Predictors of academic honesty and success in domestic and international occupational therapy students

Ted Brown
Department of Occupational Therapy, Monash University – Peninsula Campus, Frankston, Victoria, Australia

Stephen Isbel
Occupational Therapy, Faculty of Health, The University of Canberra, Canberra, Australian Capital Territory, Australia

Alexandra Logan
School of Allied Health, Faculty of Health Sciences, Australian Catholic University, Melbourne, Victoria, Australia, and

Jamie Etherington
Department of Occupational Therapy, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Australia

Received 4 December 2018
Revised 25 February 2019
Accepted 25 February 2019

Abstract

Purpose – Academic integrity is the application of honest, ethical and responsible behaviours to all facets of students' scholarly endeavours and is the moral code of academia. The international literature reports the prevalence of academic dishonesty in higher education across many disciplines (including the health

The authors wish to acknowledge the undergraduate occupational therapy students from Monash University, La Trobe University (Bendigo and Bundoora courses), Australian Catholic University (Melbourne, Sydney and Brisbane courses), the University of Canberra and the University of Queensland for volunteering their time to complete the survey. Their input and contributions were invaluable.

Declaration of conflicting interests: The authors declare that there is no conflict of interest.

Funding: The 2016-2017 Faculty of Medicine, Nursing and Health Sciences Learning and Teaching Research Grants Scheme, Monash University provided funding for this study.

Author contributions: Study conception and design: TB.
Data collection, analysis and interpretation: TB, SI, AL, JE.
Manuscript drafting and writing: TB, SI, AL, JE.
Final approval of the manuscript version to be submitted: TB, SI, AL, JE.

Irish Journal of Occupational Therapy
Emerald Publishing Limited
2398-8819
DOI 10.1108/IJOT-12-2018-0022

sciences), and there is evidence linking academic dishonesty in health professional students with future unprofessional behaviour in the workplace. International students are reported to be a particularly vulnerable group. This paper aims to investigate the factors that may be predictive of academic honesty and performance in domestic and international occupational therapy students.

Design/methodology/approach – In total, 701 participants (603 domestic students; 98 international students) were recruited from five Australian universities, and data were collected via a two-part self-report questionnaire. ANOVA and multi-linear regression analyses with bootstrapping were completed.

Findings – Tendency towards cheating and self-perception tendency towards dishonesty in research, gender, age and hours spent in indirect study were found to be statistically significant predictors of academic integrity and performance.

Research limitations/implications – Limitations of this study were the use of convenience sampling and self-report scales which can be prone to social desirability bias. Further studies are recommended to explore other potential predictors of academic honesty and performance in occupational therapy students.

Originality/value – A range of predictors of academic honesty and success were found that will assist educators to target vulnerable domestic and international occupational therapy students as well as address deficiencies in academic integrity through proactive strategies.

Keyword Occupational therapy

Paper type Research paper

Introduction

Within teaching, learning and the wider higher education environment, honesty and integrity are key principles that guide and inform the academic work of all students and faculty (International Education Advisory Council (IEAC), 2013; Watson, 2013). Academic integrity is the moral code of academia whereby students and staff conduct themselves in an ethical and honest manner, value the dissemination of existing and new knowledge, and promote the teaching and acquisition of knowledge and skills in fair, equitable and responsible ways (Turner and Beemsterboer, 2003). Examples of academic integrity include the citation and accreditation of original sources of information and others' research findings in assignments, the accurate reporting of research findings and acknowledging collaboration on assignments or respecting requirements to complete assessment tasks independently (Krueger, 2014).

Since the publication of McCabe's seminal research on cheating among American high school and university students three decades ago, evidence suggests a widespread prevalence of dishonest behaviours exists within higher education, internationally and across many disciplines (McCabe and Trevino, 1997). Research has spanned cohorts of students from a variety of subjects including business, education and the health sciences (Okoroafor *et al.*, 2016; Tsui and Ngo, 2016; Yesilyurt, 2014). The literature also reports the difficulties encountered by institutions in their attempts to redress poor levels of academic integrity in student cohorts, including an apparent lack of knowledge about how to instil and apply the accepted conventions of academic integrity (Bretag *et al.*, 2014), confusion about how academic integrity should be taught in course syllabi, whether it can be taught, whose responsibility it is and how misconduct cases should be handled (Löfström *et al.*, 2015).

This bleak picture is compounded by claims that many students view their actions as acceptable standard academic practice and fail to recognise their behaviours as morally or ethically wrong (Josien and Broderick, 2013). The implications of such a mindset for students graduating in the health professions are serious with studies reporting that students who engage in academically dishonest practices are more likely to exhibit inappropriate professional behaviours later on in their career (Jiang *et al.*, 2013; Johnson, 2013). This has a direct impact on service recipients where, for example, failure to report

fraudulent activity and tendencies for poor ethical decision-making (Krueger, 2014; Medina, 2013) can result in reduced and potentially unsafe quality of patient care (Ryan *et al.*, 2009).

As a result, the past decade has witnessed a perceptible shift in the way higher education authorities advocate for and promote academic integrity among students. Rather than presenting academic integrity as an amorphous concept that all students are expected to adhere to, students are guided to regard the process as being as important as the end-product; that "Integrity is as important as knowledge itself" (Medina, 2013). The holistic approach adopted by many institutions in Australia and elsewhere is reflected in institutions' internal policies and procedures for dealing with breaches of academic integrity standards. Rather than the imposition of draconian measures in response to misconduct cases, such incidences are used as learning opportunities, to offer feedback, champion academic integrity policies and instil in students the need to take responsibility for their own behaviours (Löfström *et al.*, 2015). This is academic integrity as a co-responsibility at the individual and institutional levels *and* also encompassing institutions' duty to improve students' perceptions and understanding of what it means to apply the principles of academic integrity (Bretag *et al.*, 2014).

The empirical literature on academic integrity in occupational therapy students and those from other health-care disciplines cites a range of factors relevant to self-reported dishonest academic behaviours at the undergraduate and graduate levels. These include maturity level, gender, grade point average (GPA), workload, competition with peers, levels of social media use and ignorance of academic integrity policies (Bertram Gallant *et al.*, 2015; Bonsaksen, 2016; Bonsaksen *et al.*, 2017; Mitchell, 2015). Additional factors which have been reported are students' fear of failure, Web-based study frameworks, low satisfaction levels with the teaching and learning environment, ease of cheating on assessments and cost-cutting and credentialism in higher education (Bretag and Harper, 2017; Korn and Davidovitch, 2016). A common research finding is that many breaches are committed unintentionally, often resulting from gaps in students' knowledge about, naivety towards and/or different interpretations of, academic integrity.

Bertram Gallant *et al.* (2015) and Beasley (2016) research on the characteristics and demographics of American undergraduate students reported that being classified as an international student was a primary risk factor for cheating. They found that international students are five times more likely to be reported for cheating and engage in a wider range of dishonest behaviours than their domestic student counterparts. Further studies provide the context for these claims in suggesting that international students enrolling in institutions based on the Western educational model are subject to a unique set of conditions. For example, international students' lack of proficiency in English language skills may lead to them experiencing difficulties in communicating successfully with classmates and academic staff (Lim *et al.*, 2016); culture shock may result in students struggling to adapt to and meet social and academic expectations (Contreras-Aguirre and Gonzalez, 2017); financial and cultural factors can place significant family pressure on students to succeed academically (Edgecombe *et al.*, 2013).

Lim *et al.* (2016) refer to this as "cultural dissonance" which afflicts students transferring from Asian countries with teacher-centred education systems, in which students are not encouraged to voice their own opinions, engage in critical debate, question educators' ideas or challenge accepted knowledge. This leads to difficulties adjusting to Western pedagogical systems that require students to contribute to group discussions, think critically, learn independently and actively engage with supervisors (Wang *et al.*, 2015). The impact of culture and language as determining factors in the academic pathways of overseas health professional students, where difficulties adapting to unfamiliar academic, clinical and social

environments are encountered, is reflected in the medical and nursing literature (Crawford and Candlin, 2013; Gilligan and Outram, 2012; Jeong *et al.*, 2011).

