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White Paper

How Common is Test Fraud?

Exploring how likely people are to cheat in tests and exams

Investigating Test Fraud

www.questionmark.com/investigating-test-fraud/

Introduction

"The truth is rarely pure and never simple."

- Oscar Wilde

When people cheat at tests and exams, it has serious consequences. It can lead to people getting results they don't deserve or jobs they're not qualified for. This paper explores how common cheating and other kinds of test fraud are. It will help test-setters judge what level of security they require to deter rule breaking in their own programs.

Test fraud is the term for any activity that violates the rules of the assessment. It consists of cheating in assessments to secure a better score or stealing the content of the test to sell on to future candidates. But how big a problem is it?

One way to answering this question is to look at how many test-takers try to defraud a typical test or exam. For example, do 1%, 2% try to cheat? Could be it as high as 10%?

But this approach is limited. It fails to distinguish between cheating that fundamentally changes the outcome and more minor dishonesty which may make little difference. Looking at it like that won't really help test-setters decide what lengths they need to go to reduce cheating.

A better but harder question is: how many test takers get classified wrongly by a test because of fraud. To put it bluntly, how many people pass an assessment because of cheating that they would have failed if taken honestly?

This question isn't an easy one to answer. For all kinds of reasons, it's hard to measure the prevalence of cheating and content theft. Test fraud is ultimately an act of secrecy. It leaves little evidence behind it. There are significant variations across types of assessments, countries and cultures. And test sponsors are often tempted to play it down out of concern for their reputation.

Despite these challenges, there are two principal places where valuable data is available:

1. Surveys of test-takers. People aren't always honest in answering surveys, but these do provide useful data points.
2. Statistical analysis which helps identify likely amounts of cheating.

This paper explores each of these areas and summarizes what we can learn from them.

