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Who cheats? Do prosocial values make a difference?

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Abstract

Research has indicated the importance of internal motivation as a factor in reducing academic misconduct in higher education and some commentators have also cited prosocial values as buffers against the temptation to cheat. In light of this research, the goal of the present research was to study the roles of motivation and prosocial values in combating academic misconduct. Specifically, it examined how internal motivation and strong prosocial values might impact the risk of academic misconduct. For this purpose, 455 student participants completed a self-report questionnaire. The results support the hypothesis that high internal motivation and strong prosocial values reduce the tendency to cheat. In comparison, high external motivation and weak prosocial values were associated with higher levels of academic misconduct. In addition, male students were more likely to cheat than their female classmates and science students were more likely to cheat than social science students. The ability to identify factors that reduce the risk of academic misconduct can inform interventions in higher education. According to the present results, such interventions should involve the promotion of prosocial values and enhance student well-being.

Keywords: Academic misconduct, Academic integrity, Motivation, Prosocial values

Introduction

When thinking about cheating, one is reminded of the old but timeless image of a very confused fellow who is hearing two opposing voices. One represents an angel; the other, a threatening figure holding the devil's trident. For our purposes, the angel urges the man to resist the temptation to cheat and instead seek the moral high ground. High internal motivation and strong prosocial values point him in the direction of academic integrity. However, the other voice incites him to cheat. This voice emphasizes that only the anticipated rewards matter, suggesting primarily high external motivation and weak prosocial values. This conflict is likely being played out at this very moment in the minds of countless students, as they grapple with the demands of academic study and its evaluation.

The research of academic misconduct has a long history (see, e.g., Drake 1941). In their meta-analysis, Lee et al. (2020) divided the areas of interest into two main strands: situational factors (for example, surveillance during exams, honor codes) and individual factors (e.g., personality, values). For example, McCabe and his

associates emphasized the importance of situational factors (McCabe 1992; McCabe et al. 2001). In large-scale surveys of students in North America, they gathered data showing that cheating on exams and term papers and in other settings reflected a lack of academic integrity in academic institutions (McCabe et al. 2001). They investigated the roles of honor codes, student understanding of academic integrity policies, student perceptions of the chances of being caught cheating as well as the likely punishments, and most important, the students' beliefs regarding peer attitudes to cheating (McCabe et al. 2001).

In this important article, McCabe et al. (2001) used the term "neutralization" to explain why students knew cheating was wrong but at the same time cited situations in which it would be acceptable. McCabe (1992) also identified other demographic factors that might explain the tendency to cheat, including age and gender, but also social norms, such as peer approval of cheating. Later, he called attention to the need to both measure and offer remedies for academic misconduct (McCabe 2005).

McCabe et al. (2012) discussed institutional factors, including the commitment to academic integrity among faculty members and, particularly, the employment of honor codes. Other researchers have offered alternative approaches to understanding cheating (see, e.g., Jereb et al. 2018; Stephens 2017; Williams et al. 2010). Tracy Bretag examined how the lack of academic competence contributes to cheating and suggested policies to ameliorate these deficiencies (Bretag & Mahmud 2016); Hughes and Gallant (2016) offered ideas for embedding ethics in curriculum.

In contrast to McCabe's (1997) conclusion that situational factors, and especially peer pressure, are dominant in explaining academic misconduct and moral factors are not significant, other researchers have sought to explain why some students cheat and offered alternative approaches to understanding cheating (see, e.g., Jereb et al. 2018; Stephens 2017; Williams et al. 2010). In their seminal work, Murdock and Anderman (2006) articulated the view that both situation and individual factors are essential to any complete explanation for student misconduct. They posited that students typically ask three questions before approaching an academic assignment: what is my purpose, can I do this task, and what are the costs associated with cheating?

Accordingly, they created a model based on theories of motivation (e.g., Urdan 1997), self-efficacy (Bandura 1993), and expectancy-value theory (Pintrich & De Groot 1990). Their main argument was that students whose motivation is primarily ego-driven are more likely to cheat than those whose goals are based on mastery, or intrinsic in nature. They also argued that students who fear failure are more likely to resort to academic misconduct than those who have confidence in their abilities to do well in the testing situation. Finally, they asserted that when there is little risk of being caught, many students will opt for cheating, compared with situations in which the chances of being caught are high (Murdock & Anderman 2006). The results of their research supported their main arguments. Since that work was published, much ground has been covered to establish a better theoretical understanding of the reasons for cheating (e.g., Paulhus & Dubois 2015). In a previous study, we found support for a more nuanced outlook, in which the combination of situational, individual, and demographic factors helps explain academic misconduct (Kasler, Hen, et al., 2019).

