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Hope moderates the relationship between students' sense of belonging and academic misconduct

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Abstract

This study investigates how hope moderates the relationship between students' sense of belonging and their academic misconduct intentions and behaviours. A sample of 234 university students (57% female) aged between 16 and 64 ($M_{\text{age}} = 25.56$, $SD_{\text{age}} = 8.18$) responded to an online survey. The survey included demographic questions, measures of student's sense of belonging at university, dispositional hope, motivation to reach their goals (*Agency*), perceived ability to implement a plan to attain their goal (*Pathways*), future intentions to engage in academic misconduct intentions (AM Intentions) and previous engagement in academic misconduct behaviours (AM Behaviours). Our findings suggest that a student's sense of belonging to their university and their levels of hope are negatively associated with academic misconduct intentions. We also observed a significant Hope \times Belongingness, Agency \times Belongingness, and Pathways \times Belongingness interaction for students' AM intentions and their AM behaviours. Our findings identified that students who have a strong sense of belonging, but low levels of hope are more likely to engage in academic misconduct behaviours. We also confirm that high levels of hope are protective against students engaging in academic misconduct. Universities can use these findings to identify students at an increased risk of engaging in academic misconduct and protect at-risk students from engaging in academic misconduct by improving their goal motivation and perceived capacity to implement a plan to reach their education goals.

Keywords: Academic misconduct, Hope, Sense of belonging

Main text

Academic misconduct is defined as an unethical act in which students are deceptive or fraudulent in their completion or submission of academic assessments to gain higher grades and includes acts of plagiarism, collusion, and contract cheating (Bosch & Ross, 2012; Tee & Curtis, 2018; Thibodeau 2011; Whitley Jr & Keith-Spiegel 2001). The prevalence of students engaging in academic misconduct behaviour (at least once) ranges from 15 to 76% (Bretag et al., 2019; Cuadrado et al., 2019), highlighting that these behaviours are regularly occurring among student populations. Engaging in academic misconduct can result in adverse consequences for students, including possible termination of



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enrollment, negative repercussions for the educational system and the workplace if deviancy is not caught, and can prevent students from excelling and leading ethical professional careers (Bretag et al., 2019; Graves, 2008; Guerrero-Dib et al., 2020; Sims, 1993). Therefore, it is important to understand what contributes to students engaging in academic misconduct behaviours to help provide institutions with enough information to develop preventative interventions.

Hope theory

Hope is defined as a positive view of the future and one's ability to reach their goals (Snyder, 2002). Snyder et al. (1991) developed a goal-directed model of hope that suggests positive motivational states allow individuals to identify their capacity to conceptualise, develop, and initiate their goals (Snyder et al., 1991). Snyder's hope theory draws on two interconnected mechanisms of Agency and Pathway (Crane, 2014; Snyder, 1995, 2002; Snyder et al., 1991). Agency describes an individual's motivation to reach their goals and perceived ability to implement imagined Pathways (Snyder et al., 1991; Snyder, 2002; Snyder et al., 2003). Pathway thinking states that an individual can envision multiple routes to their goal and aids in the creation of alternate routes in the face of adversity. Hope has been identified as a significant factor contributing to university students' well-being and institutional commitment (Browning et al., 2018; Jahanara, 2017; Snyder et al., 1991). Individuals who display higher levels of hope at university have better grades, increased well-being, and lower psychological distress. Individuals high in hope are found to have better grades, are more likely to graduate, experience increased well-being, and lower psychological distress. However, individuals low in hope are at greater risk of ceasing education (Browning et al., 2018; Gallagher et al., 2020; Tinto, 1993, 1997; Long et al. 2020; Pleeing et al., 2021; Van Ryzin, 2011).

As a construct, hope has not been extensively investigated within the academic misconduct literature. However, a few recent studies have investigated the relationship between hope and academic misconduct. Barani et al., (n.d.) conducted a small-scale study to identify if hope mediated the relationship between mindfulness and academic dishonesty in a sample of 295 Iranian adolescents (aged 12–14). Their results showed that hope was negatively associated with academic misconduct and significantly mediated the relationship between mindfulness and academic misconduct. However, their study conducted a mediation analysis using a cross-sectional design within a limited and small sample of adolescents. As such, these findings should be interpreted with caution but do offer initial evidence of the importance of hope for reducing academic misconduct.

Psychological constructs similar to hope (e.g., self-efficacy and competence) have been found to influence academic misconduct behaviours. For example, students are more likely to engage in academic misconduct if they have low academic performance and low self-efficacy (Finn & Frone, 2004; Kanat-Maymon et al., 2015). Self-efficacy refers to an individual's assessment of their competence to overcome a problem (Bandura, 1977). This suggests when students perceive that they do not have the skills and resources to succeed, they are more likely to identify alternative strategies to accomplish their academic goals (e.g., cheating and misconduct; Finn et al. 2010; Murdock et al., 2001). Therefore, students who lack competence (perceived or real) are at a higher risk

of developing academic misconduct intentions or engaging in academic misconduct behaviours.

Sense of belonging

To feel a sense of belonging is considered a universal emotional need and is characterized by a predisposition toward being personally accepted, respected, included, and supported by others in the social environment (Baumeister & Leary, 1995). A sense of belonging occurs when an individual feels respected and valued within their community, typically fostered through participating in social activities and forming friendships with like-minded individuals (Allen et al., 2022). This leads to a feeling of group affiliation that differs from social connectedness due to the focus on the quality and feeling of value within one's group as opposed to the degree they are woven into their social environment (Baumeister & Leary, 1995; Costen et al., 2013; B. M. K. Hagerty et al., 1992; Lee and Robbins 1998; Timpone, 1998).

A sense of belonging is fostered within university students when they are involved and affiliated with their university community (e.g., peers, student-friends, lecturers, tutors) and the institution (Gopalan & Brady, 2020). Belonging can also relate to an individual's ability to care for others and to be cared for by others (Hagerty et al., 1992; Hagerty et al., 1996). Belonging is an important protective factor for students' psychological well-being because it can reduce study stress by facilitating prosocial study behaviours like offering assistance to peers or receiving academic support from tutors and lecturers (Choenarom et al., 2005; Granieri et al., 2021; Hagerty et al., 1996). The daily interaction with one's peers, combined with the performance-oriented environment, creates a unique situation whereby universities are a powerful driver for students to form a sense of belonging with their cohort—giving rise to psychological distress when left unfulfilled (Baumeister & Leary, 1995; Collins & Laursen, 2004; Granieri et al., 2021).

