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Margaret Ryznar
mryznar@iupui.edu

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Exams in the Time of ChatGPT

Margaret Ryznar*

Abstract

Invaluable guidance has emerged regarding online teaching in recent years, but less so concerning online and take-home final exams. This article offers various methods to administer such exams while maintaining their integrity—after asking artificial intelligence writing tool ChatGPT for its views on the matter. The sophisticated response of the chatbot, which students can use in their written work, only raises the stakes of figuring out how to administer exams fairly.

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* Professor of Law; thanks to the editors of *Washington and Lee Law Review*.

INTRODUCTION

I was ironically in the middle of grading a law school exam when my phone rang. I ignored it, squinting at the exam in front of me, when it rang again. This time, I lost my focus and reached for my phone.

It was a text from my former college roommate: “Not sure if you’ve been following any of the buzz about ChatGPT, but this is pretty astonishing.” She linked to an article claiming that a chatbot called the GPT-4 could pass the bar exam.¹

I’m not sure that’s possible, I thought before texting back and returning to grading.

Just to be sure, the next day, I logged into ChatGPT. I typed a question about the dead hand doctrine in Trusts & Estates and waited. I had read hundreds of answers to some iteration of this question during the last decade of teaching at various different law schools. Upon reading the answer from ChatGPT,² I immediately knew that ChatGPT would be a force with which to reckon in legal education and practice. And, ChatGPT would get even smarter with time—the more ChatGPT interacts with users and processes new information, the more intelligent it becomes.³

Since its introduction in late 2022, ChatGPT has created some concern in higher education, including in terms of assessing students.⁴ Thus far, Chat GPT passed the bar exam

1. The article to which she linked was Maximilian Schreiner, *GPT-4 Could Pass Bar Exam, AI Researchers Say*, THE DECODER (Jan. 2, 2023), <https://perma.cc/Z9PH-2FM6>.

2. Although not perfect, the answer provided by ChatGPT was good enough to surprise me: “The term ‘dead hand’ refers to the legal principle that allows a person to exert control over events or assets even after they have died. This is typically accomplished through the use of trusts, wills, or other legal instruments that limit the ability of others to modify or terminate certain arrangements or assets. The ‘dead hand’ principle is often used to ensure that a person’s wishes are carried out exactly as they intended, even after they are no longer alive.” ChatGPT, <https://chat.openai.com/chat>.

3. ChatGPT, *supra* note 2.

4. See, e.g., Xiaoming Zhai, *ChatGPT User Experience: Implications for Education* (Jan. 4, 2023), <https://perma.cc/H6EW-VSJU>; Muneer M. Alshater, *Exploring the Role of Artificial Intelligence in Enhancing Academic Performance: A Case Study of ChatGPT* (Jan. 4, 2023), <https://perma.cc/S4EV-Z5EU>; but see Stephanie Stacey, *These Teachers Think ChatGPT Can Help Them Spend Less Time on Writing Reports – And More Time with Their*

that is used to license lawyers⁵ and the United States Medical Licensing Exam (USMLE) that is used to license doctors.⁶ ChatGPT would have earned approximately a C+ at the University of Minnesota Law School and a B/B- in an MBA program at the Wharton School of the University of Pennsylvania, both highly regarded graduate schools.⁷ As one English teacher said, “Let me be candid (with apologies to all of my current and former students): What GPT can produce right now is better than the large majority of writing seen by your average teacher or professor.”⁸

ChatGPT, short for Chat Generative Pre-trained Transformer, is an AI language model that can write responses to any prompt, regardless of whether it is a request for a recipe, poem, or college paper.⁹ ChatGPT’s responses are human-like and almost never identical, making it difficult to identify as written by the chatbot without a watermark, a feature on which ChatGPT is working.¹⁰ Sam Altman, the CEO of the company, said in an interview, “There may be ways we can help teachers be a little more likely to detect output of a GPT-like system. But honestly, a determined person will get around them.”¹¹ He added that teachers must adapt and test students differently:

Students, INSIDER (Jan. 8, 2023), <https://perma.cc/KQ7B-QW5D> (noting the benefits of ChatGPT in managing teachers’ workloads).

