Academic Dishonesty and Testing: How Student Beliefs and Test Settings Impact Decisions to Cheat

JARRET M. DYER, M.B.A.
College of DuPage

HEIDI C. PETTYJOHN, M.A.
University of Cincinnati

STEVE SALADIN, PH.D.
University of Idaho

Jarret M. Dyer is Coordinator, Specialized Testing and Co-Chair, Academic Integrity at College of DuPage. Email: dyerja@cod.edu
Heidi Pettyjohn is the Executive Director of Accessibility at University of Cincinnati. Email: heidi.pettyjohn@uc.edu
Steve Saladin is Professor of Psychology and the Director of Testing & Assessment at University of Idaho. E-mail: ssaladin@uidaho.edu

Research shows that academic dishonesty in post-secondary education runs particularly high among students in the specific disciplines of engineering, business, and nursing. The authors were interested in how student attitudes towards specific environments for testing might contribute to the prevalence or likelihood of cheating on tests and exams. It was hypothesized that while there would be no difference in their beliefs or attitudes regarding the acceptability of cheating behaviors in unproctored versus proctored settings, students would be more likely to engage in cheating behavior in an unproctored setting. Technology continues to transform the world around us at a rapid pace, allowing faculty to incorporate more technology into the classroom and to educate more students remotely via hybrid and online classes. While these opportunities have their benefits, they also present new challenges. The opportunity for cheating on tests increases, especially when exams are delivered in unproctored environments. An instrument was created to investigate the attitudes and behaviors of first- and second-year undergraduate engineering students while taking tests in both proctored and unproctored environments. In all, 734 students were surveyed from four different institutions of higher education. Students provided both qualitative and quantitative responses to questions related to their beliefs and attitudes toward cheating in today's socially shareable society. Results indicated that both students' attitudes and behaviors vary as a result of tests being delivered in a proctored versus unproctored environment.

Keywords: academic integrity, academic dishonesty, cheating, proctored, unproctored, attitudes, behaviors, testing, classroom, placement, on-line

INTRODUCTION

The term academic integrity was coined by the late Donald L. McCabe, one of the principal researchers in educational ethics in the 20th Century (Star-Ledger, 2016). Academic integrity (also called academic honesty) is referred to as either the moral code or ethical policies of an academic institution. Typically, institutions refer to their academic code of student conduct when referencing the definitions of academic integrity. The Higher Learning Commission (HLC) identifies academic integrity as a core criterion in creating the fabric of an institution of learning. The HLC Criteria for Accreditation list as a requirement the need for an institution to both "ensure the integrity of research and scholarly practice" (Higher Learning Commission [HLC], 2019, Criterion 2.E.1) and "[have] and [enforce] policies on academic honesty and integrity" (HLC, 2019, Criterion 2.E.3). Gallant and Drinan (2006) posit, "integrity is so essential to the adaptability and coherence of higher education that its dilution or absence would have almost unimaginable consequences to the future of higher education" (p. 856). A web search of the question "why does academic integrity matter?" returns pages of links from colleges and universities, outlining a shared expectation that academic integrity is at the core of a fair and

honest environment where academic freedom and success can flourish:

• "Academic assignments exist to help students learn; grades exist to show how fully this goal is attained. Therefore all work and all grades should result from the student's own understanding and effort." (University of Oklahoma, 2019, "What is Academic Integrity?")

• "Academic integrity is the moral code that builds trust between scholars." (Luther College, 2017, "What is Academic Integrity?")

• "Fundamental to the academic work you do at MIT is an expectation that you will make choices that reflect integrity and responsible behavior." (Massachusetts Institute of Technology, n.d., "What is Academic Integrity?")

• "Academic integrity is a commitment, even in the face of adversity, to five fundamental values: honest, trust, fairness, respect and responsibility. From these values flow principles of behavior that enable academic communities to translate ideals into action." (University of Toronto Mississauga, n.d., "What is the meaning of Academic Integrity?")

INTEGRITY, DISHONESTY, AND CHEATING

As defined above, academic integrity is a core tenet of the fabric of higher education. The antithesis of this, academic dishonesty, has been described as any activity in which a student violates the moral and ethical policy of an academic institution. Academic dishonesty can sometimes be referred to as academic misconduct or academic fraud. While academic dishonesty is often

substituted with the more specific descriptor of cheating, for the context of this paper, academic dishonesty is a larger umbrella under which cheating is one aspect. Cheating has been defined in many ways; when it comes specifically to education and testing, it may have been best described by Dr. Gregory J. Cizek in 2012 at the annual meeting of the American Educational Research Association (AERA) in Vancouver, Canada. Dr. Cizek defined cheating as "any action taken before, during, or after the administration of a test or assignment, that is intended to gain an unfair advantage or produce inaccurate results" (Cizek, 2012, p. 16).

While most academics view cheating as fairly black and white in scope, many face a dilemma when attempting to fully articulate what does and does not constitute academic dishonesty. For example, some faculty will inform students in their syllabi that discussing any content on an exam is academic dishonesty, while others will solely state that cheating on a test is dishonest. This ambiguity and inconsistency within higher education illustrate the need for continued education, discussion, and research into the subject.

Prevalence by Self-Report

Over the past century, a body of research into academic dishonesty has been compiled that has focused on the actions of students in higher education. Early in the 1960's, William J. Bowers conducted some of the first large-scale surveys that looked to measure cheating in college. Bowers' initial research showed that 75% of college students surveyed had cheated at least once in college (Bowers, 1964). This number increased marginally thirty years later when McCabe, along with additional researchers, recreated Bowers' survey and found that

82% reported they had cheated in college (McCabe et al., 2001). These findings have been continuously supported in current studies, with ranges of self-reported cheating between 50-70% (Hamlin et al., 2013; Küçüktepe, 2014) and nearly 40% of students reporting using the internet to facilitate cheating (Stogner et al., 2013). This is an increasingly serious issue globally (Löfström & Kupila, 2013; Miller et al., 2015) and one that has become increasingly culturally complex (Teixeira & Rocha, 2010). In the past 30 years, the number of students that self-report consistent or frequent cheating increased rather sharply, especially in regard to cheating on tests. In the early 1960's, 17% of students surveyed stated that they had cheated at least 3 times, while in the 1990's that number had increased to 38% (McCabe et al., 2001).

However, since the late 1990's, the number of self-reported cheating has decreased (McCabe, et al., 2012), and it is unclear whether the decrease is due to fewer incidents, rising awareness of the importance of academic integrity, or student disagreement as to what constitutes cheating. Additionally, discussion can be found that focuses on the ever-increasing ease of cheating, especially while using technology to cheat, or e-cheat (Hamlin et al., 2013; Khan, 2017; Simkin & McLeod, 2010). Other scholars have argued that the United States and a multitude of other countries have seen an increase in the frequency of cheating and have opined that it is a sociological problem (Wollack & Cizek, 2017). What has been absent from the research is the impact of the environment on students' willingness to engage in academic dishonesty. Better technology has created several modalities in which faculty can engage students in academic pursuit remotely. With the advent of online learning, that ability for students to engage

unseen with faculty has grown, as has the ability for students to cheat and rarely get caught.

Student and Faculty Perceptions

There is an apparent wall between student perceptions and faculty perceptions on the pervasiveness of academically dishonest behaviors. Faculty report that they believe cheating occurs much less frequently than students believe, but when it occurs, faculty view it as a more serious offense (Lipson & McGavern, 1993). Some research posits that the biggest concern is the extent to which students are aware of what constitutes dishonest behaviors, with up to one third reporting they were unaware they participated in academic dishonesty (Beasley, 2014; Lepp, 2017). Given constant access to internet-connected devices, some traditional cheating behaviors have become easier, giving rise to new styles of cheating that have not previously existed (Khan, 2017). The perception of frequency of cheating is consistently less than reality. When asked, both cheaters and non-cheaters reported perceptions of examinees' frequency of cheating as lower than actual cheating behaviors that are reported. Cheaters report higher perceived frequency than non-cheaters (Harding et al., 2001; Sherrill et al., 1971; Srikanth & Asmatulu, 2014).

