# Unique data creates 'fair and robust' online exams

December 14 2021

Credit: Pixabay/CC0 Public Domain

Researchers have developed a new way of reinforcing "fair and robust" online exams, a study reports.

The new method, developed by experts from the University of Exeter, allows examiners to deliver each student with a unique dataset during online assessments.

The pioneering new approach also allows students to utilize bespoke lab videos, smart worksheets—online tools that provide instant feedback—and unique data for coursework.

The researchers say their method—which automatically produces realistic datasets, along with answers to aid marking—could be used in numerous disciplines to create the most robust online exams.

The findings are published in the *Journal of Chemical Education*.

Co-author Dr. Alison Hill, from the University of Exeter, said the new technique would boost the fair and robust nature of online exams, for the benefit of all students.

She says that "we want to protect our students who take their exams ethically, especially online. This new technique gives students confidence that there is little incentive to collude, and so they will not be disadvantaged compared to those who might otherwise share answers."

The new technique was created by co-author Professor Nicholas Harmer, also from Exeter. Although trials were conducted for 60 individual datasets, Professor Harmer is confident that it could be rolled out for thousands of individual and unique exams with little extra work.

For the project, Professor Harmer wrote a programming script that models lab equipment to produce realistic data, with some randomness

so each dataset is different.

It also creates answer sets and workings, so if a student makes an error, the examiner can easily see where the student went wrong.

Professor Harmer says that "our method allows us to create assessments that are fair and robust at a scale that would be impossible if each dataset had to be created individually."

Although the most obvious applications of this method are for data-based exams, the researchers say it could be used to create a wide range of unique assessments.

"It can create images, or provide each student with different resources—for example in a history exam—from which they should reach unique conclusions," Professor Harmer said.

"This approach could be applied to any assessment where you want the student to go through a logical process of analysing information."

**More information:** Nicholas J. Harmer et al, Unique Data Sets and Bespoke Laboratory Videos: Teaching and Assessing of Experimental Methods and Data Analysis in a Pandemic, *Journal of Chemical Education* (2021). DOI: 10.1021/acs.jchemed.1c00853

Provided by University of Exeter

Citation: Unique data creates 'fair and robust' online exams (2021, December 14) retrieved 30 June 2024 from https://phys.org/news/2021-12-unique-fair-robust-online-exams.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private

study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.