Survey of the School of Mathematics and Science at a Community College Regarding Academic Dishonesty

Linda D. Prentice[1], MS – Corresponding Author
7200 Sollers Point Road, Baltimore, MD 21222
(443)840-3480 | lprentice@ccbcmd.edu

Cristina Cardona[2], MS, EdD
7201 Rossville Boulevard, Baltimore, MD 21237
(443)840-2639 | ccardona@ccbcmd.edu

From the [1]Chemistry and [2]Environmental Science Departments, School of Mathematics and Science, Community College of Baltimore County, Baltimore, Maryland.

ACADEMIC DISHONESTY SURVEY

After receiving many anecdotes about student cheating and plagiarism in online and remote classes during the COVID-19 pandemic, the School of Mathematics and Science (SOMS) at the Community College of Baltimore County convened an Academic Integrity Committee to investigate these issues. A survey was sent to SOMS faculty members to determine their opinions about where cheating was most likely occurring. The committee hypothesized that instructors would feel that cheating and plagiarism were on the rise and that most faculty members felt ill-prepared for this.

ABSTRACT

After receiving many anecdotes about student cheating and plagiarism in online and remote classes during the COVID-19 pandemic, the School of Mathematics and Science (SOMS) at the Community College of Baltimore County convened an Academic Integrity Committee to investigate these issues. A survey was sent to SOMS faculty members to determine their opinions about where cheating was most likely occurring. The committee hypothesized that instructors would feel that cheating and plagiarism were on the rise and that most faculty members felt ill-prepared for this. This paper aims to summarize the survey results. Overall, the results indicate that faculty seem doubtful of their ability to ensure academic honesty and would like to see materials that help them in these areas. The survey results guided the committee in determining what projects most deserved the committee's attention. The committee was able to develop materials for new instructors and wrote a document of practical recommendations for several types of online exams. The committee also gave a presentation at the college's Teaching and Teaching Fair to help faculty become more familiar with the tools available on the new Learning Management System (LMS), Brightspace. The committee has begun researching ideas such as Honor Codes and other methods of gaining student buy-in. There may be an opportunity to make more concrete recommendations in the future. One of the limitations of this research is the sample pool, which was a small percentage of total faculty members and therefore may not indicate what most faculty believe. Another limitation is that surveyed faculty members were from mathematics, biology, and physical sciences departments. These different disciplines have different assessment types and use different tools. The college also switched to a new LMS system involving new plagiarism detection tools. Further data may be required to determine the exact cause of faculty discontent.

Survey of the School of Mathematics and Sciences at a Community College Regarding Academic Dishonesty

INTRODUCTION

Remote and online instruction is not new. Remote education was taking place by correspondence as early as the 18th century. Education has occurred through correspondence, radio, television, and the internet. Before the age of computers and the internet, it was possible to take correspondence courses remotely. In each case, remote education benefits the student through convenience and flexibility (Kentnor, 2015).

Academic dishonesty and plagiarism issues are also not new. As long as faculty members and programs have been outlining material to learn, students have been devising ways of getting around these requirements (Baird, 1980; Swift and Nonis, 1998). In this paper, academic dishonesty refers to all forms of cheating and can refer to many types of unauthorized behaviors. These include but are not limited to plagiarism, cutting and pasting, using websites or unauthorized help for homework or other assignments, and using devices and websites during exams.

In the internet age, there has been a rise in fee-for-service assignment preparation services (Rogerson & Basanta, 2016). Some online sites operate as information repositories or student support centers. However, the reality is that students have access to graded work, answers to assignments, essays, or entire exams. This is known as file-sharing. The most well-known file-sharing sites are Chegg and Course Hero. Chegg has tutors who answer questions for students, and Course Hero allows students to upload course content. These materials are often copyrighted materials belonging to faculty members and not students. In addition, when these sites are accessed during assessments, it is an unfair advantage to the student using the site.

According to McCabe et al. (2001), rates of cheating among accounting students in the U.S. nearly doubled from 39% in the early 1960s to 64% by 1993. Krou et al. (2019) found that more than 50% of the college students surveyed engaged in cheating behavior within 6 months of completing the survey. Research indicates the increase in cheating can be tied to a rise in student beliefs that only the grade matters or that they "need to get ahead" (Simkin & McLeod, 2009).

