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Who cheats at university? A self-report study of dishonest academic behaviours in a sample of Australian university students

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Abstract

The present study investigated the dishonest academic behaviours of Australian university students ($N = 954$) and their relationships with demographic factors, academic policy advised to students, academic self-efficacy, and academic orientation. It was hypothesised that higher levels of dishonesty would be associated with low learning-orientation, high grade-orientation, low academic self-efficacy and nonreceipt of information about the rules of cheating and plagiarism. Descriptive analyses revealed high levels of three types of self-reported academic dishonesty: cheating, plagiarism and falsification. Regression analyses revealed demographic variables, academic orientation and academic self-efficacy to have differential predictive value for the three types of dishonesty, underlining the argument that it is misleading to measure academic dishonesty as a unidimensional construct. The results are discussed in terms of implications for strategic interventions and university policy formulation.

Academic dishonesty has many costs beyond the obvious risks to students of being caught. The public would not feel comfortable, or even safe, consulting physicians known to have cheated in physiology and anatomy courses (Chidley, 1997; Glick, 2001). Similarly, investors would be hesitant about consulting an investment adviser who was known to have copied others' work to get through university. The potential cost for tertiary institutions is also high. The problem of student cheating has caused sufficient concern for it to have been the focus of a meeting of the Committee of Australian Vice Chancellors (Contractor, 2001). Concerns about whether academic standards are falling, and cheating increasing, in Australian universities are a regular topic of media attention (Altschuler, 2001; Bantick, 2001; Contractor, 2001). In the competitive tertiary market, universities can ill afford to have their reputations tarnished by reports of cheating.

The media would have us believe that academic dishonesty is rife and is increasing at alarming rates (Bantick, 2001; Schemo, 2001) and yet, despite the strong media interest and obvious concern of the sector, quantitative research on academic dishonesty among Australian university students is scarce. There has been considerable research into perceptions of cheating and dishonest behaviour among Australian high school students (Godfrey & Waugh, 1998; Godfrey, Waugh, Evans, & Craig, 1993; Waugh, Godfrey, Evans, & Craig, 1994) but little investigation at the tertiary level. Croucher (1994, 1995a, 1995b, 1999) examined the incidence of requests for special consideration made by students at an Australian university. Most of these requests related to circumstances affecting the student's ability to sit for an examination, and Croucher reported the rate in 1993 to be more than 12% and following an increasing trend. Of note were the findings that, proportionally, overseas visa students made far more requests than their Australian counterparts and that, over a period of 15 years, female students consistently submitted more special consideration requests than male students. Croucher (1999) has also examined attitudes towards cheating

of students enrolled at a private Australian business college. The study examined the students' attitudes toward cheating but stopped short of asking respondents about their actual behaviours. While the findings of these studies provide invaluable insight, there remains surprisingly little empirical research into dishonest academic behaviours of students in Australian universities.

In a landmark American study, Bowers (1964) surveyed more than 5000 students on 99 campuses and reported that an alarming 82% of students admitted to at least one instance of cheating on written assignments. A study by McCabe and Trevino (1993) received 6000 responses to a survey mailed out to students in 31 American colleges, and found that 67% of respondents admitted to cheating at least once during their academic career. As many as 41% of the sample reported that they had cheated on undergraduate exams at some time.

However, inconsistencies in methodologies and the operational definition of terms make it difficult to compare such results. A number of studies examine only a particular piece of academic work, for instance a major assignment, or an end-of-semester examination (e.g., Antion & Michael, 1983; Ward, 1986). Still others ask students to report their behaviour over an entire degree program (e.g., Roig & DeTommaso, 1995). Pullen, Ortloff, Casey and Payne (2000) measured observed behaviours by collecting discarded cheat-sheets and analysing their content. Others have used experimental designs to identify potential cheats (e.g., Drake, 1941; Monte, 1982). Most studies, however, have relied on self-reported measures of cheating behaviours (McCabe & Trevino, 1996).