The unique challenges faced by international students are especially relevant in the context of the Australian university system which is likely to see a 30 per cent increase in the intake of international students by 2020, and a forecast growth of 75 per cent per annum (International Education Advisory Council (IEAC), 2013). Occupational therapy programmes are one of the health-related courses that fall in the top ten higher education fields that attract overseas students to study in Australia. The demand for places is driven by a shortage of available places in students' home countries; for example, in mainland China, only three Bachelor of Occupational Therapy programmes are currently offered to address the need for 300,000 allied health professionals to serve an ageing population (Yu *et al.*, 2017). In 2016, it was estimated that 5-20 per cent of all students enrolled in Australian occupational therapy education programmes were international students, originating from China, Hong Kong, Taiwan, Vietnam, South Korea, Malaysia, India and Saudi Arabia (International Education Advisory Council (IEAC), 2013).

The findings from the current study will add to the evidence base on the predictors of academic honesty and success in occupational therapy students (Bonsaksen, 2016; Bonsaksen *et al.*, 2017; Shanahan, 2004; Watson, 2013). This is the first study to investigate such predictors in a cohort of domestic and international occupational therapy students. Identifying the potential factors that usefully predict students' academic honesty and success, and determining how much variability they account for, will facilitate a commitment to informed curriculum design and implementation. The findings will enable academic and fieldwork educators to better identify vulnerable students before breaches are committed and bridge gaps in students' academic skill sets by offering remedial strategies and programmes that support and foster academic integrity.

Improved understanding of the predictors of academic integrity and performance in students will mean that universities are better placed to actively promote academic honesty as a core competence for all students, irrespective of origin. Therefore, this study set out to answer two research questions:

RQ1. What independent factors predict overall classroom and fieldwork academic integrity in domestic and international occupational therapy students?

RQ2. What factors predict academic success in domestic and international occupational therapy students?

Methods

Participants

Domestic and international occupational therapy students enrolled in undergraduate and graduate-entry masters programmes at Monash University, Australian Catholic University, La Trobe University, University of Canberra and the University of Queensland were recruited using a convenience sampling method. In total, 701 participants were recruited of whom 603 (86.02 per cent) were domestic students and 98 (13.98 per cent) were international students. In the context of this study, *domestic students* refer to students who have Australian citizenship or Australian permanent residency, pay domestic university tuition fees and are enrolled in an occupational therapy course in Australia. *International students* in the current study denote students who do not have Australian citizenship, but are from another country, are attending university on a student visa, pay international university tuition fees and are enrolled in an Australian occupational therapy course.

Instrumentation

Students completed either an online or paper-based self-report questionnaire comprising two sections to elicit information about their academic integrity and academic performance. The first section contained demographic questions in which students reported their year level, gender, age, student status (domestic/international; full-time/part-time), academic GPA and number of hours per week spent in direct and indirect academic study, and paid work. GPA refers to the cumulative average or mean grade that a student has earned while enrolled in a specific academic course. It is calculated by adding up all the accumulated final grades for courses/units the student has completed and then dividing the total by the number of grades received. GPA is often used as a summary indicator of a student's level of academic achievement. The second section consisted of five standardised scales that used a Likert scoring system to measure students' general academic integrity, tendencies to engage in dishonest behaviours in the classroom and fieldwork settings, moral development and perceived sources of academic stress.

In the *Academic Dishonesty Scale* (ADS) participants rate 14 academic behaviours and their responses generate a total academic dishonesty cheat score. The scale has reported reliability and validity with evidence of good internal consistency (Cronbach's alpha coefficient of 0.83) (McCabe and Trevino, 1997; McCabe *et al.*, 2001).

The *Academic Dishonesty in the Classroom Setting* (ADCS) and *Academic Dishonesty in the Clinical/Practice Education Setting* scales (ADCPES) (Krueger, 2014) investigate academic behaviours that students may or may not engage in in classroom and field settings. Respondents rate 20 (ADCS) and 9 (ADCPES) behaviours, respectively, in relation to the frequency they have engaged in it and how seriously they regard the behaviour. Responses generate total, seriousness and frequency mean scores. Both instruments have reported reliability and validity (Krueger, 2014).

The *Moral Development Scale for Professionals* (MDSP) measures students' moral development in professions with a high level of responsibility for other people where decision-making has ethical implications. Responses to 12 statements load to four subscales: authoritative standards; public meaning; moral practice; and common values. The MDSP has established validity and internal consistency with a reported Cronbach's alpha coefficient of 0.67 (Skisland *et al.*, 2012).

The *Academic Dishonesty Tendency Scale* (ADTC) examines tendencies to engage in academically dishonest behaviours. Responses load onto four subscales: tendency towards cheating; tendency towards dishonesty in assignments, essays and studies; tendency towards dishonesty in the process of doing and reporting research; and tendency towards dishonesty in providing appropriate references and acknowledgements. Scores of 1.00-1.79 equate to very low tendency and scores of 4.20-5.00 represent very high tendency. The scale has proven reliability and construct validity with Cronbach's alpha coefficients ranging from 0.71 to 0.90 (Eminoglu and Nartgun, 2009).

The *Perceived Academic Sources of Stress* (PASS) scale measures levels of academic stress in university students and responses to the 18 statements load to four subscales: pressures to perform; workload and examinations; self-perceptions; and time restraints. The instrument has established validity and reliability with reported Cronbach's alpha coefficients ranging from 0.50 to 0.60 (Bedewy and Gabriel, 2015).

Data entry, management and analysis

The Statistical Package for the Social Sciences (SPSS), version 22 (IBM Corporation, 2013), was used for data entry, storage and analysis. Results were processed using ANOVA analysis and multi-linear regressions determined if there were any significant predictors of academic honesty and performance in the sample population.

A resampling technique, *bootstrapping*, a type of robust statistic that infers a population from sample data, was used (Chernick, 2007). Sample size is an important consideration when completing ANOVA analysis with comparison of multiple variables because it affects the statistical power and generalisability of the findings. By taking, with replacement, the values from the original sample to obtain 2,000 student bootstrapped samples, the accuracy of the confidence interval (CI) estimation can be improved. For analyses, $p < 0.05$ was considered statistically significant.

Procedures

Ethics committee approval for this project was obtained from the participating universities. Students were asked to complete the self-report questionnaire at the end of a lecture by a non-teaching member of staff. Students were informed that participation was voluntary, and consent was inferred by students completing and submitting the questionnaire. The anonymity of participants was guaranteed, as there was no identifiable information on the questionnaires, and data were analysed on a group basis.

Results

Demographic and academic results

The sample included undergraduate ($n = 609$) and graduate-entry masters (also referred to as pre-registration masters) ($n = 92$) occupational therapy students. The sample was dominated by female students below the age of 25 in their first, second and third years of undergraduate study (Table I). The results show that 69.4 per cent of domestic students had a self-reported GPA in the 60-79 per cent range, while 77.6 per cent of international students recorded self-reported GPAs in the 50-69 per cent band. International students spent more hours per week engaged in direct and indirect academic study than their domestic counterparts, while domestic students recorded more hours in paid work per week.

Instrument scores

On measures of academic honesty, domestic and international students recorded similar scores across the subscales including self-reported frequency and seriousness ratings of engaging in dishonest behaviours in class and field settings (Table II). Domestic students scored higher on three of the scales that measured tendencies to engage in dishonest behaviours: general tendency towards cheating, and tendencies towards dishonesty in the preparation of assignments and projects and the process of doing and reporting research. International students recorded a higher score on the tendency towards dishonesty in providing appropriate references and acknowledgements. Both sets of students recorded similar scores on two measures of moral development – authoritative standards and public meaning – and international students performed better than their domestic counterparts on the moral practice and common values subscales. The scores on the perceived stresses scale indicated that international students felt under greater pressure to perform, exhibited lower levels of self-perception and experienced higher stress levels as a result of workload and time restraints (Table II).

Regression analysis

Regression analysis concentrated on four dependent variables: academic integrity; academic integrity in the classroom setting; academic integrity in the fieldwork setting; and self-reported academic GPA. The results identified a number of statistically significant factors that were predictive of academic honesty and success in the sample group.