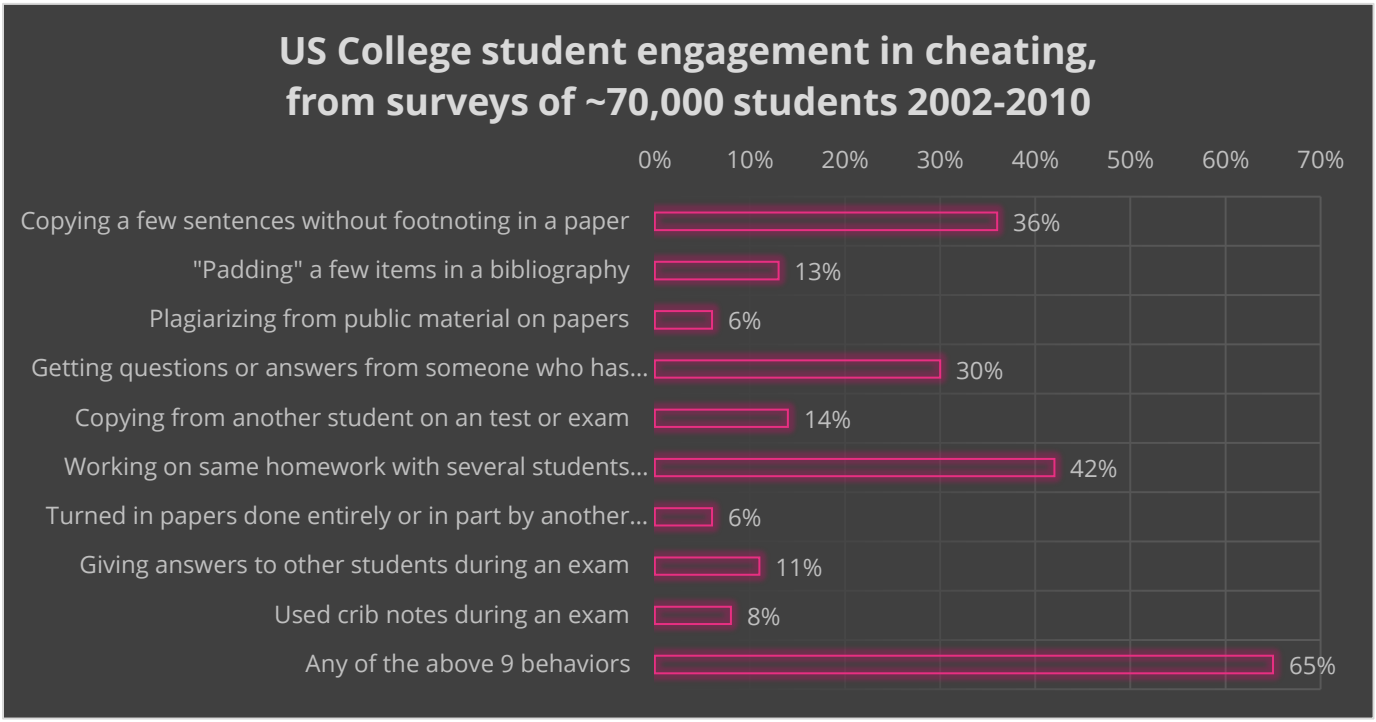
Learning From Survey Data Points

Surveying test takers to ask them about their behavior during tests and exams is highly valuable but we need to approach it with caution. It is the easiest way to get data on test fraud, but it is also the easiest to misinterpret.

Most survey samples are self-selected. Test-takers only answer if they choose. The results may not be representative of the wider population. Questions can leave room for ambiguity. What one person counts as "cheating" might not be seen as such by another. Some surveys ask if the respondent has ever cheated, which is different to whether they have cheated in a particular exam.

And of course, human beings are not always truthful. Particularly in sensitive areas like cheating. Respondents may be tempted to give the socially acceptable answer.

A pioneer in research about the prevalence of cheating was Donald McCabe of Rutgers Business School. He and his colleagues conducted many surveys of students at primarily United States (US) colleges to try to determine the amount of cheating. The data below comes from surveys conducted between 2002-2010 described in the book he co-authored "*Cheating in College*"[1].



[1] Cheating in College, Donald McCabe, Kenneth Butterfield and Linda Trevino, John Hopkins University Press. This graph is drawn by Questionmark from data in table 3.7 in the book.

Some 65% of students in this set of surveys admitted some type of rule breaking. Although this figure is high, we should treat it with caution. A smaller percentage of students would have cheated at *any* individual test or exam. Minor incidences of cheating might not have moved the scores hugely. It would be unwise to liberally quote that "65% of students cheat at exams" as some headline writers have been tempted to do.

Many other surveys establish similar findings. Some suggest higher figures, others come in a little lower. However, there is little compelling evidence that the amount of cheating today is radically different from that in McCabe's surveys.

For example, Dyer, Pettyjohn and Saladin published in late 2020 in the Journal of the NCTA a study, "*Academic Dishonesty and Testing: How Student Beliefs and Test Settings Impact Decisions to Cheat*". [2] This reviewed other evidence and published the results of a survey of about 700 people. The paper is worth reading for its report on student attitudes, but the headline figure on prevalence of cheating is that 62% indicated that they had engaged in some sort of cheating at college, at least occasionally. This is broadly in line with the McCabe data.

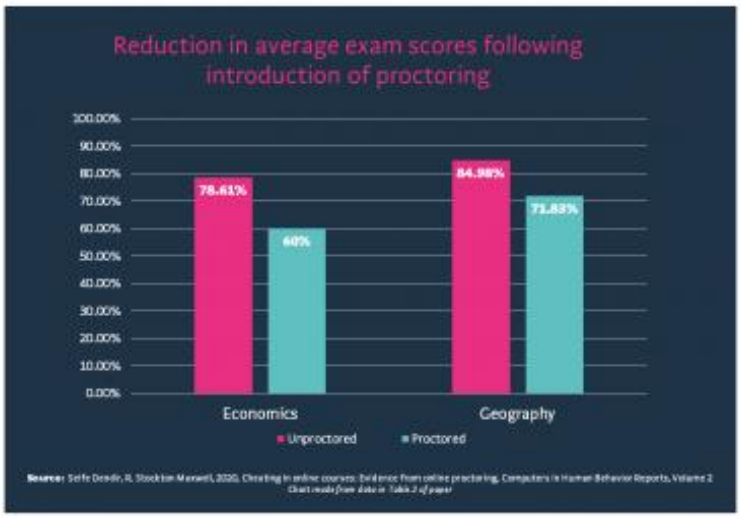
While levels of cheating seem to have remained consistent over the years, techniques have evolved.

"Contract cheating" is where people pay third parties or "essay mills" to complete their assignments. Recent research on this topic was reviewed by Philip Newton in "*How Common Is Commercial Contract Cheating in Higher Education and Is It Increasing? A Systematic Review*"[3].