The existence and costs of academic cheating have been well established by the studies reported above. It is, however, imprudent to generalise overseas findings to the Australian context. In their cross-national study Waugh et al. (1994) found many differences in perceptions about cheating behaviour and attitudes between senior high school students from Australia, Costa Rica, the former East Germany, West Germany, Austria and the United States. For example, the students differed in their perceptions of which behaviours could be considered to be cheating, the Australian students being less inclined than American students to agree that using ideas from a book or paper without proper citation could be considered cheating.

The types of cheating that have been reported in the literature are broadly divided into two groups: cheating on assignments and cheating on tests and exams. Cheating on assignments is largely related to plagiarism and includes citing references not actually consulted or copying portions of text from reference sources or another student's work without acknowledgment. Another type of assignment-cheating involves collaboration with other students where that has been prohibited, the acceptability of which varies strongly according to cultural background (Godfrey et al., 1993). Test and exam cheating behaviours encompass a broad range of activities, including cheat-sheets, high-tech gadgetry, and the use of hand or foot signals (Croucher, 1994).

Demographic variables that have been found to correlate with cheating behaviour include age, gender, grade-point average and area of study. Older university students are significantly less likely to cheat than younger ones (Kerkvliet & Sigmund, 1999). Early studies found that male students engaged in more dishonest academic behaviours than female students, and this finding was generally attributed to sex role socialisation theory (Hendershott, Drinan & Cross, 1999). However, Crown and Spiller (1998) report that the trend for the relationship of gender to cheating is shifting. The gender difference became insignificant in studies reported during the 1980s and 1990s (Evans, Craig, & Mietzel, 1991), and the balance now appears to be shifting toward more cheating by female students (Graham, Monday, O'Brien, & Steffen, 1994). Grade-point average (GPA) is reported as having a negative correlation with cheating such that students with lower average grades are more likely to cheat than those with better grades (Kerkvliet & Sigmund, 1999; Scheers & Dayton, 1987). In investigating the effect of field of study, McCabe and Trevino (1993) found substantial differences in dishonest behaviours among students from different faculties, with business students admitting to the most cheating, ahead of engineering, then science and finally humanities students. Other studies have found that students from scientific and technological courses cheat significantly more than their counterparts from other faculties (Croucher, 1994).

There is reasonably strong support for the relationship between situational variables and academic dishonesty. Houston (1977) and Corcoran and Rotter (1987) have shown that cheating is more probable when detection is improbable. Kerkvliet and Sigmund (1999) found that students given verbal reminders about cheating were significantly less likely to cheat than those who received only the standard written warnings in handouts. Cheating levels have been found to be significantly lower in American colleges that have honour codes, whereby students promise, or contract, to not cheat (McCabe & Trevino, 1993; McCabe, Trevino, & Butterfield, 2001). Interestingly, Australian researchers Godfrey and Waugh found that students in religious high schools (Godfrey & Waugh, 1998) and independent schools (Godfrey & Waugh, 1997) found it difficult to believe that an honour system would have any

effect on the incidence of academic dishonesty. Although many situational correlates of academic dishonesty have been investigated (see Whitley, 1998, for an excellent overview), others, such as the emerging question of impact of increased workload, both academic and paid employment, have received relatively little attention to date.

A psychological construct that may be related to academic dishonesty is academic orientation, a construct that reflects a person's orientation towards learning for its own sake, or the achievement of good grades. Eison (1981) developed the LOGO scale to measure whether students held primarily a learning orientation or a grade orientation. Roedel, Schraw and Plake (1994), working from a similar conceptual framework, developed the Goals Inventory to measure academic orientation. These authors determined that academic orientation was not a continuous measure as posited by Eison, but rather comprised two separate constructs whereby it is possible for a person to score highly on both orientations. Such a person would be one who was concerned with the quality of their learning and with the achievement of a minimum level of grade. Regardless of whether academic orientation is conceptualised as a uni- or bi-dimensional construct, it seems intuitively obvious that students who are low on learning orientation may be more likely to approach their studies with the view that achievement of a good grade justifies dishonest means of attaining it. The cross-cultural study by Davis, Noble, Zac and Dreyer (1995) found that Australian students were more learning oriented and less grade oriented than the American students in the study.