	D frequency	D (%)	I frequency	I (%)
Year of enrolment				
1st year undergraduate	144	23.9	28	28.6
2nd year undergraduate	141	23.4	23	23.5
3rd year undergraduate	149	24.7	18	18.4
4th year undergraduate	92	15.3	14	14.3
1st year graduate entry	39	6.5	8	8.2
2nd year graduate entry	38	6.3	7	7.1
Age range				
17-19 years	148	24.6	25	25.5
20-24 years	338	56.1	60	61.2
25-29 years	61	10.1	10	10.2
30-34 years	21	3.5	3	3.1
35-39 years	10	1.7	0	0
40 years or older	25	4.1	0	0
Gender				
Male	165	27.4	28	28.6
Female	438	72.6	70	71.4
Self-reported GPA				
<49%	7	1.2	0	0
50-52%	31	5.1	33	33.7
60-69%	192	31.8	43	43.9
70-79%	227	37.6	8	8.2
80-89%	129	21.4	1	1.0
>90%	17	2.8	13	13.3
	D Mean	SD	I Mean	SD
Hrs/week in face-to-face education	14.64	±5.60	15.64	±6.08
Hrs/week dedicated to independent study	15.49	±9.37	16.89	±10.61
Hrs/week of paid work	11.43	±8.11	3.34	±6.28

Notes: GPA: Grade point average; D: domestic; I: international; SD: standard deviation

Table I. Demographic data, self-reported GPA and time spent in direct education, indirect study and paid work (domestic $n = 603$; international $n = 98$)

Predictors of general academic honesty

Domestic. Six independent variables were included in the regression equation. The model accounted for 4.3 per cent of total variance of the dependent variable ($R^2 = 0.043$, $F(6, 596) = 4.42$, $p = 0.001$) (Table III). Three independent variables made a unique contribution to the model: age (1.6 per cent, $p = 0.020$), GPA (0.94 per cent, $p = 0.009$) and tendency towards cheating (0.83 per cent; $p = 0.033$).

International. The regression equation included nine independent variables. The model accounted for 29.5 per cent of total variance of the dependent variable ($R^2 = 0.295$, $F(9, 88) = 4.09$, $p = 0.001$). One independent variable made a unique contribution to the regression model: gender (11.63 per cent; $p = 0.001$) (Table IV).

Predictors of academic honesty in the classroom setting

Domestic. Eight independent variables were included in the regression equation. The model accounted for 12.3 per cent of total variance of the dependent variable ($R^2 = 0.123$, $F(8, 594) = 10.38$, $p = 0.001$) (Table V). Tendency towards dishonesty in the process of doing and reporting research (3.13 per cent; $p = 0.003$) and tendency towards cheating (3.17 per cent; $p = 0.006$) made unique contributions to the regression model.

Instrument subscales	D Mean	D SD	I Mean	I SD
ADS CHEAT mean total score	14.92	±6.44	15.71	±5.93
ADSC mean cheat frequency score	1.26	±0.35	1.23	±0.24
ADSC mean seriousness rating score	4.22	±0.65	3.99	±0.92
ADCPES mean cheat frequency score	1.11	±0.30	1.12	±0.27
ADCPES mean seriousness rating score	4.61	±0.59	4.45	±0.86
MDSP Factor 1: Authoritative standards	15.54	±1.94	15.30	±1.60
MDSP Factor 2: Public meaning	11.79	±1.41	11.78	±1.22
MDSP Factor 3: Moral practice	13.83	±2.39	14.47	±2.42
MDSP Factor 4: Common values	9.79	±1.58	10.04	±1.70
ADTC Scale 1: Tendency towards cheating	3.84	±0.50	3.73	±0.54
ADTC Scale 2: Tendency towards dishonesty in assignments, essays and studies such as projects	3.12	±0.55	3.10	±0.63
ADTC Scale 3: Tendency towards dishonesty in the process of doing and reporting research	3.92	±0.62	3.76	±0.70
ADTC Scale 4: Tendency towards dishonesty in providing appropriate references and acknowledgements	3.08	±0.55	3.13	±0.64
PASS Factor 1: Pressures to perform	15.20	±2.98	13.96	±3.19
PASS Factor 2: Perceptions of workload and examinations	10.67	±2.62	10.21	±3.29
PASS Factor 3: Self-perceptions	14.20	±2.36	13.39	±2.36
PASS Factor 4: Time restraints	14.70	±2.82	14.48	±3.02

Notes: D: domestic; I: international; SD: standard deviation; ADS: Academic Dishonesty Scale; ADCS: Academic Dishonesty in the Classroom Setting Scale; ADCPES: Academic Dishonesty in the Clinical/Practice Education Setting Scale; MDSP: Moral Development Scale for Professionals; ADTC: Academic Dishonesty Tendency Scale; PASS: Perceived Academic Sources of Stress

Table II. Academic integrity, tendencies towards dishonesty, moral development and perceived stresses comparative mean scores (domestic $n = 603$; international $n = 98$)

International. The regression equation included six independent variables. The model accounted for 25.4 per cent of total variance of the dependent variable ($R^2 = 0.254$, $F(6, 91) = 5.17$, $p = 0.001$). Two independent variables made a unique contribution to the regression model: public meaning (3.28 per cent; $p = 0.044$) and tendency towards cheating (9.92 per cent; $p = 0.033$) (Table VI).

Predictors of academic honesty in the fieldwork setting

Domestic. The regression equation included five independent variables. The model accounted for 6.0 per cent of total variance of the dependent variable ($R^2 = 0.060$, $F(5, 597) = 7.68$, $p = 0.001$) (Table VII). One independent variable accounted for unique variance: gender (2.92 per cent; $p = 0.008$).

International. Three independent variables were included in the regression model. The model accounted for 11.7 per cent of total variance of the dependent variable ($R^2 = 0.117$, $F(3, 94) = 4.17$, $p = 0.008$). One independent variable contributed to unique variance: pressures to perform (6.60 per cent; $p = 0.017$) (Table VIII).

Predictors of self-reported academic performance

Domestic. Six independent variables were included in the regression model. The model accounted for 11.5 per cent of total variance of the dependent variable ($R^2 = 0.115$, $F(6, 596) = 12.90$, $p = 0.001$) (Table IX). Five items contributed to the unique variance of the dependent variable: number of hours per week dedicated to indirect work related to education (2.6 per cent;

Table III.
Predictors of academic honesty of domestic occupational therapy students (n = 603) based on bootstrapped linear regression analysis

	Before bootstrapping							After bootstrapping[b]			
Predictors	B[a]	*SE* B	*β*	*t*	*p*	PC	PC^2	*SE* B	*p*	BCa 95% CI lower	BCa 95% CI upper
(Constant)	25.49	3.236		7.876	0.001			3.729	0.001	17.828	32.966
Age	0.721	0.235	0.127	3.067	0.002*	0.125	0.0156	0.301	0.020*	0.197	1.301
Grade point average	−0.667	0.280	−0.099	−2.377	0.018*	−0.097	0.0094	0.260	0.009*	−1.154	−0.176
MDSP Factor 2: Public meaning	−0.154	0.188	−0.034	−0.820	0.413	−0.034	0.0011	0.215	0.466	−0.556	0.237
ADTC Scale 1: Tendency towards cheating	−1.243	0.554	−0.096	−2.242	0.025*	−0.091	0.0082	0.573	0.033*	−2.488	−0.092
ADTC Scale 3: Tendency towards dishonesty in the process of doing and reporting research	−0.407	0.443	−0.039	−0.918	0.359	−0.038	0.0014	0.476	0.386	−1.380	0.463
PASS Factor 3: Self-perceptions	−0.098	0.114	−0.036	−0.857	0.392	−0.035	0.0012	0.120	0.405	−0.358	0.146