Motivation and academic misconduct

Several researchers have investigated the possible connection between motivation and academic misconduct (Alt & Geiger 2012; Anderman & Koenka 2017; Anderman & Won 2019; Davy et al. 2007; Stephens et al. 2010; Yang et al. 2013). In general, these studies were based on Pintrich and DeGroot's (1990) research on motivational factors, who proposed that understanding of motivation is essential to explaining variance in student achievement. Their examination of what makes students invest effort in tasks indicated three main factors: (a) belief in one's ability to successfully complete a task, or self-efficacy (Bandura 1993); (b) the student's appraisal of the value of the task at hand (whether it is interesting or important, also termed as learning versus performance or intrinsic versus extrinsic motivation factors); and (c) what Pintrich and DeGroot (1990) referred to as an affective component, or the emotional reaction to the task. This third component also includes an aspect of anxiety, notably test anxiety and its impact on motivation.

Alt and Geiger (2012) provided empirical support for the positive relationship between cheating and extrinsic motivation or performance goals. Similarly, Anderman and Koenka (2017) found that achievement goals explained student decisions regarding cheating. However, in most cases, people are not motivated entirely by either extrinsic or intrinsic goals. Lin et al. (2003) suggested examining the combined effects of extrinsic and intrinsic motivation on students. Thus, it is advisable to avoid a dichotomous approach to extrinsic and intrinsic motivation and instead measure the relative salience of external (extrinsic) versus internal (extrinsic) motivation.

In their discussion of theories of motivation, Kaplan et al. (2012) noted how motivation is sensitive to different personal outlooks. An individual's personal goals inevitably fuel motivation and determine its content. Yu et al. (2016) found some evidence that purpose in life affects levels of academic misconduct. Interestingly, Midgley et al. (2001) warned against the promotion of performance goals, perhaps at the expense of mastery goals, citing elevated cheating as a likely result. Similarly, Pulfrey and Butera (2016) argued against a focus on what they termed competitive performance goals, providing evidence of a direct link between high performance goals and endorsement of cheating. They also found an association between personal goals of self-enhancement and elevated approval of cheating behaviors.

Another area, the empirical study of the potential impact of personal values on attitudes towards academic integrity, has received limited attention (Koscielniak & Bojanowska 2019). Waltzer and Dahl (2022) pointed out that while many students cheat, many more do not, even among those identified as being at high risk. Further research of the impact of personal values could contribute to a better understanding of why some students cheat and others refrain. For example, Lounsbury et al. (2009) demonstrated the value of promoting prosocial values in key aspects of higher education, but the study of values has focused largely on more general aspects of well-being (Wagner et al. 2020). As a result, there is a lacuna in the research literature. Compared with the significant volume of research on the impact of motivation on academic misconduct (Anderman, & Koenka 2017), much less has been published on the impact of prosocial values on academic integrity (see notable exception, Koscielniak & Bojanowska 2019).

There has been some support for the view that individual moral outlook affects behavior in academic settings. For example, Wowra (2007) found that students for whom moral identity (how individuals understand themselves as moral beings) was important tended to cheat less than those who were less sensitive to social evaluation. Also, the findings of Zimny et al. (2008) supported the commonly held assumption that academic misconduct is related to personal dishonesty. Other researchers have examined identification with moral values as a protective factor that could deter students from engaging in academic misconduct (Feldman et al. 2015; Pulfrey & Butera 2016; Stephens 2017). This is an important line of inquiry, because it extends beyond the pragmatic aspect of identifying groups at risk. Research in the area of personal values may therefore provide fertile ground for investigating their relevance to understanding who does and – perhaps as important – who doesn't cheat.

Park et al. (2004) demonstrated a positive relationship between character strengths and well-being and produced a questionnaire to measure character strengths as expressed in sets of related virtues (Peterson et al. 2005). Peterson et al.'s (2007) results revealed a similar relationship between character strengths and happiness. Following this line of study, Ruch and his associates developed and tested the Character Strengths Rating Form (Ruch et al. 2014), and using this instrument, mapped character strengths onto universal virtues (Ruch & Proyer 2015). Harzer and Ruch (2015) found that character strengths served as buffers to work-related stress. They were able to demonstrate the contribution of values-based research to a deeper understanding of the role of character strengths in enhancing resilience. In a series of studies, Feldman et al. (2015) found that values associated with self-enhancement were positively associated with what they termed unethicality, but values associated with self-transcendence and conservation were negatively correlated with unethicality.

These findings encouraged us to focus our study of academic integrity on the individual's moral compass (Kasler et al. 2015; Kasler, Shavit, et al. 2019b), that is, the values people view as most important or salient and their dedication to living according to them. Could strongly held prosocial values foster academic integrity and, conversely, would weakly held prosocial values help explain academic misconduct? The present research focused on virtues that promote academic integrity, which we refer to here as prosocial values.