Another psychological construct of interest in the quest to understand motivation for dishonest behaviours is that of academic self-efficacy. Self-efficacy can be broadly defined as an individual's belief in their own abilities to succeed in a particular endeavour (Bandura, 1997). Self-efficacy is born of prior experience and success and has been found to influence level of performance, effort, persistence and thought patterns (Wood & Locke, 1987). According to Bandura, self-efficacy should be viewed as situation-specific in that any individual may have high self-efficacy for one set of specific behaviours and low for another. In this way even the most outwardly confident and successful people may have very limited beliefs in their ability to perform in specific areas of their lives. Academic self-efficacy relates to the assessment of one's own particular study-related skills, such as the ability to avoid distractions, confidence to approach a lecturer or tutor for help or clarification of a misunderstood point, the ability to present to a group of peers, and one's perceived ability to perform well in examinations.

Although there has been a great deal of interest in academic dishonesty over the years, the vast majority of studies have been interested in measuring levels of incidence of cheating behaviour rather than proposing and testing theoretical models to explain the behaviour.

In a review of the literature on collegiate cheating and its relationship to ethical decision making, Crown and Spiller (1998) suggest that models of ethical decision making within organisations can be usefully applied to the study of academic cheating. Trevino (1986) developed such a model, which proposes that unethical business decisions can be predicted by an individual's stage of cognitive moral development moderated by both individual and situational variables. From the discussion above, it can be seen that this model could easily be adapted to depict the known and hypothesised predictors of academic dishonesty. As with organisational dishonesty, it is proposed that the role of both individual and situational variables should be recognised in any prediction of dishonest academic behaviour. A model is proposed (Figure 1), which postulates that the decision to engage in a dishonest academic behaviour is determined by the demographic, situational and personality variables in force when a student must prepare for an examination or submit an assignment. The demographic variables proposed to bear a relationship with dishonest behaviour include age, gender, average grade, year of study and the course type in which a student is enrolled. Although many American studies (e.g., Kidwell, 2001; McCabe & Trevino, 1993) have noted the relationship between honour codes and dishonest behaviour, these are virtually unknown in Australian universities. In the present study, the situational variable under investigation is the perception that a student holds about the information he or she has received regarding the university's policy on plagiarism and other forms of cheating. The psychological variables investigated in the present study are limited to academic self-efficacy and academic orientation. The authors do, however, recognise that these two constructs are merely representative of the many different psychological variables that may hold a meaningful relationship with academic dishonesty.