Notes: *Represents statistically significant p-values ($p < 0.05$); Constant = y-intercepts of regression line; B = unstandardised beta coefficient; SE B = standard error for the unstandardised beta; β = standardised beta; t = the t test statistic; CI = confidence interval; PC = Part Correlation; PC^2 = Part Correlation Squared; BCa = bias-corrected and accelerated; MDSP = Moral Development Scale for Professionals; ADTC = Academic Dishonesty Tendency Scale; PASS = Perceived Academic Sources of Stress; [a]B remained unchanged after bootstrapping; [b]unless otherwise noted, bootstrap results are based on 2,000 bootstrap samples

Table IV.
Predictors of general academic honesty of international occupational therapy students ($n = 98$) based on bootstrapped linear regression analysis

	Before bootstrapping							After bootstrapping[b]			
Predictors	B[a]	*SE* B	β	t	p	PC	PC^2	*SE* B	p	BCa 95% CI lower	BCa 95% CI upper
(Constant)	48.35	7.01		6.901	0.001			9.861	0.001	27.160	66.446
Gender	−4.21	1.238	−0.322	−3.400	0.001*	−0.341	0.1163	1.504	0.008*	−7.015	−1.371
# of hours of direct time spent attending occupational therapy education programme each week	−0.092	0.091	−0.095	−1.012	0.314	−0.107	0.0114	0.089	0.292	−0.269	0.080
Grade point average	−0.704	0.689	−0.103	−1.023	0.309	−0.108	0.0117	0.744	0.358	−2.238	0.653
MDSP Factor 2: Public meaning	−0.752	0.462	−0.155	−1.628	0.107	−0.171	0.0292	0.644	0.259	−1.996	0.474
ADTC Scale 1: Tendency towards cheating	−0.788	1.216	−0.072	−0.648	0.518	−0.069	0.0048	1.483	0.594	−3.800	2.590
ADTC Scale 2: Tendency towards dishonesty in assignments, essays and studies such as projects	−0.809	0.987	−0.087	−0.820	0.415	−0.087	0.0076	1.467	0.608	−3.695	2.089
ADTC Scale 3: Tendency towards dishonesty in the process of doing and reporting research	−1.266	1.016	−0.150	−1.246	0.216	−0.132	0.0174	0.978	0.210	−3.311	0.435
PASS Factor 1: Pressures to perform	0.003	0.200	0.001	0.014	0.989	0.001	0.0000	0.181	0.994	−0.353	0.333
PASS Factor 2: Perceptions of workload and examinations	−0.244	0.191	−0.135	−1.276	0.205	−0.135	0.0182	0.159	0.122	−0.577	0.099

Notes: *Represents statistically significant p-values ($p < 0.05$); Constant = y-intercepts of regression line; B = unstandardised beta coefficient; *SE* B = standard error for the unstandardised beta; β = standardised beta; t = the t test statistic; CI = confidence interval; PC = Part Correlation; PC^2 = Part Correlation Squared; BCa = bias-corrected and accelerated; MDSP = Moral Development Scale for Professionals; ADTC = Academic Dishonesty Tendency Scale; PASS = Perceived Academic Sources of Stress; [a]B remained unchanged after bootstrapping; [b]unless otherwise noted, bootstrap results are based on 2,000 bootstrap samples

Table V.
Predictors of academic honesty in the classroom setting of domestic occupational therapy students (n = 603) based on bootstrapped linear regression analysis

	Before bootstrapping							After bootstrapping[b]			
Predictors	B[a]	*SE* B	β	t	p	PC	PC^2	*SE* B	p	BCa 95% CI lower	BCa 95% CI upper
(Constant)	2.538	0.160		15.855	0.001			0.346	0.001	1.982	3.179
Gender	−0.021	0.031	−0.026	−0.672	0.502	−0.028	0.0008	0.036	0.561	−0.099	0.057
No. of hours of direct time spent attending occupational therapy education programme each week	−0.004	0.002	−0.063	−1.613	0.107	−0.066	0.0044	0.002	0.063	−0.008	0.000
No. of hours of indirect time spent attending occupational therapy education programme each week	−0.002	0.001	−0.057	−1.440	0.150	−0.059	0.0035	0.001	0.097	−0.004	0.000
ADTC Scale 1: Tendency towards cheating	−0.129	0.029	−0.183	−4.416	0.001*	−0.178	0.0317	0.046	0.006*	−0.235	−0.045
ADTC Scale 3: Tendency towards dishonesty in the process of doing and reporting research	−0.104	0.024	−0.184	−4.395	0.001*	−0.177	0.0313	0.035	0.003*	−0.184	−0.030
ADTC Scale 4: Tendency towards dishonesty in providing appropriate references and acknowledgements	−0.012	0.026	−0.019	−0.458	0.647	−0.019	0.0004	0.032	0.681	−0.076	0.049
PASS Factor 2: Perceptions of workload and examinations	−0.017	0.006	−0.127	−2.635	0.009*	−0.107	0.0114	0.009	0.060	−0.037	0.001
PASS Factor 4: Time restraints	−0.002	0.006	−0.018	−0.371	0.711	−0.015	0.0002	0.006	0.714	−0.013	0.008

Notes: *Represents statistically significant p-values ($p < 0.05$); Constant = y-intercepts of regression line; B = unstandardised beta coefficient; *SE* B = standard error for the unstandardised beta; β = standardised beta; t = the t test statistic; CI = confidence interval; PC = Part Correlation; PC^2 = Part Correlation Squared; BCa = bias-corrected and accelerated; ADTC = Academic Dishonesty Tendency Scale; PASS = Perceived Academic Sources of Stress; [a]B remained unchanged after bootstrapping; [b]unless otherwise noted, bootstrap results are based on 2,000 bootstrap samples

Table VI.
Predictors of academic honesty in the classroom setting of international occupational therapy students (n = 98) based on bootstrapped linear regression analysis

	Before bootstrapping							After bootstrapping[b]			
Predictors	B[a]	*SE* B	β	t	p	PC	PC^2	*SE* B	p	BCa 95% CI lower	BCa 95% CI upper
(Constant)	36.081	5.986		6.027	0.001			4.976	0.001	27.930	47.647
No. of hours of direct time spent attending occupational therapy education programme each week	−0.153	0.075	−0.130	−2.049	0.043*	−0.210	0.0441	0.106	0.156	−0.402	0.052
MDSP Factor 2: Public meaning	0.757	0.370	0.190	2.046	0.044*	0.210	0.0441	0.334	0.044*	0.207	1.364
ADTC Scale 1: Tendency towards cheating	−3.047	0.964	−0.341	−3.162	0.002*	−0.315	0.0992	1.187	0.033*	−5.663	−0.736
ADTC Scale 3: Tendency towards dishonesty in the process of doing and reporting research	0.120	0.768	0.017	0.156	0.876	0.016	0.0003	0.585	0.842	−0.900	1.139
PASS Factor 3: Self-perceptions	−0.439	0.203	−0.214	−2.167	0.033*	−0.222	0.0493	0.204	0.051	−0.946	−0.046
PASS Factor 4: Time restraints	−0.089	0.160	−0.055	−0.553	0.582	−0.058	0.0034	0.131	0.500	−0.330	0.166

Notes: *Represents statistically significant p-values ($p < 0.05$); Constant = y-intercepts of regression line; B = unstandardised beta coefficient; *SE* B = standard error for the unstandardised beta; β = standardised beta; t = the t test statistic; CI = confidence interval; PC = Part Correlation; PC^2 = Part Correlation Squared; BCa = bias-corrected and accelerated; MDSP = Moral Development Scale for Professionals; ADTC = Academic Dishonesty Tendency Scale; PASS = Perceived Academic Sources of Stress; [a]B remained unchanged after bootstrapping; [b]unless otherwise noted, bootstrap results are based on 2,000 bootstrap samples

Table VII. Predictors of academic honesty in the fieldwork setting of domestic occupational therapy students (n = 603) based on bootstrapped linear regression analysis