Austin et al. (2005) suggested that cheating in academic environments can be seen as testing boundaries and learning about the consequences of such behaviors in a relatively safe setting, such as an academic institution. There are also concerns and some evidence that academic misconduct continues after completion of studies as unethical behavior in the world of work. (Graves 2008; Nonis & Swift 2001; Rujoiu & Rujoiu 2014). This increases the importance of dealing with academic misconduct in college.

To the best of our knowledge, no research has yet investigated the combined impact of prosocial values and internal motivation as buffers against academic misconduct. Therefore, the goal of the present study was to contribute to the understanding of risk factors in academic cheating by comparing students with high and low external and internal motivation and strong and weak prosocial values, as well as the interaction between these variables, in the context of academic cheating. We hoped this would further the understanding of students at risk for infringements upon academic integrity and guide

the choice of effective measures for prevention and intervention. In addition, the possible spillover of unethical behavior in academic settings to the workplace was also addressed.

Hypotheses

Based on the literature reviewed, we examined three main hypotheses.

1. Students with high external motivation and low internal motivation will present high academic misconduct compared with those who have low external motivation and high internal motivation.
2. Students with weak prosocial values will present high academic misconduct compared with those who have strong prosocial values.
3. The interaction between motivation and prosocial values will affect academic misconduct in students. High external motivation and weak prosocial values will predict high academic misconduct. High internal motivation and strong prosocial values will predict low academic misconduct.

Hypothesis 1 was based on the motivation literature; Hypothesis 2 was based on the literature available on personal values. Hypothesis 3 represents the primary contribution of the present research the field, as it combined the two bodies of research to see how the interaction between them would affect academic misconduct.

Method

Participants

Four hundred and fifty-five students were recruited for this research from two institutions of higher education in Israel: Tel Hai College – 398 students (87.5%) and Bar-Ilan University's Azrieli Faculty of Medicine ¯ 57 students (12.5%).

Most of the students were women (79%), were enrolled in the Faculty of Social Sciences and Humanities (68.0%) and were single (57%). The mean age was 28.2 years ($SD = 7.1$, ranging from 19 to 59 years old) and almost half the students (48%) were in their first year of study (Table 1).

Procedure

Approval for this research was obtained from the local Institutional Review Board No. 10/2018–5. All the questionnaires were administered online using the Qualtrics platform, in the second semester of 2019 (between March and June). Before administering the questionnaire, we asked the students to sign an informed consent statement confirming that they were answering the questionnaire of their own free will. The average time to complete the questionnaire was 15 min. Initially, 548 students began answering the questions, but 93 of them failed to complete the task (17%); therefore, they were not included in the statistical analysis. No significant differences were found in the demographic characteristics between the group of those who responded and those who did not ($p > 0.5$).

Table 1 Demographic characteristics of the research participants ($n = 455$)

Variables	*n*	%
Gender		
Female	359	78.9
Male	92	20.2
Other	4	0.9
	Mean	SD
Age (in years)	28.2	±7.1
	n	%
Ethnicity		
Jewish	395	86.8
Other	60	13.2
Faculty		
Social sciences and humanities	296	68.0
Science and medical school	139	32.0
Year of study		
1st year	217	47.7
2nd	114	25.1
3rd and above	124	27.3
Family status (n, %)		
Single	255	57.4
Married/living with a partner	189	42.6

Instruments

For the current research, five instruments were employed:

1. We administered a demographic self-report questionnaire (Kasler, Hen, et al. 2019).
2. To assess motivational orientations and the use of different learning strategies among students, we employed the Motivated Strategies for Learning Questionnaire developed by Pintrich and DeGroot (1990) and Pintrich et al. (1993). This is a self-report questionnaire comprised of 31 items rated on a 7-point Likert scale ranging from 1 (not at all true of me) to 7 (very true of me). Each of the 6 subscales is scored as the mean of the items. The subscales are: (a) intrinsic goal orientation (IGO; 4 items), designed to measure the degree to which the students perceive themselves to be participating in a task because of interest, curiosity, and mastery; (b) extrinsic goal orientation (EGO; 4 items), to measure the degree to which the student's motivation to participate in a task is instrumental (primarily a means to an end rather than of value in itself); (c) task value (TV; 6 items), to evaluate how interesting, important, and useful the task is to the student; (d) control beliefs about learning (CBL; 4 items), to measure the extent to which students believe their efforts to learn will result in positive outcomes; (e) self-efficacy for learning and performance (SELP; 8 items), to measure students' self-efficacy and ability to accomplish a task and confidence in performing it; and (f) test anxiety (TA; 5 times), to measure worry, cognitive concern, and preoccupation with performance.

