Do preservice teachers cheat in college, too? A quantitative study of academic integrity among preservice teachers

Donald DiPaulo

Correspondence: djd352@cabrini.edu
Cabrini University, School of Education, 610 King of Prussia Rd., Radnor, PA 19087, USA

Abstract

Research has found that academic dishonesty (AD) is common among college and university undergraduate students worldwide (International Center for Academic Integrity, 2021). Two variables found to have a significant effect on student cheating were students' attitudes toward AD and perceptions of peer engagement in AD (McCabe et al., 2012). This quantitative research study examined preservice teachers' attitudes and behaviors related to academic dishonesty. Utilizing three parts of the Academic Integrity Survey, this study analyzed data from 62 preservice teachers enrolled at a university in the Mid-Atlantic Region of the United States that were preparing to teach students in pre-kindergarten through twelfth grades in both public and private schools. Data analyses examined the frequency rates at which preservice teachers self-reported engaging in academic dishonesty, as well as the relationships that existed between preservice teachers' attitudes toward academic dishonesty, perceptions of peer engagement in AD, and self-reported engagement in AD. Results showed that rates for self-reported engagement in academic dishonesty among preservice teachers were similar to those found for undergraduates in other majors, with attitude toward behavior found to be significantly associated with and predictive of self-reported engagement in academic cheating among this group of preservice teachers.

Keywords: Academic integrity, Academic dishonesty, Plagiarism, Academic cheating, Academic misconduct, Preservice teachers, Teacher ethics

Introduction

A large body of research has found that academic dishonesty (AD) is a prevalent and pervasive problem for learning institutions worldwide (International Center for Academic Integrity, 2021). Early research focused on individual factors, like age and gender, that predicted which college and university undergraduates were most likely to engage in AD (Bowers, 1964; McCabe & Treviño, 1993, 1996). Subsequent studies showed that contextual factors were more accurate predictors of academic cheating, as perceptions of peer behavior and the attitudes of faculty were found to be associated with self-reported

academic misconduct among undergraduate students (Maloshonok & Shmeleva, 2019; McCabe et al., 2012).

Although many studies have examined academic dishonesty at the collegiate level, fewer studies have specifically examined the attitudes and behaviors of preservice teachers related to academic integrity (Malone, 2020; Tasgin, 2018; Trushell & Byrne, 2013). Yet, these are the very individuals that will be responsible for instilling the values of academic integrity and honesty in the nation's schoolchildren. Academic dishonesty among preservice teachers raises questions related to preparation (Bens, 2010; Fontaine et al., 2020). An individual engaged in academic dishonesty in pursuit of teacher certification may not be fully prepared to teach children in schools, perhaps lacking key knowledge and skills necessary to facilitate effective learning (Bens, 2010; Eret & Ok, 2014). Consequently, an examination of preservice teachers' attitudes and behaviors regarding academic dishonesty can provide teacher education and certification programs with the knowledge necessary to best prepare future educators on this issue.

Attitudes and beliefs

When fully synthesized, existing research points to three key variables in determining whether students intend and ultimately decide to cheat in school. First, a student's attitude toward academically dishonest behaviors proved to be an important variable in both the intention to cheat and self-reported acts of cheating in academic coursework (Eriksson & McGee, 2015; Hendy & Montargot, 2018; Ives et al., 2016; Peled et al. 2018; Zhang et al., 2018).

Hendy and Montargot (2018) surveyed 178 undergraduate and graduate business students in Southwestern France. Using Ajzen's (2012) Theory of Planned Behavior (TPB) as a theoretical framework, researchers examined attitude toward behavior, subjective norm, and perceived behavioral control to assess to what degree these constructs mediated the relationship between conscientiousness and academic dishonesty. Results showed that highly conscientious students were less likely to cheat, with attitude toward cheating found to be the strongest predictor of AD. Future law-enforcement candidates showed similar tendencies in a study of 72 criminal justice and policing students from a public university in Australia, where Eriksson and McGee (2015) found attitude toward behavior to be a statistically significant predictor of self-reported AD.

Zhang et al.'s (2018) quantitative study of 2009 undergraduates from seven institutions of higher learning in a coastal province of eastern China aimed to identify predictors indicating students' intention to cheat. Researchers administered a questionnaire on 13 common cheating behaviors to undergraduate students from different majors and found that moral attitude was the "most solid predictor of academic dishonesty" (p. 821). Students who demonstrated a predisposition to accept cheating behaviors as normal and not serious were most likely to cheat.

Some of the highest frequency rates of self-reported AD were found by Ives et al. (2016) in a quantitative study of 1127 students from six public Romanian universities. While 95% of students surveyed reported some form of cheating in their academic programs, researchers found that how acceptable students believed the cheating behaviors were consistently predicted the frequency of those behaviors. Conversely, individual characteristics, including gender, academic specialty, year in school, institution, grade average, and scholarship status, predicted very little variance in the behaviors.

