USENIX'23 Artifact Appendix: Educators' Perspectives of Using (or Not Using) Online Exam Proctoring

David G. Balash, Elena Korkes, Miles Grant, and Adam J. Aviv
The George Washington University

Rahel A. Fainchtein and Micah Sherr
Georgetown University

A   Artifact Appendix

A.1   Abstract

In our paper we explore how educators balance the security and privacy of their students with the requirements of remote exams. We developed a survey and we had n=125 educator responses. In our archive we make available functional artifacts that can be used to reproduce our qualitative and quantitative study results. The artifact includes the survey, R-scripts, Python, and shell scripts with detailed instructions on how to run this software. A single PC, Mac, or Linux machine should be sufficient hardware. Software requirements include RStudio, Python, and a terminal to run a shell script. The artifact can be evaluated by running the R-programming files, and evaluating the qualitative coding results.

A.2   Description & Requirements

This archive contains the survey questionnaire, and the data obtained from an online survey conducted during our study. The archive includes qualitative open coding analysis of open-ended survey results, as well as the R-scripts used to processes the quantitative results. We have included all of the software that we created to deploy the online survey. We have provided instructions for running the analysis.

A.2.1   Security, privacy, and ethical concerns

All datasets have been sanitized of any personally identifiable information. ResponseId variables are randomized alphanumeric strings.

A.2.2   How to access

The artifact can be accessed at the following URL:

https://github.com/gwusec/
2023-USENIX-Educator-Perspectives-of-Exam-Proctoring/
tree/10b55097bd807eb0cf3e6a41b154fe4e4e235f43

Please read the provided README.md file for full details: https://github.com/gwusec/
2023-USENIX-Educator-Perspectives-of-Exam-Proctoring/
tree/10b55097bd807eb0cf3e6a41b154fe4e4e235f43/
README.md

A.2.3   Hardware dependencies

A single PC, Mac, or Linux machine should be sufficient hardware.

A.2.4   Software dependencies

Software requirements: RStudio, Python, shell.

A.2.5   Benchmarks

None.

A.3   Set-up

1. Install RStudio https://support--rstudio-com.netlify.app/products/rstudio/download/ and use the R command install.packages() to install the following R packages which are required to run the R scripts: ordinal, MASS, tidyverse, ggalluvial, ggrepel, ggfittext, cowplot, scales, lubridate, broom, xtable, rstatix, Hmisc

2. Install Python 3+ https://www.python.org/downloads/

3. Clone or download the git repository https://github.com/gwusec/2023-USENIX-Educator-Perspectives-of-Exam-Proctoring/tree/10b55097bd807eb0cf3e6a41b154fe4e4e235f43

4. Run the scripts/qualitative-analysis/runirr.sh shell script to validate the inter-rater reliability scores

5. Load the scripts/quantitative-analysis/2021-educator.Rmd into RStudio and run the script to generate the figures and regression tables

6. Create a free Qualitrics account `https://www.qualtrics.com/free-account/`

7. Load the survey questionnaire Qualitrics file survey-instruments/**Online_Proctoring_Educator_Survey.qsf** into Qualtrics. To do this on Qualtircs you should select "Create a survey using a file."

A.3.1 Installation

```
https://github.com/gwusec/
2023-USENIX-Educator-Perspectives-of-Exam-Proctoring/
blob/10b55097bd807eb0cf3e6a41b154fe4e4e235f43/
survey-instruments/Readme.md
```

A.3.2 Basic Test

Open the `https://github.com/gwusec/2023-USENIX-Educator-Perspectives-of-Exam-Proctoring/blob/10b55097bd807eb0cf3e6a41b154fe4e4e235f43/scripts/quantitative-analysis/2021-educator.Rmd` R-script in the RStudio program and run the script.

A.4 Evaluation workflow

We created and deployed an online survey. We collected data from the survey and used qualitative open coding to analyse the qualitative results, and R-programming to analyse the quantitative results. Both the qualitative spreadsheets and R-scripts are provided, along with the raw data from the surveys.

A.4.1 Major Claims

The key results of the paper are the online survey result data and the detailed analysis of this data. The descriptive figures and regression analysis as described in the paper is our next key results, and those can be validated using the raw data along with the provided R-scripts.

A.4.2 Experiments

The figures and regression tables can be rebuilt using the provided R-scripts.

A.5 Notes on Reusability

The survey can be loaded in Qualtrics and new data obtained. The R-Scripts can be resued with new data. The irr.py script can be used to check new qualitative data.

A.6 Version

Based on the LaTeX template for Artifact Evaluation V20220926. Submission, reviewing and badging methodology followed for the evaluation of this artifact can be found at `https://secartifacts.github.io/usenixsec2023/`.