Pintrich et al. (1991) reported Cronbach's alphas for the questionnaire ranging from 0.62 to 0.93. In the current study, the Cronbach's alphas were: IGO, $\alpha = 0.65$; EGO,

α = 0.75; TV, α = 0.89; CBL, α = 0.68; SELP, α = 0.87 and TA, α = 0.79. Following Elliot and McGregor (2001), in the next step, two new scales were calculated from the six subscales of the MSLQ: (a) internal motivation, calculated as the mean of the IGO, TV, CBL, and SELP subscales (α = 0.73), and (b) external motivation, calculated as the mean of EGO and TA subscales (α = 0.66). In recent years the MSLQ has been used in several settings with positive results, attesting to the validity of the original questionnaire (Bonanomi et al. 2018; Feiz & Hooman 2013; Jakešová, 2014; Saks et al. 2015; Zhou, & Wang 2021).

3. Sect. 13 of the Academic Integrity Survey (McCabe et al. 2001), a self-report questionnaire as reported by Kasler, Hen, et al., (2019). In the current study, we used the subscales that measure academic misconduct, the Cronbach's alphas were: α = 0.82 for test/exam subscale, α = 0.83 for written assignments, and α = 0.76 for others.
4. The Values in Action Inventory of Strengths (VIA-SI; Peterson et al. 2005), a 24-item self-report questionnaire that measures the character strengths assigned to a virtue. The 6 virtues (subscales) are: (a) wisdom and knowledge (Items 1–5); (b) perspective (Items 6–9); (c) humanity (Items 10–12); (d) justice (Items 13–15); (e) temperance (Items 16–19), and (6) transcendence (Items 20–24). The last two subscales were not used in the current study, because they do not measure prosocial values. All the items were scored on a 9-point Likert scale ranging from 1 (very much unlike me) to 9 (very much like me). Each of the subscales was scored as the mean of the scores on its items. In this study, the Cronbach's alphas were wisdom and knowledge (α = 0.72), perspective (α = 0.58), humanity (α = 0.76), and justice (α = 0.53).
5. In addition, to assess the students' understanding of the future consequences of their behavior at college, we asked the respondents: "Do you think that a student who displays unethical behavior during studies (for example, copying tests or falsifying research results) will also display unethical behavior at work (for example, failing to truthfully report an unusual event)?"

Data analysis

Summary tables are presented for the categorical variables, showing the sample size and relative frequencies, and for continuous variables, giving the arithmetic mean (*M*) and standard deviation (*SD*) (see Tables 1, 2 and 3). Cronbach's alpha coefficients were calculated to assess the internal consistency for each subscale of the questionnaires.

Table 2 Demographics and different strengths of prosocial values

		Weak		Strong			
Variable	**Category**	***n***	**%**	***n***	**%**	**χ^2**	***p***
Gender	Female	104	73.2	254	82.7	5.419	0.020
	Male	38	26.8	53	17.3		
Faculty	Science and medicine	54	37.8	92	29.7	2.929	0.087
	Social science and humanities	89	62.2	218	70.3		
		M	*SD*	*M*	*SD*	$t_{(444)}$	*p*
Age	Years	27.1	6.2	28.7	7.3	2.285	0.023

Table 3 Demographics of the internal and external motivation groups

		Internal		External			
Variable	**Category**	***n***	**%**	***n***	**%**	χ^2	***p***
Gender	Female	199	76.5	157	84.0	3.692	0.055
	Male	61	23.5	30	16.0		
Faculty	Science and medicine	86	32.7	59	31.4	0.087	0.768
	Social science and humanities	177	67.3	129	68.6		
		M	*SD*	*M*	*SD*	$t_{(442)}$	*p*
Age	Years	29.3	7.7	26.6	5.5	4.322	< 0.001