	Before bootstrapping							After bootstrapping[b]			
Predictors	B[a]	*SE* B	*β*	*t*	*p*	PC	PC^2	*SE* B	*p*	BCa 95% CI lower	BCa 95% CI upper
(Constant)	1.687	0.122		13.864	0.001			0.291	0.001	1.226	2.257
Gender	−0.114	0.027	−0.171	−4.233	0.001*	−0.171	0.0292	0.039	0.008*	−0.207	−0.041
Age	0.007	0.011	0.025	0.619	0.536	0.025	0.0006	0.008	416	−0.007	0.024
No. of hours of direct time spent attending occupational therapy education programme each week	0.004	0.002	0.084	2.081	0.038*	0.085	0.0072	0.004	0.243	−0.002	0.011
ADTC Scale 1: Tendency towards cheating	−0.091	0.024	−0.152	−3.699	0.001*	−0.150	0.0225	0.050	0.072	−0.215	0.005
ADTC Scale 2: Tendency towards dishonesty in assignments, essays and studies such as projects	−0.035	0.022	−0.066	−1.595	0.111	−0.065	0.0042	0.031	0.262	−0.098	0.029

Notes: *Represents statistically significant p-values ($p < 0.05$); Constant = y-intercepts of regression line; B = unstandardised beta coefficient; *SE* B = standard error for the unstandardised beta; β = standardised beta; t = the t test statistic; CI = confidence interval; PC = Part Correlation; PC^2 = Part Correlation Squared; BCa = bias-corrected and accelerated; ADTC = Academic Dishonesty Tendency Scale; [a]B remained unchanged after bootstrapping; [b]unless otherwise noted, bootstrap results are based on 2,000 bootstrap samples

Table VIII.
Predictors of academic honesty in the fieldwork setting of international occupational therapy students ($n = 98$) based on bootstrapped linear regression analysis

	Before bootstrapping							After bootstrapping[b]			
Predictors	B[a]	*SE* B	β	*t*	*p*	PC	PC^2	*SE* B	*p*	BCa 95% CI lower	BCa 95% CI upper
(Constant)	8.259	1.692		4.881	0.000			1.887	0.001	4.020	11.877
Gender	−0.860	0.537	−0.163	−1.602	0.112	−0.163	0.0266	0.635	0.192	−2.201	0.436
PASS Factor 1: Pressures to perform	0.216	0.084	0.288	2.574	0.012*	0.257	0.0660	0.073	0.017*	0.085	0.364
PASS Factor 4: Time restraints	0.020	0.092	0.026	0.222	0.825	0.023	0.0005	0.104	0.848	−0.166	0.244

Notes: *Represents statistically significant *p*-values ($p < 0.05$); Constant = y-intercepts of regression line; B = unstandardised beta coefficient; *SE* B = standard error for the unstandardised beta; β = standardised beta; *t* = the *t* test statistic; CI = confidence interval; PC = Part Correlation; PC^2 = Part Correlation Squared; BCa = bias–corrected and accelerated; PASS = Perceived Academic Sources of Stress; [a]B remained unchanged after bootstrapping; [b]unless otherwise noted, bootstrap results are based on 2,000 bootstrap samples

Table IX.
Predictors of academic performance based of domestic occupational therapy students (n = 603) on bootstrapped linear regression analysis

	Before bootstrapping							After bootstrapping[b]			
Predictors	B[a]	*SE* B	β	t	p	PC	PC^2	*SE* B	p	BCa 95% CI lower	BCa 95% CI upper
(Constant)	1.967	0.431		4.560	0.001			0.416	0.001	1.094	2.749
Age	0.107	0.034	0.126	3.163	0.002*	0.158	0.0250	0.032	0.002*	0.043	0.173
No. of hours of indirect time spent working on and studying material related to your occupational therapy education programme	0.016	0.004	0.159	3.985	0.001*	0.161	0.0259	0.005	0.002*	0.006	0.027
MDSP Factor 3: Moral practice	−0.033	0.016	−0.083	−2.133	0.033*	−0.087	0.0076	0.017	0.041*	−0.066	0.000
ADTC Scale 1: Tendency towards cheating	0.156	0.075	0.081	2.079	0.038*	0.085	0.0072	0.065	0.016*	0.030	0.281
PASS Factor 1: Pressures to perform	0.020	0.013	0.062	1.535	0.125	0.063	0.0040	0.013	0.114	−0.009	0.046
PASS Factor 3: Self-perceptions	0.065	0.017	0.159	3.908	0.001*	0.158	0.0250	0.017	0.001*	0.028	0.097

Notes: *Represents statistically significant p-values ($p < 0.05$); Constant = y-intercepts of regression line; B = unstandardised beta coefficient; *SE* B = standard error for the unstandardised beta; β = standardised beta; t = the t test statistic; CI = confidence interval; PC = Part Correlation; PC^2 = Part Correlation Squared; BCa = bias-corrected and accelerated; MDSP = Moral Development Scale for Professionals; ADTC = Academic Dishonesty Tendency Scale; PASS = Perceived Academic Sources of Stress; [a]B remained unchanged after bootstrapping; [b]Unless otherwise noted, bootstrap results are based on 2,000 bootstrap samples

$p = 0.002$); tendency towards cheating (0.72 per cent; $p = 0.016$); self-perceptions (2.5 per cent; $p = 0.001$); age (1.6 per cent; $p = 0.002$); and moral practice (0.76 per cent; $p = 0.041$).

International. The regression model included three independent variables. The model accounted for 24.6 per cent of total variance of the dependent variable ($R^2 = 0.246$, $F(3, 94) = 10.22$, $p = 0.001$). Three independent variables contributed to the unique variance of the dependent variable: age (12.04 per cent; $p = 0.002$); tendency towards dishonesty in the process of doing and reporting research (12.74 per cent; $p = 001$); and tendency towards dishonesty in assignments, essays and studies (5.95 per cent; $p = 0.014$) (Table X).

Discussion

This study explored the factors that predict academic honesty and performance in domestic and international occupational therapy students. Subjecting the data to regression analysis identified a range of statistically significant predictors of general, classroom and fieldwork academic honesty and success.

Predictors of general academic integrity

Regression analysis revealed a larger range of predictive factors for domestic students, including GPA, age and tendency towards cheating, compared to the single predictive factor identified for international students (gender). The finding that GPA positively predicted domestic students' academic honesty ($p = 0.009$) should be viewed in context; with nearly 70 per cent of domestic students self-reporting a GPA in the 60-79 per cent range, one might reasonably expect such high-achieving students to apply academic rigour in their studies. The dominance of females across the sample contributes to the contextual setting and the findings mirror previous research associating female gender with high GPAs (Bonsaksen *et al.*, 2017). Although GPA was not a predictor of international students' academic integrity, their GPA scores (which were on average lower compared to domestic students) aligns with the finding that gender is a significant predictor of their general academic honesty ($p = 0.001$).

Across the sample, the data on GPA and gender offer a potential explanation for the low rates of self-reported dishonest behaviours in this cohort of students, compared to studies of other health professional students (Okoroafor *et al.*, 2016). For example, higher incidences of academic dishonesty have been reported in nursing, physical therapy and pharmacy undergraduates (Balik *et al.*, 2010; Montuno *et al.*, 2012; Ryan *et al.*, 2009). The findings from the current study are similar to previous studies of occupational therapy and nursing students in which female gender was found to be a reliable predictor of better academic outcomes, while male gender was associated with poorer academic performance and higher incidences of academic dishonesty (Korn and Davidovitch, 2016; Watson, 2013).

Studies of family medicine and public health students in the USA reveal the influence of age as a risk factor for engaging in dishonest academic behaviours, with rates of cheating aligned to maturity levels (Bertram Gallant *et al.*, 2015). Beasley (2016) suggests that younger students are more likely to be unaware of the rules that constitute academic integrity and the consequences of breaches of expected academic conduct. When considering the demographic factors that predict academic honesty in domestic and international students, the results from this study and elsewhere demonstrate the need to consider the predictive value of variables such as GPA, gender and age in relation to one another and not in isolation (Brown and Murdolo, 2016).