5. Michael James Bommarito & Daniel Martin Katz, *GPT Takes the Bar Exam* (Jan. 3, 2023), <https://perma.cc/M876-7BZD>.

6. Tiffany H. Kung et al., *Performance of ChatGPT on USMLE: Potential for AI-Assisted Medical Education Using Large Language Models* (Dec. 21, 2022), <https://perma.cc/N9W3-TLP9>.

7. Jonathan H. Choi et al., *ChatGPT Goes to Law School*, <https://perma.cc/7MRK-G4YU>; Christian Terwiesch, *Would Chat GPT3 Get a Wharton MBA? A Prediction Based on Its Performance in the Operations Management Course*, MACK INSTITUTE FOR INNOVATION MANAGEMENT AT THE WHARTON SCHOOL, 17 (2023), <https://perma.cc/NJV5-MHG3> (PDF).

8. Daniel Herman, *The End of High-School English*, THE ATLANTIC (Dec. 9, 2022), <https://perma.cc/J5GS-55GD>.

9. Choi et al., *supra* note 7.

10. See Macie LaCau, *OpenAI Plans to Add Watermarking Feature to ChatGPT*, THE AMERICAN GENIUS (Jan. 5, 2023), <https://perma.cc/3DR3-GG4Q> (“A cryptographic watermark that could make it relatively easy to catch ChatGPT-generated content is moving its way in.”).

11. Aaron Mok, *CEO of ChatGPT Maker Responds to Schools’ Plagiarism Concerns: We Adapted to Calculators and Changed What We Tested in Math Class*, YAHOO! NEWS (Jan 19, 2023), <https://perma.cc/Z5RE-BQB8>.

“We adapted to calculators and changed what we tested for in math class, I imagine.”¹²

When I asked ChatGPT how to prevent students from cheating on online exams, the chatbot scraped online materials,¹³ including articles like this one, in order to sophisticatedly respond:

There are several ways you can prevent students from cheating using ChatGPT or any other language model-based tool:

1. *Make sure students understand the consequences of cheating and the importance of academic integrity.*

2. *Use plagiarism detection software to check for copied content.*

3. *Use proctored exams or other forms of secure testing.*

4. *Encourage students to collaborate, but make it clear that they should not copy each other's work or share answers.*

5. *Set clear guidelines for how students should use language model-based tools, such as ChatGPT, in their coursework.*

6. *Monitor student activity and look for any suspicious behavior, such as students accessing the tool outside of designated times or using it excessively.*

7. *Consider using alternative assessment methods, such as projects or presentations, which are less susceptible to cheating.*

*By taking these steps, you can help ensure that your students are using language model-based tools responsibly and ethically.*¹⁴

The sophistication of ChatGPT's responses is a problem for exam integrity. For example, according to one anonymous poll at Stanford University, approximately 17% of student respondents reported using ChatGPT on their assignments and exams last quarter.¹⁵

12. *Id.*

13. It has been suggested that chatbots like ChatGPT are themselves plagiarizing. See, e.g., Nick Vincent & Hanlin Li, *ChatGPT Stole Your Work. So What Are You Going to Do?*, WIRED (Jan. 20, 2023), <https://perma.cc/A5UP-EFMM>; Just Outsourcing (Adjunct) <https://perma.cc/9B84-VLEK>.

14. ChatGPT, *supra* note 2. Asking the same question yields various responses from the chatbot, making it more difficult for the professor to catch students using it.

15. Mark Allen Cu & Sebastian Hochman, *Scores of Stanford Students Used ChatGPT on Final Exams, Survey Suggests*, THE STANFORD DAILY (Jan. 22, 2023), <https://perma.cc/LDR3-QMYD>.

This article offers ways to preserve the integrity of online exams, as well as take-home exams. Based on the parameters and logistics of such exams, this article argues that exam design is particularly effective, which includes creating a new exam for each course and relying on issue-spotting essays or other problem-solving questions.

I. TRADITIONAL EXAM PROCEDURES

Traditional exam administration procedures have worked to deter cheating. For example, “In one study, random seat assignments combined with an increased number of proctors completely eliminated premeditated cheating behavior.”¹⁶

Such traditional procedures are not available in online and take-home exams, despite the opportunities for cheating to which technology has contributed.¹⁷ For example, students can call or text each other to compare their exam answers. They can electronically chat about their answers in real-time on direct messaging platforms such as Gmail and Facebook. They can pay someone else to take the exam. They can copy and paste into the exam from the internet or their notes. They can share the exam questions with students who have not yet taken the exam. They can use artificial intelligence to generate their answers, such as artificial intelligence writing tool ChatGPT.¹⁸ Many of these issues arise with take-home exams as well.