Peer behavior

Researchers have also found perceptions of peer engagement in academic dishonesty to be a statistically significant predictor of self-reported engagement in academic cheating (Chapman et al., 2004; Maloshonok & Shmeleva, 2019; McCabe & Treviño, 1993, 1997; McCabe et al., 2012; Quraishi & Aziz, 2017; Yang, 2012). Maloshonok and Shmeleva (2019) surveyed 15,159 university students from eight different Russian universities to examine attitudes toward academic dishonesty, peer influence, and the perceived severity of penalties for getting caught cheating. Researchers found that perceptions of peer behavior dominated as the strongest predictor of academic dishonesty across Russian universities. The large sample size for this study was notable, as were the findings that supported McCabe and Treviño's (1996, 1997) and McCabe et al.'s (2012) earlier conclusions that peer environments significantly influence AD. Similarly, Yang's (2012) study of six national universities from various parts of Taiwan found that perceptions of peer involvement in AD were predictive of self-involvement in all four types of academic cheating.

Quraishi and Aziz (2017) conducted a study of 1000 students enrolled in eight public universities in Pakistan. An overwhelming 95% of students reported sometimes or always copying answers from friends during an exam, with roughly 92% of those students planning with other students to give or receive answers during exams prior to the test session. In addition, 92% admitted using material from a book without acknowledging the source. More than 70% of respondents reported that loyalty to their friends made them help peers on exams.

Chapman et al. (2004) surveyed a participant sample of 824 juniors and seniors majoring in marketing at a midsized western U.S. university. Data showed that while 68% of students admitted to cheating academically in the past, 75% of students surveyed indicated that they would cheat in the future. Further, students were more than twice as likely to cheat if the individuals involved were their friends. Over 63% of participants reported that they would accept a stolen exam from a friend, while only 40% admitted they would accept a stolen exam from an acquaintance.

Faculty attitudes toward cheating

The attitudes of faculty (Bens, 2010; Costley, 2019; McCabe et al., 2001) were also found to be associated with frequency rates of self-reported academic dishonesty. In a qualitative study investigating the perceptions of students engaged in online cheating, Costley (2019) interviewed 21 undergraduate students from a medium-sized university in rural South Korea. According to Costley, participants reported that faculty passively accepted cheating at their university. According to a participant, one professor even posted in his online exam instructions that he expected students to cheat. "It is too hard for me to change the format to prevent cheating, so it will stay the same. I am aware most of you will cheat" (p. 213).

McCabe et al. (2001) determined that when faculty ignored or failed to respond to AD, student cheating increased, highlighting the role that faculty played in creating a culture of academic integrity on college campuses. Anderman et al. (2010) found that when students perceived the teacher as credible, this variable significantly reduced impulsive students' engagement in AD, while Bens (2010) and Yu et al. (2018) found that

students' perceptions of professors' actions toward academic misconduct were inversely related to academic cheating.

Preservice teachers and academic dishonesty

A small number of studies on academic dishonesty have focused on preparing educators, some of which were conducted outside of the United States (Eret & Ok, 2014; Tasgin, 2018; Trushell & Byrne, 2013). Tasgin (2018) sought to examine the relationship between preservice teachers' attitudes toward academic research and academic cheating tendency. The participant sample consisted of 659 volunteers preparing at a state university in East of Turkey. Tasgin found a significant negative correlation between preservice teachers' research attitudes and their academic dishonesty tendencies. Also in Turkey, Eret and Ok (2014) examined the tendencies of teacher candidates toward online plagiarism. Researchers surveyed 386 first-year freshmen and fourth-year seniors enrolled in a state university in the city of Ankara. Self-reported tendency rates toward plagiarism indicated that more than half of all teacher candidates admitted using the Internet to copy others' work without permission (54%), doing friends' assignments using the Internet (51%), and using the same assignment in different courses without permission (56%). Roughly 45% of participants reported failing to provide references for information quoted from online sources, and 37% of preservice teachers admitted using other people's complete works for personal assignments without acknowledging the author.

A study of 55 education majors in a virtual learning environment conducted by Trushell and Byrne (2013) sought to examine lecturer impressing strategies and cheating behaviors among online students in the United Kingdom. Fifteen percent of students reported that they had invented sources to include in an essay or had paraphrased material from a source without acknowledging the author, while 11% had created a false bibliography or changed dates of old sources to make them appear as new sources. When compared with other studies on academic dishonesty among undergraduates, these percentages appear low. However, only 55 students were surveyed in this study, making it difficult to generalize the findings and apply them to other populations that yielded higher rates of engagement in academic cheating.

Purpose of the study

The purpose of this quantitative study was to examine the attitudes and behaviors of preservice teachers related to academic integrity and dishonesty in the United States. The following research questions and hypotheses guided this quantitative study:

- At what frequency rates do preservice teachers self-report engaging in academic dishonesty during teacher education programs?
- What relationships exist between preservice teachers' attitudes toward academic dishonesty, perceptions of peer engagement in academic dishonesty, and self-reported engagement in academic dishonesty?
- *Hypothesis 1*: Preservice teachers' attitudes toward academic dishonesty will be inversely related to self-reported engagement in academic dishonesty.

