

Zong, Y., Holliman, A. J., Waldeck, D., & Abbott, N. (in press). Examining the Contribution of Motivation, Adaptability, and Buoyancy to Course Satisfaction and Test Anxiety Among University Students. *The Psychology of Education Review*.

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We have no known conflict of interest to disclose.

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Abstract

Individual differences in adaptability, buoyancy, and motivation—each of which are associated with regulatory processes—are theorised to influence course satisfaction and test anxiety among student populations; however, the unique contribution of each has yet to be examined. The present study recruited 156 undergraduate students who completed an online survey measuring adaptability, buoyancy, and motivation (predictor variables), along with their course satisfaction and test anxiety (outcome variables). The results showed that both motivation and adaptability were significant predictors of course satisfaction but not test anxiety, while academic buoyancy significantly predicted test anxiety but not course satisfaction. The findings may inform educators about the importance of supporting students' self-determined motivation, academic buoyancy, and adaptability, to improve their learning experiences.

Keywords: *Motivation; Adaptability; Buoyancy; Course Satisfaction; Test Anxiety; University.*

Introduction

Academic motivation, according to the self-determination theory (SDT, Ryan & Deci, 2018), represents the degree to which behavioural regulation is self-determined (autonomous) or non-self-determined (controlled). More autonomous forms of motivation have been consistently linked to achievement outcomes (e.g., Vansteenkiste et al., 2006); however, its influence on other important educational outcomes, such as test anxiety and course satisfaction (see Holliman et al., 2018), is less well-understood. Additionally, as noted by Martin et al. (2012), it is important to separate motivation from other cognate constructs, such as adaptability (students' ability to make cognitive, behavioural, and emotional adjustments to manage changing, novel, and uncertain events and situations; Martin et al., 2012), and academic buoyancy (students' ability to overcome setbacks, challenges, and difficulties that are part of everyday academic life, Martin & Marsh, 2008), so their respective contributions can be examined. To fill the gap, the present study examines the unique association between academic motivation, course satisfaction, and test anxiety among undergraduate students, by controlling for two cognate constructs: adaptability and academic buoyancy.

Method

Participants and Procedure

All participants ($N = 156$) were full-time undergraduate students from a single Higher Education Institution in the UK. They were self-selectively sampled after responding to a link advertising the survey on the institution's website. Students were aged between 17-24 years ($M = 20.3$, $SD = 1.93$), and 84% were female ($N = 131$). The sample consisted mostly of Asian ($N = 125$), White ($N = 19$), and Black ($N = 5$) participants. Ethical approval for this study was obtained from the institution's Research Ethics Committee.

Measures

Academic Motivation was measured with the Academic Motivation Scale (AMS-C 28) College (CEGEP) version (Vallerand et al., 1993). Each item was measured on a 7-point Likert-scale ranging from 1 (does not correspond at all) to 7 (corresponds exactly). The Relative Autonomy Index (RAI; Ryan & Connell, 1989), was used to indicate the extent to which motivation was self-determined.

Adaptability was measured with the Adaptability Scale (Martin et al., 2012). Each item was measured on a 7-point Likert-scale, from 1 (strongly disagree) to 7 (strongly agree). The scale consists of three items assessing students' ability to make cognitive, behavioural, and emotional adjustment at university ($\alpha = .73$).

Academic Buoyancy was measured with the Academic Buoyancy Scales (Martin & Marsh, 2008). Each item was measured on a 7-point Likert-scale, from 1 (strongly disagree) to 7 (strongly agree). The scale consists of four items to assess student's ability to deal with pressure and setbacks at university ($\alpha = .74$).

Course Satisfaction was measured with Grace et al.'s (2012) Overall Course Satisfaction Scale. Each item was measured on a 5-point Likert-scale, ranging from 1 (strongly disagree) to 5 (strongly agree). This scale consists of five items testing students' satisfaction levels towards the course they are enrolled on ($\alpha = .88$).

Test Anxiety was measured with the Short Test Anxiety Inventory (TAI-5 items, Taylor & Deane, 2002). Each item was measured on a 5-point Likert-scale ranging from 1 (almost never) to 5 (almost always). The scale consists of five items assessing students' emotionality and worry in test situations ($\alpha = .82$).

Results

Descriptive Statistics

Table 1 shows the mean, standard deviation (SD), and distributional data of all key variables in this study. The mean satisfaction score suggests students were overall satisfied

with the course they had taken at university and the mean test anxiety score indicated that students generally felt tense and worried in test situations.

<<TABLE 1 ABOUT HERE>>

Predictors of Satisfaction and Test Anxiety

Hierarchical multiple regression analyses were conducted to test which predictor variables (adaptability, buoyancy, motivation) were best at predicting, and uniquely related to the outcome variables (satisfaction and test anxiety).¹

<<TABLE 2 ABOUT HERE>>

The first regression model showed that adaptability and motivation were both significant predictors of course satisfaction. However, motivation scores, when entered separately, were found to account for an additional 10.8% of the variance. The second model found that Buoyancy was the only significant predictor of test anxiety, and together with adaptability contributed 18% of the variance.