Much has been written about online teaching, but far less about online exams administered to students in their own environments.¹⁹ Yet, online courses often necessitate online exams to maintain the geographic and time flexibility offered by online curriculum options.²⁰ And, online courses are increasing

16. Lori A. Roberts & Monica M. Todd, *Let's Be Honest About Law School Cheating: A Low-Tech Solution for A High-Tech Problem*, 52 AKRON L. REV. 1155 (2018).

17. *Id.* at 1162.

18. ChatGPT, *supra* note 2.

19. For example, MIAMI L. REV., ST. LOUIS UNIV. L.J., SYRACUSE L. REV., and J. OF LEGAL EDUC. devoted entire issues to online teaching in 2020–21. See, e.g., Nina A. Kohn, *Online Learning and the Future of Legal Education: Symposium Introduction*, 70 SYRACUSE L. REV. 1 (2020).

20. The flexibility offered by online teaching and learning is an important benefit, especially as it can help attract and retain non-traditional students who have family and work demands on their time that might otherwise

in universities.²¹ They are desirable because they provide flexibility to students with family or work commitments and to students with otherwise busy schedules.²²

However, professors have not yet completely solved the integrity concerns of online exams and take-home exams, such as those created by ChatGPT.²³ Yet, the integrity of final exams is important, especially in law school. Grades matter, yielding a ranking of students that is integral to rewards such as scholarships, law review positions, and judicial clerkships.²⁴ Grades also determine penalties such as academic probation. Finally, maintaining the integrity of online exams is important on the macro level of preserving the integrity of education, as well as the micro level of maintaining the fairness of exams for students.²⁵ In other words, exam integrity ensures not only the

preclude them from attaining a degree. *See, e.g.*, Steven C. Bennett, *Distance Learning in Law*, 38 SETON HALL LEGIS. J. 1, 7 (2013) (explaining that distance learning can provide flexibility to students who are pursuing a second career and therefore have family and work obligations that make education difficult to pursue). Other benefits of online courses include “unprecedented opportunities for overcoming self-silencing, and some of the baleful consequences of group polarization, cascade effects, and hidden profiles.” Cass R. Sunstein, *Self-Silencing and Online Learning*, 70 J. LEGAL EDUC. 205, 213 (2021).

21. For example, the American Bar Association, the regulator of law schools in the United States, recently allowed law schools to “grant a student up to one-third of the credit hours required for the J.D. degree for Distance Education Courses; up to 10 of those credit hours may be granted during the first one-third of a student’s program of legal education.” Standard 311(e), Standards and Rules of Procedure for Approval of Law Schools (2022–23), <https://perma.cc/F48U-JM6U>.

22. *See supra* note 20.

23. Therefore, faculties have already been discussing ChatGPT. For example, the University of Michigan’s Ross Business School convened a faculty meeting in January 2023 to discuss the implications of ChatGPT. Andrew Jack, *AI Chatbot’s MBA Exam Pass Poses Test for Business Schools* (Jan. 21, 2023), FINANCIAL TIMES, <https://perma.cc/K9ER-N5LY>.

24. “Assessment impacts a student’s experience both in and after law school. In law school, grading can impact a student’s self-esteem and morale, what courses a student chooses to take, whether a student is able to participate in particular activities and receives certain honors while in law school, and whether a student is even eligible to remain in law school.” Emily Zimmerman, *What Do Law Students Want?: The Missing Piece of the Assessment Puzzle*, 42 RUTGERS L.J. 1, 4, n.9 (2010).

25. Grades are an important external motivator for students. However, it may be even more important for students to have intrinsic motivators. For more information on motivating students in online teaching, *see* Margaret

fairness of grades, but also that students learn in their courses. While the rise of technological opportunities for exam assistance such as ChatGPT may tempt professors back to in-person exams, there may be other solutions.²⁶

II. VIDEO PROCTORING

The easiest and cheapest method of exam proctoring is the traditional proctored exam in a classroom at the end of the semester. However, it is not a perfect method. For example, students could visit the restroom to consult notes or other students.²⁷ They could write answers on their arms, in their calculators, or in their smart phones. Despite its shortcomings, traditional proctoring can also be used in online courses by requiring students to be on campus for in-person final exams.