In the context of higher education, students are at risk of engaging in academic misconduct, when they do not perceive themselves as a valued member of their institution's community (Tinto, 2017). A student's perceived sense of belonging stems from how valued they feel by other members of the institution, which is facilitated through their interactions with students, faculty, staff, and the institution. When these interactions foster a sense of belonging, students are more likely to adhere to the institutions' values and policies. For example, Finn and Frone (2004) investigated how a student's sense of belonging (i.e., school identification) moderated the effects of academic performance and cheating behaviours. Their findings showed that students were more likely to engage in academic misconduct behaviours if they had low academic performance and a low sense of belonging to their school. Indeed, the moderating effect of holding a sense of belonging was strong enough to reduce the cheating behaviours of low-performing students to levels similar to those of high-performing students. This suggests that while low-performing students are more likely to engage in academic misconduct (compared to higher-performing students), the effect is almost nullified when students have a strong sense of belonging to their institution.

Hope, belongingness, and academic misconduct

One way to reduce students' academic misconduct behaviours is through identifying protective factors that weaken their intentions and likelihood to engage in academic misconduct behaviours. Both hope and a sense of belonging have been shown to reduce students' engagement with academic misconduct. However, of interest in the current study is how these two protective factors might interact to reduce students' academic misconduct intentions and behaviours.

A growing body of evidence is investigating the impact of hope and a sense of belonging on students' academic performance. For example, research has investigated the role of hope and belongingness on university students' academic self-efficacy and academic outcomes of university (Kivlighan III et al., 2018; Wurster et al., 2021). These studies have shown that there is a positive association between students' hope and sense of belonging and their academic performance (Kivlighan III et al., 2018) and academic self-efficacy (Wurster et al., 2021). However, while these studies investigated the individual impact of hope and belonging, they did not consider the possible moderating effect of hope on students' sense of belonging and academic performance.

To our knowledge, there are no studies that have investigated the Hope \times Belongingness interaction among university students or academic misconduct. However, there is evidence of a Hope \times Belonging interaction with other at-risk populations within suicide research (e.g., Hirsch et al., 2011; Hollingsworth et al., 2017; McLaren et al. 2022; Riley & McLaren, 2019). For example, McLaren et al., (2022) investigated the moderating role of hope (including Agency and Pathways) on the relationship between thwarted belongingness and suicide in older adults. Their study showed that there was a significant Hope \times Belonging interaction. When older adults experienced a low sense of belonging (typically associated with increased suicide risk), hope acted as a protective factor against the risk of suicide. These findings suggest that when an individual has a low sense of belonging, having high levels of hope can be protective because it motivates individuals to achieve their goals and cope with challenges. Current evidence suggests that a student's sense of belonging, and their level of hope individually contribute to their likelihood to engage in academic misconduct. However, drawing on evidence from other at-risk groups, there is a possible moderating effect of hope and belongingness, whereby they are protective against engaging in maladaptive, harmful, or deviant behaviours — such as academic misconduct.

Based on hope theory, and recent evidence within at-risk groups, we aimed to investigate if the effect of a sense of belonging on academic misconduct intentions and behaviours was moderated by students' levels of hope (including Agency and Pathways). It was hypothesized that a student's sense of belonging to their university would negatively predict academic misconduct intentions and behaviours but the relationship between a sense of belonging and academic misconduct will be dependent on students' levels of hope. For example, a student with low levels of hope and a low sense of belonging will be more likely to engage in academic misconduct compared to a student with high hope and high belonging. It is also expected that hope will negatively predict academic misconduct intentions and behaviours. We also hypothesized that the same effects would be observed when looking at hope in terms of Agency and Pathways.

Method

Participants

An a priori power analysis was conducted using WebPower to identify the minimum sample size required for the statistical analysis. The results showed that 180.59 participants were required for a multiple regression analysis with 6 variables entered (power = 0.90, alpha = 0.05, and $f^2 = 0.15$). A sample of 234 university students included 133 females and 98 males (one non-binary and two missing) aged between 18 and 64 ($M_{\text{age}} = 25.56$, $SD_{\text{age}} = 8.18$) were recruited through the University's first-year participation pool or class announcements, and through an online crowdsourcing participant recruitment platform (CloudResearch.com; Litman et al., 2017). Students recruited from the first-year participation pool received credits and students from CloudResearch were reimbursed for their time. In total, 134 students (47.01%) were recruited from the University of the Sunshine Coast, 100 participants were recruited through Cloud Research, and 24 participants were recruited through snowballing. Participants were studying across 65 higher educational institutions within 12 countries, including Australia ($n = 184$), the UK ($n = 17$), New Zealand ($n = 4$), the US ($n = 4$), or another country ($n = 10$), or not reported ($n = 15$). The demographic characteristics of the sample presented in Table 1 show that most of the sample identified as heterosexual were from White/European ethnicities, were single, and had completed high school or an undergraduate degree. Most participants reported working part-time/casual or were a student and low-income earners.

Materials

The Academic Misconduct Scale

The Academic Misconduct Scale (Stone et al., 2010) was used to measure academic misconduct. The full scale measures five sub-scales related to the theory of planned behaviour (i.e., attitudes, subjective norms, perceived behaviour control, intentions, and behaviour). As previously described, perceptions of competence and connectedness are expected to be associated with academic misconduct, which shares similar characteristics with the attitudes and norms components of the theory of planned behaviour (Asjen, 1991). Therefore, the Academic Misconduct Scale is an ideal measure of academic dishonesty for the current study. However, in this study, we were only concerned with students' intentions and behaviours surrounding academic misconduct. Academic misconduct intentions were measured using eight items to gauge students' intentions to engage in AM behaviours, higher scores indicated greater intentions to cheat. In this study, the intentions scale showed excellent reliability, McDonald's $\omega = 0.95$, 95% CI [0.94, 0.96]. The behaviour subscale included 10 items to measure the frequency at which participants engaged in different AM behaviours, a higher frequency of behaviour was indicated by higher scores in this subscale. In this study, the behaviour scale showed excellent reliability, McDonald's $\omega = 0.94$, 95% CI [0.92, 0.95].