This study reviewed 65 worldwide academic studies on the subject covering around 54,000 participants. It suggested that over a long time period going back to the 1970s, around 3.5% of students admitted commercial cheating (e.g., using an essay mill). But in the samples from 2014 onwards, the average was 15.7%, suggesting that this form of cheating has significantly risen over time.

[2] See https://www.ncta-testing.org/assets/docs/JNCTA/2020%20-%20JNCTA%20-%20Academic%20Dishonesty%20and%20Testing.pdf
[3] Available online at https://www.frontiersin.org/articles/10.3389/feduc.2018.00067/full

Real World Analysis: proctored vs unproctored tests



Information generated by asking people about their cheating habits will always present challenges. However, there is much we can learn from a statistical analysis of actual testing data.

In 2020, Dendir and Maxwell[4] conducted an analysis of a few hundred students taking tests in two online courses at a US university over several years. The tests in question were unproctored in some years and then proctoring was introduced. The hypothesis was simple: if scores reduced once proctoring was introduced, it was likely that students had cheated previously. They checked that other variables - student skills, course difficulty – didn't confound the analysis.

Their analysis found that average scores reduced considerably once proctoring was introduced. This strongly suggests cheating prior to the introduction of proctoring, and less once it was in place. As the graph above shows, the impact on scores was considerable: 13.5% in one course and 18.6% in another.

Another similar study was performed by Daffin and Jones[5]. They compared unproctored and proctored exams for around 1,700 students at a US university. They found that scores on the unproctored exams were about 10-20% better than for the proctored assessments. Although other explanations – such as test anxiety - might be a cause, the implication is that significant cheating was taking place on the unproctored tests.

[4] See https://www.sciencedirect.com/science/article/pii/S2451958820300336 for the paper. See https://www.questionmark.com/new-research-suggests-link-between-proctoring-online-exams-and-reduced-test-fraud/ for a Questionmark blog on the research.
[5] L.W. Daffin Jr., A.A. Jones 2018
Comparing student performance on proctored and non-proctored exams in online psychology courses, available online at https://olj.onlinelearningconsortium.org/index.php/olj/article/view/1079

These surveys and studies tend to suggest that at least in North American higher education, many students are willing to cheat. And that if proctoring or other measures are not in place to resist this, cheating risks making a material difference to final scores.

Proctored vs unproctored pre-employment tests

How much of this translates into test fraud in other places than universities? Do people applying for jobs, taking certification exams or participating in corporate development or compliance tests behave with more integrity? Some useful research with aptitude tests used in corporate recruiting helps to cast light on this question.

Employers often seek to test the aptitude of candidates in the recruitment process. In the first round, it's common for candidates to sit an unproctored aptitude test to screen applicants. Those that make it through to the next round are invited to take a further test which is proctored to confirm the result.

A 2014 paper by Kantrowitz and Dainis[6] compared unproctored and proctored test results from 4,026 candidates in a reasoning test, one of the harder types of test to cheat in, to identify potential cheating. The results are informative.

There are a range of reasons why people might get a lower score in the proctored test. Measurement error, illness or test anxiety. Analysis of this sample identified that 5% of candidates ought statistically to achieve a lower score for entirely innocent or circumstantial reasons. However, the actual variance was 6.4%. Whereas 1% of candidates ought statistically to have scored considerably lower, the real figure was 1.8%. This suggests that some cheating was taking place, but at a very low level. Perhaps in the 1% to 2% level.

A 2018 study, however, suggests an altogether higher level of dishonesty. A paper by Steger, Schroeders and Gnambs , "*A Meta-Analysis of Test Scores in Proctored and Unproctored Ability Assessments*" explored 49 studies of this nature to try to determine the level of cheating in unproctored, web assessments.[7]

Researchers concluded that a typical correlation between unproctored and proctored test results was around 0.58. This implies quite considerable difference which are likely due to

[6] Kantrowitz, T., & Dainis, A. M. (2014). How Secure are Unproctored Pre- Employment Tests? Analysis of Inconsistent Test Scores. Journal of Business and Psychology, 29, 605-616.
[7] Available online at https://econtent.hogrefe.com/doi/10.1027/1015-5759/a000494

cheating. It also suggested that test fraud was much higher in tests where people might be able to find the answers on the internet through their phones or computer.