Discussion

Students' academic motivation positively predicted course satisfaction beyond the effects of adaptability and buoyancy, although adaptability was found to also make a unique contribution. These results were in line with Holliman et al.'s (2018) finding that both adaptability and motivation were significant predictors of course satisfaction. Contrary to expectations (OECD, 2017), motivation was not a significant predictor of test anxiety; however, academic buoyancy was able to make a unique contribution. This finding was consistent with prior research that has demonstrated the inverse correlation between buoyancy and test anxiety (Putwain et al., 2016).

¹ For each analysis, we controlled for adaptability and buoyancy in Step 1, and then added motivation in Step 2. Regression assumptions were met.

Although this study is limited in that it employed a correlational design (so a causal relationship could not be determined) and focused solely on quantitative, self-report data, it demonstrates the importance of supporting intrinsically motivated learning at university. The non-significant correlation between motivation and test anxiety implies that high self-determined motivation may not be a protective factor for the development of test anxiety. Therefore, the interventions for reducing test anxiety might instead focus on reducing the risk factors that expose students to develop test anxiety. Furthermore, given the significant predictive power of academic buoyancy on test anxiety, future research could specifically investigate the mechanisms underlying this association.

References

- Grace, D., Weaven, S., Bodey, K., Ross, M., & Weaven, K. (2012). Putting student evaluations into perspective: The Course Experience Quality and Satisfaction Model (CEQS). *Studies in Educational Evaluation*, 38(2), 35-43.
<https://doi.org/10.1016/j.stueduc.2012.05.001>
- Holliman, A. J., Sheriston, L., Martin, A. J., Collie, R. J., & Sayer, D. (2018). Adaptability: Does students' adjustment to university predict their mid-course academic achievement and satisfaction? *Journal of Further and Higher Education*, 43(10), 1444-1455. <https://doi.org/10.1080/0309877X.2018.1491957>
- Martin, A. J., & Marsh, H. W. (2008). Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of school psychology*, 46(1), 53-83.
doi:10.1016/j.jsp.2007.01.002
- Martin, A.J., Nejad, H., Colmar, S. & Liem, G.A.D. (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>
- OECD (2017), PISA 2015 Results (Volume III): Students' Well-Being, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/9789264273856-en>.
- Putwain, D. W., Daly, A. L., Chamberlain, S., & Sadreddini, S. (2016). 'Sink or swim': Buoyancy and coping in the cognitive test anxiety – Academic performance relationship. *Educational Psychology*, 36(10), 1807-1825.
<https://doi.org/10.1080/01443410.2015.1066493>
- Ryan, R. M., & Deci, E. L. (2018). *Self-determination theory: basic psychological needs in motivation, development, and wellness / Richard M. Ryan, Edward L. Deci* (Paperback edition. ed.): New York, NY : The Guilford Press.
- Ryan, R. M., & Connell, J. P. (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.

Taylor, J., & Deane, F. (2002). Development of a short form of the Test Anxiety Inventory (TAI). *Journal of General Psychology*, 129, 127-136.
doi:10.1080/00221300209603133

Vansteenkiste, M., Zhou, M., Lens, W., & Soenens, B. (2005). Experiences of autonomy and control among Chinese learners: Vitalizing or immobilizing? *Journal of Educational Psychology*, 97, 468-483. <https://doi.org/10.1037/0022-0663.97.3.468>

Vallerand, R. J., L. G. Pelletier, M. R. Blais, N. M. Briere, C. Senecal, & E. F. Vallières. (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.
doi:10.1177/0013164493053001018.

Table 1. *Descriptive Statistics for Substantive Variables*

Variables	Mean	Std. Dev.	Skewness	Kurtosis
Motivation	-.168	2.98	.47	.195
Adaptability	5.02	.912	-.842	.936
Buoyancy	3.91	1.16	-.031	-.703
Satisfaction	4.70	1.17	-.758	-.032
Test Anxiety	3.03	.886	.167	-.518

Notes. Adaptability and Buoyancy were scored from 1-7, and Satisfaction and Test Anxiety were scored from 1-5, with higher scores corresponding to higher levels of each respective construct. For Motivation, the RAI scoring protocol was adopted using the formula: $\Sigma [(External \times -2) + (Introjected \times -1) + (Identified \times 1) + (intrinsic \times 2)]$, with higher positive RAI scores indicate greater self-determined motivation, while lower negative scores indicate greater non-self-determined motivation.

Table 2. *Predictors of Course Satisfaction and Test Anxiety*

	<i>B</i>	<i>SE B</i>	β	Tolerance	VIF
<i>Predictors of Course Satisfaction</i>					
Step 1					
Adaptability	.295	.114	.230*	.773	1.294
Buoyancy	.033	.090	.033	.773	1.294
Step 2					
Adaptability	.215	.109	.168*	.752	1.330
Buoyancy	.022	.085	.022	.772	1.295
Motivation	.131	.030	.336***	.959	1.043
<i>Predictors of Test Anxiety</i>					
Step 1					
Adaptability	-.046	.081	-.047	.773	1.294
Buoyancy	-.307	.064	-.400***	.773	1.294
Step 2					
Adaptability	-.052	.082	-.054	.752	1.330
Buoyancy	-.308	.064	-.401***	.772	1.295
Motivation	.011	.022	.035	.959	1.043

Notes. *SE B* = standard error for the regression coefficient; * $p \leq .05$; ** $p < .01$; *** $p < .001$.

Course Satisfaction: Step 1 R² change change = .061, Step 2 R² change = .108

Test Anxiety: Step 1 R² change change = .180, Step 2 R² change = .001