The study was interested in both the prevalence of different types of cheating behaviours engaged in by Australian university students and the factors that may usefully predict these behaviours. Three distinct types of dishonest academic behaviour were operationalised: cheating, plagiarism and falsification. Cheating was defined as dishonest behaviour in a test or exam situation, with possible cheating behaviours including copying from other students, using non-permitted notes, obtaining information about a test from someone who attended an earlier session, and
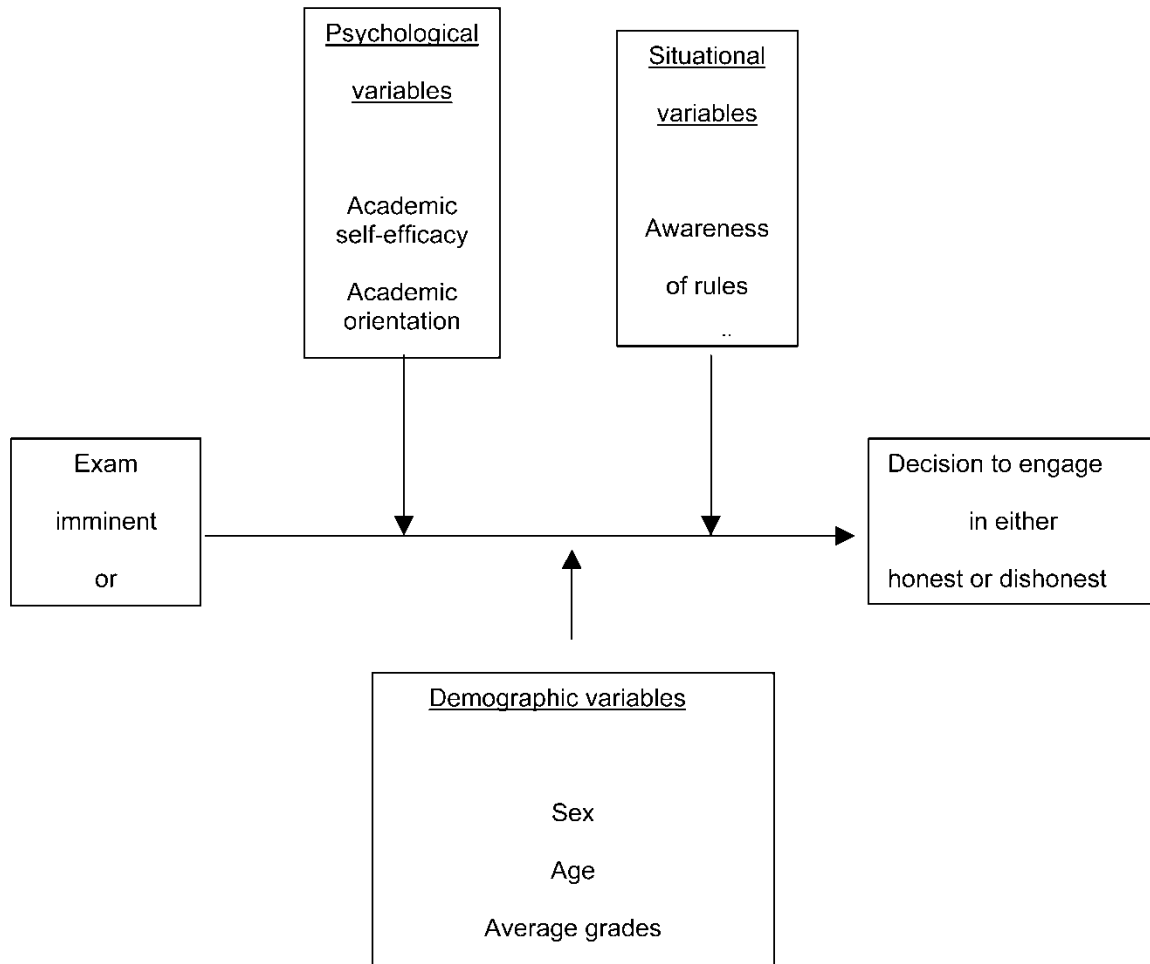
Figure 1. Model of decision making in dishonest academic behaviour.

otherwise inappropriately obtaining questions prior to an exam. Plagiarism behaviours ranged from neglecting to reference short passages of text to copying another's work in its entirety. Falsification was operationalised as any behaviour deliberately designed to gain academic advantage by misrepresentation, for instance falsifying attendance records or feigning illness to gain an extension for a due date.

In addition to measuring the prevalence of cheating in the sample, three sets of theoretical hypotheses were tested. The first set of hypotheses assessed relationships between dishonesty and the demographic variables, specifically predicting that: (a) younger students would cheat more than older students; (b) business and science students would cheat more than humanities students; (c) students with lower average grades would cheat more than those with higher averages; (d) latter year students would cheat more than first years who have not yet learned the "tricks of the trade"; (e) no significant difference would be related to gender; and (f)

international students would plagiarise more because of cultural and language difficulties.

The second set of hypotheses was related to the situational variable, specifically predicting that students who report having been informed of the rules regarding cheating and plagiarism will report lower levels of those behaviours than students who do not recall having been informed. The final set of hypotheses related to the psychological variables, and predicted that both high learning orientation and high academic self-efficacy will be associated with lower rates of dishonesty. Conversely, it was hypothesised that both high goal orientation and low academic self-efficacy would be associated with higher rates of dishonesty.

Method

The participants were 954 students (44% male) enrolled in 12 faculties from four Australian universities. The students ranged in age from 17 to 54

years, with a mean of 22.4 years. Participation was during class time and was both anonymous and voluntary. The refusal rate was < 5%.

A four-part self-report questionnaire comprised the following measures: Part A contained eight items designed to collect demographic information relevant to the study. Two further items in this part were designed to measure the situational variables regarding receipt of rules about dishonesty. Closed questions were used to ascertain whether or not respondents had received information about such rules. For those who answered ''yes'', open-ended questions provided the opportunity to state how the information had been provided.