Though most students agree that cheating is not ethical, almost half believe it is socially acceptable, especially for a student in a challenging situation (Saat, 2012; Chala, 2021). For example, students are more sympathetic towards a student who might cheat to ensure a job. In addition, students state that they believe academic dishonesty is wrong but are reluctant to report other students (Waltzer et al., 2021).

Academic dishonesty has been characterized as academic fraud (Becker, 2006; Lewellyn & Rodriguez, 2015). In business, fraud indicates that there has been unethical behavior. In business, a fraud triangle helps identify persons likely to commit fraud, and a similar model can be used in discussing academic fraud (Ramos, 2003). This fraud triangle depicts 3 elements that are present when fraud occurs. These elements are incentive/pressure, rationalization/attitude, and opportunity.

INTRODUCTION CONT.

In academics, students feel pressure to achieve the highest grades possible (Isakov & Tripathy, 2017). Schools with a strong focus on competition and achievement tend to encourage higher rates of cheating among students (Anderman & Koenka, 2017). Opportunities may come as specific assessments occur with minimal supervision, such as an online quiz, exam, or lab report, where students all have similar calculations (Noorbehbahani et al., 2022). Rationalization may depend on the situation, but some feel "everyone is doing it" or the "ends justify the means". Often students may feel little connection to a particular course of study and are only interested in graduating or achieving a place in a program (McGee, 2013).

During the COVID-19 pandemic, all face-to-face classes rapidly pivoted to remote instruction and all students took exams remotely at the end of the spring semester of 2020. At the time, it seemed the only possibility. The School of Mathematics and Science (SOMS) at the Community College of Baltimore County (CCBC) was told it could not require students to acquire any additional technology that might enable proctoring despite the remote testing.

In the fall 2020 semester, most classes were still offered online rather than in a face-to-face setting. In the fall of 2020, some face-to-face courses were offered at CCBC, but most SOMS classes were offered in what was known as the synchronous remote modality. This meant that students attended classes remotely (online via Microsoft Teams or Zoom) at a particular time, but exams were taken remotely. The testing center was not open at this time. The assessment options were using a proctoring software called Respondus LockDown Browser (RLB), live online proctoring using Zoom or Microsoft Teams, or continuing with open book exams. Using oral exams was also mentioned. Some faculty members had minimal training in teaching online classes or in assuring the integrity of the process in an online course. During the fall of 2020, faculty members became increasingly alarmed at the ethical problems they observed in conducting exams.

In this situation, it was not surprising that faculty members perceived a jump in the number of students suspected of cheating in the fall of 2020. When students perceive that they are not being supervised or that specific directions and rules are absent, they might feel more empowered to "do what it takes" to pass a class. Research shows that a strong instructor presence or honor codes can lower the incidence of cheating in a course (McGee, 2013).

There are several types of remote proctoring software, and some of the different types and proper training have been described (Nigam et al., 2021). The remote proctoring software RLB is a tool that can be used to help ensure integrity in exam situations because it prevents access to other applications and keeps students from being able to print, take screen captures, or copy and paste while taking an exam. This is the proctoring software that CCBC offers for online courses. Using RLB is not the solution it might seem, however. Despite proctoring and browser lockdown software, bypassing the safeguards offered by RLB during exam situations is still possible. For example, special instructions from professors about camera placement do not prevent an additional device or additional notes or information outside the sweep of the initial camera video of the student's physical location.

Considering these circumstances, the SOMS Academic Integrity Committee was formed. The committee felt that a survey would help faculty members in SOMS identify topics of concern. Once these concerns were delineated, the committee could develop ways to assist and train faculty members. Appropriate training might equip faculty members to address academic dishonesty in the classroom more confidently.

METHODS

The SOMS Academic Integrity Committee helped formulate the questions, and the resulting survey was sent to SOMS faculty. All faculty members of SOMS received the survey, including adjunct faculty members. Out of the 182 total faculty members who received the survey via email, 33 responded. The survey is provided below, and it consisted of questions where the faculty member chose one answer, any answer that applied, or gave further comments explaining answers. In this survey, cheating refers to academic dishonesty in assessments, and plagiarism refers to academic dishonesty in written assessments.