Impact to Institutions

The impact of academic dishonesty goes beyond the individual impact of crossing a moral or ethical boundary. It also reduces the perceived academic integrity of the institution, devaluing degrees earned from that institution (Chace, 2012; Mensah et al., 2016), and threatens the validity of those credentials (Wollack & Cizek, 2017). Students who cheat rather than learn to pass courses are less prepared for the

workforce and are more likely to engage constituents in behaviors that are similarly unethical (Smyth et al., 2009; Teixeira & Rocha, 2010). Institutions of higher education consider themselves to be more than degree granters and state an institutional commitment to producing ethical and prepared citizens (Chan, 2016). To that end, it is imperative that universities and colleges not only hold accountable those students who are caught cheating, but also take steps to systemically limit the prevalence of cheating.

Given the essential nature of academic integrity to the academic mission of an institution, preventing academic dishonesty on the most common form of assessment (testing) is of high value to many colleges and universities. In classrooms and in the test center environment, this threat to academic integrity should lead to very strict security rules. Students should be observed at all times while testing (Petrak & Bartolac, 2014), and proctors must be able to intervene immediately if there is any unusual testing behavior (Weinstein, 2013). The Association of Test Publishers (ATP) and the National College Testing Association (NCTA) have published *Proctoring Best Practices*, an industry guide that clearly articulates the steps needed to deliver a test securely (ATP & NCTA, 2015). Additionally, the *Handbook of Test Security* (Wollack & Fremer, 2013), the *TILSA Testing Security Guidebook* (Olsen & Fremer, 2013), the *NCTA Professional Standards & Guidelines* (NCTA, 2014), and the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014) all address securely delivering tests and assessments. Implementation of best practices is paramount in these endeavors, especially in online classes and online exam administration. Students in online courses have the highest tendency to

cheat, with more than 70% admitting to cheating (Srikanth & Asmatulu, 2014). This creates a nebulous space in which programs can be uncertain of how to operate. Specifically, it is difficult to provide the students with the same educational experience online while balancing convenience with security concerns, which can lead to increased costs in online and hybrid courses.

Demographics and Cheating

When researchers attempt to identify individual factors that predict the likelihood of a student cheating, previous research has produced mixed results. Several studies indicate that female students cheat less than male students (Kobayashi & Fukushima, 2012; McCabe & Trevino, 1997). However, other literature reviews show gender to be an inconsistent determinant of academic dishonesty (Klein et al., 2007), with more recent studies finding both genders engaging in academic dishonesty, but using different approaches (Anitsal et al., 2009; Monahan et al., 2018). Commuting students have been found to cheat less than residential students, and upper-class students cheat less than 1st and 2nd year students (Josien & Broderick, 2013). Students with lower grade points averages tend to cheat more often than their counterparts with higher grade point averages (Diekhoff et al., 1996; Roig & DeTommaso, 1995). Some have shown that international students are more likely to be reported for cheating than domestic students (Beasley, 2016); however, Teixeira and Rocha (2010) found significant variability in self-reported cheating among international students depending on the country in which they were studying, and Miller et al. (2015) suggest that factors related to lower institutional economic

stability increase the level of cheating. In addition, previous research suggests that the student's opinions on cheating change when technology is introduced or if presented with take home or out of class exams (Carpenter et al., 2006; Josien & Broderick, 2013; Jurdi et al., 2012). This is a significant finding in the research and the impetus for the work conducted here.

Environmental Influences

A consistent finding in the literature is the impact that internal and contextual influences have on the prevalence of academic dishonesty. Ruedy, Moore, Gino and Schweitzer (2013) found that, contrary to the fundamental assumption that cheating triggers feelings such as guilt, shame, and anxiety, unethical behavior can actually trigger positive affect, or what they call the "cheater's high." They write, "Our findings challenge these assumptions and demonstrate that some unethical behaviors not only fail to trigger *negative affect* but can in fact trigger *positive affect"* (Ruedy et al., 2013, p. 542).

However, even this finding on internal influences concludes, "the cheater's high is likely to be moderated by contextual factors" (Ruedy et al., p. 545). As much of the research in the field shows, the impact of peers' beliefs and behavior (or perceived beliefs and behavior) is one of the contextual variables that has received significant attention in the literature (Jurdi et al., 2012; McCabe & Trevino, 1997). Demanet and Van Houtte (2012) found that adolescents with strong peer bonds are more likely to engage in school misconduct (including cheating on tests) that is reinforced by those peer bonds. Peers are often part of the neutralization techniques (rationalization, denial, deflecting blame) cited by McCabe (1992) that reduce negative affect.

A final and consistent theme in the literature was the importance of the faculty member (primarily) and the institution (secondarily) in setting an environment of academic integrity. In fact, students have indicated that the onus is on the institution and the faculty member, not the students, to limit cheating (Aasheim et al., 2012; Asmatulu et al., 2012; Carpenter et al., 2006). Additionally, schools that instituted honor codes saw fewer incidents of academic dishonesty (McCabe et al., 2002). In particular, when faculty both spoke with students about integrity and the honor code and enforced violations consistently, positive attitudes toward cheating among students decreased, as did the prevalence of cheating (Carpenter et al., 2006).

This study was designed to move beyond preventive security measures and look at how understanding attitudes about cheating in differing test environments could be used to direct campus decision-making in a proactive approach to increasing test security. The literature would suggest that in order to influence students to be more honest and ethical in academic testing (which all articles suggested was of primary importance), colleges need to understand how students feel about the acts that administration and faculty consider to be academically dishonest and what their perceived beliefs are about the negative impacts of taking part in these acts. In turn, this understanding can be used as the foundational discussion points for faculty, staff, and administration in formulating plans to combat cheating on tests and to engage students in discussions of academic integrity.

It is important to note that most literature available on academic dishonesty in post-secondary institutions focuses on academic dishonesty as a whole and does

not specifically focus on testing. There were gaps found in the literature on academic dishonesty and test administration. Much of the literature and data suggests a very high incidence of plagiarism (Jurdi et al., 2012) but often does not distinguish between that and cheating on tests. This study uniquely addresses how students feel about performing acts that are considered academically dishonest on exams, whether or not they personally agree with those acts, and allows them to provide open–ended feedback. The authors hypothesized that students in the current study would be more likely to report engaging in cheating behavior in an unproctored versus proctored setting, but that there would be no difference in their beliefs/attitudes regarding the acceptability of cheating behaviors in unproctored versus proctored settings.

METHOD

While there is a solid body of research conducted on cheating in higher education, there has been limited research focused specifically on test taker misconduct in and around testing centers. In this project, the researchers attempted to better understand student/test taker attitudes and social trends in order to improve current testing practices and testing delivery at testing centers. Specifically, the researchers were interested in the impact of a proctored testing environment relative to an unproctored environment on cheating attitudes and behaviors.

The data gathered was not further correlated to any institutional data on academic dishonesty, GPA, or other individual factors of students who completed the survey. This was done to allow anonymity on behalf of the participants to support openness in responses. In addition, there was no faculty involvement outside of initial support to solicit students. This study specifically focused on first- and second-year engineering students enrolled in both two-year and four-year public institutions of higher education. This population was selected based on research that shows that self-reports of cheating differ by major, and engineering students tend to self-report higher than almost all majors, with the exception of business (Carpenter et al., 2006; Henslee et al., 2017; McCabe, 1997).

Both the survey and the solicitation specifically avoided using the word "cheating," opting for "academic dishonesty." Jurdi et al (2012) concluded that using a more neutral term influences the decision about whether or not to commit the act and leads to higher (and presumably more accurate) self-reporting around having committed those acts in the past. The survey described the behaviors of interest as those typically considered to be in violation of student codes of conduct found across many higher education institutions.

The literature suggests several ways to conduct research and obtain data on academic dishonesty. Teixeira and Rocha (2010) describe the main four ways as adopted from Kerkvliet and Sigmund (1999) as follows: 1) direct yet discrete observation of the data; 2) the "overlapping error" method; 3) the random answer questions method; and 4) inquiry via the direct questions method. Based on its ability to provide the largest volume of data for analysis, the inquiry via the direct method was selected for this study.