A 19-item self-report questionnaire was adapted from the Academic Practices Survey of Roig and DeTommaso (1995) and from the Academic Integrity Survey of McCabe (2001). The present instrument consisted of 19 items relating to the three types of academic dishonesty: exam cheating (''cheating''; 8 items), plagiarism (8 items) and falsification (3 items). Items such as ''Since starting university how often have you … used unpermitted notes (or cheat-sheet) during a test or exam?'' and ''…claimed that you submitted an assignment when you didn't?'' were rated on a 5-point scale ranging from 1 (*never*) to 5 (*many*). Average item scores were obtained for the three subscales and ranged from 1 to 5, with higher scores indicating a greater frequency of cheating behaviours. The three subscales had moderate internal reliability with Cronbach alpha coefficients of .75 (cheating), .71 (plagiarism) and .48 (falsification).

The academic orientation scale consisted of 17 items designed to assess whether a student possesses a learning and/or a grade orientation. The scale was adapted from two American scales, the LOGO (Eison, 1981) and the Goals Inventory (Roedel et al., 1994). Eight items with strong face validity for use with an Australian sample were taken from each of these two measures, together with one filler item from the Goals Inventory, and minor adjustments were made to the language. Eight of the items were phrased in such a way that students with a learning orientation would be likely to agree with them; and the other eight items, such that students with a grade orientation would agree with them. Learning-oriented students would be expected to disagree with the grade-oriented items and vice versa.

Eison (1981) reports strong consensual, predictive and experimental validity for the LOGO, and moderate test–retest reliability ($r = .48$). Internal reliability was tested by measuring inter-item correlations. Eison reports that, although correlations were found to be quite low, they were consistently in the expected direction.

Roedel et al. (1994) used factor analysis on the Goals Inventory to reveal two uncorrelated factors accounting for 64% of the total sample variance. Cronbach alpha coefficients of .80 and .76 were reported for the learning and performance (goal) subscales respectively. Roedel et al. argue that these two subscales should be used as independent measures, rather than measuring academic orientation as opposing ends of a single continuum. In keeping with this theoretical perspective, the present instrument was factor analysed using a forced two-factor solution (Roedel et al., 1994). Principal components factor analysis was performed using a varimax rotation resulting in five items loading cleanly on the learning subscale ($\alpha = .45$) and five on the grade subscale ($\alpha = .53$). The averaged scores for each of the scales had possible ranges of 0–5, with higher scores indicating a greater orientation.

The academic self-report measure scale was constructed specifically for use in the current study based on the guidelines outlined by Bandura (2000). It consisted of 15 academic self-efficacy statements about beliefs that university students may hold about themselves. Items such as ''How well do you believe you can discriminate between the more important and less important aspects covered in a subject?'' are rated on a 5-point scale ranging from 1 (*very poorly*) to 5 (*very well*). A total averaged score ranged from 1 to 5 and the scale was recoded so that higher scores indicated higher levels of academic self-efficacy. The scale showed good face validity, and reported a high internal consistency with a Cronbach alpha of .85.

Results

Descriptive statistics for the measure of dishonest academic behaviour are presented in Table I, which reports mean scores on each of the three subscales (cheating, plagiarism and falsification) by demographic category.

The mean scores for both learning orientation ($M = 2.92$, $SD = 1.22$) and grade orientation ($M = 2.94$, $SD = 1.37$) were above the scales' midpoints, indicating that, on average for the sample, both learning and grade orientations were generally high. The mean score for academic self-efficacy ($M = 3.47$, $SD = 0.56$) is well above the scale's midpoint, indicating generally high academic self-efficacy for the current sample.