Survey on Academic Integrity Sent to All SOMS Faculty Members

1. How concerned are you about cheating?
   a. Very concerned
   b. Concerned
   c. Somewhat concerned
   d. Somewhat unconcerned
   e. Unconcerned
   f. Very unconcerned

2. How concerned about plagiarism are you?
   a. Very concerned
   b. Concerned
   c. Somewhat concerned
   d. Somewhat unconcerned
   e. Unconcerned
   f. Very unconcerned

3. Approximately what percentage of assignments are checked for plagiarism?
   a. 0%
   b. 25%
   c. 50%
   d. 75%
   e. 100%

4. How many classes have you observed academic dishonesty
   a. 0
   b. 1
   c. 2
   d. 3
   e. 4
   f. +5

5. What percent of students do you suspect of cheating in a face-to-face class?
   a. 1–5%
   b. 6–10%
   c. 11–15%
   d. 16–20%
   e. 21+%
   f. N/A

6. What percent of students do you suspect of cheating in a remote modality course?
   a. 1–5%
   b. 6–10%
   c. 11–15%
   d. 16–20%
   e. 21+%
   f. N/A

7. What percent of students do you suspect of cheating in an online course?
   a. 1–5%
   b. 6–10%
   c. 11–15%
   d. 16–20%
   e. 21+%
   f. N/A

8. Describe what draws your attention to academic dishonesty.

9. Do you use Safe Assign? Yes or No

10. Was there a website(s) used by the student that facilitated the academic dishonesty (ex. Course Hero, Chegg)? Yes or No

11. Which websites were used?

12. What action(s) were taken if there were websites to facilitate academic dishonesty?

13. Do you complete a SIR for all instances that you would consider academically dishonest?

14. Explain why you do not complete for all instances of academic dishonesty?

15. What academic dishonesty are you the most concerned about, cheating or plagiarism?

16. What resources do you give your students to educate them about cheating?

17. Do you feel that you are well prepared to prevent academic dishonesty in your classes? Yes or No

18. What would help you be better prepared to prevent academic dishonesty in your classes?

19. What suggestions do you have for promoting academic integrity in your discipline?

Survey of the School of Mathematics and Science at a Community College Regarding Academic Dishonesty

RESULTS

33 faculty members in SOMS responded to the survey. Of these, 16 were in the mathematics department, 5 were in the biology department, and 12 were in physical sciences. Table 1 shows how the respondents felt about cheating. The percentages do not add to 100% because not all survey participants answered every question. 78% of respondents felt very concerned or somewhat concerned about cheating. In contrast, 33% of SOMS respondents felt very concerned or somewhat concerned about plagiarism. Table 2 shows these same results broken down by department.

Table 1. Percent of Faculty Respondents Concerned about Cheating and Plagiarism.

	Very concerned	Concerned	Somewhat concerned	Neither concerned nor unconcerned	Somewhat unconcerned	Unconcerned	Very unconcerned
Concern about cheating on assessments	45%	0%	33%	3%	6%	0%	6%
Concern about plagiarism on assignments	30%	0%	3%	9%	12%	0%	3%

Table 2. Percent of Faculty Respondents Concerned about Cheating and Plagiarism by Department.

	Very concerned	Concerned	Somewhat concerned	Neither concerned nor unconcerned	Somewhat unconcerned	Unconcerned	Very unconcerned
Math (16)	8%	0%	18%	0%	3%	0%	0%
Biology (5)	0%	0%	40%	20%	0%	0%	20%
Physical Sciences (12)	7%	0%	9%	0%	3%	0%	3%

Survey of the School of Mathematics and Science at a Community College Regarding Academic Dishonesty

RESULTS

Faculty reported that 73% had seen cheating in at least 3 classes, while 15% reported having seen cheating in 5 or more classes. In addition, 18% of respondents reported checking for academic dishonesty and plagiarism in 100% of assignments, while 6% reported not checking any assignments for academic plagiarism. Four respondents were very unconcerned about cheating or left the question about cheating blank.

There were also survey questions about suspected rates of cheating by course modality, shown in Table 3. The face-to-face modality refers to a class where all instruction and assessments take place in a face-to-face setting. Remote synchronous is a format where instruction and assessments occur remotely using video software during scheduled days and times, but a physical presence is not required. The course must be accessed from any location using a computer with internet access and a camera feature or webcam. Online asynchronous is a format in which all instructional hours and assessments (the testing center had not yet opened at the time faculty members took the survey) are completed online in an asynchronous format with no scheduled times and a physical presence does not take place at the CCBC campus.