Instrument Design

This study's design offers a comprehensive and contemporary look into cheating in both proctored and unproctored testing

environments. The survey was developed by the authors to provide qualitative, descriptive data on participants' opinions and self-reported behaviors. It focused on student attitudes toward placement and classroom testing, specifically on the delivery modality of tests given in proctored environments or unproctored/take home environments. To build on the existing research and address a gap in the literature regarding the relationship between academically dishonest behavior and cheating on tests, the researcher-designed survey was built to replicate previous research conducted by Carpenter, Finelli, Harding, and Montgomery in 2006. Similarly, first- and second-year engineering students were surveyed as outlined in the research and for the statistical probability that a higher occurrence of cheating is likely in that particular demographic of students (McCabe, 1997).

This survey was designed to measure student opinions on types of academically dishonest behaviors in test taking, how often they have participated in those same behaviors in test taking, whether or not they believed to have been pressured by others to cheat on tests, and whether or not that pressure resulted in them actually cheating on a test.

For the first set of questions about specific opinions and behaviors, the behaviors listed were drawn from Lou Woodruff's *Common Cheating Techniques and Strategies* (Woodruff, 2013). Those include:

1.   use of unauthorized aids
2.   communication codes
3.   pre-knowledge
4.   proxy testing
5.   copying

Participants were offered Likert scale survey questions regarding beliefs/attitudes about the acceptability of the described cheating behaviors, and then how frequently the students engaged or had engaged in those same behaviors in both proctored and unproctored environments while taking placement and classroom tests. The scales were based on Vagias' *Likert-type Scale Response Anchors* from the Clemson International Institute for Tourism and Research Development and included the following anchors (Vagias, 2006):

- Level of Acceptability:
    1. *Totally unacceptable*
    2. *Slightly unacceptable*
    3. *Neutral*
    4. *Slightly acceptable*
    5. *Totally acceptable*
- Level of Frequency:
    1. *Never*
    2. *Almost never*
    3. *Occasionally/Sometimes*
    4. *Almost every time*
    5. *Every time*

The survey consisted of thirteen questions, distributed among four sections:

a)   Section 1
Questions 1 – 4 addressed students' opinions regarding identified types of academically dishonest behavior in test taking, both proctored and unproctored. Responses were indicated on the Likert scale by level of acceptability. Question 5 provided respondents the opportunity to provide written comments (open-ended response).

b)   Section 2
Questions 6-7 addressed how often students participated in identified academically dishonest test-taking

behaviors, both in proctored and unproctored testing environments. Responses were indicated on a Likert scale by level of frequency.

Question 8 provided respondents the opportunity to provide written comments (open-ended response).

c) <u>Section 3 (optional)</u>
Question 9 addressed students' beliefs regarding whether they felt pressured by others to cheat on tests; responses were indicated on a Likert scale by level of frequency.

Question 10 addressed whether students acted on pressure from others and actually cheated on a test. Responses were indicated on a Likert scale by level of frequency.

d) <u>Section 4</u>
Questions 11-12 were demographic questions requesting gender and race.

Question 13 provided respondents the opportunity to provide written comments (open-ended response).

There was an opportunity for open response at the end of each section for any further explanation. Finally, respondents were given an optional question, "How often have you been encouraged by any of the following to engage in academically dishonest behavior that went against the code of conduct when taking an exam (whether you did or did not act on it)?" For this section, respondents could answer with the following scale:

1. *Never*
2. *Rarely*
3. *Occasionally*
4. *A moderate amount*
5. *A great deal.*

The survey, while based on a set of questions attributed to Lou Woodruff's *Common Cheating Techniques and Strategies* (Woodruff, 2013) and reviewed by the authors and through the IRB approval process, was not pilot tested. This is a limitation of this study and an area for future improvement.

Participants
First- and second-year students that had selected engineering as their primary course of study were selected to participate in the study. Students from both two-year and four-year public institutions were able to participate and respond. While it was suggested that the primary contacts at each institution utilize research and development offices to select the students surveyed, the final decision of which students to survey was ultimately left in the hands of the primary contacts at the institutions that elected to participate. Only first- and second-year students were invited to participate in the survey to keep consistency with the students surveyed given the incorporation of both two- and four-year institutions. No additional metrics were used to differentiate the student responses.

The study was reviewed and approved by the Institutional Review Board at Institution A in January 2015. Once approval was received, solicitation of institutions began in the spring of 2015. The primary form of solicitation was through members of a national academic professional association. Initially, over twenty requests were received to participate in the study from colleges and universities nationwide, but in the end, four colleges and universities were able to commit to participate. Of the participating institutions, all accepted the IRB approval from Institution A. None required additional IRB

approvals, which greatly accelerated implementation of the project.

Survey

The survey instrument was developed by the authors and distributed via Qualtrics. A research associate in the Office of Research and Planning at the principal researchers' school oversaw the daily activity on the study and secured the raw data during each survey window. All surveys were run for two consecutive weeks.

Data Collection

After the surveys were closed, a report was delivered to the primary author on the study as a PDF document devoid of any personally identifying information to protect the anonymity of the respondents. Additionally, at the beginning of each survey, respondents were made aware that the researchers would do their best to protect the anonymity of their responses, and a contact on each campus was listed in the event that a student had a comment or concern.

Institution A is a public, 2-year community college with an approximate student population of 31,000. Institution B is a public, 4-year university with an approximate student population of 46,000. Institution C is a public, 4-year institution with 28,000 students. Institution D is a public, 4-year institution with approximately 12,000 students. The survey was distributed to first- and second-year engineering students at Institution A during the spring of 2015, at Institution B during the fall of 2015, and at Institution C and D during the spring of 2016. In total, 734 students from four institutions participated in the survey as detailed below.

Table 1
Number of Respondents by Institution

	Institution A	**Institution B**	**Institution C**	**Institution D**
	2-year	4-year	4-year	4-year
Respondents	70	271	209	184

Data were collected from 734 individuals; however, response rates varied from section to section. 50 subjects missing data in the beliefs and behaviors sections were eliminated. Of the 684 subjects who completed the questions about beliefs, nearly 12% left more than half of the behavioral questions unanswered, and a full 29% of the subjects failed to respond to one or more of the questions about behavior. After eliminating those with missing data, 484 complete responses were returned and used for analysis.

RESULTS

The data indicate that cheating is both commonplace and to some degree viewed as acceptable. 62% of our sample (298 subjects) indicated that they had engaged in some sort of cheating at least occasionally (which also means that only 38% of students said they have never cheated during their college career). 76% (369 subjects) indicated at least some acceptance of cheating, and only 24% reported that cheating was never acceptable. For all questions, both the median and mode were 1 (*Totally unacceptable* or *Never*), with the exception of the 4 items asking about

"Talking about a test you haven't yet taken with a student who has taken the test" (median = 2, mode = 1). Based on a review of the comments, it appeared that most respondents who indicated that this was acceptable or that they had engaged in it were interpreting the item as asking about the appropriateness of talking to someone about general nature of the exam, rather than sharing actual questions from the exam. But even when excluding these items, 43% still reported engaging in cheating behavior, and 54% expressed some acceptance of cheating.

Table 2 presents the behavior deemed most inappropriate/least likely to engage in, and the most and second most appropriate/likely to engage in for proctored versus unproctored situations. The percentages in Table 2 refer to the percent of total respondents that reported perception of attitudes as in agreement with the questioned behavior, within a proctored or unproctored environment.

Table 2

Least and Most Acceptable Cheating Behaviors

Situation	Most Inappropriate/ Lowest Frequency	Most Appropriate/ Highest Frequency	2nd Most Appropriate/ 2nd Highest Frequency
Proctored Attitude	Proxy test taker (97%)	Talking with someone who already took the test (17%)	Cheat sheet (5%)/ prior viewing of test content (5%)
Proctored Behavior	Communicating with other test takers/Proxy test taker (99%)	Talking with someone who already took the test (5%)	Cheat sheet/looking up answers (0.4%)
Unproctored Attitude	Proxy test taker (94%)	Talking with someone who already took the test (21%)	All others 7-8%
Unproctored Behavior	Proxy test taker (98%)	Talking with someone who already took the test (6%)	Looking up answers when told not to (4%)

Results were analyzed comparing the proctored versus unproctored environments by both beliefs and behaviors, and beliefs compared with behaviors. Table 2 highlights these finding and shows the least and most acceptable cheating behaviors in relation to students' attitudes and behaviors. It was hypothesized that students would be more likely to engage in cheating behavior in an unproctored setting, but that there would be no difference in their beliefs/attitudes regarding the acceptability of cheating behaviors in unproctored versus proctored settings. Responses were collapsed across the various conditions to generate a mean response for beliefs/attitudes about cheating in unproctored versus proctored settings for each subject, as well as for their reported behavior (engagement in each cheating modality). Results for attitudes are shown in Table 3, and behaviors are in Table 4. Lower scores on attitude items indicate perceiving the behavior as less acceptable, and lower scores on behavioral

items indicate less frequently engaging in that behavior.