Based on previous research (e.g., Anderman et al., 1998; Bagraim et al., 2014) it was anticipated that responses on the academic misconduct intentions and behaviours scale would not be normally distributed. Indeed, our data violated assumptions of normality for these scales and showed a log-normal distribution. This indicated that most

Table 1 Descriptive statistics for the demographic variables of the sample

Variable	N	%
Gender^a		
Female	133	56.80%
Male	98	41.90%
Non-binary	1	0.40%
Sexual Orientation^a		
Heterosexual	179	76.50%
Sexual minority	53	22.60%
Language		
English	221	94.40%
Multi-lingual	13	5.60%
Race^a		
White/European	170	72.60%
Asian	28	12.00%
Racial Minority	35	15.10%
Relationship Status		
Single	118	50.40%
Partnered	70	29.90%
Married	39	16.70%
Separated/Divorced	3	1.30%
Other	4	1.70%
Highest Level of Education (attained)		
Secondary/High School	94	40.20%
University – Undergraduate Degree	79	33.80%
TAFE/Trade Certificate/Community College	30	12.80%
University – Postgraduate Degree	28	12.00%
Primary/Middle School	2	0.90%
Other	1	0.40%
Employment Status		
Retired	2	0.90%
Unemployed	12	5.10%
Full time	51	21.80%
Student	64	27.40%
Part-time/casual	105	44.90%
Income^a		
Low-income earner	143	61.10%
Middle-income earner	81	34.60%
High-income earner	9	3.80%

^a Missing data

participants indicated they did not have intentions to or had not engaged in academic misconduct behaviours (i.e., a score of 1). As such, the intentions and behaviour subscales were transformed into dichotomous variables, to indicate if students intend to or do not intend to engage in academic misconduct (AM Intentions) and have or have not previously engaged in academic misconduct behaviours (AM Behaviours).

The Psychological Sense of School Membership Scale

The Psychological Sense of School Membership Scale (PSSM Goodenow, 1993) is the widely used and primary valid and reliable scale used to measure the sense of belonging

among student populations. Subsequent validation studies examining the factor structure of the PSSM have consistently confirmed the one-factor model named perceptions of school belonging. The full scale comprises 18 items. An example item asks: I feel like a part of my school. Participants record responses on a five-point Likert scale (Goodenow, 1993; You et al., 2016). Potential responses range from not true at all (1) to completely true (5). The scale displays high internal consistency and reliability (You et al., 2011). All items are combined to receive a total score of belonging ranging from 18 to 90 with higher scores indicating a higher sense of belonging (Goodenow, 1993). In this study, the scale demonstrated acceptable reliability, McDonald's $\omega = 0.88$, 95% CI [0.86, 0.90].

The Adult Hope Scale

The Adult Hope Scale is the widely used measure of a student's students' level of dispositional hope (Snyder et al., 1991). The Adult Hope Scale is an eight-point Likert scale with responses ranging from one to eight where one is definitely false and eight is definitely true (Snyder et al., 1991). The scale consists of 12 items with two closely correlated subscales of *Agency* and *Pathway* ($r = .68 - .77$; Hedayati & Khazaei, 2014; Snyder et al., 1991). *Agency* covers goal-directed behaviours and determination while *Pathway* covers the planning goal attainment, combined the scale measures an individual's ability to think positively about the future, plan goals, and consider their ability to attain them (Snyder et al., 1991, 2002). The subscales may be totalled to receive scores for *Agency* and *Pathway* or combined to receive a total score of hope (Snyder et al., 1991). This scale was selected for use in the current study in line with Snyder et al.'s (1989) position that self-efficacy—as described by Bandura (1977)—is task-dependent and specific to the individual. In contrast, *hope* measures an individual's generalised outcome expectancies informed by their self-efficacy while including the individual's perceptions of forces beyond their control. Higher scores indicate a greater level of hope, with scores ranging from 8 to 64 (Snyder et al., 1991). In this study, the adult hope scale showed acceptable reliability, McDonald's $\omega = 0.76$, 95% CI [0.72, 0.81].

Procedure

This study was approved by the University of the Sunshine Coast's Human Research Ethics Committee (S211570). Data collection did not begin until after approval. Before beginning the online survey, participants were provided with an information sheet that outlined the purpose and aims of the study as well as how and where the data was to be used. Once participants read through the information sheet, extended consent was requested from participants to continue to start the survey. Participants who did not give consent were unable to access the survey. Participants completed the survey scales in a randomised order, however, all participants completed demographic questions at the end of the survey. Participants were able to withdraw from the survey at any time by leaving the survey webpage – incomplete surveys were not included in the analysis (i.e., greater than 10% missing data).

Statistical analysis

Descriptive statistics were calculated for all continuous variables, and frequencies were computed for nominal and ordinal variables. Pearson correlations were computed

between all variables. Where variables were binary, point-biserial correlation coefficients were computed to investigate the relations between the variables. Correlation coefficients were interpreted as small ($r < \pm 0.10$), typical ($r = \pm 0.11$ to ± 0.30), or large ($r > \pm 0.30$) effects based on the findings of a meta-analysis of psychology correlation research (Gignac & Szodari, 2016). Crosstabs analyses were conducted to determine the association between the dichotomised academic misconduct intentions and behaviours variables.

PROCESS (version 4) in SPSS (Hayes, 2022) was used to test six logistic moderated regression models to identify if hope (total score, Agency, or Pathways) moderated the relationship between students' sense of belonging at university and their academic misconduct intentions and behaviours. Across all six models, age, gender, income, and education were entered as covariates and student sense of belonging was entered as the predictor variable. Only one of the hope variables (i.e., total score, Agency, or Pathways) was entered as a moderator within each model. Further, the relevant interaction term (i.e. between belonging and hope, Agency, or Pathways) was entered into each model. The indicator variable was either academic misconduct intentions (three models) or academic misconduct behaviours (three models). A total of 5,000 bootstrap samples were used to determine bias-corrected bootstrap confidence intervals. As a logistic regression model was conducted a bootstrapped 95% CI that did not include '1' for the interaction term was used to infer significance. For significant interactions, simple slopes (i.e., $-1SD$, M , and $+1SD$) were used to determine the nature of the interaction between hope and belonging to predict the likelihood of students' academic misconduct intentions and behaviours.

Results

Missing values and outliers

Participants were excluded from the analysis if they had greater than 10% missing values and were deemed to be incomplete submissions. For example, where participants did not complete an entire scale, they were considered incomplete submissions. In total, 5 participants did not complete the survey. As missing data on any variable did not exceed 1% data and these were confined to demographic variables (i.e., no measured variable had missing data), the data was deemed to be missing completely at random. Two participants were excluded from analyses as they were extreme outliers for age. One participant identified as non-binary was excluded from analyses that included gender. In total, 230 participants were included in the following analyses.

Preliminary analysis

The descriptive statistics and the point-biserial correlation coefficients are shown in Table 2. The correlations indicate that students with higher intentions to commit academic misconduct were associated with lower levels of hope and belongingness. Higher levels of academic misconduct behaviours were also associated with lower levels of belongingness and hope.