Table 3. Respondents' Estimates of Rates of Suspected Cheating by Course Modality.

	0%	1–5%	6–10%	11–15%	16–20%	≥21%	N/A
Face-to-face	27%	39%	6%	0%	3%	0%	21%
Remote Synchronous	0%	30%	15%	15%	12%	21%	3%
Online asynchronous	3%	15%	6%	6%	6%	9%	24%

Survey of the School of Mathematics and Science at a Community College Regarding Academic Dishonesty

RESULTS

The modality that had the highest reported cheating and plagiarism was the remote synchronous modality. In Table 3, 48% of faculty reported that at least 11% of the students taking this modality cheated. In contrast, 6% of respondents thought up to 5% of students cheated in a face-to-face class. Again, the responses in the table do not add up to 100% because not all participants answered every question. Also, there were many not applicable (N/A) answers to the percent cheating in an online asynchronous class. This result may indicate that more faculty were not teaching a fully online asynchronous course rather than that there is less cheating in this format, or respondents may have elected to leave the response for that modality blank. 24% of respondents to the survey responded N/A when asked to report the number of students cheating in an online asynchronous class. Of the remaining respondents, 15% reported that 1–5% of students cheated, and 15% reported that 16–21% cheated in their online asynchronous courses.

Proctored exams were the type of assessment respondents felt most likely to see academic dishonesty. 69% of respondents felt cheating most often occurred on proctored exams, while 60% of respondents thought cheating most often occurred on written assignments. Respondents were less concerned that cheating took place on proctored quizzes, but 42% felt unproctored quizzes were an area where students were likely to cheat. The least concerning type of assessment was lab reports, where only 18% of respondents felt that lab reports were an area where cheating occurs most often. Table 4 shows these results. Note that the percentages here add up to more than 100%, because respondents were able to select all activities where they suspected cheating occurred in their courses.

Table 4. Suspected Rates of Cheating by Assignment and Assessment Type.

	Suspected Rate of Cheating
Written assignments	60%
Proctored exams	69%
Proctored quizzes	21%
Unproctored quizzes	42%
Labs	18%

Survey of the School of Mathematics and Science at a Community College Regarding Academic Dishonesty

RESULTS

Faculty respondents commented on what drew their attention to possible academic dishonesty. These included when different students had the same error, problem-solving was too detailed, unusual techniques not taught in class were present, or scrap paper for an exam was submitted late. For plagiarism, respondents reported that they relied on a high match on Safe Assign or writing beyond a student's usual writing style as tip-offs that plagiarism had taken place.

Faculty respondents were asked about websites they encountered investigating student dishonesty. 51% of respondents reported that a website was involved during academic dishonesty. The websites mentioned by respondents included Chegg/Mathway, CourseHero, Quizlet, PhotoMath, Wolfram Alpha, and Bartleby's.

67% of respondents who suspected a student of academic dishonesty did not file a student incident report. Some respondents reported that they felt too overwhelmed to be able to respond to every incident of cheating. Others reported giving a warning or a zero for some infractions and did not report the cheating. Some faculty reported frustration with the high bar of proof required to prove that a student had committed academic dishonesty, especially on exams.

Faculty respondents gave examples of resources they gave students to educate them about academic cheating. Some faculty reported using their own honor code, and other faculty members used quizzes, videos, and discussion posts to educate students about academic dishonesty.

63% percent of respondents reported that they did not feel well prepared to prevent academic dishonesty in their classes. Several felt the only solution would be a return to in-person classes with face-to-face exams and a more transparent discussion about what to do in specific situations. Many respondents were adamant that the testing center should be opened and have hours to accommodate larger number of students

DISCUSSION+ CONCLUSION

One of the key survey results was that over 78% of the SOMS respondents felt very concerned or somewhat concerned about cheating. 33% of faculty members who responded felt very concerned or somewhat concerned about plagiarism. In addition, 73% of faculty members who responded reported seeing cheating in at least 75% of their classes.