Table 3
Responses to Questions about Beliefs

Placement Proctored	Mean	Median	Mode	Range	StdDev
Use an unapproved "cheat sheet" (with answers, equations, definitions, etc.)	1.29	1.00	1.00	4.00	0.84
Text or otherwise communicating with other test takers about the test while you are taking it	1.16	1.00	1.00	4.00	0.65
Unauthorized viewing of test content prior to taking your test	1.38	1.00	1.00	4.00	0.84
Look up answers to a test question during the test	1.20	1.00	1.00	4.00	0.72
Have someone else take the test for you	1.12	1.00	1.00	4.00	0.61
Copy from another test taker	1.20	1.00	1.00	4.00	0.67
Talk about a test you haven't yet taken with a student who has taken the test	2.28	2.00	1.00	4.00	1.29
Classroom Proctored	**Mean**	**Median**	**Mode**	**Range**	**StdDev**
Use an unapproved "cheat sheet" (with answers, equations, definitions, etc.)	1.20	1.00	1.00	4.00	0.71
Text or otherwise communicating with other test takers about the test while you are taking it	1.15	1.00	1.00	4.00	0.60
Unauthorized viewing of test content prior to taking your test	1.29	1.00	1.00	4.00	0.76
Look up answers to a test question during the test	1.16	1.00	1.00	4.00	0.63
Have someone else take the test for you	1.10	1.00	1.00	4.00	0.54
Copy from another test taker	1.19	1.00	1.00	4.00	0.61
Talk about a test you haven't yet taken with a student who has taken the test	2.19	2.00	1.00	4.00	1.26
Placement Unproctored	**Mean**	**Median**	**Mode**	**Range**	**StdDev**
Look up answers to a test question when you have been instructed not to do so	1.59	1.00	1.00	4.00	1.01
Collaborate with another test taker while taking the test when you have been instructed to work alone	1.58	1.00	1.00	4.00	1.01

	Mean	Median	Mode	Range	StdDev
Collaborate with someone else (not a classmate or someone else who will or has taken the test) on the exam while you are taking it	1.62	1.00	1.00	4.00	1.05
Unauthorized viewing of exam content prior to taking the test	1.52	1.00	1.00	4.00	1.01
Have someone else take the test for you	1.20	1.00	1.00	4.00	0.70
Talk about a test you haven't yet taken with a student who has taken the test	2.32	2.00	1.00	4.00	1.34

Classroom Unproctored	Mean	Median	Mode	Range	StdDev
Look up answers to a test question when you have been instructed not to do so	1.54	1.00	1.00	4.00	1.01
Collaborate with another test taker while taking the test when you have been instructed to work alone	1.55	1.00	1.00	4.00	1.01
Collaborate with someone else (not a classmate or someone else who will or has taken the test) on the exam while you are taking it	1.58	1.00	1.00	4.00	1.03
Unauthorized viewing of exam content prior to taking the test	1.43	1.00	1.00	4.00	0.92
Have someone else take the test for you	1.18	1.00	1.00	4.00	0.68
Talk about a test you haven't yet taken with a student who has taken the test	2.26	2.00	1.00	4.00	1.33

Table 4
Responses to Questions about Behavior

Proctored	Mean	Median	Mode	Range	StdDev
Used an unapproved "cheat sheet" (with answers, equations, definitions, etc.)	1.09	1.00	1.00	4.00	0.39
Texted or otherwise communicated with other test takers about the test while you are taking it	1.05	1.00	1.00	4.00	0.29
Viewed test content prior to taking your test when unauthorized	1.09	1.00	1.00	4.00	0.37
Looked up answers to a test question during the test	1.11	1.00	1.00	4.00	0.40
Had someone else take the test for you	1.04	1.00	1.00	4.00	0.30
Copied from another test taker	1.18	1.00	1.00	4.00	0.49
Talked about a test you haven't yet taken with a student who has taken the test	1.80	1.00	1.00	4.00	1.00

Unproctored	Mean	Median	Mode	Range	StdDev
Texted or otherwise communicated with other test takers about the test while you are taking it	1.45	1.00	1.00	4.00	0.85
Viewed test content prior to taking your test when unauthorized	1.31	1.00	1.00	4.00	0.71
Looked up answers to a test question during the test	1.28	1.00	1.00	4.00	0.67
Had someone else take the test for you	1.12	1.00	1.00	4.00	0.46
Copied from another test taker	1.06	1.00	1.00	4.00	0.33
Talked about a test you haven't yet taken with a student who has taken the test	1.71	1.00	1.00	4.00	1.01

A paired-samples t-test was also conducted to compare the overall perception of acceptability of various methods of cheating in unproctored and proctored conditions. There was a significant difference in the acceptability scores for the unproctored ($M = 1.615$, $SD = 0.799$) and proctored ($M = 1.352$, $SD = 0.572$) conditions; $t(483) = 9.683$, $p < .001$, $d = 0.38$). Subjects reported that they find cheating as more acceptable on an unproctored test than they do when that test is proctored. While statistically significant, this difference still represents a small effect size. Again, a separate paired-sample t-test on just those subjects who reported some degree of acceptability for at least one of the cheating methods (average across all methods was greater than 1.0) also found a significant difference between the unproctored ($M = 1.81$, $SD = 0.83$) and proctored ($M = 1.46$, $SD = 0.61$) conditions ($t(368) = 9.99$, $p < .001$; $d = 0.47$), with the difference approaching a medium effect size. These findings do not support the hypothesis that students' attitudes would not differ by proctored versus unproctored environment.

A paired-samples t-test was conducted to compare the reported level of engagement in various methods of cheating in unproctored and proctored conditions. There was a significant difference in the scores for the unproctored ($M = 1.32$, $SD = 0.52$) and proctored ($M = 1.19$, $SD = 0.33$) conditions ($t(483) = 6.96$, $p < 0.001$, $d=0.3$). As predicted, students were statistically more likely to report having engaged in a variety of cheating behaviors when in an unproctored environment, with a small effect size. When those subjects who reported no cheating behavior (average across all behavior items was 1.0) were removed, the difference between the unproctored ($M = 1.52$, $SD = 0.5$) and the proctored ($M = 1.32$, $SD = 0.37$) was even greater ($t(297) = 7.19$, $p < .001$, $d = 0.43$). Subjects reported that they are more likely to cheat on a test when it is not administered in a proctored environment, which supports the authors' first hypothesis, that students are more likely to engage in cheating behavior in an unproctored setting.

Table 5

Correlations between self-reported attitudes/beliefs and self-reported behavior for all subjects and for those who reported engaging in some cheating behavior

Proctored Attitudes and Behavior—Placement	All respondents	Admitted cheating
Using a Cheat sheet	0.2325	0.2680
Txt/Communicating with others	0.3258	0.4464
Viewing test content before exam	0.3088	0.3558
Looking up answers	0.2522	0.3189
Having someone else take the test for you	0.3462	0.4797
Copy off another test taker	0.3284	0.4208
Talking to someone who has already taken the test	0.4641	0.3944
All attitudes for Proctored Placement exams	0.4704	0.5523

Proctored Attitudes and Behavior—Classroom	All respondents	Admitted cheating
Using a Cheat sheet	0.2843	0.3717
Txt/Communicating with others	0.4141	0.5515
Viewing test content before exam	0.3614	0.4345
Looking up answers	0.3132	0.4100
Having someone else take the test for you	0.4036	0.5546
Copy off another test taker	0.4048	0.5202
Talking to someone who has already taken the test	0.4899	0.4651
All attitudes for Proctored Classroom exams	0.5172	0.6188

Unproctored Attitudes and Behavior—Placement	All respondents	Admitted cheating
Looking up answers	0.4598	0.4509
Collaborating with another test taker	0.2664	0.2232
Collaborating with someone other than another test taker	0.2605	0.2949
Viewing test content before exam	0.2122	0.1769
Having someone else take the test for you	0.2317	0.2228
Talking to someone who has already taken the test	0.3340	0.2630
All attitudes for Unproctored Placement exams	0.2383	0.1908