- *Hypothesis 2*: Preservice teachers' perceptions of peer engagement in academic dishonesty will be positively associated with self-reported engagement in academic dishonesty.
- *Hypothesis 3*: Preservice teachers' perceptions of peer engagement in academic dishonesty will be inversely related to attitudes toward academic dishonesty.

Several researchers found that attitude toward AD was negatively associated with self-reported academic cheating (Eriksson & McGee, 2015; Guerrero-Dib et al., 2020; Hendy & Montargot, 2018; Zhang et al., 2018). In some cases, attitude toward behavior was found to be the strongest predictor of AD (Hendy & Montargot, 2018; Zhang et al., 2018). Other studies found that the behavior of peers, as well as perceptions of peers' behavior, were associated with higher rates of self-reported academic cheating (Kam et al., 2018; Maloshonok & Shmeleva, 2019; McCabe & Treviño, 1993, 1997; McCabe et al., 2002). Statistically significant associations were also found in studies that focused on the interrelationships between attitude toward AD, perceptions of peer engagement in AD, and self-reported engagement in AD among students (Ajzen & Fishbein, 1980; Chapman et al., 2004).

- Are preservice teachers' attitudes toward academic dishonesty or perceptions of peer engagement in academic dishonesty predictive of self-reported engagement in academic dishonesty?
- *Hypothesis 4*: Preservice teachers' attitudes toward academic dishonesty and perceptions of peer engagement in academic dishonesty will be predictive of self-reported engagement in academic dishonesty.

According to Kam et al. (2018), subjective norm proved to be a stronger predictor of behavior than any other variable, actually appearing to mediate intention and the act of cheating among young adults. Students who reported the intention to cheat did not cheat when subjective norm was not favorable toward cheating. In this case, peer influence was so powerful that students who wanted and intended to cheat in school decided not to cheat, because it was not socially acceptable among their peer group. Researchers concluded that a cheating acceptable environment was a "necessary condition" for AD to occur among students (p. 956). Research by Maloshonok and Shmeleva (2019) found that perception of peer behavior "appeared to dominate as the strongest predictor of academic dishonesty" for Russian university students (p. 313). Finally, Ives et al. (2016) found that "how acceptable students believed the behaviors were and how often students witnessed other students engage in these behaviors were consistent predictors of the frequency of these behaviors" (p. 816).

Theoretical framework

Ajzen's Theory of Planned Behavior (2012) provided a useful theoretical framework for examining the problem of academic integrity among preservice teachers. Ajzen's theory posits that three primary factors contribute to behavioral intention and performance. First, an individual's attitude toward a given behavior influences the intention to act. Second, pressure from referent others contributes to behavior performance, what Ajzen refers to in the literature as subjective norm. In the case of academic dishonesty,

subjective norm can best be understood as the degree to which an individual's peers either approve of or engage in the target behavior. Third, Ajzen asserts that the degree to which an individual believes he or she can successfully perform a behavior influences the intention and decision to act -- also known as perceived behavior control. In the case of academic dishonesty, this refers to whether an individual believes he or she can cheat on an assignment and get away with it. For this research study of preservice teachers, attitude toward AD and perceptions of peer engagement in AD served as the independent or predictor variables, while self-reported engagement in academic dishonesty served as the dependent or response variable.

Methodology

This quantitative research study utilized a non-experimental design to collect data from preservice teachers enrolled at a private university in the Mid-Atlantic Region of the United States during the fall 2020 semester. The researcher utilized three parts of the Academic Integrity Survey (AIS), an instrument developed by McCabe et al. (2012). The AIS has also been utilized for collecting data on academic dishonesty over the last 20 years by the International Center for Academic Integrity.

For this study, the adapted survey instrument -- Academic Integrity Survey for Future Educators (AISFE) -- offered preservice teachers 28 academically dishonest behaviors commonly seen at universities. Respondents were asked to self-report how often they engaged in each of these behaviors over the previous two years. Additionally, students were asked to report how serious they thought these behaviors were and how frequently they believed the behaviors occurred at their university.

The AISFE was offered electronically using Microsoft Forms software and accessed via a link that was sent in an email invitation sent by a representative within the university's education department. A total of 141 second, third, and fourth-year teacher education students received the invitation. After reading the consent to participate in research information, 64 students completed the survey – a 45.4% return rate. Respondents were 91% female. This percentage reflected percentages statewide and across the nation, in which more than 75% of teachers in the profession are female (National Center for Education Statistics, 2021). Year of study data included 28 (44%) seniors, 20 (31%) juniors, and 16 (25%) sophomores. Representative of the target population at this university, 50 (77%) respondents reported working toward an elementary Pre-Kindergarten through 4th grade certification (PK-4). Of the 50 respondents earning a PK-4 certificate, 38 of those participants were also working toward a special education certification. Secondary 7–12 and Middle Level (4–8) certifications made up 23% of the participant sample.