DISCUSSION + CONCLUSION

Most instructors teach under the notion that students understand that their coursework is important and that students will behave in ethical ways. Professors expect students to do their own work. Academic integrity demands a commitment to values of honesty, trust, fairness, respect, responsibility, and courage (International Center for Academic Integrity, 2021). These values create a community dedicated to learning and exchanging ideas in an ideal academic environment. Ensuring these ideals of academic integrity helps the college and the student maintain trust and helps future academic institutions or places of employment feel confident that a student's transcript means something. The institution and the students should value proficiency in knowledge, skills, and abilities (Holden, 2021).

Faculty become concerned when this agreement is breached, even if students never hear these ideas directly from the faculty member. When faculty members take the time to discuss academic dishonesty issues and to inform students of their policies, cases of academic dishonesty may drop. When a faculty member takes the time to learn the appropriate policies and communicates these effectively to students, fewer academically dishonest behaviors occur (Boehm et al., 2009; Tatum & Schwartz, 2017). One method of combatting academic dishonesty, then, is to have a specific class policy and to communicate this policy clearly and repeatedly to the class. Similarly, honor codes are also effective at reducing academic dishonesty. Research shows that when students are specifically asked to be honest that they are more likely to be honest (Tatum and Schwartz, 2017).

48% of faculty respondents reported that at least 11% of students cheated in the asynchronous remote modality. Still, only 6% of respondents reported that up to 5% of students cheated in face-to-face classes. 24% of respondents reported a not applicable answer (N/A) for the asynchronous remote classes. In comparison, 15% reported that 16-21% of students were dishonest, and another 15% of respondents reported that 1-5% of students were dishonest. It may be that

DISCUSSION + CONCLUSION

the 24% of respondents that reported a N/A answer for this modality were not teaching a fully asynchronous course. Many face-to-face courses that were forced to shift to a remote setting in the pandemic were shifted to a synchronous remote setting where the class met at a specific time using Zoom or Microsoft Teams technology to host or record the course.

Unfortunately, the committee does not have data from before the pandemic, but literature reviews indicate that the pandemic likely increased the academic fraud that faculty members observed (Chen et al., 2020; Butler-Henderson & Crawford, 2020). Chegg, one of the most used websites, reported an increase in website traffic of almost 150% in the number of questions asked per day in a comparison between 2019 and 2020 (Lancaster & Cotarlan, 2020)

Faculty members who took the survey reported that they were most concerned about cheating on proctored exams. 69% of faculty respondents felt that proctored exams were the most significant academic dishonesty problem, while 60% felt that written assessments were a significant cheating problem. Relatedly, many respondents felt it would be beneficial if a provision could be made that online students be required to take their exams in a proctored setting. One of the difficulties with this strategy is that one of the college's goals is to provide online instruction beyond the range of a one-hour drive to one of the CCBC testing centers. One of the upfront requirements for specific online courses could be finding an in-person situation to facilitate assessments. Several respondents felt the only solution was returning to face-to-face classes and assessments or expanded hours at the testing center.

67% of respondents reported not filing a student incident report when academic dishonesty is discovered. The reasons this is the case are many and varied. Sometimes an instructor will communicate the correct information or handle the situation independently and expect the student to conform from that time on. In asynchronous remote classes, it is up to the students to find and digest the necessary information. If they do not successfully do this the first time, the faculty member may prefer to correct the student and allow for a resubmission.

Some respondents feel it is not their responsibility or too overwhelming in an already loaded semester to try to detect cheating and file the appropriate paperwork. Sometimes cheating is not detected, and students may be encouraged to regard cheating as a possible strategy. This result is unavoidable since the cheating was not detected. If a faculty member detects cheating but fails to act on it, the faculty member is communicating that cheating is acceptable to get through a class. For most faculty members, this is not the intent (Martin, 2017).

Some faculty respondents felt they had caught students (especially in examination situations), but the proof bar is too high. This frustrates the instructor that illegitimate work must be allowed to stand. The burden of proof means that some academic dishonesty must be let go. It is not the goal to prosecute innocent students,

DISCUSSION + CONCLUSION

but it can still feel very frustrating to the faculty member if they feel they cannot address cheating effectively.