Table 2 Descriptive statistics and Point-Biserial correlation coefficients between students' behaviours and intentions to commit academic misconduct, students' sense of belonging to the institution, and hope and its components (Agency and Pathways)

Variable	M	SD	95 % CI		Correlations					
			Lower	Upper	Intentions	Behaviour	Belonging	Hope	Agency	
Intentions										
Behaviour					.70**					
Belonging	4.43	0.97	4.30	4.55	-.19**	-.11				
Hope	45.01	9.34	43.81	46.22	-.24**	-.24**	.47**			
Agency	22.31	5.14	21.65	22.97	-.26**	-.25**	.46**	.94**		
Pathways	22.70	4.81	22.08	23.32	-.18**	-.21**	.42**	.94**	.77**	

Table 3 Contingency table for students' academic misconduct intentions and behaviours

			Misconduct Behaviours		
			No	Yes	Total
Misconduct Intentions	No	N	144	7	151
		%	85.20%	10.80%	64.50%
	Yes	N	25	58	83
		%	14.80%	89.20%	35.50%
	Total	N	169	65	234

Crosstabs analysis

To test the association between the binary variables of intentions and behaviours, a cross-tab analysis was conducted. There was a significant association between individuals who had intentions to commit academic misconduct and those who engaged in academic misconduct behaviours, τ (Goodman and Kruskal) = 0.49, $p < .001$. As seen in Table 3 and 89.20% of students who had intentions to commit academic misconduct had also engaged in academic misconduct behaviours. In total, 64.5% ($n = 151$) of students indicated they had no intentions to commit academic misconduct and 35.5% ($n = 83$) did have intentions. Further, 72.2% ($n = 169$) of students indicated they had not engaged in any form of academic misconduct behaviour and 27.8% ($n = 65$) had engaged in academic misconduct behaviour. These data show, that academic misconduct intentions and behaviours were present within the sample.

Moderation models

Six models were conducted to test the moderating effect of hope (and its components) between a student's sense of belonging to their institution and their (1) intentions to commit academic misconduct and (2) their academic misconduct behaviours. s.

Intentions to commit academic misconduct

The results of the moderation models testing whether hope moderated the relationship between belongingness and students' intentions to commit academic misconduct are presented in Table 4.

Model 1: Belongingness × Hope

Model 1 explained a significant 21.59% of the variance in academic misconduct intentions, $-2LL(7) = 243.71$, $p < .001$, $Cox\ Snell = 0.22$. The model shows that for every SD increase in a student's level of hope, there is a significant 5% reduction in their intentions to commit academic misconduct. However, Belongingness did not independently predict academic misconduct intentions. Further, the moderation model was supported by a significant belongingness x hope interaction, $\chi^2(1) = 5.83$, $p = .016$. The interaction effects are presented in Fig. 1. Examination of the conditional effects of the moderating variable showed that the effect of belongingness on academic misconduct intentions was only significant at high levels of hope, $Exp\ B = 0.50$, $p = .008$, 95% CI [0.52, 1.11]; but not a low, $Exp\ B = 0.68$, $p = .618$, 95% CI [0.68, 1.92] or average, $Exp\ B = 0.76$, $p = .151$, 95% CI [0.52, 1.11] levels of hope.

Model 2: Belongingness × Agency

Model 2 explained a significant 21.08% of the variance in academic misconduct intentions, $-2LL(7) = 245.18$, $p < .001$, $Cox\ Snell = 0.21$. The model shows that for every SD increase in a student's level of Agency, there is a significant 9% reduction in their intentions to commit academic misconduct. However, Belongingness did not independently predict academic misconduct intentions. The moderation model was supported by a significant Belongingness x Agency interaction, $\chi^2(1) = 3.85$, $p = .049$. The interaction effects are presented in Fig. 2. Examination of the conditional effects of the moderating variable showed that the effect of belongingness on academic misconduct intentions was only significant at high levels of Agency, $Exp\ B = 0.55$, $p = .020$, 95% CI [0.33, 0.91]; but not a low, $Exp\ B = 1.04$, $p = .887$, 95% CI [0.63, 1.70] or average, $Exp\ B = 0.75$, $p = .141$, 95% CI [0.52, 1.11] levels of Agency.

Model 3: Belongingness × Pathways

Model 3 explained a significant 21.22% of the variance in academic misconduct intentions, $-2LL(7) = 244.79$, $p < .001$, $Cox\ Snell = 0.21$. The model shows that for every SD increase in a student's level of Pathways, there is a significant 8% reduction in their intentions to commit academic misconduct. However, Belongingness did not independently predict academic misconduct intentions. The moderation model was supported by a significant belongingness x Pathways interaction, $\chi^2(1) = 5.82$, $p = .016$. The interaction effects are presented in Fig. 3. Examination of the conditional effects of the moderating variable showed that the effect of belongingness on academic misconduct intentions was only significant at high levels of Pathways, $Exp\ B = 0.48$,

Table 4 Summary of the analyses for a sense of belonging to university predicting academic misconduct intentions with hope, Agency, and Pathways as moderators

Variable	Model 1: Belongingness × Hope					Model 2: Belongingness × Agency					Model 3: Belongingness × Pathways					
	b	Exp B	Z	p	95% CI	b	Exp B	Z	p	95% CI	b	Exp B	t	p	95% CI	
constant	1.36	3.89	1.54	.123	-0.37	3.08	3.12	1.29	.199	-0.60	2.87	4.96	1.84	.066	-0.11	3.31
Belongingness	-0.28	0.76	-1.44	.151	-0.65	0.10	0.75	-1.47	.141	-0.66	0.09	0.73	-1.72	.086	-0.69	0.05
Hope	-0.05	0.95	-2.45	.014	-0.10	-0.01	0.91	-2.35	.019	-0.17	-0.02					
Agency						-0.09	0.91	-2.35	.019	-0.17	-0.02					
Pathways																
Interaction	-0.04	0.96	-2.28	.022	-0.08	-0.01	0.94	-1.89	.058	-0.13	<0.01	0.92	-2.09	.037	-0.16	-0.01
<u>Covariates</u>																
Age	-0.05	0.95	-1.99	.047	-0.11	<0.01	0.95	-1.98	.048	-0.11	0.00	0.94	-2.09	.036	-0.11	<0.01
Gender	-1.39	0.25	-4.31	<.001	-2.02	-0.76	0.27	-3.99	<.001	-1.94	-0.66	0.22	-4.73	<.001	-2.14	-0.89
Income	0.59	1.80	1.94	.052	-0.01	1.18	1.90	2.12	.034	0.05	1.24	1.73	1.83	.068	-0.04	1.14
Education	0.24	1.27	1.58	.115	-0.06	0.54	1.26	1.52	.128	-0.07	0.53	1.30	1.70	.088	-0.04	0.56