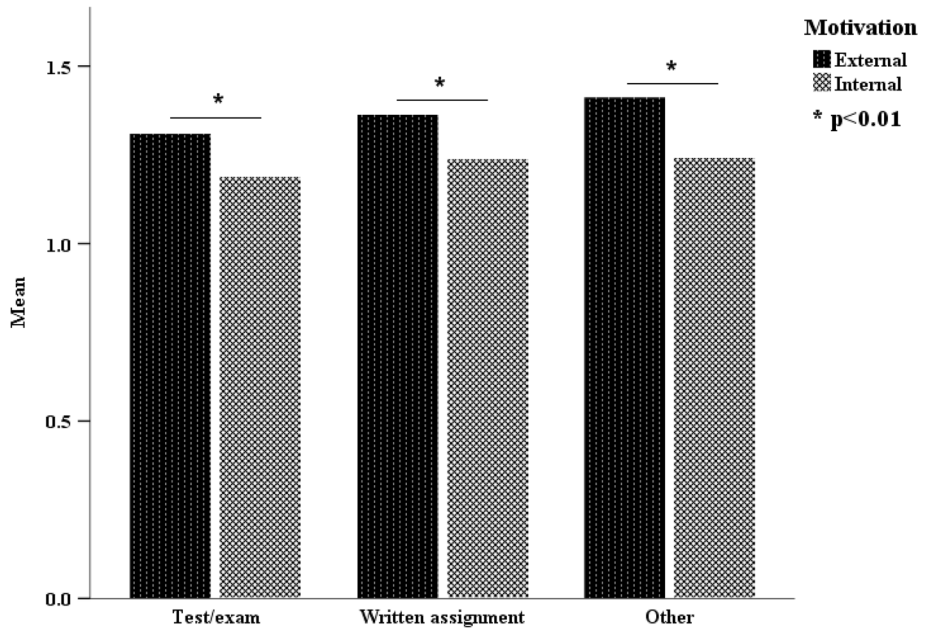

Fig. 1 Academic Misconduct Subscales by Motivation Categories

Chi-square tests were conducted for the comparisons between demographics on different levels of prosocial values and internal and external motivation (Tables 2, 3). MANOVA tests were applied to estimate the effect of external and internal motivation and prosocial values on academic misconduct subscales, using Wilks's statistics (Figs. 1, 2 and 3). Independent samples t-test were conducted to estimate the effect of age on different levels of prosocial values and internal and external motivation (Tables 2, 3).

Initially, we treated motivation and values level variables as continuous predictors, as suggested in the original measures of the Motivated Strategies for Learning Questionnaire and Values in Action Inventory of Strengths. However, despite the large sample size, the variance in the continuous variable was small and yielded low differential validity. Therefore, in order not to lose the opportunity to study this group, we decided to use cluster analysis (K-means clustering). We performed two K-means cluster analyses to identify groups of students with similar characteristics of motivation and prosocial values, specifying a two-cluster solution for each questionnaire. The first motivation cluster ($n = 188$) was characterized by a low level of internal motivation (4.8 ± 0.7) and a high

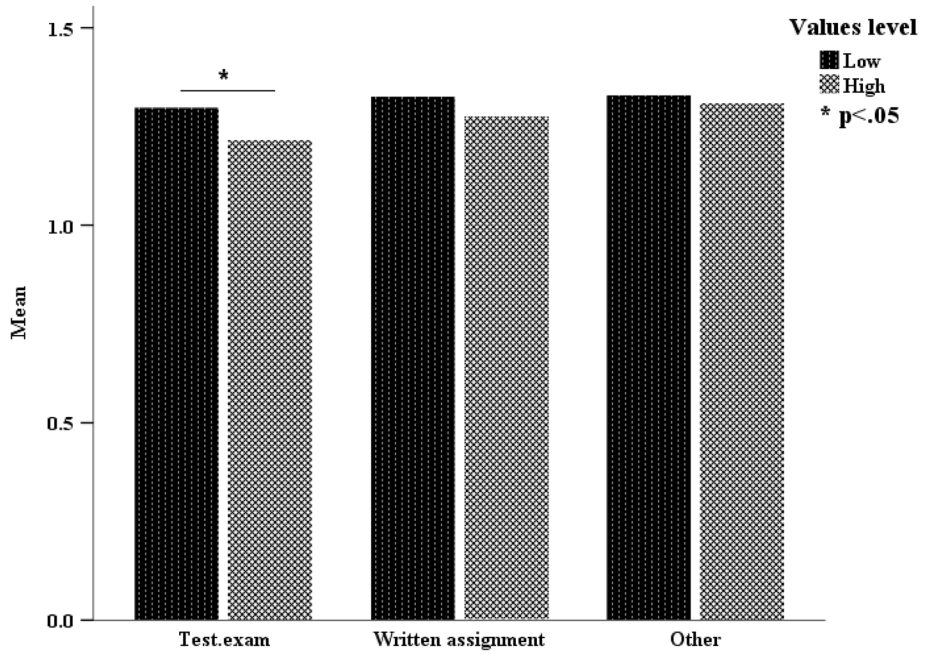

Fig. 2 Academic Misconduct Subscales by Strength of Prosocial Values

level of external motivation (5.1 ± 0.9). The second cluster ($n = 263$) was characterized by a high level of internal motivation (5.5 ± 0.6) and a low level of external motivation (3.3 ± 0.9).