To adhere to ethical standards for studying human subjects, this study was reviewed and approved by the university's Institutional Review Board. All ethical standards were respected during the study.

Statistics were run using IBM's Statistical Package for the Social Sciences (SPSS). Before running any statistical analyses, 2 cases were eliminated from the dataset. Respondent 54 stopped completing the survey after item 41, leaving more than 20 items unanswered. Additionally, case 58 selected the lowest value (1) for every response in the survey, leaving very little confidence in the validity of this participant's responses.

Of the remaining 62 cases, two items had missing values from two different respondents. These missing values were determined to be missing completely at random

(MCAR), as no pattern was evident. Respondent 10 failed to record a response to the question of how often they believed cheating on tests or exams happened at their university. However, respondent 10 did answer a similar question two items later. When asked how often they believed students engaged in the "Use of electronic/digital devices as an unauthorized aid during an in-class test" this same respondent answered "Often." Since using an electronic device as an unauthorized aid during an in-class test *is* cheating on a test, the same value was entered for item three. A similar situation arose with respondent 8. When asked to rate the seriousness of turning in a paper copied from another student, no response was provided. Yet, the previous item asked this same respondent how serious it was to copy material "almost word for word, from any written source and turning it in as your own work." To this item, respondent 8 answered "Serious Cheating." Therefore, it seemed reasonable that this same participant would also feel that copying an entire paper from someone and turning it in as your own work would also be an act of serious cheating. Thus, 4 was entered for this missing value. According to Tabachnick and Fidell (2013), using "prior knowledge" to make an educated guess when estimating missing data is an acceptable method when the number of missing values is "small" (p. 100).

Reliability of the survey instrument overall and for each factor was adequate. Items related to perceptions of peer engagement in academic dishonesty resulted in a Cronbach's alpha of $\alpha = .84$. Similarly, $\alpha = .87$ and $\alpha = .92$ reliability coefficients were found for all items examining self-reported engagement and attitude toward AD, respectively. Internal consistency for the whole instrument measured $\alpha = .82$, exceeding the $> .70$ accepted as demonstrating adequate internal consistency (Tabachnick & Fidell, 2013).

Results of the study

More than 80% of all participants admitted to engaging in at least one act of academic dishonesty during the previous two years. Only 12 of the 62 respondents in this study self-reported never committing any of the acts of academic dishonesty listed in the survey. Further, 68% of respondents self-reported engaging in serious acts of academic dishonesty, like cheating on tests or written assignments (Table 1).

Table 2 shows the ten most frequently self-reported AD behaviors, based on a three-point scale (*1 = Never, 2 = Once, 3 = More than Once*).

Table 3 shows which academically dishonest behaviors participants perceived their peers engaged in most frequently at the university on a five-point scale (*1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often*).

For items related to the attitude toward AD variable, respondents reported most acts of academic dishonesty as moderate or serious cheating, based on a four-point scale (*1 = Not Cheating, 2 = Trivial Cheating, 3 = Moderate Cheating, 4 = Serious Cheating*). Every participant (100%) who completed the survey acknowledged that purchasing or

Table 1 Frequency Rates for Cheating on Tests or Written Assignments

	*Preservice Teachers	**Undergraduates
% who self-report cheating on tests	56	39
% who self-report cheating on written assignments	45	62
% total who admit cheating on tests or written assignments	68	68

*$N = 62$. **$N = 71,300$, 2002–2015 (International Center for Academic Integrity, 2021)

Table 2 Frequencies of Self-Reported Academic Dishonesty

Behavior	n	%	M	SD
Receiving requests from another person (in person or using electronic means) to copy your homework	27	44	1.68	.845
Working on an assignment with others (using digital means like email, text messaging, or social media) when the instructor asked for individual work	23	37	1.58	.821
Working on an assignment with others (in person) when the instructor asked for individual work	20	32	1.48	.763
Paraphrasing or copying a few sentences from a book or article (not electronic or web-based) without citing them in a paper you submitted	17	27	1.32	.566
Receiving unpermitted help on an assignment	16	26	1.31	.561
Getting questions or answers from someone who has already taken a test	15	24	1.39	.732
Paraphrasing or copying a few sentences of material from an electronic source - e.g., the internet - without citing them in a paper you submitted	14	23	1.29	.584
Copying (by hand or in person) another student's homework	12	19	1.27	.605
Copying (using digital means such as email, text messaging, or social media) another student's homework	10	16	1.26	.626
Using handwritten crib notes (or cheat sheets) during a test or exam	10	16	1.24	.556

Note. *N* = Participants who self-reported engaging in the behavior *Once* or *More Than Once*

obtaining a paper written by someone else and submitting it as your own work was an act of serious cheating. Similarly, behaviors related to test cheating and plagiarism were consistently reported as serious. In contrast, peer-related AD behaviors, like working on an individual assignment with others, was reported as trivial cheating (60%) or not cheating at all by some respondents (13%).