Domestic and international groups recorded similar scores on the ADTC Tendency Towards Cheating subscale (Domestic students, 3.84, SD ± 0.50; International students, 3.73, SD ± 0.54) but only in domestic students was it found to be predictive of general

Table X.
Predictors of academic performance based of international occupational therapy students (n = 98) on bootstrapped linear regression analysis

	Before bootstrapping							After bootstrapping[b]			
Predictors	B[a]	*SE* B	β	t	p	PC	PC^2	*SE* B	p	BCa 95% CI lower	BCa 95% CI upper
(Constant)	2.062	0.539		3.825	0.001			0.561	0.001	0.935	3.062
Age	0.405	0.113	0.323	3.586	0.001*	0.347	0.1204	0.128	0.002*	0.165	0.663
ADTC Scale 2: Tendency towards dishonesty in assignments, essays, and studies such as projects	−0.322	0.132	−0.237	−2.435	0.017*	−0.244	0.0595	0.137	0.014*	−0.615	−0.019
ADTC Scale 3: Tendency towards dishonesty in the process of doing and reporting research	0.443	0.119	0.359	3.711	0.001*	0.357	0.1274	0.123	0.001*	0.193	0.657

Notes: *Represents statistically significant p-values ($p < 0.05$); Constant = y-intercepts of regression line; B = unstandardised beta coefficient; *SE* B = standard error for the unstandardised beta; β = standardised beta; t = the t test statistic; CI = confidence interval; PC = Part Correlation; PC^2 = Part Correlation Squared; BCa = bias-corrected and accelerated; ADTC = Academic Dishonesty Tendency Scale; [a]B remained unchanged after bootstrapping; [b]unless otherwise noted, bootstrap results are based on 2,000 bootstrap samples

academic honesty. This is an important finding as it suggests that asking students to rate statements such as "Using material from a published source in a paper without giving the author credit" and "Copying material and turning it in as your own work" as honest or dishonest behaviours, establishes their tendency to engage in such practices.

Predictors of academic honesty in classroom settings

Within the classroom setting, the measure of tendency towards cheating was a significant predictor of both domestic and international students' academic integrity (Domestic students, $p = 0.006$; International students, $p = 0.033$). For international students, this finding should be considered in the context of the large number of international students enrolled in occupational therapy programmes in Australia. Overseas students increasingly represent a significant proportion of the student body and research indicates that international students from Confucian-based education systems can struggle to adapt to the requirements of Western pedagogy where students are expected to apply critical thinking, be active participants in classroom discussions and become independent learners (Lim *et al.*, 2016). There is also widespread evidence that personal and situational factors are factors in the difficulties encountered by many international students when transitioning to higher education in Australia.

Martirosyan *et al.* (2015) cite poor language proficiency as a primary cause of concern for international students that adversely affects their academic performance inside and outside the classroom. Velliaris and Breen (2016) stress that overseas, students may struggle to conform to the discipline-specific language requirements in their chosen subject – this may be especially so in the health sciences which are laden with medical and anatomical terminology. One recommendation is to support international students from an early stage by offering pathways in academic language and learning preparation; these might include programmes designed to improve writing skills so students learn the importance of incorporating and acknowledging others' ideas in their own assignments; activities to enhance reading comprehension; and initiatives that raise levels of understanding about the importance of following citation and referencing conventions (Velliaris and Breen, 2016).

Such measures will serve to establish culturally sensitive educational environments for international students that facilitate collaborative partnerships and learning. In clarifying the academic behaviour and conduct expected of students, be they preparing an assignment or preparing for an exam, academic integrity is instilled as a core component of learning where the means and processes of learning are as important as the final educational outcomes (Medina, 2013). It would also serve to address misunderstandings about what constitutes dishonest academic behaviour and potentially reduce breaches by vulnerable students.

Although domestic and international students recorded similar scores on the tendency towards dishonesty in the process of doing and reporting research scale, regression analysis found it to be a strong predictor of academic classroom integrity in domestic students only ($p = 0.003$). This suggests that students may be unfamiliar with the protocols regarding the appropriate acknowledgement of others' research and the importance of generating original qualitative and quantitative data in their own research projects. This may reflect contemporary technology and a prevailing "cut and paste" mentality that precludes the application of academic rigour when preparing assignments. In conjunction with regression analysis demonstrating the tendency towards cheating scale's value as a predictor of honest academic behaviours in the classroom, these findings represent useful "red flag" markers.

Deficiencies in academic integrity in the classroom context represent a challenge for educators as high standards in research protocol are essential within the health sciences.

Within occupational therapy, Mitchell (2015) emphasises the importance of students' spending time outside the classroom engaged in authentic fieldwork experiences where the adoption of technical approaches and case-based methods develop students' knowledge of how to conduct and report their own research according to established and accepted protocols.

A positive finding was the high scores recorded by both groups on measures of moral development, although only one subscale – public meaning – was moderately predictive of international students' academic integrity in the classroom setting ($p = 0.044$). It is interesting to note that the items loading to the public meaning factor relate to the importance of meeting others' expectations, paying attention to what people are saying and listening to what people mean by right and wrong – qualities it could be argued that are inherent in traditional Confucian education systems. The high levels of moral development offer encouragement for occupational therapy educators as they provide evidence of a positive moral compass within this cohort of students, irrespective of origin.

Predictors of academic honesty in fieldwork settings

In the practice education setting, regression analysis revealed only one factor, gender ($p = 0.008$), to be predictive of domestic students' academic honesty. This finding is consistent with previous research by Seah *et al.* (2011) that suggests female students are more highly motivated and confident in their academic endeavours. They contend that females are more adept at meeting personal challenges and aware of opportunities to develop their clinical reasoning and relational skills, particularly within female-dominated disciplines such as occupational therapy where educational programmes typically involve concentrated periods of professional practice placements.

Domestic and international students recorded near-identical scores on the pressures to perform scale, but only in international students was it predictive of academic honesty in the field arena ($p = 0.017$). The inference is that while both groups experience the same levels of stress generated by peer and parental pressure, domestic students have a higher coping threshold that allow them to maintain academic standards. It also casts light on the unique challenges faced by overseas students on professional practice placements. Outside the relative "safety" of the lecture theatre or tutorial, the workplace represents a challenging and difficult work environment for students who may lack proficiency in written and spoken English. This can lead to feelings of isolation and alienation (Bertram Gallant *et al.*, 2015) in the practice education setting, often compounded by stress from perceived peer competition and the unrealistic expectations of, and criticism from, academic and/or practice staff and parents.

While the literature reports the academic resilience of Asian students as a result of their experiences of striving to succeed and get ahead within highly competitive Confucian education systems, it is recognised that this can act as a barrier to engaging in the collegiate working practices expected within Western pedagogies (Li, 2017). Lim *et al.*'s (2016) study of students from Hong Kong, Malaysia and Singapore enrolled in an Australian occupational therapy programme describes how international students on placement often felt less competent than domestic students in terms of language proficiency, confidence and ability to express themselves. Expectations to be more assertive, show initiative and participate in activities were particularly stressful for students who were acutely awareness that failure to demonstrate these behaviours could result in placement failure (Lim *et al.*, 2016).

Predictors of academic performance

This section of the study revealed some of the strongest predictors and adds to our understanding of the factors that may influence and contribute to the academic success of

domestic and international occupational therapy students in Australia. Self-perceptions (p = 0.001); number of hours per week spent in indirect education activities (p = 0.002); age (p = 0.002); tendency towards cheating (p = 0.016); and moral practice (p = 0.041) were strong to moderate predictors of academic performance in domestic students. For international students, age (p = 0.002), tendency towards dishonesty in process of doing and reporting research (p = 0.001) and tendency towards dishonesty in process of preparing assignments (p = 0.014) were predictive of academic success.

Domestic students' higher score on measures of self-perception suggests that their familiarity with Western pedagogies facilitates easier navigation through the higher education system compared to their international counterparts. Whereas domestic students are more likely to have experience of teaching formats that emphasise the need to learn independently, contribute to group discussions and apply critical and reflective learning (Wang *et al.*, 2015), international students may initially struggle to meet these requirements. Lim *et al.* (2016) stress the importance of creating culturally sensitive programmes that assist international students to overcome educational and social barriers and ease the transition from their home cultures. Strategic measures at the institutional level targeting English language proficiency and communication with fellow students and university staff have been shown to improve international students' adaptation, resulting in higher self-esteem, better social and academic relationships and enriched personal and educational learning (Contreras-Aguirre and Gonzalez, 2017).