In addition, there are several online proctoring options that aim to recreate traditional proctoring in each student's location of choice. One option is for students to take their exams as a group in front of a webcam on Zoom or another video conferencing platform with a live, but not in-person, proctor.²⁸ Everyone must be scheduled to take the exam at the same time, and the Zoom session could be recorded for additional review later by the professor, teaching assistants, or faculty assistants. However, exam reschedules increase the time and financial commitments of this option.

Professional online proctoring services are also an option, which can be more individualized. One example is Examity.²⁹ These proctoring services are often one-on-one services that track one student at a time. The session can be taped for further review if there are issues. Often these proctoring services are based in foreign countries or use artificial intelligence technology to keep labor costs lower. Nonetheless, the costs of

Ryznar & Yvonne Dutton, *Lighting A Fire: The Power of Intrinsic Motivation in Online Teaching*, 70 SYRACUSE L. REV. 73 (2020).

26. ChatGPT, *supra* note 2.

27. Ruthann Robson, *The Zen of Grading*, 36 AKRON L. REV. 303, 322 (2003).

28. Zoom is a leading vendor of video communications services to educational institutions, offering a cloud platform for video and audio conferencing. *Zoom for Education*, ZOOM (2021), <https://perma.cc/VX7N-ZF9U>.

29. EXAMITY, <https://perma.cc/79BT-RWYQ>.

such proctoring services can add up, particularly if every single student is taking an exam online that needs to be proctored. For example, Examity costs \$25 for live proctoring and \$10 for automated review.³⁰ This could cost upwards of \$2,500 for large courses, compared to the traditional in-person group exam proctor who does not cost anything extra. Some schools using online proctoring have asked students to pay for it.³¹

Video proctoring poses a few problems, however. Students can still step away from the screen for the restroom, where they can consult other materials or people. Time is lost verifying students' identities before the exam, and verifying students can pose its own challenges. Students might also not have the appropriate space to take the exam.³² Furthermore, there are security issues and the potential discomfort of taking an exam in front of a proctor watching through a web camera, which may also be recording the session.³³ Finally, it is difficult to have a closed-book online exam, even with a video proctor. Unless students are able to show their complete workspace on the video, they can have notes nearby or posted to the wall behind their computer.

In addition, the issues regarding video proctoring are the same as those regarding mandates for students to keep their cameras on during online classes. When students appear before

30. EXAMITY, *ACCUPLACER Administrator Q&A*, <https://perma.cc/TJP9-6C3T>.

31. See, e.g., UNIV. S. MISS., *Office of Online Learning, Examity FAQ*, <https://perma.cc/N567-4C5J> (“Live virtual proctoring - \$18.00 for the first hour and \$10.00 for each additional hour. Plus 9.36% sales tax on the service.”); UNIV. LA. LAFAYETTE ONLINE, *Examity Fees*, <https://perma.cc/WBZ3-C5X8> (“Costs range from \$4 per exam to \$15 per scheduled hour of exam time. Your instructor should provide you with this information at the beginning of the course.”); *Examity Pricing Guide for Texas A&M International University*, <https://perma.cc/N9WJ-8YQA> (listing the current pricing guide for Examity).

32. See Rita A. Sethi, *Reflective Journal: Curricular Deficits, Pedagogical Challenges and Constructing Community in a Non-Traditional Law School Class*, 27 ROGER WILLIAMS U. L. REV. 57, 83 (2022) (discussing additional impediments many law students faced in the pandemic).

33. See, e.g., Shivangi Gangwar, *Some Thoughts on the Corona Semester*, 65 ST. LOUIS UNIV. L.J. 517, 524 (2021) (explaining how remote learning prevented the use of various pedagogical tools).

a web camera from home, privacy concerns arise.³⁴ They may also be concerned about their socioeconomic environment, such as their apartment backdrop, compared to their peers.³⁵ These various issues with video proctoring make it difficult to use.

