

Why do students cheat – an economic approach (Part 2).

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Kseniya Garaschuk (University of the Fraser Valley)

Notes Contributing Editor, CRUX Editor-in-Chief & Chair of Equity, Diversity and Inclusiveness Committee

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Kseniya Garaschuk, University of the Fraser Valley (kseniya.garaschuk@ufv.ca)

I had a few requests for Part 2 of the piece, so here we go. Now, a small disclaimer. In what follows, I provide some examples from my practice to highlight each category. I do not claim that any of these ideas are original or mind-bogglingly inventive, but those are the ideas that work for me. If you find any of these useful – drop me a line!

Quick recap: in Part 1 of this article [1], I introduced an idea of thinking about students' academic misconduct motivations through the lens of economic fraud theory. This highlights that cheating of any sort is a rational decision driven by one (or more) of the following three factors: pressure or necessity ("Do I need to cheat?"), opportunity ("Is it easy to cheat?") and rationalization ("Is it ok to cheat?"). I also gave some quick bullet points on how we as instructors can affect our students' behaviours by addressing these factors. Here, I will go deeper in each category and give a few more extensive examples from my practice.

As instructors, we are the conductors of our students' course experiences. So consider your approach to course administration and instruction and ask yourself: when do you put students, intentionally or not, in each of the three above situations?

Address Pressure/Necessity – make honest success feel achievable

When do we, as instructors, participate in the creation of the circumstances of perceived "need" to cheat? In my experience, pressure is most often associated with two common factors. The first one is high-stakes assessments where the impact of failure is significant. This can be addressed by frequent "bite-sized" quizzes instead of heavily-weighted tests or even one final exam that accounts for the majority of the course grade. Of course many of us work in departments with policies on minimal final exam weight making it de facto high-stakes and many of us will argue that having one comprehensive piece of assessment is, in fact, necessary. The approach here then is to provide enough practice through the feedback loop with low-stakes assessments throughout the term to ensure that students do not view the final exam as the insurmountable grade-changing barrier. Low stakes assessments act as fire drills in that they allow students to assess their skills and prepare them to perform under pressure before it really counts. At least that's the goal to strive towards.

The second pressure point is associated with an overly strict course structure that does not accommodate for life events such as sickness or unexpected circumstance. The rigidity of the structures, such as deadlines, has two sides. I will be the first to say that deadlines are important to keep students on track and on pace, but I will also give 1-2 day extensions on basically anything if requested in advance (longer extensions will be more carefully considered on a case-by-case basis). If the same student comes back with the multiple requests for the epsilon-extensions, we will have a chat, but that rarely happens. Finally, for my low-stakes assessment, I drop the lowest one without excuses – out of 13 weekly quizzes, I only take 12 to count toward the grade. Not only do I believe it is sensible to assume everyone should be allowed a week to not be at their top performance, but also knowing there is a drop-lowest policy can reduce panic-induced cheating. Small extensions or drop-lowest policies do not weaken structure; they make it livable.

Another important case that speaks to the necessity clause is when students feel that the assessment is misaligned with learning. If the term project is not related to the course examples, if the quiz questions differ in format and expectations from the assigned practice problems, if you claim you value explanations but your tests are all multiple choice, then students might legitimately feel the pressure to cheat since they perceive that there were not given the tools to practice the skills necessary for honest success. But let's be clear – sometimes the assessment is aligned with practice but students do not perceive it as such. I have one proven method to break this misunderstanding: I use an "aftermath" (ha!) assignment to review the test once it has been graded and returned. In part 1, for each question on the test, students have to identify sources in our course materials where similar problems or problems focusing on the same concepts appear: this could be the relevant lecture (I use skeleton slides, so the students can provide a page number), textbook section, online assignment, quiz, additional problem set, etc. Many students are surprised to discover that even the questions they thought were unfamiliar actually came from examples they have seen before. This helps them notice those connections and reinforce the value of active review and practice. For part 2, I range the activities – last term, I asked the students to review and characterize their mistakes, write on what worked well during the test prep and what changes they will make for the remainder of the term. Aftermath assignments are always eye-opening and allow students to adjust their learning strategies as well as react differently to their mistakes.