Demographic factors

Chi-square analyses were conducted between the three types of academic dishonesty and the demographic variables of sex, age, course type, year of study, international status, full- or part-time enrolment, and average grade. Significant associations

Table I. Dishonest academic behaviour: Mean scores (possible range 0–5)

		Cheating		Plagiarism		Falsification	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*
Sex							
Male	422	1.23	0.40	1.63	0.56	1.18	0.40
Female	532	1.12	0.24	1.48	0.47	1.15	0.33
Age (years)							
18–24	793	1.19	0.35	1.60	0.53	1.18	0.38
25–54	161	1.05	0.15	1.30	0.36	1.07	0.22
Course type							
Economics/Accounting	289	0.40	0.49	0.80	0.40	0.23	0.42
Engineering	146	0.56	0.50	0.89	0.31	0.23	0.42
Sciences	349	0.39	0.49	0.79	0.79	0.26	0.44
Journalism/Literature studies	170	0.34	0.48	0.81	0.81	0.31	0.46
Year of study							
1	167	1.08	0.19	1.37	0.35	1.15	0.32
2	388	1.19	0.37	1.55	0.53	1.16	0.37
3	285	1.17	0.32	1.59	0.51	1.17	0.34
4	83	1.24	0.38	1.75	0.66	1.24	0.50
Postgraduate	31	1.15	0.25	1.54	0.55	1.13	0.34
Enrolment							
Part-time	117	1.10	0.28	1.43	0.45	1.13	0.30
Full-time	837	1.18	0.33	1.57	0.53	1.17	0.37
International student	87	0.44	0.50	0.74	0.44	0.25	0.44
Noninternational	867	0.41	0.49	0.82	0.38	0.26	0.44
Average grade							
Pass	222	1.21	0.39	1.61	0.57	1.21	0.39
Credit	498	1.18	0.34	1.57	0.53	1.17	0.38
Distinction	197	1.11	0.20	1.46	0.43	1.11	0.30
High Distinction	37	1.09	0.15	1.38	0.31	1.11	0.24

were found for both cheating and plagiarism with sex, age, course type, year of study and full- or part-time enrolment, such that male students aged under 25 enrolled in full time study were found to report higher levels of both cheating and plagiarism.

A series of independent *t* tests revealed significant differences between types of courses, with engineering students being significantly more likely to cheat than students from all the other disciplines. Differences between other types of courses were nonsignificant. First-year students were significantly less likely to cheat than students from all other years of study, and less likely to plagiarise than all other year levels except postgraduate. No significant differences were found between any other year levels.

For falsification, significant associations were found with age, full- or part-time status and average grade. Young, full-time students were more likely to engage in these behaviours and independent *t* tests revealed that pass and credit students were significantly more likely to engage in falsification behaviours than were distinction students.

Situational factors

Chi-squared analysis revealed no significant associations, in either direction, between students' self-reported receipt of rules about cheating or plagiarism and any of the three forms of academic dishonesty.

Psychological factors

Correlations between the hypothesised predictors and reported dishonest behaviours were computed and are presented in Table II. Higher learning orientation was strongly associated with being female, over 25, studying science, having higher than average grades and having high academic self-efficacy. Higher grade orientations were associated with being under 25, having a higher average grade and studying full time. High academic self-efficacy was strongly associated with being female, over 25, studying sciences, and being in later years of study. High self-efficacy was also strongly associated with both higher learning orientation and higher average grades.

Predicting cheating

To determine the unique contribution of the predictors of cheating behaviour within a multivariate model, a multiple regression analysis was undertaken. Because the dependent variable (cheating) was dichotomised, a sequential logistic

Table II. Intercorrelations between hypothesised predictors and dishonest behaviours

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Sex (male)		-.07*	.08*	.36**	-.24**	-.13**	.05	.04	.02	-.17**	-.06	-.15**	.09**	.15**	-.01
2. Age (under 25)			.04	-.16**	.14**	-.08*	.20**	-.43**	.11**	.22**	-.09**	.09**	-.16**	-.19**	-.13**
Course Type															
3. Economics/finance				-.28**	-.50**	-.31**	.17**	-.04	-.11**	-.12**	.04	-.10**	-.02	-.05	-.04
4. Engineering					-.32**	-.20**	.05	.12**	.20**	-.11**	-.03*	-.15**	.13**	.07**	-.02
5. Sciences						-.35**	-.01	-.09**	.03	.20**	.02	.17**	-.03	-.02	.00
6. Journalism/literature							-.24**	.06	-.10**	-.01	-.04	.04	-.07*	-.03	.06
7. Year of study								-.11**	.15**	.03	-.00	.14**	.09**	.16**	.02
8. Full-time status									.02	-.04	.07*	.02	.11**	.09*	.07*
9. Average grade										.20**	.13**	.39**	-.06*	-.12**	-.12**
10. Learning orientation											.02	.41**	-.12**	-.23**	-.14**
11. Grade orientation												.07*	.09**	.07*	.02
12. Academic self-efficacy													-.10**	-.17**	-.13**
13. Cheating behaviour														.52**	.28**
14. Plagiarism															.18**
15. Falsification															