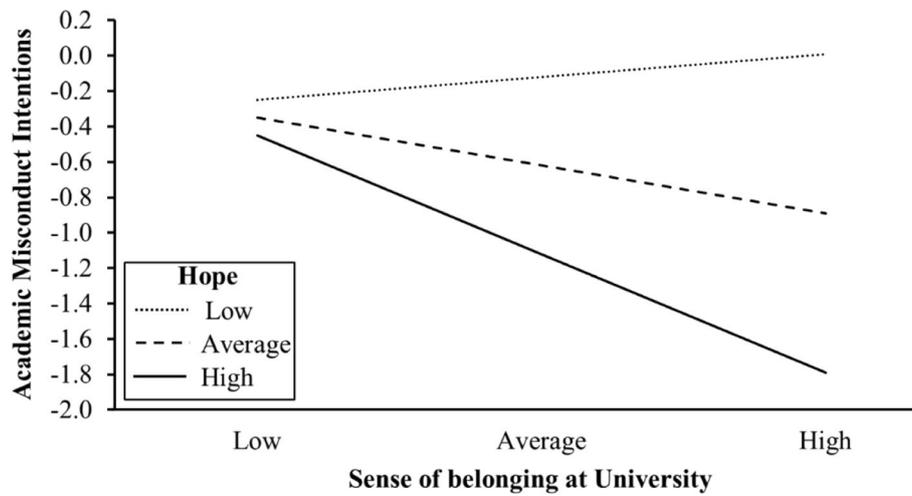


Fig. 1 Visualisation of the sense of belonging × hope interaction predicting academic misconduct intentions

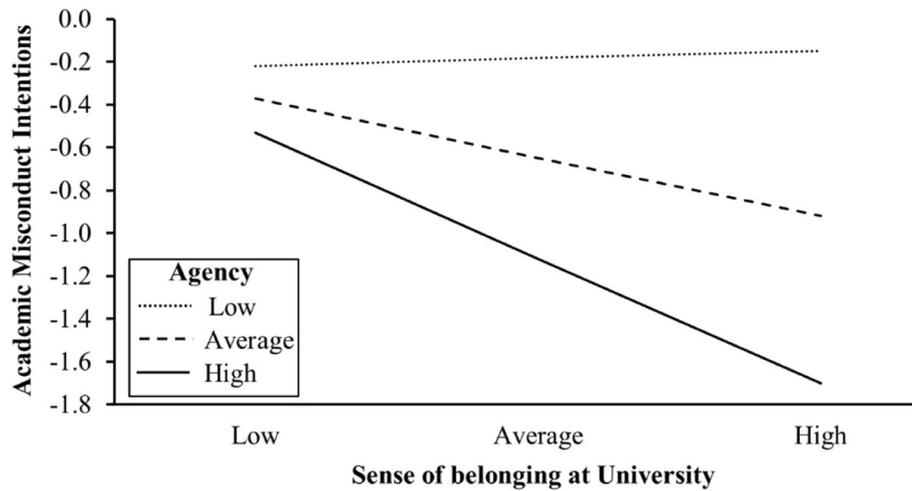


Fig. 2 Visualisation of the sense of Belonging × Agency interaction predicting academic misconduct intentions

$p = .004$, 95% CI [0.29, 0.80]; but not a low, $\text{Exp } B = 1.09$, $p = .733$, 95% CI [0.66, 1.82] or average, $\text{Exp } B = 0.73$, $p = .086$, 95% CI [0.50, 1.05] levels of Pathways.

Academic misconduct behaviours

The results of the moderation models testing whether hope moderated the relationship between belongingness and students’ academic misconduct behaviours are presented in Table 5.

Model 4: Belongingness × Hope

Model 4 explained a significant 20.53% of the variance in academic misconduct behaviours, $-2LL(7) = 219.14$, $p < .001$, $\text{Cox } Snell = 0.21$. The model shows that for every SD increase in a student’s level of hope, there is a significant 8% reduction in their likelihood

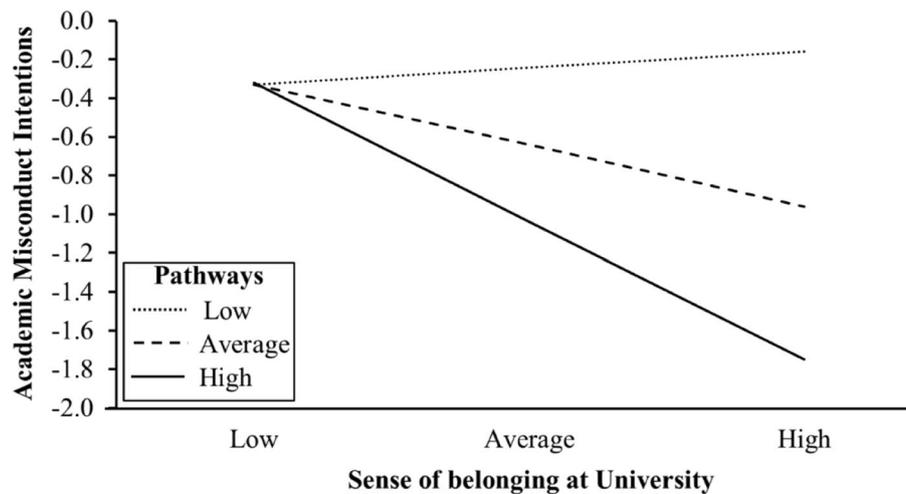


Fig. 3 Visualisation of the sense of Belonging \times Pathways interaction predicting academic misconduct intentions

to engage in academic misconduct behaviours. However, Belongingness did not independently predict academic misconduct intentions. Further, the moderation model was supported by a significant belongingness \times hope interaction, $\chi^2(1) = 14.15, p < .001$. Examination of the conditional effects of the moderating variable showed that the effect of belongingness on academic misconduct behaviours was significant at low Exp $B = 2.16, p = .017, 95\% \text{ CI} [1.15, 4.06]$, and high levels of hope, Exp $B = 0.25, p = .016, 95\% \text{ CI} [0.25, 0.87]$; but not at average levels of hope, Exp $B = 1.00, p = .985, 95\% \text{ CI} [0.67, 1.51]$. The interaction effects are presented in Fig. 4.

Model 5: Belongingness \times Agency

Model 5 explained a significant 19.60% of the variance in academic misconduct behaviours, $-2LL(7) = 221.84, p < .001, \text{Cox Snell} = 0.20$. The model shows that for every SD increase in a student's level of Agency, there is a significant 13% reduction in their likelihood to engage in academic misconduct behaviours. However, belongingness did not independently predict academic misconduct intentions. Further, the moderation model was supported by a significant belongingness \times Agency interaction, $\chi^2(1) = 12.52, p < .001$. Examination of the conditional effects of the moderating variable showed that the effect of belongingness on academic misconduct behaviours was significant at low Exp $B = 1.87, p = .038, 95\% \text{ CI} [1.04, 3.39]$, and high levels of Agency, Exp $B = 0.48, p = .019, 95\% \text{ CI} [0.26, 0.88]$; but not at average levels of Agency, Exp $B = 0.94, p = .783, 95\% \text{ CI} [0.63, 1.42]$. The interaction effects are presented in 1 Fig. 5.