Unproctored Attitudes and Behavior—Classroom	All respondents	Admitted cheating
Looking up answers	0.4366	0.4360
Collaborating with another test taker	0.2956	0.2682

Collaborating with someone other than another test taker	0.2419	0.2630
Viewing test content before exam	0.2124	0.1711
Having someone else take the test for you	0.2690	0.3407
Talking to someone who has already taken the test	0.3808	0.3074
All attitudes for Unproctored Classroom exams	0.2255	0.2301

Note. Correlations all $p < .001$

In the findings of student beliefs, of particular interest is the relationship between subjects' beliefs about cheating and their likelihood of engaging in that behavior. Pearson product moment correlations were calculated between subjects' beliefs and their reported behavior in proctored and unproctored conditions for both placement and classroom exams. In all cases, this resulted in modest positive correlations ranging from $r = 0.21$ ($N = 484$, $p < .001$; for beliefs and behavior regarding the viewing the content of a classroom exam prior to the exam in the unproctored condition) to $r = 0.49$ ($N = 484$, $p < .001$; for beliefs and behavior regarding talking to someone who had already taken the exam in the proctored condition). When collapsing across beliefs for our four conditions and comparing them to behaviors in the proctored or unproctored conditions, correlations for unproctored situations were $r = 0.23$ for classroom exams and $r = 0.24$ for placement exams, while correlations for proctored situations were $r = 0.52$ for classroom exams and $r = 0.47$ for placement exams ($N = 484$, $p < .001$ for all).

Clearly, beliefs are more highly correlated with actual behavior in proctored situations than unproctored ones. When considering only those who reported some degree of cheating behavior, these increased in proctored classroom ($r = 0.62$) and placement ($r = 0.55$) exams, as well as slightly in unproctored classroom ($r = 0.23$) exams; however, for unproctored placement exams, it actually dropped ($r = 0.19$), although the correlation was still significant ($N = 484$, $p < .001$). Consistent with previous research (Mensah et al., 2016), this data suggests that an individual's beliefs concerning the acceptability of cheating is related to their behavior regarding cheating, especially for proctored administrations of the exam.

Examination of the comments provided by 177 of the 484 subjects (37% of the data set) indicated that a subset of the sample (approximately 18% of those providing written comments) expressed the belief that if an exam was not proctored, it was assumed that students would use all resources at their disposal. While there were several justifications for "cheating" in an unproctored environment, the most often cited (by approximately 11% of those providing comments) was that it was the instructor's responsibility to provide a proctored environment if they did not want students to access other resources (e.g., "If the [professor] truly wants a student to not use the Internet, the test should be taken in a classroom."). The lack of proctoring was essentially considered permission to collaborate and use whatever resources students had available (e.g., "I think that if you leave students alone while taking a test, it should be assumed that they will collaborate because everyone wants a good grade"). This was followed by comments suggesting that in the real world they would be expected to collaborate and use all the

resources at their disposal (approximately 10%) and that the current system's emphasis on grades over learning justified cheating (approximately 8%). An example of the former type of comment is, "many technical jobs are more about one's ability to find information than they are about remembering it." An example of the latter is, "In our society today, grades are more important than knowledge. You may know the material better than other students but can still receive a lower grade." Only about 14% of the comments indicated that cheating was wrong regardless of the circumstances.

In addition to the data collected on the main survey, an optional section allowed students to share if they had been encouraged to engage in academically dishonest behaviors. They also indicated if the encouragement had led them to engage in dishonest behaviors. A total of 601 responses to the optional segment of the survey were collected, indicating that many of the respondents that did not complete the full survey, did complete the optional response section. Table 6 reflects participants' perceptions of encouragement by individuals across social groups. As above, lower scores on encouragement items indicate perceptions of the behavior as less frequently occurring. Generally, respondents rated that the following individuals never or rarely encourage them to cheat on tests: parents, teachers (elementary through college and including teaching assistants), and coaches. Respondents were more likely to rate that they received some level of pressure to cheat on tests from friends and classmates.

Table 6

Student Encouragement by Social Group

Social Group	Mean	Median	Mode	Range	StdDev
Parents	1.12	1.00	1.00	5.00	0.46
High school teacher	1.14	1.00	1.00	5.00	0.45
Middle school teacher	1.10	1.00	1.00	5.00	0.40
Elementary teacher	1.06	1.00	1.00	5.00	0.29
College professor	1.13	1.00	1.00	5.00	0.45
College teaching assistant (TA)	1.16	1.00	1.00	5.00	0.47
Significant other	1.25	1.00	1.00	5.00	0.64
Friends	2.01	2.00	1.00	5.00	0.99
Classmates	2.04	2.00	1.00	5.00	1.01
Siblings	1.33	1.00	1.00	5.00	0.75
High school coach	1.07	1.00	1.00	5.00	0.34
College coach	1.04	1.00	1.00	5.00	0.26
Other (please specify)	1.10	1.00	1.00	5.00	0.51

In regard to how students behaved as a result of being encouraged to cheat, 78% of respondents who answered the optional items indicated that they had been encouraged to cheat. Of those, 41.83% indicated that the encouragement had ever resulted in dishonest behavior on an exam, while 58.17% indicated that the encouragement had not resulted in dishonest behavior. Only 4.43% stated they had never been encouraged by anyone to be dishonest on an exam. Respondents' perception of influence of encouragement on their behavior is reflected in Table 7.

Table 7
Behavior Resulting from Encouragement

Yes, rarely	19.39%
Yes, occasionally	1.22%
Yes, a moderate amount	0.46%
Yes, a great deal	20.76%
No, never	58.17%
I have never been encouraged by anyone to be academically dishonest on an exam.	4.43%[a]

[a]Included in the 'No, never' responses.

DISCUSSION

This research provides both quantitative and qualitative data about how students feel in regard to cheating on exams across multiple test environments and the self-reporting of their behaviors. It can provide a framework around which testing professionals, faculty, staff, and administration can begin to better understand the ongoing conversation in higher education of how to combat academic dishonesty and cheating in test taking environments. Research that compares descriptive data with other methods of measuring cheating in test taking environments could better analyze the correlation of attitudes and behaviors across multiple test environments.

To further complicate matters, the field of research around academic dishonesty makes it difficult to understand behavior specific to test taking, as it tends to measure various types of academic dishonesty at the same time. Many studies do not differentiate between different behaviors in their discussions. Some studies do differentiate but use tools that measure multiple modes of dishonesty in the same instrument, which can cause participants to let their behaviors or attitudes on other forms of dishonesty affect how they answer questions about cheating on exams. As faculty, staff, test developers, and other professionals in the field take steps to combat cheating on exams, it is imperative that the literature differentiate academic dishonesty on tests from behaviors like plagiarism.

Setting and Behavior

The authors first hypothesized that students would be more likely to engage in cheating behavior in an unproctored setting. It is clear from the findings, as indicated previously, that the first hypothesis was supported. As expected, students reported

that they were more likely to engage in cheating behavior on an unproctored test than when that test is proctored.

Setting and Beliefs

The authors further hypothesized that there would be no difference in their beliefs/attitudes regarding the acceptability of cheating behaviors in unproctored vs. proctored settings. This hypothesis was not supported; in fact, the data suggests that students are more likely to state that cheating behaviors in proctored settings are more unacceptable than cheating behaviors in unproctored. This is highly significant and worth additional discussion and further research. It is particularly relevant for higher education institutions to understand these findings in the context of continued growth and expansion into online course offerings. Specifically, it is imperative that, when building curricula for online coursework, proctoring must be incorporated and available for all tests and assessments. Faculty and staff should not make the egregious mistake of believing an honor code, signed statement of integrity, verbal acceptance of syllabi expectations, or other tacitly communicated acceptance is alone enough to sway academic dishonesty in online courses.