Note. Statistically significant at **p < .01, *p < .05 (two-tailed).

regression was performed to assess prediction of membership into one of the following two categories: never cheated or cheated at least once. In Step 1, the demographic predictors sex, age, year of study, full/part-time status, and course were entered. The regression coefficients for age, year of study, and engineering attained significance, while sex, full- or part-time enrolment and the other course types did not. All coefficients were in the hypothesised direction. In the second step, learning and grade orientation were entered and both had significant coefficients and a significant change in chi-square. Both coefficients were in the expected directions such that less learning orientation and more goal orientation were associated with higher rates of cheating. The demographic predictors from Step 1 retained their levels of significance. With the addition of academic self-efficacy into the model in Step 3, both course type and learning orientation became nonsignificant, suggesting that learning orientation is mediated by academic self-efficacy. The Nagelkerke R^2 value after the third step indicated that approximately 10% of the variance in cheating behaviours was accounted for by the model.

Predicting plagiarism

To assess the relative contributions of the hypothesised predictors of plagiarism, a three-step hierarchical ordinary least squares multiple linear regression was conducted. Those demographic variables having a significant bivariate relationship with plagiarism were entered first into the regression model, and explained a significant 10.6% of the variance, $F(10,943) = 11.23$, $p < .001$. Sex, age and year of study were all significant predictors of plagiarism, while full- or part-time status and course type failed to achieve significance. In the second step, the two measures of academic orientation were added to the model and explained a further significant 4.3% of the variance, $F(2,941) = 23.99$, $p < .001$. Both learning and grade orientations attained significant coefficients. The demographic predictors all retained their previous levels of significance.

In the final step, after controlling for the effects of demographic variables and academic orientation, academic self-efficacy was added to the model and explained an additional and significant 1.7% of the variance, $F(1,940) = 18.71$, $p < .001$. All the demographic variables retained their previous levels of significance except for the course types science and journalism/literature, which became significant in the third step, indicating that, when all other factors were controlled for, students in science and journalism/literature plagiarised more than engineering students. Both learning and grade orientations

retained significance, and academic self-efficacy attained a significant coefficient.

Predicting falsification

Because the dependent variable (falsification) was dichotomised, a sequential logistic regression was performed to assess prediction of membership into one of the two categories, never falsified or falsified at least once. In Step 1, the demographic predictors age, full- or part-time status and average grade were entered. The regression coefficients for age and average grade attained significance, while full- or part-time status did not. All coefficients were in the hypothesised direction. In Step 2, learning and grade orientations were entered and attained a significant change in chi-square. Only learning orientation attained significance, and the coefficient was in the expected direction such that less learning orientation was associated with a higher rate of falsification. The demographic predictors from Step 1 retained their levels of significance. Academic self-efficacy was entered into the model in Step 3 but the addition failed to attain a significant change in chi-square, while average grade and age both retained their significance. Learning orientation remained significant, but its effect was partially mediated by academic self-efficacy. The Nagelkerke R^2 value after the third step indicates that approximately 6.7% of the variance in falsification behaviours was accounted for by the model.

Discussion

The popular press would have us believe that cheating among Australian university students is at an all-time high and still on the rise. Among the current sample, 41% of students admitted to cheating and 81% to plagiarism, while 25% confessed that they had engaged in falsifying records or dishonest excuse-making. While there is no empirical evidence to support the popular contention that dishonesty is on the rise, the present research provides a benchmark against which future measures of dishonest behaviours among Australian university students can be compared.