Bivariate correlation analyses were performed to determine what types of relationships existed between the response variable of self-reported engagement in AD and two predictor variables, attitude toward AD and perceived peer engagement in AD. Table 4 shows the correlations between the three variables. Pearson's product-moment correlation coefficient showed a statistically significant negative association between attitude toward AD and self-reported engagement in AD, $r = -.43$, $n = 62$, $p < .01$. Because data for the dependent variable was positively skewed, non-parametric tests were also conducted to measure the strength of the relationship between variables. Spearman's rank order correlation coefficient yielded similar results, with a medium strength inverse relationship shown between attitude toward AD and self-reported engagement in AD, $r = -.35$, $n = 62$, $p < .01$. Based on these results, *Hypothesis 1*: Preservice teachers'

Table 3 Frequencies for Perceptions of Peer Engagement in Academic Dishonesty

Behavior	n	%	M	SD
Plagiarism on written assignments	32	52	2.53	1.05
Inappropriately sharing work in group assignments	39	63	2.79	1.10
Cheating on tests or exams	31	50	2.45	0.99
Submitting the same paper in more than one course without specific permission	16	26	2.02	0.80
Purchasing papers	8	13	1.68	0.70
Use of electronic/digital devices as an unauthorized aid during an in-class test	24	39	2.31	1.11
Falsifying information on an exam or paper after it has been graded/submitted	10	16	1.71	0.78

Note. *N* = Participants reporting that behaviors happened *Sometimes*, *Often*, or *Very Often*

Table 4 Correlation Coefficients for Parametric and Non-Parametric Tests

Variable	Attitude Toward AD		Peer AD
Self-Reported AD	Pearson Correlation	−.429*	.283**
	Sig. (2 Tailed)	.001	.026
	N	62	62
	Spearman'r rho	−.345*	.362*
	Sig. (2 Tailed)	.006	.004
	N	62	62

*$p < .01$. **$p < .05$

attitudes toward academic dishonesty will be inversely related to self-reported engagement in academic dishonesty was supported.

Similarly, parametric and non-parametric tests showed a statistically significant positive relationship between perceptions of peer engagement and self-reported engagement in AD, $r = .36$, $n = 62$, $p < .01$. Therefore, *Hypothesis 2*: Preservice teachers' perceptions of peer engagement in academic dishonesty will be positively associated with self-reported engagement in academic dishonesty was supported. *Hypothesis 3*: Preservice teachers' perceptions of peer engagement in academic dishonesty will be inversely related to attitudes toward academic dishonesty was not supported by these results.

To answer research question number three, a standard multiple regression was performed between self-reported engagement in academic dishonesty as the dependent variable and perceptions of peer behavior and attitude toward AD as the independent variables. Preliminary analyses were conducted in IBM SPSS Regression to evaluate assumptions. As in previous studies on academic dishonesty using this instrument, data related to the dependent variable in this study showed significant positive skew (Eriksson & McGee, 2015; McCabe et al., 2012). To address the skewed dependent variable in this study (self-reported engagement in AD), transformations for both moderate and severe skew were performed, but failed to produce a normal distribution. As a result, this variable was not transformed. Square root transformations were performed for one predictor variable that showed negative skew (attitude toward AD). For this independent variable, transformations resulted in a normal distribution, so the transformed variable for attitude toward AD was used in all statistical analyses. All other assumptions for regression were met.

Table 5 shows the unstandardized regression coefficients (*B*), standard error (*SE*), standardized regression coefficients (*β*), *t* scores, and confidence intervals (*CI*). Predictors in the regression model accounted for 24% of the total variance in self-reported engagement in academic dishonesty, with an R^2 value of .24, $F (2, 59) = 9.09$, $p < .001$. Attitude toward AD was the only statistically significant predictor contributing to the

Table 5 Standard Multiple Regression for Peer and Attitude Variables on Self-Reported Engagement in Academic Dishonesty

Variable	B	SE	β	t	95% CI
Peer behavior	0.26	.130	.230	2.00	[.000, .520]
Attitude toward AD (sqrt)	1.79	.518	.398*	3.47	[.759, 2.83]

*$p < .01$

model, *beta* = .40, *p* < .01. Perception of peer behavior was not found to be a significant predictor in the model. As a result, *Hypothesis 4*: Preservice teachers' attitudes toward academic dishonesty and perceived peer engagement in academic dishonesty will be predictive of self-reported engagement in academic dishonesty was supported in part and not supported in part. Attitude toward academic dishonesty was found to be predictive of self-reported engagement in AD, but perception of peer behavior was not found to be a significant predictor of self-reported AD among these participants.