Students usually see in-term tests only as assessments, while I try my best to make them into learning experiences. One model that I've used successfully in classes from 30 to 200 students are so-called two-stage assessments, where students first complete and turn in the questions individually and then, working in small groups, answer the same questions again. For a full description of the activity see my piece [2] or my two published works [3, 4] on learning gains and student perceptions. The conclusion is clear – students love this format. Even if there are no statistically significant learning gains, this format takes the stress factor away from test taking and re-directs the experience from viewing assessments as summative to seeing them as formative.

Finally, normalize help-seeking and accommodate for it. Many first-year students do not know what office hours are and how to utilize them. This is the standard "expert-blindness": we use words such as "office hours" but we never define the term. While we believe we have an open door policy, our students simply don't have neither the experience nor courage to come ask for help from the exact same person who will be later evaluating their course performance. Moreover, with our students' busy schedules, your set office hour times might simply not work for many – offer a few options in the beginning of the course in order to find the most accommodating ones, use a bookmytime app or its equivalent to allow students to book

drop-in times. Many institutions now also have some version of a Math Help Center staffed with tutors, but just knowing about its existence isn't enough. Talk about the available help in class in terms of its format, purpose and specifics of how to use it so that its availability and utility is clear.

Address Opportunity – make dishonest attempts harder

This is mostly about prevention. Individualised assessments (or at least multiple versions of the same assessment, be it a quiz or a homework) are a great approach – having 2-3 versions of the same question means students have to at least understand the procedure before copying someone's work so they can match their numbers to it. Even better if you go with same-ish but not identical questions. Next up, assignments or projects used by instructors term-to-term. Reusing an assignment or test without changing it is like leaving your house key under the doormat: convenient for you, but eventually someone is going to find it and let themselves in. I must admit, I have a couple of my absolute favourite term projects I have developed and it is incredibly annoying that I can't re-use them as take-home assignments because I know they can be found online. But I do re-use the problems – instead of assigning them as take-home projects where students will certainly google them, I use them for in-class explorations. This way the problems still get to live out their best lives in my courses without tempting my students to copy their answers.

A word on authentic problems and their sources. I draw inspiration from many sources when it comes to getting context ideas for my authentic applications. I also vary the subject matter. I have developed applications on lake sedimentation, volume of Einstein's brain, crows' feeding patterns, West Nile virus spread and much much more (not to mention everyone's favourite – Yellowstone wolves and elk). But many of my ideas come from students themselves. My favourite end-of-term assignment is to ask students to write a final exam question, including a complete and comprehensive solution. I provide structure and guidance around what it means: specifically, the problem must be an application and the context must either be plausibly constructed or grounded in real data (and I provide examples of databases worth exploring). The pedagogical benefits are substantial: students must decide what is actually important in the course. If they are to test a concept, they must first identify it as something worth testing; they must determine how it can be tested; they must choose parameters that make sense mathematically and contextually; they must ensure that the problem statement is clear and complete; they must ensure the problem is solvable. They discover very quickly that writing a good problem is much more difficult than solving one and that realization alone is transformative. This assignment also quietly communicates the fact that math is a creative human endeavour and then can participate in that creation. As an added strategic benefit, I compile all the submissions together into one monster final exam practice package, solutions and all. How do I encourage them to read it? I let them know that a modified version of one of the problems will be included in the final exam. I genuinely look forward to marking this assignment as it is one of the rare assessment moments where students' intellectual personalities surface. When they try, they really try and their curiosity, humour, disciplinary and personal interests and skills come through in ways that routine problem sets are simply not designed for. Feeding this back into my practice, student submissions provide me with rich and interesting applications rooted in real-life scenarios (and yes, Minecraft is also real-life) – ones I have drawn many inspirations from throughout the years.

I cannot not mention that oral/live or recorded presentations or exams are a great way to avoid opportunistic misconduct. A word of warning: these must be well structured and well done to ensure clear expectations and no bias in the evaluation. This is a whole other topic for discussion – maybe I will try to persuade a colleague with a lot of experience in this area to write a piece.

Reducing opportunity also means making clear that attempts at misconduct will actually be noticed and addressed, so next up – being vigilant. I always explain that I look: for take-home assignments or tests, I check ChatGPT (give it a problem and ask for solutions to generate the answer that students are likely to use for inspiration, if not more), I google my own questions and look for their existence on various "tutoring" websites. I remind students that I have a long history of catching cheating in the past and that I **do** act on it. This latter point is important. While I hate playing law enforcement, if you never enact the policy, the students will learn that there are no consequences and interpret cheating as acceptable behaviour. I'm really not looking to rule by fear, but clarity and follow-through matters. It's a bit like how Genghis Khan kept the Silk Road safe: the route became robbery-free not because people suddenly became honest, but because they knew that if they robbed a merchant, they'd be dealt with (quickly and decisively, I might add). Likewise, academic integrity needs follow-through to mean anything because doing nothing sends its own message: integrity is optional.