III. COMPUTER SOFTWARE

While some technology facilitates cheating, other technology combats it. For example, exam software can shut down other applications on students' computers and prevent them from copying and pasting text into the exam or using the internet.³⁶ However, these have limited functions in a take-home exam because students can use a second laptop or their smart phones to access the internet and look up information.

Meanwhile, anti-plagiarism software, such as Turnitin, can scan exams for plagiarized work, highlighting text copied and pasted from third party sources.³⁷ However, professors may find using anti-plagiarism software cumbersome, especially in large classes. Some learning management systems like Canvas seamlessly integrate features that allow students to upload their work directly into anti-plagiarism software like Turnitin, immediately generating a report for the professor showing possible plagiarism, if any.³⁸ Turnitin even addresses AI writing tools like ChatGPT.³⁹

34. See, e.g., Caroline A. Foster, *Your Home, The New Classroom: How Public-School Zoom Use Encroaches Into Family Privacy*, 22 J. HIGH TECH. L. 131, 132–33 (2021) (highlighting the privacy concerns of the Zoom platform).

35. See, e.g., Nina A. Kohn, *Teaching Law Online: A Guide for Faculty*, 70 J. LEGAL EDUC. 230, 242 (2021).

36. For example, such exam software includes ExamSoft. EXAMSOFT, <https://perma.cc/55NQ-9ZYD>.

37. TURNITIN, <https://perma.cc/9WWZ-YZBU>; see also *infra* Part E.

38. CANVAS, <https://perma.cc/R7AN-59CM>.

39. TURNITIN, *AI Writing: The Challenge and Opportunity in Front of Education Now*, <https://perma.cc/Z7DH-GY3A> (“Turnitin Originality, an in-market product that investigates the authenticity of student work, can detect some forms of AI-assisted writing and report on indicators of contract cheating. And, other recent product enhancements are detecting AI writing in our research and development labs. We will incorporate our latest AI writing detection capabilities—including those that recognize ChatGPT writing—into our in-market products for educator use in 2023.”).

Finally, schools can monitor student use of certain AI websites or block them entirely on school devices and networks. New York City, Los Angeles, and Seattle school officials did so with ChatGPT to protect academic integrity.⁴⁰ Similar to video proctoring, however, many of these methods raise privacy and other issues for students.

IV. EXAM TIME LIMITS

Creating time pressure on exams through time limits can reduce several integrity concerns. Students under time pressure to finish an exam will not have much time to consult other students or outside resources. Instead, they must spend all their time answering the questions on the exam.

The drawback to this approach is that time limits create added stress on students.⁴¹ Furthermore, time limits reward students whose native language is English, or who can write or type the exam faster, and may encourage students simply to regurgitate course material without much analytical thinking. Time limits may also require using a grading curve if they result in a low exam average, although in many law schools already, professors are required to adhere to grading curves that mandate a particular class average grade and limit the number of certain grades available.⁴²

V. ADDITIONAL OR OTHER ASSESSMENTS

Assessments in legal education have recently received attention on a much broader scale. For example, the ABA has

40. Matt O'Brien, *Explainer: What Is ChatGPT and Why Are Schools Blocking It?*, AP (Jan. 6, 2023), <https://perma.cc/FKJ3-CRHG>; see also Arianna Johnson, *ChatGPT In Schools: Here's Where It's Banned—And How It Could Potentially Help Students*, FORBES (Jan. 18, 2023), <https://perma.cc/H6FT-JVP6>.

41. In addition, the validity of an exam may be undermined if it is measuring student stress rather than knowledge. Steve Sheppard, *An Informal History of How Law Schools Evaluate Students, With a Predictable Emphasis on Law School Final Exams*, 65 UMKC L.REV. 657, 693–94 (1997).

42. Barbara Glesner Fines, *Competition and the Curve*, 65 UMKC L. REV. 879, 888 (1997).

increased its emphasis on assessment.⁴³ Additionally, the Carnegie Report has noted the critiques of traditional law school assessment.⁴⁴ To comply with best practices and ABA expectations, law professors must consider how to best assess their students.