Model 6: Belongingness \times pathways

Model 6 explained a significant 18.81% of the variance in academic misconduct behaviours, $-2LL(7) = 224.08, p < .001, \text{Cox Snell} = 0.19$. The model shows that for every SD increase in a student's level of Pathways, there is a significant 13% reduction in their likelihood to engage in academic misconduct behaviours. However, belongingness did not independently predict academic misconduct intentions. Further, the moderation model

Table 5 Summary of the analyses for sense of belonging to university predicting academic misconduct behaviours with hope, Agency, and Pathways as moderators

Variable	Model 4: Belongingness × Hope					Model 5: Belongingness × Agency					Model 6: Belongingness × Pathways								
	b	Exp B	Z	p	95% CI	b	Exp B	Z	p	95% CI	b	Exp B	Z	p	95% CI				
Constant	1.50	4.46	1.56	.120	-0.39	3.38	3.38	1.24	3.44	1.28	.200	3.13	3.13	1.75	5.77	1.85	.064	-0.10	3.61
Belongingness	<.01	1.00	0.02	.985	-0.41	0.42	0.42	-0.06	0.94	-2.8	.783	0.35	0.35	-0.04	0.96	-0.19	.846	-0.43	0.35
Hope	-0.09	0.92	-3.55	<.00	-0.14	-0.04	-0.04	-0.14	0.87	-3.18	.002	-0.22	-0.22	-0.14	0.87	-3.18	.002	-0.22	-0.05
Agency																			
Pathways																			
Interaction	-0.08	0.92	-3.19	.001	-0.13	-0.03	-0.03	-0.13	0.87	-3.01	.003	-0.22	-0.22	-0.12	0.88	-2.83	.005	-0.21	-0.04
Covariates																			
Age	-0.06	0.94	-2.03	.043	-0.12	<.001	<.001	0.06	0.94	-1.95	.051	-0.12	-0.12	-0.06	0.94	-2.14	.033	-0.12	-0.01
Gender	-1.31	0.27	-3.77	<.001	-1.99	-0.63	-0.63	-1.19	0.30	-3.40	.001	-1.88	-1.88	-1.48	0.23	-4.29	<.001	-2.15	-0.80
Income	0.33	1.39	1.00	.315	-0.31	0.98	0.41	0.41	1.51	1.24	.214	1.05	1.05	0.29	1.34	0.91	.365	-0.34	0.93
Edu	0.21	1.23	1.29	.198	-0.11	0.53	0.18	0.18	1.20	1.14	.250	0.50	0.50	0.23	1.26	1.46	.144	-0.08	0.55

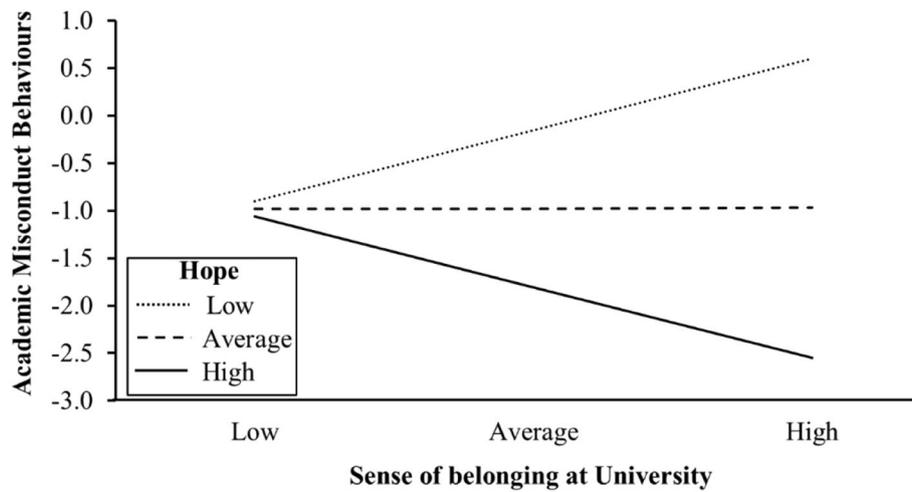


Fig. 4 Visualisation of the sense of Belonging × Hope interaction predicting academic misconduct behaviours

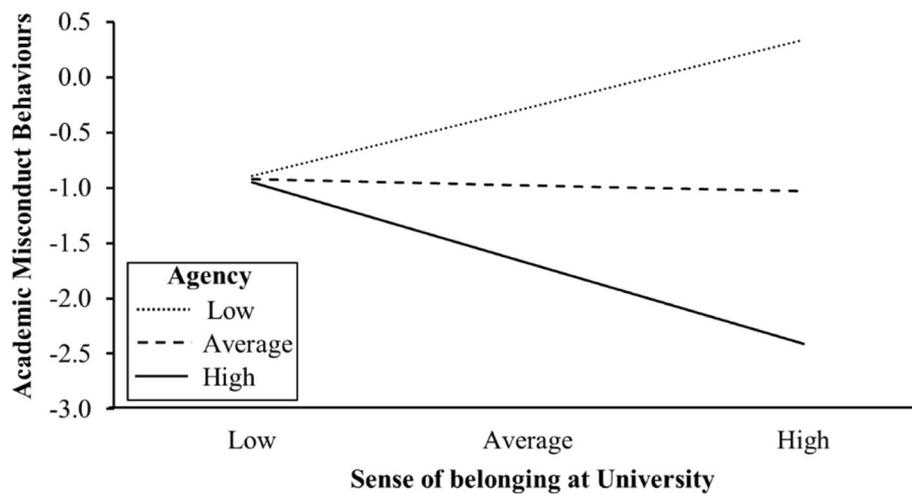


Fig. 5 Visualisation of the sense of Belonging × Agency interaction predicting academic misconduct behaviours

was supported by a significant belongingness x Agency interaction, $\chi^2(1) = 9.75, p = .002$. Examination of the conditional effects of the moderating variable showed that the effect of belongingness on academic misconduct behaviours was only significant at high levels of Pathways, $\text{Exp B} = 0.53, p = .029, 95\% \text{ CI} [0.30, 0.94]$; but not at low, $\text{Exp B} = 1.74, p = .055, 95\% \text{ CI} [0.99, 3.07]$ or average, $\text{Exp B} = 0.96, p = .846, 95\% \text{ CI} [0.65, 1.42]$, levels of Agency. The interaction effects are presented in Fig. 6.