Discussion

The purpose of this quantitative research study was to examine the attitudes and behaviors of preservice teachers related to academic integrity and dishonesty. More than 80% of preservice teachers at the institution in this study self-reported engaging in academically dishonest behavior at least once during the previous two years. The most frequently reported AD behaviors were peer-related (70%), like working with fellow students on assignments in an unauthorized manner, sharing homework, and giving tests questions and answers to fellow students prior to taking the test. These behaviors were also considered by participants to be less serious and in some cases not cheating at all. Regarding more serious behaviors, 68% of participants in this study self-reported cheating on tests or written assignments, consistent with the overall undergraduate rate of 68% internationally based on the responses of more than 71,000 students collected by the International Center for Academic Integrity (2021) over 13 years.

Attitude toward behavior emerged as the strongest factor associated with self-reported engagement in AD in this study, showing a statistically significant negative association with the dependent variable of self-reported engagement in AD. This finding was consistent with previous research. Both Hendy and Montargot (2018) and Zhang et al. (2018) found attitude toward behavior was the strongest predictor of self-reported engagement in academic cheating. Finally, this study of preservice teachers found attitude toward behavior to be a statistically significant predictor of self-reported AD.

Results of this study also supported previous research findings on the effect of perceptions of peer behavior on rates of self-reported AD (McCabe et al., 2012; Maloshonok & Shmeleva, 2019). Perceptions of peer behavior in this study showed a statistically significant positive association with self-reported engagement in academic dishonesty. When a respondent believed peers at their university engaged in an academically dishonest behavior, the respondent was more likely to self-report engaging in the AD behavior. Several researchers found peer behavior to be the most significant factor in determining whether students intended or decided to cheat in college (Bowers, 1964; McCabe et al., 2012; Maloshonok & Shmeleva, 2019).

Limitations

This study focused on academic integrity among preservice teachers at only one institution. Although the participant sample was representative of the target population at the institution in this study, findings cannot be generalized and should not be applied to other institutions or preservice teachers. Additionally, asking students to self-report engaging in academic cheating always invites the risk of under reporting, as students may fear consequences from the university or may want to maintain a positive self-concept.

As a result, the findings from this study should be interpreted in the context of these limitations.

Conclusion

Findings from this research study suggest that preservice teachers at this university engage in academically dishonest behaviors at approximately the same rates as other university undergraduates in majors like business, engineering, and criminal justice (Eriksson & McGee, 2015; Hendy & Montargot, 2018; International Center for Academic Integrity, 2021). The preservice teachers who participated in this study consistently reported acts of test and exam cheating, as well as acts of plagiarism and misrepresentation of one's work, as serious acts of academic misconduct. These findings suggest that as future educators of youth, teaching candidates from this institution recognize academic dishonesty and consider it serious. Nothing found in this study suggests that preservice teachers will be unable to impart the seriousness of academic integrity to their future students and cultivate classrooms where academic dishonesty is socially unacceptable.

However, results from this study suggest that education majors at this university are not a unique subset of all undergraduate students that refrain from engaging in academic dishonesty while preparing to become teachers. On the contrary, frequency rates collected in this study suggest that preparing educators are very much like undergraduate students in other majors and cheat at similar rates.

Implications

Cheating during one's preparation to be a future educator raises concerns. First, academically dishonest teachers could be unprepared for the rigors of providing highly effective instruction to their students, perhaps lacking key knowledge and skills necessary to be an effective teacher (Bens, 2010; Eret & Ok, 2014; Fontaine et al., 2020). Second, given that previous research found a relationship between cheating in college and unethical behavior in the workplace (Guerrero-Dib et al. 2020; Nonis & Swift, 2001), this raises questions of preparation related to professional ethics, as suggested by previous researchers (Chapman et al., 2004; Erikkson & McGee, 2015; Malone, 2020). Consequently, institutions that prepare future educators should make every effort to ensure that candidates for teacher certification demonstrate an unwavering commitment to academic integrity.

Recommendations

Institutions that prepare future educators should implement preventive methods for promoting academic integrity and discouraging academic dishonesty among teacher education students. Supporting students academically must be step one, with a full continuum of services and supports available to any student facing academic challenges or obstacles to academic success (Erikkson & McGee, 2015). Access to tutoring and remedial resources can be a first-line defense against students resorting to academic dishonesty during their teacher education programs. Participation in learning communities can also provide peer support and mentoring for students who feel overwhelmed by the rigors of undergraduate coursework (Yu et al., 2018).

Another preventive method for reducing academic dishonesty among preservice teachers would be to include a stand-alone course on academic integrity as part of a second-year undergraduate curriculum in teacher education (Maxwell et al., 2016; McCabe et al., 2012). Through this early coursework, students would review the research behind academic dishonesty, its potential effects on teacher preparation, and the consequences for engaging in academic misconduct as a student. An in-depth analysis of academic dishonesty in all its subtle forms, from unauthorized collaboration to falsifying references, could raise student awareness of the wide range of behaviors that qualify as academic cheating (Erikkson & McGee, 2015). Another course on teacher professionalism for third or fourth-year preparing educators could focus, in part, on unethical behaviors in the field, career consequences for dishonesty as a teaching professional, and the impact of unethical professional behavior on children (Malone, 2020; Nonis & Swift, 2001). Studies of real cases in which educators compromised their professional ethics, causing tragic consequences for children, school communities, and the integrity of the profession, could further raise the awareness of preservice teachers regarding the impact and reach of their actions.