Historically, law school courses have often offered a summative assessment in the form of an exam.⁴⁵ However, additional assessments throughout the semester can reduce the weight of the final exam, and therefore the incentive for students to cheat on it.⁴⁶

Multiple assessments have additional benefits.⁴⁷ For example, several early studies showed that positive performance feedback on assessments increased intrinsic

43. See Standard 314, ABA Standards and Rules of Procedure for Approval of Law Schools 2016-2017, 23 (“ASSESSMENT OF STUDENT LEARNING A law school shall utilize both formative and summative assessment methods in its curriculum to measure and improve student learning and provide meaningful feedback to students.”), <https://perma.cc/2GS2-D5CV> (PDF); see also Mary A. Crossley & Lu-in Wang, *Learning by Doing: An Experience with Outcomes Assessment*, 41 U. TOL. L. REV. 269, 271–73 (2010) (giving an overview of the American Bar Association’s consideration of standards regarding assessment).

44. WILLIAM M. SULLIVAN ET AL., EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW 167 (2007).

45. See *id.* at 164 (“The end-of-semester essay examination holds a privileged, virtually iconic place in legal education.”).

46. See Olympia Duhart, “It’s Not For A Grade”: *The Rewards and Risks of Low-Risk Assessment in the High-Stakes Law School Classroom*, 7 ELON L. REV. 491 (2015) (explaining that summative assessments are graded while formative assessments are ungraded).

47. See Roberts & Todd, *supra* note 16, at 1177.

Doing so may result in a variety of beneficial outcomes, such as: (1) more accurate assessments because students can focus more energy on demonstrating understanding of fewer learning outcomes at one time (thus reducing the pressure to take shortcuts, i.e. cheat); (2) provide more opportunities for students to adjust to a professor’s exam or assessment style and improve performance accordingly; and (3) provide professors with feedback on their own teaching effectiveness with more frequent and earlier assessments, for student performance is often also an indicator of how well the professor has communicated key concepts.

motivation, while negative performance feedback decreased it.⁴⁸ However, research has shown that any feedback to students helps their subsequent performance.⁴⁹ Simply by taking a quiz, for example, students will learn whether they have mastered course concepts. If the students do not succeed on the quiz, they receive an early warning that their understanding was faulty or incomplete. Furthermore, multiple assessments throughout the semester may also offer additional opportunities to develop various skills such as self-regulation.⁵⁰

Online courses facilitate multiple assessments because learning management platforms such as Canvas are set up to administer various assessments with automatic grading.⁵¹ For example, quizzes can include various types of questions, such as multiple choice, true/false, fill-in-the blank, and even short essay.⁵² The online learning platform is able to grade objective quizzes such as multiple choice and offer students immediate feedback by revealing the correct answers and explanations upon the student's submission of the quiz. The professor, meanwhile, can receive a computer-generated report on student

48. Richard M. Ryan & Edward L. Deci, *Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions*, 25 CONTEMP. EDUC. PSYCH. 1, 59 (2000).

49. Jarene Fluckiger et al., *Formative Feedback: Involving Students as Partners in Assessment to Enhance Learning*, 58 COLLEGE TEACHING 136, 137 (2010); see also John Hattie & Helen Timperley, *The Power of Feedback*, 77 REV. EDUC. RES. 81, 88 (2007) (demonstrating how appropriate feedback increases students' ability to detect their own errors and clarify learning goals); Daniel Schwarcz & Dion Farganis, *The Impact of Individualized Feedback on Law Student Performance*, 67 J. LEGAL EDUC. 139, 140 (2017) (explaining that effective education "requires frequent formative assessments that provide students with the opportunity to gauge their progress as they acquire new skills") (internal quotes omitted).

50. Self-regulating behaviors include goal setting, time management strategies, structuring one's environment so as to best complete tasks in a timely manner, and seeking out help with completing required tasks. For example, students might set a goal to read a certain number of pages each day or to devote a certain number of hours each day to studying. This type of self-regulation has been linked to improved academic performance. See Lucy Barnard-Brak, William Y. Lan, & Valerie Osland Paton, *Profiles in Self-Regulated Learning in the Online Learning Environment*, 11 INT'L REV. RSCH. OPEN AND DISTRIBUT. LEARNING, 1, 1 (Mar. 2010).