Discussion

This study aimed to test the moderating role of hope between university students’ sense of belonging and their academic misconduct intentions and behaviours. The results supported the hypothesis that a student’s sense of belonging to their university and their

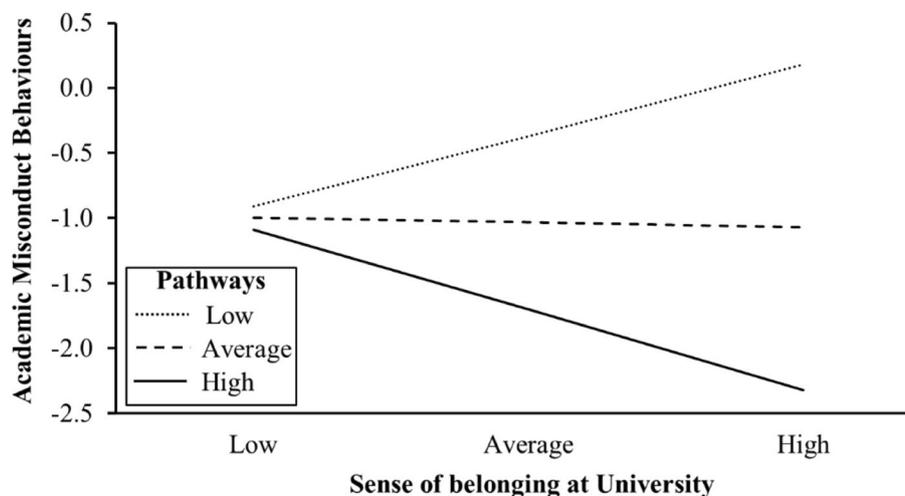


Fig. 6 Visualisation of the sense of Belonging \times Pathways interaction predicting academic misconduct behaviours

levels of hope would be negatively associated with academic misconduct intentions. However, consistent with recent research within at-risk groups (e.g., McLaren et al. 2022) we observed a significant Hope \times Belongingness, Agency \times Belongingness, and Pathways \times Belongingness interaction for students' intentions to commit academic misconduct and their academic misconduct behaviours. These findings suggested that students' sense of belonging only contributed to their likelihood to engage in academic misconduct when they had low levels of hope. However, high levels of hope acted as a protective factor regardless of a student's sense of belonging.

Hope

In line with Hope Theory (Snyder et al., 1991), the relationships of the components of hope in isolation produced meaningful findings. Consistent with recent research investigating the relationship between hope and academic misconduct (i.e., Barani et al., n.d.) we found that Hope and its components (Agency and Pathways) predicted academic misconduct intentions and behaviours within all six models. In combination, these findings provide confirming evidence that a sense of hope among university students is an important, significant, and consistent predictor of students' academic misconduct intentions and behaviours. These findings provide further evidence that hope is a meaningful factor across multiple facets of university life. For example, previous research has shown that university students who display higher levels of hope tend to have better grades, increased well-being, and lower psychological distress (Long et al. 2020; Pleeging et al., 2021; Van Ryzin, 2011). We have contributed to these findings by identifying that hope also reduces students' academic misconduct intentions and behaviours. In particular, our results suggest that when university students can employ effective alternatives to meet their academic demands (i.e., Pathways thinking) they have lower academic misconduct intentions and behaviours. Similarly, when students have the motivation to meet their academic goals (i.e., Agency) they are also less likely to engage in academic misconduct behaviours.

Sense of belonging at university

Our findings did not support previous literature (i.e., Finn & Frone, 2004) that a student's sense of belonging to their institution was an independent predictor of students' academic misconduct intentions to engage or previous academic misconduct behaviour. Indeed, in all six models, a sense of belonging to their institution did not predict academic misconduct intentions or behaviours. It is thought that when students perceive themselves to be valued members of their university, they are more likely to adhere to the institution's values and policies (Tinto, 1993, 1997, 2012). As such, the current results showing no relationship was unexpected because the only other study to investigate the relationship between a sense of belonging and academic misconduct (Finn & Frone, 2004) found that while academic performance negatively predicted academic cheating, a student's sense of belonging was such a potent protective factor that it effectively nullified the relationship. The inconsistency between these findings might be due to the sample characteristics. For example, Finn and Frone's (2004) sample consisted of adolescents (age range 16–19 years) whereas the current study was conducted in a sample of adults (age range = 18–64; $M_{\text{age}} = 25.56$). However, since the foundational work on belonging in educational settings (Goodenow & Grady, 1993), substantial empirical research has demonstrated the benefits of belonging for students of all ages in a wide range of wellbeing and academic success outcomes (see Allen et al., 2022 for a review). Therefore, we believe that it is unlikely that the contrasting results between the current study and the earlier Finn and Frone work can be explained by differences in the ages of the participants.

The disparity in the findings between the two studies may be explained by differences in the dependent variables. In Finn and Frone's (2004) study, participants responded to a four-item questionnaire on academic cheating, ranging from 0 = never to 5 = very often. Mean cheating behaviours were 2.03 ($SD = 0.81$), which indicates that most of their sample reported cheating marginally above "never". In contrast, we used dichotomous outcome variables for the two measures of academic misconduct: intend to engage or do not intend to engage (AM Intentions) and have or have not previously engaged (AM Behaviours). Conceivably, the negative relationship observed by Finn and Frone may only indicate evidence that low belongingness is associated with an increase in academic cheating from never to slightly more than never, yet on average, below a threshold of definitive cheating. This finding is conceptually different from the current result using the more stringent threshold.

The moderating role of hope

Academic misconduct intentions

The relationship between students' sense of belonging to their institution and their intentions to commit academic misconduct was significantly moderated by hope. However, the moderating role of hope only became noticeable when students had a high sense of belonging. The results showed that hope significantly reduced the likelihood of students intending to commit academic misconduct when they had a high sense of belonging. However, when students had a low sense of belonging, hope did not significantly impact their academic misconduct intentions. Students who have a low sense of belonging, are more likely to engage in academic misconduct when they have low levels

of hope. This suggests that while a sense of belonging does not independently predict academic misconduct intentions when students have a high sense of belonging and high levels of hope they are less likely to have intentions to commit academic misconduct. Indeed, it is this moderating relationship that significantly decreases their likelihood to have intentions to commit academic misconduct. For example, there is little change in intentions to commit academic misconduct for low levels of hope. However, hope only becomes protective at high levels.

An interesting finding within the moderation models was only the Pathways component of hope significantly moderated the relation between belongingness and intentions. Pathway thinking states people must perceive themselves as capable of creating Pathways to meet their goals, while Agency describes an individual's motivation to reach their goals and perceived ability to implement imagined Pathways (Snyder, 2002; Snyder et al., 1991, 2003). This indicates that a student's motivation and ability do not affect the relationship between their sense of belonging and intentions but being able to identify multiple avenues to complete their assignments, exams, and other academic demands allow them to identify alternative routes to success other than academic misconduct. Taken together, a strong sense of belonging to an institution and high levels of hope are protective against academic misconduct intentions but only when these two factors interact.