Institutional Responsibility for Student Behavior

Results of this study found that students are insistent that the responsibility for mitigating the opportunity for cheating be placed on the institution and the instructor. It is imperative that faculty, staff, and administrators understand that the perceived responsibility of an institution is that unless cheating is being prevented and discussed, the institution is essentially tacitly encouraging it. Current literature is clear that students respond to the efforts faculty and institutions put forth to communicate the importance of academic honesty. Consistent communication (Engler et al., 2008; Khan, 2017), relevant instruction (Day et al., 2011), security measures during exams (Küçüktepe, 2014; Lepp, 2017; Weinstein, 2013), honor codes (Dix et al., 2014; Tatum et al., 2018), tutorials and training (Bretag et al., 2014; Henslee et al., 2017), research design (Simpson, 2019), and the implementation of plagiarism detection tools (Jones, 2011) have all been reported as consistently effective. The data here adds to this by clearly articulating the importance of exam proctoring, proctored environments, and the institution's emphasis on the use of these means to project its commitment to academic honesty.

In the open response section, about 25% of the students responding indicated that it should be expected that students will use whatever is available to them in a take-home or online test. That said, only about 17% actually admitted that such behavior was acceptable. Additionally, a number of comments indicated the perception that take-home or online tests were perceived as less important than proctored exams. It was clear from the responses that student attitudes focused on the actions of the institutions and faculty and not just their words or statements. The action of requiring an online or classroom assessment to be proctored indicated the institution's commitment to ensuring the quality of those test results. Conversely, any inaction on the part of the faculty to provide a secure exam administration was seen as an indication that the faculty did not care about test security or cheating.

Implications for Online Learning

Further, as institutions set their sights on growth and expansion in online course offerings, it is imperative that they understand the importance of online proctoring in relation to academic integrity. In no situation is an institution more vulnerable to scandal and controversy related to academic dishonesty than in online education. It is imperative that institutions understand that proctoring is seen by the students as not only a reflection of the seriousness of the assessment, but also as the institution taking a stand to uphold its overall integrity. As indicated in the data, when a test, whether for classroom or for placement, is administered outside of a proctored environment, the attitudes of students change. This study supports the conclusion that when a test is not proctored, students perceive cheating as more acceptable and are more likely to cheat or commit test fraud, all while placing the responsibility on the institution to more securely administer the test. Conversely, when an institution indicates its commitment to test security by requiring tests to be conducted in a secure, proctored environment, either in a testing center, in a classroom, or through an online proctor, the attitudes of the students reflect that decision, and reported cheating behavior decreases.

The survey did not inquire about student perceptions of how honor codes, faculty assertions, syllabus statements, or conversations regarding academic integrity would impact a student's behavior. This has been covered extensively in recent literature. However, of particular interest for further research would be to look at the perspectives of students taking online tests after signing an academic honesty statement as compared to students taking online tests when remote proctoring is required by the faculty member.

Peer Behavior

Respondents were given the opportunity to report how often they had been pressured to engage in the behaviors asked about in survey. A sampling of these responses was provided in Tables 6 and 7. Because these responses were optional, they were not listed as a primary outcome of this research; however, they are an area of potential further research about societal pressure for academic dishonesty on tests.

The data above surrounding peer group social behavior is consistent with previous research. Stogner et al. (2013) found a very clear relationship between the perception students have of peer actions and their own cheating. That is to say, if a student believes classmates are cheating on a test, this will support their belief that cheating on that test is acceptable. The findings reported here support this assertion. Stogner and colleagues posit that cheating may be curbed at the institutional level by modifying student – peer perceptions. Further, Pulfrey et al. (2018) suggest that the role of social context, in this case a competitive, performance-based academic environment, links competitive contexts to cheating. Interestingly, they found in-group loyalty to support rationalizing behaviors that would be considered unethical in other situations. This data would suggest adherence to this ambivalence, especially with the closest in-group members, friends and classmates. When aggregated, 41.83% of students responded that they had engaged in academically dishonest behavior when encouraged by a peer, with 58.17% stating they had not engaged in any behavior as a result of encouragement. This included a

sub-group of 4.43% that stated they had never been encouraged by a peer to cheat.

Testing and Learning

This research shows the need to establish a culture and expectation in the classroom around the purpose of testing and assessment. Specifically, students' comments were examined to determine if any themes emerged. While no qualitative analysis was conducted, the one theme which seemed to emerge was the perception of higher education today as transactional in nature and the need to get a good grade as more important than the acquisition of knowledge. This is consistent with previous research (Burrus et al., 2016; Chan, 2016; Gross, 2011; Hamlin et al., 2013; Khan & Subramanian, 2012; Shipley, 2009). A selection of the qualitative statements made by students that indicate the disconnect between academic success and learning is listed below in Table 8.

Table 8

Select Student Open Responses

"If you want to lower the rate of academic dishonesty, you must begin to enhance the value of education to students as opposed to the value of the grade."

"I don't mind cheat sheets for equations."

"In our society today, grades are more important than knowledge. We all must compete with this so in order to keep up, most resort to cheating."

"I will use any resource I can to succeed if I can get away with it. I would be an idiot not to."

"When one has the opportunity to advance their standing, one takes it. It is cliché to say "Everyone else is doing it," but this cliché is, in fact, truth. When your direct competitors and peers take advantage, you really have to do the same to keep up."

"I've noticed students who use their smartphones to take pictures of tests after they're returned."

"What the teacher doesn't know, won't hurt him or her. It's not that we want to cheat, but it gives us another open window."

"The rules for "cheating" weren't specified specific enough. For example, there's no such rule [that states] writing a formula on your hand is illegal."

"If you are under supervision of proctor or professor, then it is unacceptable to "cheat". If you are at home, it's fair game."

"Anyone would do anything they can get away with if they are desperate enough and if it means succeeding. If you are an instructor and you give an exam then expect at least some level of dishonesty."

FUTURE RESEARCH

As mentioned several times above, there is a need to conduct additional research specifically around cheating on tests in higher education, academic integrity and cheating on tests, and student attitudes toward success on tests and learning. In particular, based on the data collected in this survey, additional research is needed to look at other segments of student populations and analyze any particular similarities to and/or differences from the population surveyed in this project. In addition, more research is needed to analyze the predictive nature of these findings. It would be of interest to investigate whether

the attitude was in fact a direct antecedent of the behavior itself.

Previous research has found that unproctored testing for non-cognitive employment tests may be justified (Beaty et al., 2011); however, based on the results of this survey, additional research is needed in the area of online proctoring for all testing, but most specifically for high stakes and educational testing.

The design of the survey allowed for a completely anonymous response by the respondents. No personally identifiable information was collected by the authors. To additionally ensure anonymity, the authors received the data from a research specialist in the office of Institutional Research at Institution A after all time, location, and other tags had been removed. While the authors felt that this was necessary to allow more freedom and honesty on the students' part, it did limit the understanding of the demographics of the sample. For future research, this will be reconsidered.

The opportunity to provide a written response offers the possibility of capturing and understanding motivations and cognitions that are unexpected or novel. While the written responses in this study did provide some insights into the thinking and attitudes of students, the prompts were highly general in nature, resulting in a range of topics that was too broad to be easily categorized. Future research should focus on more targeted open-ended questions in order to allow for qualitative analysis.

Furthermore, the data from all four institutions was collected as one data set, and no additional matrices were used to evaluate the specific responses from Institution A vs. Institution B, for example. This would be interesting additional research to evaluate as well.

CONCLUSION

The results of this study indicate that students are more likely to engage in cheating behavior in an unproctored environment, as hypothesized. Contrary to the researchers' hypothesis, the findings suggest that student attitudes regarding the acceptability of cheating also varied between proctored and unproctored environments. Therefore, it is imperative to establish a culture and expectation in higher education around the purpose of testing and assessment that incorporates the impact of academic dishonesty. It needs to address the perception of higher education today as transactional in nature and of the need to get good grades as more important than the acquisition of knowledge. As technology continues to transform the world around us at an unparalleled scale, the push to incorporate more technology in the classroom can reduce the commitment of higher education to best practices in assessment and testing. This research stands as a firm reminder of the perils of not adhering to these best practices.

REFERENCES

Aasheim, C., Rutner, P., & Williams, S. (2012). Plagiarism and programming: A survey of student attitudes. *Journal of Information Systems Education, 23*(3), 297-313.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing*. American Educational Research Association.

Anitsal, I., Anitsal, M., & Elmore, R. (2009). Academic dishonesty and intention to cheat: A model on active versus passive academic dishonesty as perceived by business students. *Academy of Educational Leadership Journal, 13*(2), 17-26.

