
Buoyancy	-.352	.667	-.065	.654	1.528
Motivation	.365	.263	-.150	.857	1.167
Adaptability	3.095	1.133	.335**	.664	1.507

*Note: SE B = standard error for the regression coefficient. * p < .05 ** p < .01.*

Step 1 R^2 change = .066, Step 2 R^2 change = .075

Table 4: *Predictors of Course Satisfaction*

	B	SE *B*	β	Tolerance	VIF
Step 1					
Buoyancy	.258	.075	.345**	.882	1.133
Motivation	.082	.034	.242*	.882	1.133
Step 2					
Buoyancy	.164	.085	.220	.654	1.528
Motivation	.070	.033	.206*	.857	1.167
Adaptability	.311	.144	.244*	.664	1.507

*Note: SE B = standard error for the regression coefficient. * p < .05 ** p < .01.*

Step 1 R^2 change = .235, Step 2 R^2 change = .039