According to the values in the Action Inventory of Strengths questionnaire, the first cluster ($n = 143$) was characterized by a low mean score of values (6.3 ± 0.7) and the second ($n = 310$) by a high mean score of values (7.7 ± 0.4). A p-value of 5% or less was considered statistically significant. The data were analyzed using SPSS version 25 (SPSS Inc., Chicago, IL, USA).

Results

Academic misconduct and motivation

Using Wilks's statistics, we found a significant effect of the motivation categories on the academic misconduct subscales, $F_{(3, 447) =} 3.934$, $p = 0.009$, and a small effect size, $Eta^2 = 0.026$ (see Fig. 1). For all subscales, the means of external motivation were significantly higher compared with the means of internal motivation ($p < 0.01$).

Academic misconduct and prosocial values

Using Wilks's statistics, we found a significant effect of the strength of values on the academic misconduct subscales, $F_{(3, 448) =} 2.881$, $p = 0.036$, and a small size effect, $Eta^2 = 0.019$ (see Fig. 2). For all subscales, the means of the group with weak prosocial values were higher compared with those of the group with strong prosocial values. However, we found a significant effect only for the test/exam academic misconduct subscale ($F_{(1, 450) =} 3.565$, $p < 0.05$, $Eta^2 = 0.008$).

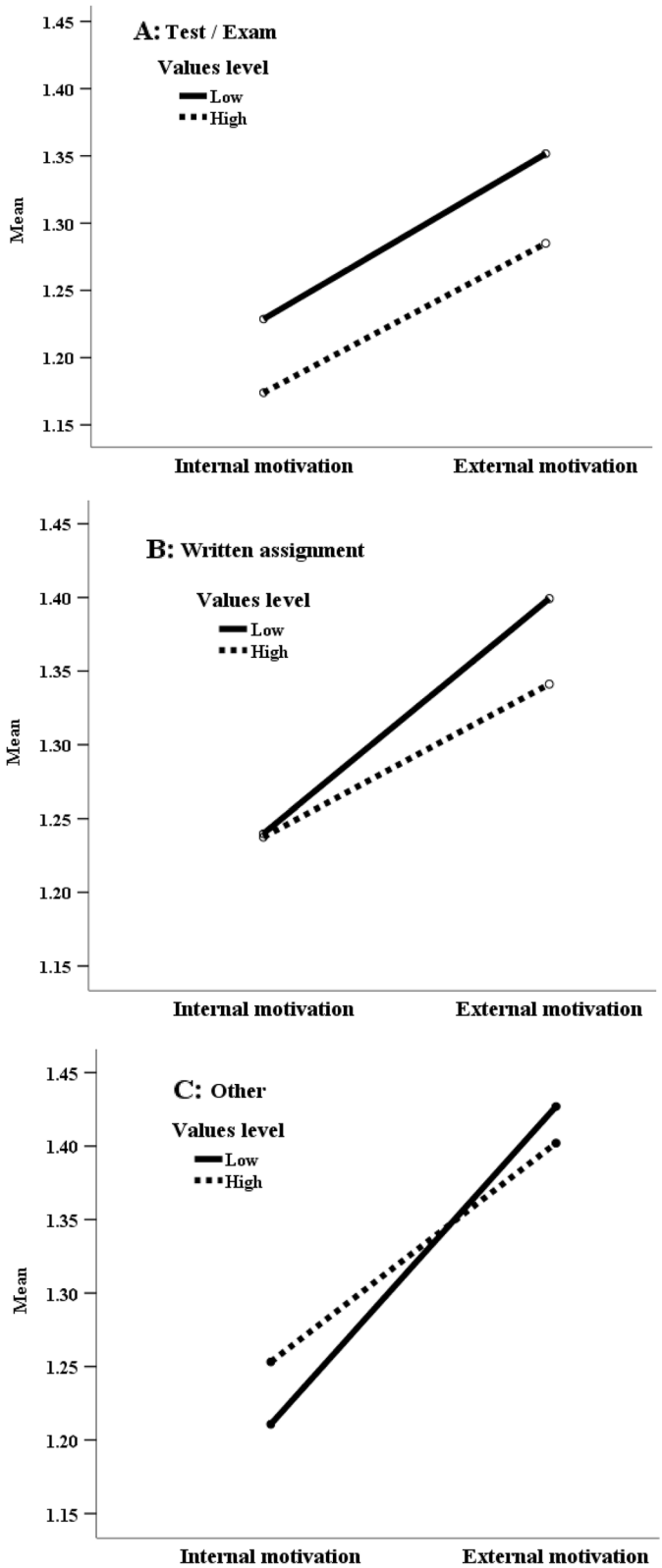

Fig. 3 Motivation Categories and Prosocial Value Levels in the Academic Misconduct Subscales

Interaction between motivation categories and prosocial value levels in the academic misconduct subscales

A significant correlation was found between motivation categories and prosocial value levels ($\chi^2_{(1,451)} = 8.588$, $p = 0.003$). Among the students who had high internal motivation, 48.2% weak prosocial values, compared with 62.9% who strong prosocial values.