Asmatulu, R., Asmatulu, E., & Zhang, B. (2012). Recent progress in nanoethics and its possible effects on engineering education. *International Journal of Mechanical Engineering Education*, 40(1), 1–10. https://doi.org/10.7227/IJMEE.40.1.4

Association of Testing Publishers & National College Testing Association. (2015). *Proctoring best practices*. CreateSpace Independent Publishing Platform.

Beasley, E. (2014). Students reported for cheating explain what they think would have stopped them. *Ethics & Behavior, 24*(3), 229-252.

Beasley, E. (2016). Comparing the demographics of students reported for academic dishonesty to those of the overall student population. *Ethics & Behavior, 26*(1), 45-62.

Beaty, J., Nye, C., Borneman, M., Kantrowitz, T., Drasgow, F., & Grauer, E. (2011). Proctored versus unproctored internet tests: Are unproctored noncognitive tests as predictive of job performance? *International Journal of Selection and Assessment, 19*(1), 1-10.

Bowers, W. J. (1964). *Student dishonesty and its control in college*. Bureau of Applied Social Research, Columbia University.

Bretag, T., Mahmud, S., Wallace, M., Walker, R., McGowan, U., East, J., & James, C. (2014). "Teach us how to do it properly!" An Australian academic integrity student survey. *Studies in Higher Education*, *39*(7), 1150-1169.

Burrus, R., Jones, A., & Schuhmann, P. (2016). Capitalism and crime in the classroom: An analysis of academic dishonesty and latent student attitudes. *Journal of Education for Business*, *91*(1), 23-31. https://doi.org/10.1080/08832323.2015.1110105

Carpenter, D., Finelli, C., Harding, T., & Montgomery, S. (2006). Engineering students' perceptions of and attitudes towards cheating. *Journal of Engineering Education*, 181-194.

Chace, W. (2012). A question of honor: Cheating on campus undermines the reputation of our
universities and the value of their degrees. Now is the time for students themselves to stop it. *American Scholar*, *81*(2), 20-32.

Chan, R. (2016). Understanding the purpose of higher education: An analysis of the economic and social benefits for completing a college degree. *Journal of Education Policy, Planning and Administration, 6*(5), 1-40.

Cizek, G. J. (2012, April). *Ensuring the integrity of test scores: Shared responsibilities*. Paper presented at the annual meeting of the American Educational Research Association, Vancouver, British Columbia.

Day, N., Hudson, D., Dobies, P., & Waries, R. (2011). Student or situation? Personality and classroom context as predictors of attitudes about business school cheating. *Social Psychology Education, 14*(2), 261-282. https://doi.org/10.1007/s11218-010-9145-8

Demanet, J., & Van Houtte, M. (2012). School belonging and school misconduct: The differing role of teacher and peer attachment. *Journal of Youth Adolescence, 41*, 499-514.

Diekhoff, G. M., LaBeff, E. E., Clark, R. E., Williams, L. E., Francis, B., & Haines, V. J. (1996). College cheating: Ten years later. *Research in Higher Education, 37*(4), 487-502.

Dix, E., Emery, L., & Le, B. (2014). Committed to the honor code: An investment model analysis of academic integrity. *Social Psychology Education, 17*(1), 179-196.

Engler, J., Landau, J., & Epstein, M. (2008). Keeping up with the Joneses: Students' perceptions of academically dishonest behavior. *Teaching of Psychology, 35*, 99-102.

Gallant, T., & Drinan, P. (2006). Organizational theory and student cheating: Explanation, responses, and strategies. *The Journal of Higher Education, 77*(5), 839-860.

Gross, E. (2011). Clashing values: Contemporary views about cheating and plagiarism compared to traditional beliefs and practices. *Education, 132*(2), 435–440.

Hamlin, A., Barczyk, C., Powell, G., & Frost, J. (2013). A comparison of university efforts to contain academic dishonesty. *Journal of Legal, Ethical and Regulatory Issues, 16*(1), 35-46.

Harding, T., Carpenter, D., Montgomery, S., & Steneck, N. H. (2001). The current state of research on academic dishonesty among engineering students. *Proceedings of the 31st Annual Frontiers in Education Conference, 3*: F4A-13-8 (3).

Henslee, A. M., Murray, S. L., Olbricht, G. R., Ludlow, D. K., Hays, M. E., & Nelson, H. M. (2017). Assessing freshman engineering students' understanding of ethical behavior. *Science & Engineering Ethics, 23*(1), 287-304.

Higher Learning Commission. (2019, February). *HLC policy: Policy title: Criteria for accreditation*. https://www.hlcommission.org/Policies/criteria-and-core-components.html

Jones, D. (2011). Academic dishonesty: Are more students cheating? *Business Communication Quarterly, 74*(2), 141–150. https://doi.org/10.1177/1080569911404059

Josien, L., & Broderick, B. (2013). Cheating in higher education: The case of multi-methods cheaters. *Academy of Educational Leadership Journal, 17*(3), 93.

Jurdi, R., Hage, H. S., & Chow, H. P. H. (2012). What behaviours do students consider academically dishonest? Findings from a survey of Canadian undergraduate students. *Journal of Social Psychological Education, 15*, 1-23.

Kerkvliet, J., & Sigmund, C. (1999). Can we control cheating in the classroom?, *The Journal of Economic Education, 30*(4), 331-343.

Khan, Z. (2017). What category are they anyway?: Proposing a new taxonomy for factors that may influence students' likelihood to e-cheat. In D. Velliaris (Ed.), *Handbook of research on academic misconduct in higher education* (pp. 131-158). IGI Global.

Khan, Z., & Subramanian, S. (2012). Students go click, flick and cheat... e-cheating, technologies and more. *Journal of Academic and Business Ethics, 6*, 1-26.

Klein, H., Levenburg, N., McKendall, M., & Mothersell, W. (2007). Cheating during the college years: How do business school students compare? *Journal of Business Ethics, 72*(2), 197-206. https://doi.org/10.1007/s10551-006-9165-7

Kobayashi, E., & Fukushima, M. (2012). Gender, social bond, and academic cheating in Japan. *Sociological Inquiry, 82*(2), 282-304.

Küçüktepe, S. (2014). College students' cheating behaviors. *Social Behavior and Personality, 42*, 101-112.

Lepp, L. (2017). Undergraduate students' views on academic dishonesty. *New Trends and Issues Proceedings on Humanities and Social Sciences, 3*(1), 41-51. https://doi.org/10.18844/gjhss.v3i1.1728

Lipson, A., & McGavern, N. (1993). Undergraduate academic dishonesty at MIT: Results of a study of attitudes and behavior of undergraduates, faculty, and graduate teaching assistants. *Engineering Ethics, 3*(4), 433–445.

Löfström, E., & Kupila, P. (2013). The instructional challenges of student plagiarism. *Journal of Academic Ethics, 11*, 231-242.

Luther College. (2017, November 6). *What is academic integrity?* Retrieved March 26, 2020, from https://www.luther.edu/academic-integrity/about/

Massachusetts Institute of Technology. (n.d.). *What is academic integrity?* Academic integrity at MIT: A handbook for students. Retrieved March 26, 2020, from https://integrity.mit.edu/

McCabe, D. L. (1992). The influence of situational ethics on cheating among college students. *Sociological Inquiry, 62*, 365-658.

McCabe, D. L. (1997). Classroom cheating among natural science and engineering majors. *Science and Engineering Ethics, 3*(4), 433-445.

McCabe, D. L, Butterfield, K. D, & Trevino, L. K. (2012). *Cheating in college: Why students do it and what educators can do about it*. Johns Hopkins University Press.

McCabe, D. L., & Trevino, L. K. (1997). Individual and contextual influences on academic dishonesty: A multicampus investigation. *Research in Higher Education, 38*, 379–396.

McCabe, D. L., Trevino, L. K., & Butterfield, K. D. (2001). Cheating in academic institutions: A decade of research. *Ethics and Behavior, 11*(3), 223.

McCabe, D. L., Trevino, L. K., & Butterfield, K. D. (2002). Honor codes and other contextual influences on academic integrity: A replication and extension to modified honor code settings. *Research in Higher Education, 43*(3), 357-378.