One trick of the trade here is whenever I catch suspected plagiarism on, for example, a quiz, I let the entire class know that there was suspected misconduct (without naming names, of course) and the quiz will not be released to anyone until the investigation is complete. Not only now does the whole class know that I do not let things slide, the suspected offender also feels the burden of negatively affecting the course experience of their peers.

Address Rationalization – make cheating psychologically inconsistent with students' self-image

As instructors, we cannot eliminate every frustration students experience. Sometimes workloads do feel overwhelming. Sometimes institutional systems are imperfect. Sometimes our teaching misses students in ways we did not intend. We have to fight these rationalizations directly rather than pretending they do not exist. To be clear, none of what I do removes personal responsibility: students remain responsible for their choices. Rationalization helps create conditions where misconduct feels psychologically acceptable and my role is to attempt to dismantle those rationalizations. Not by moralizing though.

On the one hand, rationalisation is about communication and self-image. As much as possible, I explain why various assignments and assessments are designed the way they are and how it connects to the students and also to their future professional work — even if only loosely. Students are often motivated by wanting to be seen as competent and trustworthy as a professional in their chosen field, so frame integrity as part of professional identity.

I also fight incessantly against the common "in math, only the answer matters" explaining that in real-life you will inevitably have to provide justification for your decisions. And I model what I preach: I continuously remind students that I will mark their solutions, not their answers, and I do. This works both ways though – you wrote an answer with no justification, that's a o because an unsupported answer is functionally indistinguishable from a guess. The questions on my assignments and tests require full explanations. I assess not only whether a solution arrives at the correct conclusion, but also the depth of reasoning and clarity of communication behind it (including following through logic made messy by a careless arithmetic mistake).

But another point here is subtle – it's relationship and trust. Many students think I think of them as just numbers and funnily enough I think many of them think of me as a number. After all, I am one of the many profs they will see across 40+ courses. By far, my best course experiences as instructor are associated with the strongest bonds I built with students in those groups by learning about their lives outside of my classrooms walls. And what you get as a relevant bonus is better integrity – it is hard to justify cheating in a class where you respect and have a meaningful human connection with the prof. Building relationships comes from dozens of small interactions that communicate to students that they are seen as individuals: learning names, remembering previous conversations, incorporating their interests into examples. Run a survey to find out what degrees your students major in, review course notes from the other classes they are taking, arrive to class a few minutes early and leave a few minutes late to allow for casual conversations to take place. Building rapport is not about becoming friends, but you do want to be an ally on your students' learning journey. Relationships do not replace good assessment design or clear institutional policies, but they do make

dishonesty feel like a betrayal of a relationship rather than merely a violation of a rule.

Final thoughts

We cannot remove every reason a student might cheat, but we can shape the environment in which that decision is made: we can make honest success feel achievable, make dishonest opportunities harder to exploit and create a course environment in which cheating is harder to rationalize. My students are adults and ultimately it is their right to fail. At the same time, I want them to “practice who you want to be” (thanks to Michelle Obama for inspiration) and explore the opportunities to demonstrate the qualities that matter in the long run. My responsibility is not to control my students’ choices, but to create a course in which the honest choice is possible, meaningful and worth making.

1. K. Garaschuk, Why do students cheat – an economic approach , CMS Notes, 57 (5), 2025, <https://notes.math.ca/en/article/why-do-students-cheat-an-economic-approach/>
2. K. Garaschuk, Group exams: the good, the bad and the students’ comments, CMS Notes, 49(2), 2017, p. ~10–12, <https://notes.math.ca/archives/Notesv49n1.pdf>
3. K. Garaschuk, E. Cytrynbaum, Feasibility and effectiveness of group exams in mathematics courses, Problems, Resources, and Issues in Mathematics Undergraduate Studies, 2019, Issue 10, p. 1061-1079.
4. K. Garaschuk, Learning benefits of collaborative exams, Journal for Research and Practice in College Teaching, 2022, 7(1), p. 42–55.

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Canadian Mathematical Society — 616 Cooper St., Ottawa, ON K1R 5J2, Canada