Contrary to the hypotheses, no significant interactions were indicated between motivation categories and prosocial values levels in the context of the academic misconduct subscales (see Fig. 3, parts a, b, and c, $p > 0.05$). However, in all subscales of academic misconduct subscales and categories of external motivation, the mean of the group weak prosocial values was higher than in the group with strong prosocial values ("test/exam": 1.35 vs. 1.29; "written assignment": 1.40 vs. 1.34, and "other": 1.42 vs. 1.40, respectively). No constant trend was observed in the internal motivation group.

In further analysis, we evaluated the effects of the correlations between the two categories of prosocial values, gender and faculty, and the differences between those two categories and the age of the students (Table 2). Similarly, we also evaluated the effects of the correlations between internal and external motivation (Table 3).

A significant correlation was found between strength of prosocial values and gender ($\chi^2_{(1,449)} = 5.419$, $p < 0.05$). Women accounted for 82.7% of the group that scored high on prosocial values, compared with 73.2% of the group with a low score on prosocial values. A significant correlation was also found between prosocial value strength and faculty ($\chi^2_{(1,453)} = 2.929$, $p < 0.10$). Students of social sciences and the humanities accounted for 70.3% of the group with strong prosocial values, compared with 62.2% of the group with a weak prosocial value.

As Table 3 shows, there was a significant age difference between internal and external motivation ($p < 0.001$). The younger students had higher external motivation and the older students had higher internal motivation. No difference by faculty or gender was found between internal and external motivation ($p > 0.05$).

Overall, the findings suggest that motivation and prosocial values play a crucial role in students' ethical academic behavior, which could be a predictor of later professional behavior. If this is so, then students with high external motivation and weak prosocial values are at higher risk for academic misconduct than those with high internal motivation and strong prosocial values. In addition, we compared misconduct between gender, faculty, and age and found no difference between gender and age. However, we found a difference in all three subscales of misconduct (test/exams, written assignments, and other): students in the science and medical school faculty scored statistically higher compared with those in the social and humanities faculty ($p < 0.001$).

Finally, we asked the students: "Do you think that a student who displays unethical behavior during studies (for example, copying tests or falsifying research results) will also display unethical behavior at work (for example, failing to truthfully report an unusual event)?" A majority (61%) of the respondents answered "yes" to this question.

Discussion

The erosion of academic integrity in academic institutions threatens to undermine their effective functioning (Jereb et al. 2018; McCabe 2005). As a result, much attention has been focused on studying this phenomenon. Researchers have attempted to identify

factors that might encourage academic misconduct and, conversely, those that could fortify adherence to academic integrity (see, e.g., McCabe et al. 2001). Several researchers have found a relationship between motivation and academic integrity (Alt & Geiger 2012; Anderman & Koenka 2017; Anderman & Won 2019). Others have focused on the role of personal values (e.g., Pulfrey & Butera 2016). The aim of the present study was to examine the impact of prosocial values and motivation on academic integrity.

Similar to previous studies (Anderman & Koenka 2017), our findings indicate that the students with low internal motivation and high external motivation scored higher on academic misconduct. They also support previous findings as well as results from our previous research (Kasler, Hen, et al. 2019) that students who are primarily achievement-oriented and focus less on mastering the subject matter of their studies tend to cheat more, and vice versa (Alt & Geiger 2012). The present study also found that students with weak prosocial values scored higher than students with strong prosocial values on academic misconduct. This finding may suggest that strong prosocial values may protect against academic misconduct and foster integrity. This raises the question of whether students with low external motivation exhibit stronger prosocial values than other students do? Furthermore, do students with strong prosocial values exhibit high levels of internal motivation? Interestingly, according to our results, the students with strong prosocial values scored high on internal motivation and low on external motivation and students with weak prosocial values scored high on external motivation and low on internal motivation. This may suggest that students with stronger prosocial values and a mastery perspective tend to cheat less and vice versa. Finally, we would speculate that promoting prosocial values is likely to encourage students to focus on subject mastery, which is inherent in internal motivation.