Mensah, C., Azila-Gbettor, M., & Appietu. M. (2016). Examination cheating attitudes and intentions of students in a Ghanaian polytechnic. *Journal of Teaching in Travel & Tourism, 16*(1), 1-19.

Miller, B., Agnich, L., Posick, C., & Gould, L. (2015). Cheating around the world: A cross-national analysis of principal reported cheating. *Journal of Criminal Justice Education, 26*(2), 211-232.

Monahan, M., Shah. A., & Shah, R. (2018). A comparison of the prevalence of dishonest academic behaviors between USA and German students. *Journal of Ethical and Legal Issues, 11*, 1-18.

National College Testing Association. (2014, June). *NCTA professional standards and guidelines*. https://ncta.memberclicks.net/assets/docs/Standards/standards.pdf

Olsen, J., & Fremer, J. (2013). *TILSA test security guidebook: Preventing, detecting, and investigating test security irregularities*. Council of Chief State School Officers.

Petrak, O., & Bartolac, A. (2014). Academic honesty amongst the students of health studies. *Croatian Journal of Education, 16*(1), 81-102.

Pulfrey, C., Durussel, K., & Butera, F. (2018). The good cheat: Benevolence and the justification of collective cheating. *Journal of Educational Psychology, 110*(6), 764–784. https://doi.org/10.1037/edu0000247

Roig, M., & DeTommaso, L. (1995). Are college cheating and plagiarism related to academic procrastination? *Psychological Reports, 77*, 691-698.

Ruedy, N., Moore, C., Gino, F., & Schweitzer, M. (2013). The cheater's high: The unexpected affective benefits of unethical behavior. *Journal of Personality and Social Psychology, 105*(4), 531-548.

Sherrill, D., Salisbury, J. L., Horowitz, B., & Friedman, S. T., (1971). Classroom cheating: Consistent attitude, perceptions, and behavior. *American Education Research Journal, 8*(3), 508.

Shipley, L. (2009). Academic and professional dishonesty: Student views of cheating in the classroom and on the job. *Journalism & Mass Communication Educator, 64*(1), 39–53. https://doi.org/10.1177/107769580906400104

Simkin, M., & McLeod, A. (2010). Why do college students cheat? *Journal of Business Ethics, 94*(3), 441-453. https://doi.org/10.1007/s10551-009-0275-x

Simpson, D. (2019). Conducting responsible and ethical archaeological research on Easter Island: Building diachronic and lasting relationships with the local Rapa Nui (Easter Island) community. *Journal of the Texas Tech University Ethics Center, 3*(1), 20-26.

Smyth, L., Davis, J., & Kroncke, C. (2009). Student's perceptions of business ethics: Using cheating as a surrogate for business situations. *Journal of Education for Business, 84*(4), 229-239.

Srikanth, M. & Asmatulu, R. (2014). Modern cheating techniques, their adverse effects on engineering education and preventions. *International Journal of Mechanical Engineering Education, 42*(2), 129-140.

Stogner, J., Miller, B., & Marcum, C. (2013). Learning to e-cheat: A criminological test of internet facilitated academic cheating. *Journal of Criminal Justice Education, 24*(2), 175-199.

Star-Ledger. (2016, September 21). *Donald McCabe obituary.* http://obits.nj.com/obituaries/starledger/obituary.aspx?pid=181490279

Tatum, H., Schwartz, B., Hageman, M., & Koretke, S. (2018). College students' perceptions of and responses to academic dishonesty: An investigation of type of honor code, institution size, and student–faculty ratio. *Ethics & Behavior, 28*(4), 302-315.

Teixeira, A., & Rocha, M. (2010). Cheating by economics and business undergraduate students: An exploratory international assessment. *Higher Education, 59*(6), 663-701. https://doi.org/10.1007/s10734-009-9274-1

University of Oklahoma. (2019, June 15). *OU and academic integrity.* Academic integrity: The University of Oklahoma. Retrieved March 26, 2020, from http://www.ou.edu/integrity/students

University of Toronto Mississauga. (n.d.). *What is the meaning of academic integrity?* Retrieved March 26, 2020, from https://www.utm.utoronto.ca/academic-integrity/students

Vagias, W. (2006). Likert-type scale response anchors. Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation and Tourism Management. Clemson University.

Weinstein, M. (2013). When numbers are not enough: Collection and use of collateral information and evidence to assess the ethics and/or professionalism of examinees suspected of test fraud. In G. Cizek & J. Wollack (Eds.), *Handbook of quantitative methods for detecting cheating on tests* (pp. 358-371). Routledge.

Wollack, J., & Cizek, G. (2017). Security issues in professional certification/licensure testing. In S. Davis-Becker & C. Buckendahl (Eds.), *Testing in the professions: Credentialing policies and practice* (pp. 178-209). Taylor & Francis.

Wollack, J., & Fremer, J. (2013). *Handbook of test security*. Taylor & Francis.

Woodruff, L. (2013). Security issues in classroom testing. In J. Wollack & J. Fremer (Eds.), *Handbook of test security* (pp. 85-99). Taylor & Francis.

APPENDIX A

Sample Survey Snapshot

qualtrics

Most colleges have a code of conduct, which is a document that clearly defines which academic behaviors are allowable and which are "against the rules", or in violation of that code. This survey will ask you several questions about behaviors which are almost always seen as a violation of the student code of conduct at colleges and universities.

We are going to ask you about taking an exam with a proctor and with no proctor. For this survey, a proctor is a teacher or other school employee that is watching you take your exam.

We now want to ask your opinion on how you view these behaviors from a standpoint of your own personal ethics. For each of the following test-taking scenarios, use the rating scale to report how acceptable the behavior would be for you based on your personal sense of ethics, regardless of whether you have done them or not.

1. If you were taking a placement test, in a test center or classroom and with a proctor, how appropriate would the following behaviors be for you to engage in?

	1. Totally unacceptable	2. Slightly unacceptable	3. Neutral	4. Slightly acceptable	5. Totally acceptable
a. Using an unapproved "cheat sheet" (with answers, equations, definitions, etc.).	O	O	O	O	O
b. Texting or otherwise communicating with other test takers about the test while you are taking it.	O	O	O	O	O
c. Unauthorized viewing of test content prior to taking your test.	O	O	O	O	O
d. Looking up answers to a test question during the test.	O	O	O	O	O
e. Having someone else take the test for you.	O	O	O	O	O
f. Copying from another test taker.	O	O	O	O	O
g. Talking about a test you haven't yet taken with a student who has taken the test.	O	O	O	O	O

>>

Sample Survey Snapshot

qualtrics

2. When taking a <u>classroom test</u>, in a test center or classroom and with a proctor, how appropriate would the following behaviors be for you to engage in?

	1. Totally unacceptable	2. Slightly unacceptable	3. Neutral	4. Slightly acceptable	5. Totally acceptable
a. Using an unapproved "cheat sheet"(with answers, equations, definitions, etc.).	○	○	○	○	○
b. Texting or otherwise communicating with other test takers about the test while you are taking it.	○	○	○	○	○
c. Unauthorized viewing of test content prior to taking your test.	○	○	○	○	○
d. Looking up answers to a test question during the test.	○	○	○	○	○
e. Having someone else take the test for you.	○	○	○	○	○
f. Copying from another test taker.	○	○	○	○	○
g. Talking about a test you haven't yet taken with a student who has taken the test.	○	○	○	○	○

>>

APPENDIX B

Student Recruitment Letter

We are inviting first and second year engineering students to participate in a study on attitudes and behaviors around academic dishonesty (or "cheating") on tests.

The purpose of this research study is to measure how students feel about practices of academic dishonesty, how they have been influenced by outside forces to engage in academic dishonesty, and finally how they actually behave in situations where they must practice academic integrity while test taking.

You can access the survey here:
Academic Honesty Survey - Spring 2015
The survey will take approximately 10-15 minutes to complete.

Your participation is voluntary and your answers will be confidential. The survey is being delivered through Qualtrics, a secured survey delivery program to ensure your responses can not be linked to you directly to ensure you can respond freely.
All participants may choose to be entered into a drawing to win several available $50 Amazon gift cards upon completion of the survey.
Thank you for your time and consideration.

Sincerely,

Jarret Dyer and Heidi Pettyjohn