51. CANVAS, *supra* note 38.

52. See, e.g., Margaret Ryznar, *Assessing Law Students*, 51 IND. L. REV. 447, 450 (2018) (describing innovations in assessing law students online).

performance once a quiz is completed, allowing the professor to monitor students' efforts at mastering course material.⁵³

Online professors have a particular incentive to monitor and interact with students through multiple assessments. This is because the Higher Education Act requires online programs receiving federal financial aid to include "regular and substantive interaction" between the instructor and students.⁵⁴ Although the Act did not define "regular and substantive interaction," the Department of Education issued a final rule which clarified, through new definitions, the requirements of regular and substantive interaction between students and instructors for a course to be considered distance education (eligible for federal financial aid) and not a correspondence course (ineligible for federal financial aid).⁵⁵ For a distance education course, substantive interaction is engaging students in teaching, learning, and assessment, consistent with the content under discussion. It also includes at least two of the following: (i) Providing direct instruction; (ii) Assessing or providing feedback on a student's coursework; (iii) Providing information or responding to questions about the content of a course or competency; (iv) Facilitating a group discussion regarding the content of a course or competency; or (v) Other instructional activities approved by the institution's or program's accrediting agency.⁵⁶

Instead of multiple assessments to minimize cheating on a final exam worth the entire course grade, professors can administer final assessments other than a final exam, such as a final paper that could be run through plagiarism software.⁵⁷ Students can submit final papers directly through an anti-plagiarism program like Turnitin, which automatically provides the professor a plagiarism report.⁵⁸ For example, the learning management system Canvas has an embedded Turnitin feature, allowing online students to submit their work

53. CANVAS, *supra* note 38.

54. Higher Education Act of 1965, 20 U.S.C. §§ 1001–61.

55. 34 C.F.R. §§ 600, 602, 668 (2021).

56. *Id.*

57. *See supra* Part B.

58. *Id.*

directly through the program.⁵⁹ Professors can also require sources cited throughout the paper that can reduce the utility of ChatGPT. Finally, professors can assign final projects or presentations in small-enrollment courses, or grade course participation.

VI. EXAM DESIGN

Exam design can be one of the best techniques to address integrity concerns. No matter the exam design, however, professors should endeavor to write a new exam with original questions each semester if it is online. The issues with old exams include that students can distribute a copy of them to future students, keep them on file in student organizations, or post them to the internet. To alleviate the work of writing brand new exams, professors can even turn to ChatGPT for inspiration on new exam questions.⁶⁰

A key to exam design is to avoid questions that easily can be answered, shared by students during the exam, or looked up during the exam. The order of questions can be scrambled to hinder comparisons, or even multiple versions of the exam can be offered to students.

Exam questions that require issue spotting, problem solving, and extensive reasoning can help reduce cheating, as opposed to simple memory-recall questions. These also help defeat ChatGPT. Consider the following hypothetical exam questions, and the relevant responses by ChatGPT, in order of effectiveness in an online exam:

Sample Exam Question #1: What is the definition of a bequest?

Professors should avoid asking for definitions like this or other answers that students can easily look up. Any quick online search, whether on a smart phone or in a nearby book, would yield the definition of a bequest as a disposition of property made in a will.

Indeed, ChatGPT correctly responded to this exam question: “A bequest is a gift of personal property made by a person through their will. When a person makes a bequest, they

59. *Id.*

60. Terwiesch, *supra* note 7.

are directing that specific items or property be given to a particular person or entity after their death. Bequests can be made of any type of personal property, such as money, jewelry, art, or household items. Bequests can be made to individuals, charities, or other organizations. The person making the bequest is known as the testator, and the person or entity receiving the bequest is known as the beneficiary. A bequest is one way that a person can make provisions for the distribution of their property after their death.”⁶¹

Sample Exam Question #2: An elderly woman leaves \$10,000 in her will to her adult son Seth. Must Seth include this amount in his gross income for federal income tax purposes?

Either the answer is yes or no, and students can run their answers by each other. They can also easily consult outside resources to determine the tax rule on bequests. These are the same drawbacks to using a multiple choice question exam format.