This study assessed the predictive validity of a model of academic decision making in relation to dishonest behaviours of university students. It examined a combination of demographic, situational and personality factors in an effort to predict three types of academic dishonesty: cheating, plagiarism, and falsification. Overall, the regression analyses found that the hypothesised predictors were successful in predicting a moderate amount of variance in the three measures of cheating.

By conceptually dividing academic dishonesty into three discrete areas of behaviour and conducting separate analyses for each variable, it has become clearer that the three classifications do represent distinct forms of student cheating behaviour. Although cheating and plagiarism shared some of the same predictors (i.e., sex, year of study and academic self-efficacy), the strengths of the relationships were not identical, which indicates that certain factors may be relatively more important in predicting some types of behaviours. Falsification was shown to share very few predictors with either of the other types of dishonesty; it was instead predicted by age, average grade and learning orientation. Treating all types of dishonest academic behaviour (from citing a secondary reference as a primary source to using electronic communication devices in an exam) as global "cheating", may be preclusive to uncovering the predictors and correlates of these behaviours.

The psychological constructs of learning orientation and self-efficacy were found to bear strong relationships to all three forms of dishonesty, a finding that could have significant policy implications for universities and would benefit from further investigation. Similarly, the finding that male students reported more dishonest behaviours than female students, runs contrary to the results of some recent overseas studies and should be investigated further. As with any measure of a construct this diverse, there remain many other possible predictors and correlates that deserve attention in future studies. One such issue is the potential impact of student workload (both assignment load and paid employment) on dishonest behaviour.

The behavioural differences found between students from different course types are probably confounded by other factors in the present study, particularly gender. For example, the vast majority of engineering students in the sample were male, and male students were shown to report higher levels of dishonesty. Likewise, most of the journalism and literature students were female. There is scope here for further investigation of gender-related differences within course specialisations. The differences could also be related to variables not measured by the present study, such as workload or variations in discipline or institution assessment policy. It is feasible that some courses place higher demands on students in terms of assignment load, and that this is related to the higher rates of dishonesty found in those courses. Similarly, students whose marks are moderated to fit a normal distribution may feel more pressure to compete dishonestly with their peer group to improve their relative grades. The finding that later-year students behave more dishonestly than first years may be a simple function of later-year

students having had more opportunity to cheat, or it could be that first-year students have not yet learned the tricks of the trade.

A limitation of the present study was the measure of academic orientation. Although adapted from measures reporting strong reliability and validity, the present instrument demonstrated poor internal reliability. In addition, factor analysis resulted in the loss of almost half the items from the original scale. These issues must cast doubt on the utility of this instrument in the current context. Although weak associations were found between dishonesty and goal orientation, stronger relationships were found between learning orientation and all three measures of dishonesty, with higher learning orientation being associated with less of all three types of dishonest behaviour. Understanding the relationship between a student's academic orientation and a range of behaviours and outcomes could prove useful for teachers and administrators. Further efforts are needed to develop a sound instrument to measure academic orientation, particularly in an Australian context.

An important and somewhat surprising outcome of the present study is the unexpected finding that none of the three measures of dishonesty were significantly related to a student having been informed about the rules and penalties for cheating or plagiarism. In an American study, Kerkvliet and Sigmund (1999) found that students given verbal reminders about cheating were significantly less likely to cheat than those who received only the standard written warnings in handouts. Several American studies have linked the use of honour codes to lower levels of dishonest behaviour (e.g., McCabe, Trevino, & Butterfield, 1999, 2001). Considerable resources are expended in Australian universities every year in an effort to inform students about their responsibility to behave honestly and ethically, and yet the message may be falling on deaf, or selectively deaf, ears. Certainly Godfrey and Waugh (1998) found that the independent high school students they surveyed believed that explanations given to students of why they should not cheat would have little effect on actual behaviour. If the problem of cheating in Australian universities is to be effectively addressed, then new ways of communicating academic honesty policy must be found.

Development of intervention strategies is a costly and time-consuming activity and it is both difficult and wasteful to attempt to counteract a behaviour or phenomenon without a thorough understanding of its nature. It would be naive to suggest that academic dishonesty could be eradicated; but a more thorough understanding of its nature, its facets and correlates, could enable university administrators to start making inroads into this costly and unethical activity.

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