63% of respondents reported they were not equipped to prevent academic dishonesty in their classes. This seems like a meaningful result. If instructors feel that they are not prepared to prevent academic dishonesty, tools and support should be provided. In response, the SOMS Academic Integrity Committee is developing tools to help SOMS faculty members. Several committee members spoke at a professional development conference held at CCBC called the Teaching and Learning Fair about assessing written documents using the new plagiarism detection software Urkund. This plagiarism software comes with the CCBC's new LMS Brightspace. The committee designed the information to be helpful to any class where written assessments are given.

There are some limitations to the research and some areas for further research. One of the main limitations is the sample size and how the sample size was selected. There was no attempt to select the respondents, so respondents were not balanced regarding demographic data. Survey respondents were also self-selecting. This may mean a particular bias in the survey that results in skewed results. In the future, it would be interesting to survey all instructors at CCBC in all disciplines and attempt to balance the data so that it would be representative. This type of survey may be able to discern what types of training information would be most helpful to faculty members.

Students were not surveyed, but this would also be an area for further research. Some students are confused about what is expected of them. The committee has discussed finding out if some presentations or lessons could be incorporated into Brightspace to help students understand what is expected of them. Some instructors have already taken on projects of this kind individually, but it might be beneficial to have lessons universally available to instructors.

Some may doubt the utility of the SOMS Academic Dishonesty Committee now that many classes have returned to the face-to-face setting. Plagiarism and correctly citing sources is a concern regardless of the modality of the course. Online classes, as well as other types of remote classes, will not disappear. It is imperative, though, that as a college we are aware of how academic dishonesty is most likely to occur and how faculty and students can partner to minimize incidences of academic dishonesty

ACKNOWLEDGMENTS

The authors would like to acknowledge the work of the SOMS Academic Integrity Committee for developing the SOMS Academic Dishonesty Survey and for developing materials and information for the Teaching and Learning Fair presentation about the new plagiarism software Urkund.

REFERENCES

1. Anderman, E., & Koenka, A. (2017). The relationship between academic motivation and cheating. *Theory Into Practice, 56*(2), 95–102. https://doi.org/10.1080/00405841.2017.1308172

2. Becker, D., Connolly, H., Lentz, P., & Morrison, J. (2006). Using the business fraud triangle to predict academic dishonesty among business students. *Academy of Educational Leadership Journal, 10*(1), 37–54.

3. Boehm, P. J., Justice, M., & Weeks, S. (2009). Promoting academic integrity in higher education. *Community College Enterprise, 15*(1), 45–61.

4. Butler-Henderson, K., & Crawford, J. (2020). A systematic review of online examination: A pedagogical innovation for scalable authentication and integrity. *Computers & Education, 159*. https://doi.org/10.1016/j.compedu.2020.104024

5. Chen C., Long, J., Liu, J., Want Z., & Zhang, J. (2020). Online academic dishonesty of college students: A review. In *Proceedings of the 2020 International Conference on Advanced Education, Management and Social Science (AEMSS2020)* (pp. 156–161). Atlantis Press. https://doi.org/10.2991/assehr.k.200723.121

6. Holden, O., Norris, M., & Kuhlmeier, V. (2021). Academic integrity in online assessment: *A research review. Frontiers in Education, 6:*639814. https://doi.org/10.3389/feduc.2021.639814

7. International Center for Academic Integrity [ICAI], (2021). The Fundamental Values of Academic Integrity (3rd ed.). I*nternational Center for Academic Integrity*. https://academicintegrity.org/images/pdfs/20019_ICAI-Fundamental-Values_R12.pdf

8. Isakov, M., & Tripathy, A. (2017). *Behavioral correlates of cheating: Environmental specificity and reward expectation. PLoS One, 12*(10). https://doi.org/10.1371%2Fjournal.pone.0186054

9. Karim, M., Kaminsky, S., & Behrend, T. (2014). Cheating, reactions, and performance in remotely proctored testing: An exploratory experimental study. *Journal of Business Psychology, 29*, 555–572.

10. Kentnor, H. (2015). Distance education and the evolution of online learning in the United States. *Curriculum and Teaching Dialogue, 17*(1&2), 21.

11. King, C., Guyette, R., & Piotrowski, C. (2009). Online exams and cheating: An empirical analysis of business students' views. Journal of Educators Online, 6(1).