The aim for all students, irrespective of point of origin, should be to demonstrate an in-depth understanding of how to apply theory in multi-disciplinary field contexts that facilitates motivation and self-confidence in their academic endeavours, including an awareness of the importance of academic integrity. In particular, having a good understanding of academic integrity principles before heading out to complete fieldwork placements is essential for domestic and international students.

Regression analysis revealed that age was a significant predictor of academic performance in domestic (p = 0.002) and international (p = 0.002) students. Previous research that has investigated the influence of age in relation to academic integrity is inconclusive. Seah *et al.* (2011), for example, report that students prefer direct structured supervision in the early years of study in contrast to students in their final years of study who are comfortable with hands-off forms of supervision, particularly during field placements. This suggests that students' prior experiences in classroom and practice settings equip them with the necessary skills in independent learning, reflective practice and group work that facilitate self-regulated and specialised academic learning processes. In contrast, other research contends that age is neither a proven predictor of academic performance nor associated with academic success, in occupational therapy students (Shanahan, 2004; Watson, 2013).

The finding that time spent in independent learning – be that reading, researching, completing assignments or preparing for group presentations – was strongly predictive (p = 0.002) of domestic students' academic performance was not unexpected. Previous research has provided evidence that time engaged in self-study activities is related to higher GPAs, improved satisfaction levels and better rates of academic achievement (Bonsaksen *et al.*, 2017). Studies have also determined a positive correlation between year level of academic study and academic performance (Brown and Murdolo, 2016; Richardson, 2010).

At the institutional level, this emphasises the importance of addressing and mitigating the effects of cultural and social barriers that may impact international students' attendance at lectures and active participation in small group work. This is especially pertinent to occupational therapy programmes where the teaching of foundational knowledge such as

occupational science, psychology and physiology is emphasised in the early years of study. In the context of the Monash University occupational therapy programme, a range of didactic and assessment methods are used in the first years of study including scenario-based learning in which students develop their own learning and research objectives based on authentic case studies.

In this context, the finding that tendency towards dishonesty in the process of doing and reporting research ($p = 0.001$) and in the preparation of assignments ($p = 0.014$) are predictive of international students' academic performance is a significant outcome. Overseas' students vulnerability in these areas is of concern for health science educators as following correct research procedures, acquiring proficiency in compiling reports and accrediting the work of others are fundamental requisites in the academic and professional arenas. This highlights the value of assessing students' problem-solving, leadership, practical and presentation skills across years of study to ensure that all students – domestic and international – actively model and promote academic integrity during the course of their studies. Evidence from the occupational therapy literature suggests that programmes in which students are encouraged to be reflective and draw upon their field and class experiences act as a catalyst for the development of sophisticated cognitive skills that allow students to apply their knowledge at a deeper level (Mitchell, 2015). It is therefore recommended that academic programmes incorporate personalised teaching and learning relationships and design assessments as part of a multi-pronged, holistic approach. Allied with culturally sensitive education that recognises the challenges faced by international students, the aim should be to strengthen academic rigour within the class and practice education environment (Bretag and Harper, 2017; Lim *et al.*, 2016).

More specifically, it is suggested that this can be achieved by course content that advocates "best practice" in the application of academic integrity standards, and a culture that rewards good research practice. Löfström *et al.* (2015) recommend that where breaches occur, these should be treated as learning opportunities where the episode is acknowledged, feedback provided to the student and the clear message imparted that students must take responsibility for their own behaviour. Research has also shown the benefits of educational bundles in improving confidence and self-efficacy in areas such as evidence-based practice which provide students with a solid grounding in research and appraisal skills and the appropriate use of citation managers (Bissett *et al.*, 2016).

Prior research indicates that educating students about the academic requirements, standards and tasks expected of them improves overall satisfaction rates with course content (Bonsaksen, 2016). Programmes that place an emphasis on promoting motivation, resilience and resourcefulness facilitate students to meet personal challenges, make the most of opportunities to develop their learning, make the right academic decisions and feel confidence as a student and in their future careers.

Future research

This study identified a range of factors that usefully predict academic honesty and success in domestic and international occupational therapy students. The findings on the influence of age, gender and GPA, allied with new evidence from the tools measuring tendencies to engage in dishonest behaviours and perceived stresses, support and add to the knowledge base on academic integrity and performance. Identifying a range of predictors should assist health science educators in earlier identification of at-risk students and improve their understanding of the strengths and weaknesses inherent in student cohorts. Future research should focus on generating longitudinal and qualitative data to further explore the predictors of academic honesty and performance and establish whether the challenges faced

by particular groups, such as overseas students, change as they progress across year levels. A comparison of domestic and international students enrolled in more subject-based courses (i.e. chemistry, biology, physiology, history, geography, linguistics, etc.) in relation to academic integrity issues would be informative.

Limitations

Finally, there are several limitations to this research: the convenience sampling approach to the recruitment of participants and the use of self-report scales which can be prone to social desirability bias. It is possible that students may not have reported all instances of dishonest academic behaviours they may have engaged in and participants may not have been completely honest in self-reporting their GPAs. However, for ethical reasons it was not possible to retrieve this information from the student records. It is also acknowledged that other factors on which data were not collected may also predict academic integrity and success in students (e.g. living circumstances and socio-economic status).

Conclusion

This study examined a range of demographic and self-measured factors that were predictive of academic honesty and success in domestic and international occupational therapy students. The findings will assist practice educators in offering learning environments that enhance students' educational experiences and self-esteem. The self-reported incidence of cheating behaviours was low in this sample of students compared to studies of other health science students. Educators should nevertheless be aware of the factors that influence students' ability to understand, demonstrate and uphold academic integrity as a routine and essential component of their scholarly endeavours.

International students are a particularly vulnerable group as they are confronted with unique cultural challenges that may compromise their full educational and social integration. Proactive educational and cultural initiatives, including mentoring, language and transitioning programmes, should facilitate the likelihood of positive academic and social outcomes for overseas students and improved understanding of, and commitment to, academic integrity. Further investigation in this area is recommended in this important area of teaching and learning research.

References

Balik, C., Sharon, D., Kelishek, S. and Tabak, N. (2010), "Attitudes towards academic cheating during nursing studies", *Medicine and Law*, Vol. 29 No. 4, pp. 547-563.

Beasley, E.M. (2016), "Comparing the demographics of students reported for academic dishonesty to those of the overall student population", *Ethics and Behavior*, Vol. 26 No. 1, pp. 45-62.

Bedewy, D. and Gabriel, A. (2015), "Examining perceptions of academic stress and its sources among university students: the perception of academic stress scale", *Health Psychology Open*, Vol. 2 No. 2, pp. 1-9.

Bertram Gallant, T., Binkin, N. and Donohue, M. (2015), "Students at risk for being reported for cheating", *Journal of Academic Ethics*, Vol. 13 No. 3, pp. 217-228.

Bissett, K.M., Cvach, M. and White, K.M. (2016), "Improving competence and confidence with evidence-based practice among nurses", *Journal for Nurses in Professional Development*, Vol. 32 No. 5, pp. 248-255.

Bonsaksen, T. (2016), "Predictors of academic performance and education programme satisfaction in occupational therapy students", *British Journal of Occupational Therapy*, Vol. 79 No. 6, pp. 361-367.

Bonsaksen, T., Brown, T., Lim, H.B. and Fong, K. (2017), "Approaches to studying predict academic performance in undergraduate occupational therapy students: a cross-cultural study", *BMC Medical Education*, Vol. 17, p. 76.

Bretag, T. and Harper, R. (2017), "Assessment design won't stop cheating, but our relationships with students might", available at: https://theconversation.com/assessment-design-wont-stop-cheating-but-our-relationships-with-students-might-76394

Bretag, T., Mahmud, S., Wallace, M., Walker, R., McGowan, U., East, J., Green, M., Partridge, L. and James, C. (2014), "'Teach us how to do it properly!' an Australian academic integrity student survey", *Studies in Higher Education*, Vol. 39 No. 7, pp. 1150-1169.