Statistical analysis in IT certifications

Content theft is a particular challenge in the IT certification market. This is when people harvest questions into banks and sell them to future test-takers. Various statistical techniques can measure how common this is.

O'Leary and Smith of Aline Testing presented a paper on this subject at the National Council on Measurement in Education (NCME) conference in 2013.[8] They conducted statistical analysis on a large-scale IT certification exam where there was believed to be substantial item exposure.

They used a technique called "Differential Person Functioning" in an exam of 8,350 candidates. Some 6.4% were flagged as being likely to have acquired pre-knowledge of the items. They may have engaged in test fraud to get it.

The same authors also wrote a chapter in the 2016 handbook of *Quantitative Methods for Detecting Cheating on Tests.*[9] This shared some further data using similar analytics. In one study of 3,280 candidates in a licensure program, 1.7% were flagged as probably knowing the items in advance. And in seven other exams, the numbers flagged were 0.41%, 3.56%, 4.20%, 4.34%, 4.69%, 8.11% and 11.18%.

[8] Available at https://www.alpinetesting.com/wp-content/uploads/2017/09/ncme-extending-differential-person-and-item-functioning-to-aid-in-maintenance-of-exposed-exams.pdf

[9] Published 2016 by Routledge. The data quoted is from table 7.3.

Detected test malpractice

Some rule breakers get caught. Records of this are rarely published but useful data does exist as some organizations publish the number of incidents they identify.

Ofqual, the UK exam regulator does publish records of malpractice within UK school exams on an annual basis. Their data for 2019 shows that of over 16 million exam entries, just 0.02% received a penalty for rule breaking.[10] About 40% of these incidences related to bringing unauthorized devices – usually mobile phones – into exams.

Another data point is the Nigeria National Examinations Council. In 2021, they announced 20,003 cases of exam malpractice, which is 1.63% of entries.[11] This compares to 2.61% in 2020 and 3.53% in pre-pandemic 2019.[12]

[10] Available at https://www.gov.uk/government/statistics/malpractice-in-gcse-as-and-a-level-summer-2019-exam-series. There is also data available for 2020 but as UK exams were largely cancelled in 2020, the 2019 data is more useful.

[11] See https://dailytrust.com/breaking-neco-releases-2021-ssce-results

[12] https://www.thisdaylive.com/index.php/2019/10/09/neco-records-over-40000-cases-of-malpractice-in-2019-may-june-exam/

Learning from the data

What can we conclude from this wide variety of data points?

It seems that if opportunity is permitted, there is a significant minority of people who will engage in test fraud to impact their results. Sensationalist claims like "65% of students have cheated on tests" are not helpful. But in many tests at least a few percent of people may use test fraud to change their scores meaningfully. In unsupervised tests, it will likely be more.

Measures to prevent test fraud opportunity clearly make a difference. In the academic world, there is evidence that proctoring reduces cheating. In certifications, if questions are exposed through commercial sites, some people will take advantage of it. And in workplace aptitude tests fraud is likely to be lower if test-takers cannot find the answers online.

As a reader, you will likely be interested in the prevalence of testing in your program. Generalized studies cannot provide the answer to that. Unless there is a hidden culture of test fraud, most test programs that are highly vigilant about cheating likely keep test fraud to a low level. But different cultures of integrity, different populations of test-takers and different types of tests give variations.

Conclusion

- Sensationalist claims about widespread test fraud should be treated with caution and are generally unhelpful
- However, a material number of test-takers in many programs are likely to commit fraud if they have the opportunity
- When vigilance and security measures are used, test fraud reduces. But it doesn't disappear completely

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About Questionmark

We help organizations and their people unlock their potential to deliver better performance.

Questionmark provides a secure enterprise-grade assessment platform and professional services to leading organizations around the world, delivered with care and unequalled expertise. Its full-service online assessment tool and professional services help customers to improve their performance and meet their compliance requirements. Questionmark enables organizations to unlock their potential by delivering assessments which are valid, reliable and fair, which can be defended.

Questionmark offers secure powerful integration with learning management systems (LMS), learning record stores (LRS) and proctoring services making it easy to bring everything together in one place. Questionmark's cloud-based assessment management platform offers rapid deployment, scalability for high-volume test delivery, 24/7 support and the peace-of-mind of secure, audited U.S., Australian and European-based data centers.

Working with Questionmark

To further explore how Questionmark could work for your organization, or to book a free consultation and demo, please see: https://www.questionmark.com/request-demo/

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