Additionally, to create a culture in which academic dishonesty is socially unacceptable, institutions that prepare teachers should develop student-led panels and hearing boards to process and adjudicate reports of academic misconduct among teacher education majors. Research has shown that visible and meaningful peer involvement in efforts to preserve academic integrity is critical to cultivating an institutional environment in which academic dishonesty is socially unacceptable (McCabe et al., 2001, 2012). First offenses for academic dishonesty can and should trigger a restorative approach, with full access to academic support services, so that the student can effectively rejoin the academic community set up for future academic success.

In the event that preventive and restorative approaches fail to change academically dishonest behaviors, institutions that prepare future educators should adhere firmly to state guidelines that require candidates for teacher certification to demonstrate professional dispositions during their teacher preparation programs (Chapman et al., 2004). Repeat violations of academic integrity should disqualify a teacher education major from being a candidate for certification with both the university and the state.

Future research should focus on deepening our understanding of the factors related to academic integrity and dishonesty among preservice teachers. As this study focused on only one institution, future research could be conducted at small, medium, and large public and private colleges and universities that prepare future educators in other regions of the United States.

An important question left unanswered by the existing research is if and to what degree the decision to cheat in university coursework impacts or compromises the preparation of preservice teachers? Are certified teachers who cheated in college less prepared to meet the needs of students in PK-12 classrooms? Future research should focus on what gaps exists in the readiness and preparedness of certified teachers who cheated in pursuit of teacher certification.

Finally, future research should also pursue the question of whether preservice teachers, specifically, repeat unethical behaviors in their profession as classroom teachers, as prior research has found a relationship between individuals who cheat in college and unethical behavior in the workplace (Guerrero-Dib et al. 2020; Nonis &

Swift, 2001; Sims, 1993). Although this research could prove difficult to execute, valid and reliable data on if and how teachers act unethically as practitioners would help institutions that prepare educators to focus coursework on teacher ethics and professionalism.

Abbreviations
AD: Academic dishonesty; AIS: Academic integrity survey (McCabe et al., 2012); AISFE: Academic integrity survey for future educators; TBP: Theory of planned behavior (Ajzen, 2012)

Supplementary Information
The online version contains supplementary material available at https://doi.org/10.1007/s40979-021-00097-3.

> **Additional file 1: Appendix A.** Academic Integrity Survey for Future Educators (AISFE).

References
Ajzen I (2012) The theory of planned behavior. In: Lange PAM, Kruglanski AW, Higgins ET (eds) Handbook of theories of social psychology, vol 1. Sage, pp 438–459. https://doi.org/10.4135/9781446249215.n22

Ajzen I, Fishbein M (1980) Understanding attitudes and predicting social behavior. Prentice-Hall, Englewood Cliffs

Anderman EM, Cupp PK, Lane D (2010) Impulsivity and academic cheating. J Exp Educ 78(1):135–150. https://doi.org/10.1080/00220970903224636

Bens SL (2010) Senior education students' understandings of academic honesty and dishonesty. In: Doctor of philosophy. University of Saskatchewan, Saskatoon Retrieved from http://hdl.handle.net/10388/etd-09192010-154127. Accessed 26 Dec 2021.

Bowers WJ (1964) Student dishonesty and its control in college. New York: Columbia University Press.

Chapman KJ, Davis R, Toy D, Wright L (2004) Academic integrity in the business school environment: I'll get by with a little help from my friends. J Mark Educ 26(3):236–249. https://doi.org/10.1177/0273475304268779

Costley J (2019) Student perceptions of academic dishonesty at a cyber-university in South Korea. J Acad Ethics 17(2):205–217. https://doi.org/10.1007/s10805-018-9318-1

Eret E, Ok A (2014) Internet plagiarism in higher education: tendencies, triggering factors and reasons among teacher candidates. Assess Eval High Educ 39(8):1002–1016. https://doi.org/10.1080/02602938.2014.880776

Eriksson L, McGee TR (2015) Academic dishonesty amongst Australian criminal justice and policing university students: individual and contextual factors. Int J Educ Integr 11(1). https://doi.org/10.1007/s40979-015-0005-3

Fontaine S, Frenette E, Hébert M (2020) Exam cheating among Quebec's preservice teachers: the influencing factors. Int J Educ Integr 16(14):1–18. https://doi.org/10.1007/s40979-020-00062-6

Guerrero-Dib JG, Portales L, Heredia-Escorza Y (2020) Impact of academic integrity on workplace ethical behavior. Int J Educ Integr 16(2):1–18. https://doi.org/10.1007/s40979-020-0051-3