Brown, T. and Murdolo, Y. (2016), "The relationship between approaches to study and academic performance among Australian undergraduate occupational therapy students", *Australian Occupational Therapy Journal*, Vol. 64 No. 3, pp. 218-225.

Chernick, M. (2007), *Bootstrap Methods: A Guide for Practitioners and Researchers*, Wileym, New York, NY.

Contreras-Aguirre, H.C. and Gonzalez, E.G.Y. (2017), "Experiences of international female students in US graduate programs", *College Student Journal*, Vol. 51 No. 1, pp. 33-46.

Crawford, T. and Candlin, S. (2013), "A literature review of the language needs of nursing students who have english as a second/other language and the effectiveness of english language support programmes", *Nurse Education in Practice*, Vol. 13 No. 3, p. 181.

Edgecombe, K., Jennings, M. and Bowden, M. (2013), "International nursing students and what impacts their clinical learning: literature review", *Nurse Education Today*, Vol. 33 No. 2, pp. 138-142.

Eminoglu, E. and Nartgun, Z. (2009), "A scale development study to measure academic dishonesty tendency of university students", *International Journal of Human Sciences*, Vol. 6 No. 1, pp. 215-240.

Gilligan, C. and Outram, S. (2012), "Culturally and linguistically diverse students in health professional programs: an exploration of concerns and needs", *Education for Health*, Vol. 25 No. 1, pp. 40-47.

IBM Corporation (2013), *IBM SPSS Statistics for Windows, Version 22.0*, IBM Corporation, Armonk, New York, NY.

International Education Advisory Council (IEAC). (2013), *Australia – Educating Globally, Commonwealth of Australia*, Canberra, ACT, Australia.

Jeong, S.Y., Hickey, N., Levett-Jones, T., Pitt, V., Hoffman, K., Norton, C.A. and Ohr, S.O. (2011), "Understanding and enhancing the learning experiences of culturally and linguistically diverse nursing students in an Australian bachelor of nursing program", *Nurse Education Today*, Vol. 31 No. 3, pp. 238-244.

Jiang, H., Emmerton, L. and McKauge, L. (2013), "Academic integrity and plagiarism: a review of the influences and risk situations for health students", *Higher Education Research and Development*, Vol. 32 No. 3, pp. 369-380.

Johnson, J.A. (2013), "Does academic dishonesty result in unethical professional practice?", *Journal for Nurses in Professional*, Vol. 29 No. 5, pp. 271-273.

Josien, L. and Broderick, B. (2013), "Cheating in higher education: the case of multi-methods cheaters", *Academy of Educational Leadership Journal*, Vol. 17 No. 2, pp. 93-105.

Korn, L. and Davidovitch, N. (2016), "The profile of academic offenders: features of students who admit to academic dishonesty", *Medical Science Monitor*, Vol. 22, pp. 3043-3055.

Krueger, L. (2014), "Academic dishonesty among nursing students", *Journal of Nursing Education*, Vol. 53 No. 2, pp. 77-87.

Li, H. (2017), "The 'secrets' of Chinese students' academic success: academic resilience among students from highly competitive academic environments", *Educational Psychology*, Vol. 37 No. 8, pp. 1001-1014.

Lim, J.W., Honey, A., Du Toit, S., Chen, Y.-W. and Mackenzie, L. (2016), "Experiences of international students from Asian backgrounds studying occupational therapy in Australia", *Australian Occupational Therapy Journal*, Vol. 63 No. 5, pp. 303-311.

Löfström, T.E., Trotman, T., Furnari, M. and Shephard, K. (2015), "Who teaches academic integrity and how do they teach it?", *Higher Education*, Vol. 69 No. 3, pp. 415-488.

McCabe, D.L. and Trevino, L.K. (1997), "Individual and contextual influences on academic dishonesty: a multicampus investigation", *Research in Higher Education*, Vol. 38 No. 3, pp. 379-397.

McCabe, D.L., Trevino, L.K. and Butterfield, K.D. (2001), "Cheating in academic institutions: a decade of research", *Ethics and Behavior*, Vol. 11 No. 3, pp. 219-232.

Martirosyan, N.M., Hwang, E. and Wanjohi, R. (2015), "Impact of english proficiency on academic performance of international students", *Journal of International Students*, Vol. 5 No. 1, pp. 60-71.

Medina, M.S. (2013), "Promoting academic integrity among health care students", *American Journal of Health-System Pharmacy*, Vol. 70 No. 9, pp. 754-757.

Mitchell, A.W. (2015), "Longitudinal study of occupational therapy students' beliefs about knowledge and knowing", *American Journal of Occupational Therapy*, Vol. 69 No. 2, p. 6902230010.

Montuno, E., Davidson, A., Iwasaki, K., Jones, S., Martin, J., Brooks, D., Gibson, B.E. and Mori, B. (2012), "Academic dishonesty among physical therapy students: a descriptive study", *Physiotherapy Canada*, Vol. 64 No. 3, pp. 245-254.

Okoroafor, A.U., Henning, M.A., Chibuike, O.M. and Rajput, V. (2016), "Disclosing academic dishonesty: perspectives from Nigerian and New Zealand health professional students", *Ethics and Behavior*, Vol. 26 No. 5, pp. 431-447.

Richardson, J.T.E. (2010), "Perceived academic quality and approaches to studying in higher education: evidence from Danish students of occupational therapy", *Scandinavian Journal of Educational Research*, Vol. 54 No. 2, pp. 189-203.

Ryan, G., Bonanno, H., Krass, I., Scouller, K. and Smith, L. (2009), "Undergraduate and postgraduate pharmacy students' perceptions of plagiarism and academic honesty", *American Journal of Pharmaceutical Education*, Vol. 73 No. 6, pp. 1-8.

Seah, C.H., Mackenzie, L. and Gamble, J. (2011), "Transition of graduates of the master of occupational therapy to practice", *Australian Occupational Therapy Journal*, Vol. 58 No. 2, pp. 103-110.

Shanahan, M.M. (2004), "Does age at entry have an impact on academic performance in occupational therapy education?", *British Journal of Occupational Therapy*, Vol. 67 No. 10, pp. 436-439.

Skisland, A., Bjørnestad, J.O. and Söderhamn, O. (2012), "Construction and testing of the moral development scale for professionals (MDSP)", *Nurse Education Today*, Vol. 32 No. 3, pp. 255-260.

Tsui, A.P.Y. and Ngo, H.Y. (2016), "Social predictors of business student cheating behaviour in Chinese societies", *Journal of Academic Ethics*, Vol. 14 No. 4, pp. 281-296.

Turner, S.P. and Beemsterboer, P.L. (2003), "Enhancing academic integrity: formulating effective honor codes", *Journal of Dental Education*, Vol. 67 No. 10, pp. 1122-1129.

Velliaris, D.M. and Breen, P. (2016), "An institutional three-stage framework: elevating academic writing and integrity standards of international pathway students", *Journal of International Students*, Vol. 6 No. 2, pp. 565-587.

Wang, C., Andre, K. and Greenwood, K.M. (2015), "Chinese students studying at Australian universities with specific reference to nursing students: a narrative literature review", *Nurse Education Today*, Vol. 35 No. 4, pp. 609-619.

Watson, J. (2013), "Progression routes and attainment in occupational therapy education: the impact of background characteristics", *British Journal of Occupational Therapy*, Vol. 76 No. 12, pp. 520-527.

Yesilyurt, E. (2014), "Academic locus of control, tendencies towards academic dishonesty and test anxiety levels as the predictors of academic self-efficacy", *Educational Sciences: Theory and Practice*, Vol. 14 No. 5, pp. 1945-1956.

Yu, M.L., Brown, T. and Farnworth, L. (2017), "Embracing international students in occupational therapy higher education in Australia: challenge or asset?", *Australian Occupational Therapy Journal*, Vol. 64 No. 6, pp. 501-504.

Corresponding author
Ted Brown can be contacted at: ted.brown@monash.edu