Our findings also show lower scores on academic misconduct among women (compared with men) and students of social sciences and humanities (compared with those in the sciences). These results support those of previous research (Kasler, Hen, et al. 2019). Yu et al. (2017) found that men tend to self-report cheating more than women do. In research on sense of entitlement among business students and its impact on attitudes towards cheating, Elias (2017) found that a higher sense of entitlement correlated negatively with the objections to cheating on ethical grounds, and, interestingly, that women tended to feel less entitled than men did. He suggested that this might explain why women presented a more pronounced view that cheating is unethical. In an examination of the possible sources of gender differences in the propensity to cheat, Stephen G. Tibbets (1999) demonstrated that compared with men, women presented a greater tendency towards shame and a greater capacity for self-control, which could at least partially explain gender differences in cheating propensity. In contrast, Park (2019) did not find gender to be a major factor in identifying the propensity to cheat. This subject is beyond the scope of the present paper, but the diverse findings clearly indicate that the role of gender in tendencies to academic misconduct deserves further attention.

We also found that the tendency to admit academic misconduct declined with age. This is consistent with the finding of Stiles et al. (2018) that as age rose the tendency to cheat decreased. They assumed that this was best explained by maturity. In addition, faculty of study might also impact the tendency to cheat. There is much evidence demonstrating that more men than women are drawn to science subjects, while the opposite

is true for the social sciences (for example, Khunou et al. 2012; Ratele et al. 2019). This argument was supported by Anderman and Won (2019), who suggested that it might be explained by the greater anxiety among students taking exams in science compared with other subjects. Finally, we asked students whether those who commit acts of academic misconduct at college are more likely to behave unethically in work life. A majority thought they would, suggesting an understanding of the gravity of unethical behavior in college and its likely effect on behavior in the work environment.

We suggest that greater emphasis on research that may reveal the centrality of the intrinsic value of academic studies and the encouragement of prosocial values will engender a more positive academic environment. This, in turn, could help reduce the tendency that derives from what McCabe (1992) termed neutralization.

Limitations and future research

Although our results are interesting, several limitations should be taken into consideration. First, a primary methodological issue in the investigation of academic integrity is the means for measurement of cheating rates. Studies in this field have often relied upon self-report devices, such as the one used in the present study (McCabe et al. 2001). However, this method is prone to yield inaccurate results because the informants are asked to admit to their own practice of cheating (Paulhus & Dubois 2015). Even though such questionnaires are completed anonymously, it is still reasonable to assume that student respondents will be reluctant to admit cheating. Second, due to the homogeneity of our sample, we manipulated our measures and used them as dichotomous and not continuous measures, as usually recommended in the literature. In addition, the effect sizes of our results were small, enabling us to identify a general tendency, but not an unequivocal direction.

Furthermore, our sample was composed predominately of women, who are less likely to cheat than men, and it is likely that our results were influenced by this. The present sample also included more students of social science than other faculties. In light of previous findings that science students were more likely than social science students to report cheating (Kasler, Hen, et al. 2019), this might have led to relatively less reporting of cheating in the present study. Finally, age and attendant maturity have been shown to impact on the tendency to cheat and this factor may have also affected our results.

Future research should replicate studies such as this one and seek alternative approaches to obtain more accurate estimates of academic misconduct and their causes. In addition, the sample of the present study was relatively small and homogenous and may not represent a general population of students. Also, future research should aim to construct samples with greater balance in representation of gender, faculty, and age. Finally, research should accompany interventions in higher education aimed to strengthen prosocial values and examine the probable link between such values and subject mastery, which is characteristic of internal motivation.

Practical implications

The beneficial impact of prosocial values for well-being are well-documented (Nowakowska 2020; Wagner et al. 2020). In addition, the evidence from our research suggests that promoting a culture of academic integrity based, among other things on pro-social

values, will help steer students away from academic misconduct. Accordingly, our research reinforces the view that institutions of higher education should foster such values as an effective pathway to promoting both academic integrity and general well-being among students.

Conclusions

The identification of those at risk for academic misconduct should be a major goal of research in the field of academic integrity, as this provides clear guidelines for policy makers. An emphasis on the intrinsic value of studies as well as a celebration and reinforcement of prosocial values in academia in general as proposed by researchers such as Flood, Martin and Dreyer (2013) could help to reduce levels of academic misconduct and perhaps have a positive long-term impact on ethical behavior when graduates enter the world of work. The primary contribution of this research to the field is that it demonstrates the efficacy of considering the impact on academic misconduct of prosocial values as well as motivation, both external and internal, with special focus on the interaction between these variables.

Abbreviations

MSLQ	Motivated Strategies for Learning Questionnaire
IGO	Intrinsic goal orientation
EGO	Extrinsic goal orientation
TV	Task value
CBL	Control beliefs about learning
SELP	Self-efficacy for learning and performance
TA	Test anxiety
VIA-SI	The Values in Action Inventory of Strengths
M	Arithmetic mean
SD	Standard deviation
K	Cluster analysis

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Declarations

Availability of data and materials
Data is available upon request.

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