Illustrating the vulnerability inherent to such an exam question, ChatGPT responded correctly to this question: “In general, receiving an inheritance or bequest does not result in gross income for federal income tax purposes. This means that Seth would not have to include the \$10,000 he received from his mother’s will in his gross income for federal income tax purposes. This is because the inheritance or bequest is not considered to be earned income, and the recipient did not perform any services or engage in any activity to earn it. However, if Seth later sells assets that he received as an inheritance or bequest for more than their value at the time he received them, the difference between the sales price and the value at the time of receipt may be taxable as a capital gain. But this would not be considered gross income for federal income tax purposes. It would be treated as a capital gain, which is taxed at a different rate than ordinary income.”⁶²

Sample Exam Question #3: An elderly woman says to her adult son Sam: “If you take me into your home and care for me while I recover from surgery, I will leave you a special bequest in my will.” Sam takes care of his mother at his home after the surgery, but she dies within a few days. Sam soon learns that his

61. ChatGPT, *supra* note 2.

62. *Id.*

mother bequeathed him a car she had bought last year for \$12,000, now worth \$10,000. How much gross income for purposes of federal income tax does Seth have as a result of these events?

There are many layers to this question that hinder cheating. First, this is an issue-spotter or problem-solving question, meaning that students must spend time figuring out their answer based on unique facts, which helps create time pressure. Second, they must identify and apply the correct tax rules. Finally, they must explain their logic because the answer is not completely clear and depends on the interpretation of facts. The professor should award points based on the reasoning displayed on the exam, not just the final answer. A grading rubric written alongside the exam helps guide the professor in objective grading.⁶³

Students might have trouble sharing their results with each other during the exam because they may differ in their approach to answering this question. For example, the threshold issue in this question is whether the car is a bequest or compensation for caregiving services, which each have different federal income tax consequences. It is more difficult for students to share their reasoning with each other than their final answers, particularly in a timed exam, and it is harder to copy reasoning from outside resources.

The correct answer to this exam question is that the car is compensation for caregiving services, and therefore its fair market value is taxable under U.S. federal income tax law as such.⁶⁴ ChatGPT got the answer incorrect to this more sophisticated question, and even sounded less confident, responding: “It sounds like Sam received a gift of a car valued at \$10,000 as a result of taking care of his mother after her surgery. Under US federal income tax law, gifts and inheritances are generally not considered taxable income.

63. See, e.g., Brenda D. Gibson, *Grading Rubrics: Their Creation and Their Many Benefits to Professors and Students*, 38 N.C. CENT. L. REV. 41 (2015) (discussing the utility of grading rubrics).

64. See I.R.C. § 61 (“Except as otherwise provided in this subtitle, gross income means all income from whatever source derived, including (but not limited to) the following items: (1) Compensation for services, including fees, commissions, fringe benefits, and similar items.”).

Therefore, Sam would not have any gross income for purposes of federal income tax as a result of receiving the car.”⁶⁵

Another attempt by ChatGPT also gave the wrong answer, going off tangent in a way that would not ordinarily gain the student any points (in addition, it is more likely that the car will depreciate over time instead of appreciating): “It appears that you are asking about a hypothetical situation involving an inheritance. In this case, Sam would not have any gross income for purposes of federal income tax as a result of these events. Inheritances, gifts, and bequests are generally not taxable as income to the recipient. However, if Sam sells the car for more than its fair market value at the time he received it, he may have a capital gain that is subject to income tax. The amount of the capital gain would be the difference between the sale price and the fair market value of the car at the time Sam received it. In this case, the fair market value of the car at the time Sam received it was \$10,000, so if he sells the car for more than \$10,000, he may have a capital gain that is subject to income tax.”⁶⁶

CONCLUSION

In sum, it is important to think about protecting the integrity of online exams, as well as take-home exams. There are several methods of doing so, ranging from using additional assessments to differing types of assessments. Some of these methods are high-tech, such as video proctoring and exam software, and others are low-tech, like time limits and course design. Given the relative advantages and disadvantages of each, exam design may offer a particularly effective approach.

These methods may not be able to eliminate all cheating—after all, cheating is as old as time. Indeed, as ChatGPT notes, “Cheating, or the act of obtaining an unfair advantage through dishonest means, has likely been around for as long as people have been competing with each other. There are many examples of cheating in recorded history, including instances of cheating in sports, academic settings, and other competitive

65. ChatGPT, *supra* note 2.

66. *Id.*

environments.”⁶⁷ However, the methods considered in this article can help minimize cheating, especially in the age of technology, making them worth pursuing given the importance of maintaining the integrity of online exams.

67. *Id.*