Academic misconduct behaviours

The relationship between students' sense of belonging to their institution and their intentions to commit academic misconduct was significantly moderated by hope. Further, both Agency thinking and Pathway thinking moderated the relationship between a sense of belonging and academic misconduct behaviours. As an overall construct, hope significantly moderated the relationship between a student's sense of belonging and their academic misconduct behaviours. Together, hope and a sense of belonging were protective against academic misconduct behaviours extending recent findings that hope and a sense of belonging are positively associated with academic performance (Kivlighan III et al., 2018; Wurster et al., 2021). Further, both Pathways thinking and Agency thinking acted as significant moderators between a sense of belonging and academic misconduct behaviours. These results propose that when a student is motivated and can identify alternative ways to meet the academic demands related to their assignments and exams they are less likely to engage in academic misconduct behaviours.

The findings for the Hope \times Belongingness interaction predicting academic misconduct behaviours showed a similar pattern across all models (i.e., for Hope, Agency, and Pathways). When students had a low sense of belonging, hope did not significantly affect how frequently they engaged in academic misconduct. However, the impact of hope became more apparent when students had a strong sense of belonging. Indeed, the results show how important hope is for predicting whether someone will commit academic misconduct. Thus, hope seems to be a protective factor at high levels. For example, at high levels, belonging and hope interacted as protective factors against the likelihood of students engaging in academic misconduct behaviours. This finding was expected and supported previous literature showing evidence of a Hope \times Belonging interaction within other at-risk populations within suicide research (e.g., Hirsch et al.,

2011; Hollingsworth et al., 2017; McLaren et al. 2022; Riley & McLaren, 2019) and research investigating the role of hope and belongingness for students' academic self-efficacy and learning outcomes (Kivlighan III et al., 2018; Wurster et al., 2021).

A strong sense of belonging and low hope increase academic misconduct behaviour

The interaction results provide some evidence that low hope may increase a student's risk of engaging in academic misconduct. The finding that a strong sense of belonging and low levels of hope (including Agency and Pathways) interacted to *increase* the likelihood that students would engage in academic misconduct was unexpected and novel, but difficult to explain as it has not been found in any previous literature. As such, our interpretation of this finding is speculative and needs to be replicated. Tinto (2017) suggests that social support from other students at university is important for social integration and integral to their decision to remain at university. In other words, when a student has a strong sense of belonging they are more likely to persist at university and integrate into the institution (Hagel et al., 2012; Tinto, 2017). On the other hand, a lack of social support can lead to a lesser sense of belonging and a student is more likely to drop out of university (Hagel et al., 2012). This might indicate that within our sample, students with a high sense of belonging want to remain at university. However, if those students are not meeting the academic requirements of the institution, have a low sense of hope, are unmotivated to overcome the challenges needed to improve their grades (Agency), and cannot identify multiple paths toward improving their grades (Pathways) they are more likely to engage in academic misconduct behaviours as they do not want to lose their strong sense of belonging to their institution.

Conversely, students with a low sense of belonging and low hope are not concerned with whether they leave the institution; therefore, they are not incentivised to engage in academic misconduct. We argue that when students have a high sense of belonging to an institution and have low levels of hope because they are unable to meet the academic demands required to remain at university they are at an elevated risk of engaging in academic misconduct behaviours. Therefore, students who are strongly integrated into university life but are not meeting their academic requirements are at the greatest risk of committing academic misconduct. Nevertheless, future research needs to verify this assumption by including an accurate measure of students' academic performance (e.g., actual GPA rather than self-reported GPA).

Limitations

This study is not without limitations. Initially, although we recruited an appropriate sample of university students, we did not account for the participants' mode of study (i.e., online or on-campus). As we are interested in students' sense of belonging, future research should identify if there are differences in belonging and hope between students studying online and on-campus and if this impacts their academic misconduct intentions and behaviours. However, based on our findings, online students who have a low sense of belonging to the institution would not be at risk of committing academic misconduct. Next, we did not consider the possible impact of students' academic performance as a predictor of academic misconduct in the context of their sense of belonging and hope. Based on our findings and conclusions, future research must identify the

potential moderating or mediating role of academic performance for students' sense of belonging, hope, and academic misconduct behaviours. A final limitation is that our sample is culturally heterogeneous with approximately 84% of participants residing in Australia, a further 8% from the UK, and 2% from New Zealand and the United States. Therefore, we should be cautious in generalizing these findings to university students across all countries. To resolve this limitation, future research should aim to replicate the current study in a multi-national sample of students.

Conclusion

Academic misconduct is prevalent in university settings, and the increased use of online technology makes it harder to monitor. This study found that hope moderates the relationship between belongingness and academic misconduct, which provides the first necessary investigation into the interacting roles that hope and a sense of belonging are linked with academic misconduct. As visualised in Fig. 1 through 6, students who are motivated and confident that they have effective strategies (i.e., Hope: Agency and Pathways) to achieve their study goals are less likely to engage in academic misconduct. Conversely, students with low motivation and low confidence in their study strategies are more likely than their high-hope counterparts to engage in misconduct. For example, if a student perceives that their sense of belonging is threatened (i.e., the potential to lose peer and institutional relationships), this can act as a motivator to engage in academic misconduct, especially for students with low competence.

Our findings have uniquely identified that students who have a strong sense of belonging, but low levels of hope are more likely to engage in academic misconduct behaviours. However, we also valuably confirmed that high levels of hope are protective and reduce the likelihood that students will engage in academic misconduct. By highlighting that level of hope can be either a risk or protective factor, these findings can be used by institutions to identify students who are at a high risk of engaging in academic misconduct and provide interventions to improve their level of hope.

Abbreviations

GPA Grade Point Average

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Not applicable.

Authors' contributions

Tanya Coetzee: Project conceptualization, data collection, review of draft, Honours Student. *Katie Pryce-Jones*: Project conceptualization, data collection, review of draft, Honours Student. *Leigh Grant*: data analysis, manuscript development, review of manuscript. *Richard Tindle*: Project conceptualization, data collection, data analysis, manuscript development, review of manuscript, supervision. The author(s) read and approved the final manuscript.

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Availability of data and materials

This study was not preregistered. Data and analyses for this study can be accessed on the Open Science Framework (https://osf.io/zfbwm/?view_only=8bae375dbd7f47dea8a08d860f982beb).

Declarations

Competing interests

Not applicable

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