12. Krou, M., Hoff, M., Pino, N., & Acee, T. (2019), Rationalizing the decision to cheat: An empirical analysis to determine whether social rational orientation can predict academic dishonesty. *Journal of College and Character, (20)*1,

9–24. https://doi.org/10.1080/2194587X.2018.1559196

13. Ladyshewsky, R. (2015). Post-graduate student performance in 'supervised in-class' vs. 'unsupervised online' multiple-choice tests: Implications for cheating and test security. *Assessment & Evaluation in Higher Education, 40*(7), 883–897. https://doi.org/10.1080/02602938.2014.956683

14. Lancaster, T., & Cotarlan, C. (2021). Contract cheating by STEM students through a file sharing website: A COVID-19 pandemic perspective. *International Journal for Educational Integrity, 17*(3). https://doi.org/10.1007/s40979-021-00070-0

15. Langenfeld, T. (2020). Internet-based proctored assessment: Security and fairness issues. *Educational Measurement, Issues and Practice, 39*(3), 24–27. https://doi.org/10.1111/emip.12359

16. Lewellyn, P., & Rodriguez, L. (2015). Does academic dishonesty relate to fraud theory? A comparative analysis. *American International Journal of Contemporary Research, 5*(3).

17. Lilley, M., Meere, J., & Barker, T. (2016). Remote live invigilation: A pilot study. *Journal of Interactive Media in Education, 1*, 1–5.

18. Martin, B. (2017). Defending university integrity. International Journal for Educational Integrity, 13, 1–14. https://doi.org/10.1007/s40979-016-0012-z

19. McCabe, D., Trevino, D., & Butterfield, K. (2001). Cheating dishonesty in graduate business programs: Prevalence, causes, and proposed action. *Academy of Management Learning & Education, 5*(3), 294–305.

20. McGee, P. (2013). Supporting academic honesty in online courses. *Journal of Educators Online, 10*(1). http://dx.doi.org/10.9743/JEO.2013.1.6

21. Moore, R., & Vitale, D. (2018). High school students access to and use of technology at home and in school. *ACT Center for equity in learning*. https://equityinlearning.act.org/research-doc/high-school-students-access-to-and-use-of-technology-at-home-and-in-school/

22. Moore, R., Vitale, D., & Stawinoga, N. (2018). The digital divide and educational equity: A look at students with limited access to electronic devices at home. *ACT Center for Equity in Learning.* https://www.act.org/content/dam/act/unsecured/documents/R1698-digital-divide-2018-08.pdf.

23. Nigam, A., Pasricha, R., Singh, T., & Churi, P. (2021). A systematic review of AI-based proctoring Systems: Past, present, and future. *Education and Information Technologies 26*, 6421–6445. https://doi.org/10.1007/s10639-021-10597-x

24. Noorbehbahni, F., Mohammadi, A., & Aminazadeh, M. (2022). A systematic review of research on cheating in exams from 2010 to 2021. *Education and Information Technologies.* https://doi.org/10.1007/s10639-022-10927-7

25. Ramos, M. (2003). Auditors' responsibility for fraud detection. *Journal of Accountancy, 195*(1), 28–35.

26. Rogerson, A., & Basanta, G. (2016). Peer–to–peer file sharing and academic integrity in the internet age. In: *Bretag (ed) Handbook of Academic Integrity. Springer, Singapore*. https://doi.org/10.1007/978–981–287–098–8_55

27. Saat, M. (2012). A longitudinal study of accounting students' ethical judgement making ability. Accounting Education: *An International Journal, 21*(3), 215–229.

28. Swift, C., & Nonis, S. (1998). When no one is watching: Cheating behaviors on projects and assignments. *Marketing Education Review, 8*(1), 27–36.

29. Tatum, H., & Schwartz, B. (2017). Honor codes: Evidence–based strategies for improving academic integrity. *Theory Into Practice, 56*(2), 129–135. https://doi.org/10.1080/00405841.2017.1308175

30. Trenholm, S. (2007). A review of cheating in fully asynchronous online courses: A math or fact–based course perspective. *Journal of Educational Technology Systems, 35*(3). https://doi.org/10.2190/Y78L–H21X–241N–7Q02

31. Waltzer, T., Sauelson, A., & Dahl, A. (2021). Students' reasoning about whether to report when others cheat: *Conflict, Confusion, and Consequences. Journal of Academic Ethics, 20*, 265–287. https://doi.org/10.1007/s10805–021–09414–4