Hendy NT, Montargot N (2018) Understanding academic dishonesty among business school students in France using the theory of planned behavior. Int J Manag Educ 17(1):85–93. https://doi.org/10.1016/j.ijme.2018.12.003

International Center for Academic Integrity. 2021 Resources: Statistics. https://academicintegrity.org/statistics/

Ives B, Alama M, Mosora LC, Mosora M, Grosu-Radulescu L, Clinciu AI, Cazan AM, Badescu G, Tufis C, Diaconu M, Dutu A (2016) Patterns and predictors of academic dishonesty in Romanian university students. High Educ 74(5):815–831. https://doi.org/10.1007/s10734-016-0079-8

Kam CCS, Hue MT, Cheung HY (2018) Academic dishonesty among Hong Kong secondary school students: application of theory of planned behavior. Educ Psychol 38(7):945–963. https://doi.org/10.1080/01443410.2018.1454588

Malone DM (2020) Ethics education in teacher preparation: a case for stakeholder responsibility. Ethics Educ 15(1):77–97. https://doi.org/10.1080/17449642.2019.1700447

Maloshonok N, Shmeleva E (2019) Factors influencing academic dishonesty among undergraduate students at Russian universities. J Acad Ethics 17(3):313–329. https://doi.org/10.1007/s10805-019-9324-y

Maxwell B, Tremblay-Laprise A-A, Filion M (2016) A survey of ethics curriculum in Canadian initial teacher education. McGill J Educ Revue Des Sciences De l'éducation De McGill 20(1) Retrieved from https://mje.mcgill.ca/article/view/9205

McCabe D, Treviño LK (1996) What we know about cheating in college. Change 28(1):28–33. https://doi.org/10.1080/00091383.1996.10544253

McCabe D, Treviño LK (1997) Individual and contextual influences on academic dishonesty: a multicampus investigation. Res High Educ 38(3):379–396. https://doi.org/10.1023/A:1024954224675

McCabe DL, Butterfield KD, Treviño LK (2012) Cheating in college: why students do it and what educators can do about it. John Hopkins University Press, Baltimore

McCabe DL, Treviño LK (1993) Academic dishonesty: honor codes and other contextual influences. J High Educ 64(5):523–538. https://doi.org/10.2307/2959991

McCabe DL, Treviño LK, Butterfield KD (2001) Dishonesty in academic institutions: the influence of peer reporting requirements. J High Educ 72(1):29–45. https://doi.org/10.1080/00221546.2001.11778863

McCabe DL, Treviño LK, Butterfield KD (2002) Honor codes and other contextual influences on academic integrity: a replication and extension to modified honor code settings. Res High Educ 43(3):357–378. https://doi.org/10.1023/A:1014893102151

National Center for Education Statistics (2021) Digest of education statistics. In: Institute for Education Sciences https://nces.ed.gov/programs/digest/current_tables.asp

Nonis S, Swift CO (2001) An examination of the relationship between academic dishonesty and workplace dishonesty: a multicampus investigation. J Educ Bus 77(2):69–77. https://doi.org/10.1080/08832320109599052

Peled Y, Eshet Y, Barczyk C, Grinautski K (2018) Predictors of academic dishonesty among undergraduate students in online and face-to-face courses. Comput Educ 131:49–59. https://doi.org/10.1016/j.compedu.2018.05.012

Quraishi U, Aziz F (2017) Academic dishonesty at the higher education level in Punjab, Pakistan. J Res Reflect Educ 11(1):68–85

Sims RL (1993) The relationship between academic dishonesty and unethical business practices. J Educ Bus 68(4):207–211. https://doi.org/10.1080/08832323.1993.10117614

Tabachnick BG, Fidell LS (2013) Using multivariate statistics, 6th edn. Pearson, Boston

Tasgin A (2018) The relationship between preservice teachers' attitudes towards research and academic dishonesty tendencies of preservice teachers. Int J Progress Educ 14(4):85–96. https://doi.org/10.29329/ijpe.2018.154.7

Trushell J, Byrne K (2013) Education undergraduates and ICT-enhanced academic dishonesty: a moral panic? Br J Educ Technol 44(1):6–19. https://doi.org/10.1111/j.1467-8535.2012.01381.x

Yang SC (2012) Attitudes and behaviors related to academic dishonesty: a survey of Taiwanese graduate students. Ethics Behav 22(3):218–237. https://doi.org/10.1080/10508422.2012.672904

Yu H, Glanzer PL, Johnson B (2018) Why students cheat: a conceptual framework of personal, contextual, and situational factors. Rev High Educ 41(4):549–576. https://doi.org/10.1353/rhe.2018.0025

Zhang Y, Yin H, Zheng L (2018) Investigating academic dishonesty among Chinese undergraduate students: does gender matter? Assess Eval High Educ 43(5):812–826. https://doi.org/10.1080/02602938.2017.1411467

Publisher's Note