

Are AI-Powered Exam Proctoring Systems the Answer We Have Been Waiting For?

Ped Day Session

14 October 2020



Dawson's AI-Themed Community of Practice

cbouffard@dawsoncollege.qc.ca



Agenda

1. Revel's 'revelations'
(Vanessa Gordon)
2. Basic facts about AI-powered proctoring systems
(Garry Chu)
3. Experiments with Top Hat's Proctorio plugin
(Carl Saucier-Bouffard)
4. The pros and cons of systems such as Proctorio and Proctortrack
(Jennifer Sigouin)
5. Assessment solutions that do not involve exam proctoring
(Vanessa Gordon & Ahmad Banki)
6. Q & A



Vanessa Gordon

Wed 02/09/2020 17:11

To: [redacted]

Hi [redacted]



I just got a message from a student saying that I only ordered the ebook for my classes, but the book order requisitions are on this thread. Was there a problem getting the books in? Let me know!

Hi Vanessa,

Alexandra can probably explain this better than I, but Pearson has been transitioning to all-digital over the last few years, and the Mintz and Tossutti books are examples of that.

You did not "erroneously order" the Revel editions... It's just that, unfortunately, they are now the only ones available.

ME:



SEP. 3 AT 10:32 A.M.

OK so I'm done with Pearson publishers: I'm using the 6th edition of their Politics Power and the Common Good and the 1st edition of Canadian Politics Today, and somehow I didn't realize that these were released as ebooks only. I didn't realize this because I'm sitting here with the print copies that they didn't print anymore of.

I'm pretty ticked because I hate ebooks. I'm also signalling this to you guys in case any of you are using the same thing: the students are going to end up at the bookstore just to pay over \$50 for a code on a card. 😱😱

Christopher

Yes. I had this experience last week. I didn't realize you were using it, otherwise I would have given you a head's up



Chris and I had the same problem



Jinx

Christopher



Christopher

I'm going to muddle through this term, but I'm 95% done



I gave some pretty pointed feedback to the sales rep

Marianne

Also my students are asking me for a link I don't have

I love that your very helpful and polite email is your version of pointed



Christopher



Christopher

Chapter 1

Understanding Politics

In the News: Climate Change

Interactive

The COVID-19 Pandemic

May 2020

In 2020, the world faced a serious COVID-19 pandemic. In Canada, schools and universities were closed, and outdoor activities and interactions with friends and relatives were often restricted. Many students were unable to find summer jobs although the Canadian government did provide some financial relief through the Canada Emergency Student Benefit (CESB). As the media provided daily reports on the number of people who had contracted COVID-19 and succumbed to the virus, most people worried about their own health, and the health of their families and friends. The proportion of people infected with COVID-19 varied considerably around the world with the United States having the highest number of COVID-19 cases by mid-May of 2020 (Thomson Reuters, 2020). In Canada, the most seriously affected area was Montreal. It had seen more than one-third of all deaths in Canada by mid-May of 2020 (Forani, 2020). There were a high proportion of COVID-19 cases in seniors' homes, as

Question

Worth 20 points

What are the major political issues in your local, provincial, and national communities? What about in the global community? Do the most talked-about issues reflect the most serious problems that each of these communities faces? Are any important issues ignored?

A minimum number of characters is required to post and earn points. After posting, your response can be viewed by your class and instructor, and you can participate in the class discussion.

Post

0 characters | 140 minimum



INTRODUCTION TO POLITICS 01

Introduction: understanding politics

✓ Chapter 1: Understanding Politics

4 Topics | 1 Quiz

✓ Politics

✓ Power

✓ Authority and Legitimacy

✓ The Common Good

Chapter 1: Understanding Politics

○ Chapter 2: Nation-States and Globalisation

5 Topics | 1 Quiz

○ Chapter 3: Democracy and Democratic Government

5 Topics | 1 Quiz

POWER

Give an example of a time in your life when **coercive** power was used over you.

Assigned: Monday Aug. 31

Due: Wednesday Sept. 9

Answer length: 3 to 4 sentences. Weight: 3 points.

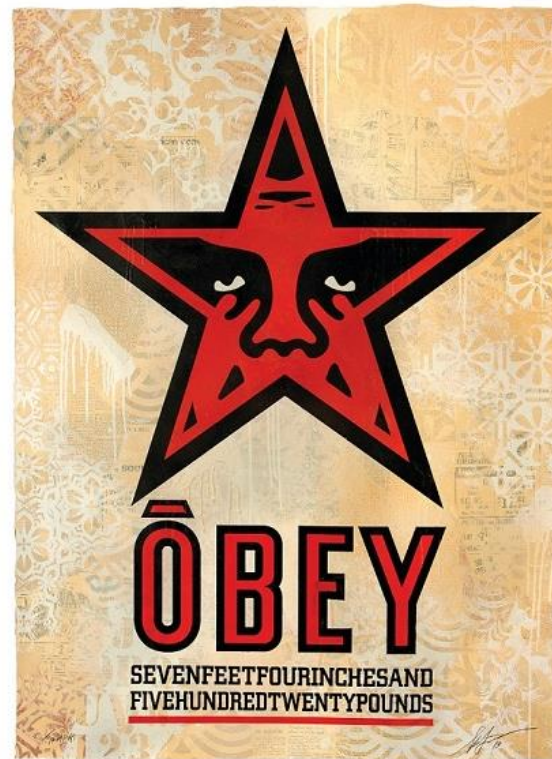
Click [here](#) for the rubric.

Section 1 go [here](#) to answer.

Section 2 go [here](#) to answer.

NOTE on confidentiality and anonymity: You can choose to enter your name, or you (and hopefully I will figure out who you are based on your account information). You the blog, and to submit the .doc word file of the assignment on LEA, and I will grade

To determine which option works for you: picture the last person in the world you v your entry. If you choose to use your student # instead of your name, or even just re



Give an example of a time in your life when **inducement** power was used over you.

Give an example of a time when **persuasion** was used over you.

Give an example of when **leadership** had power over you.



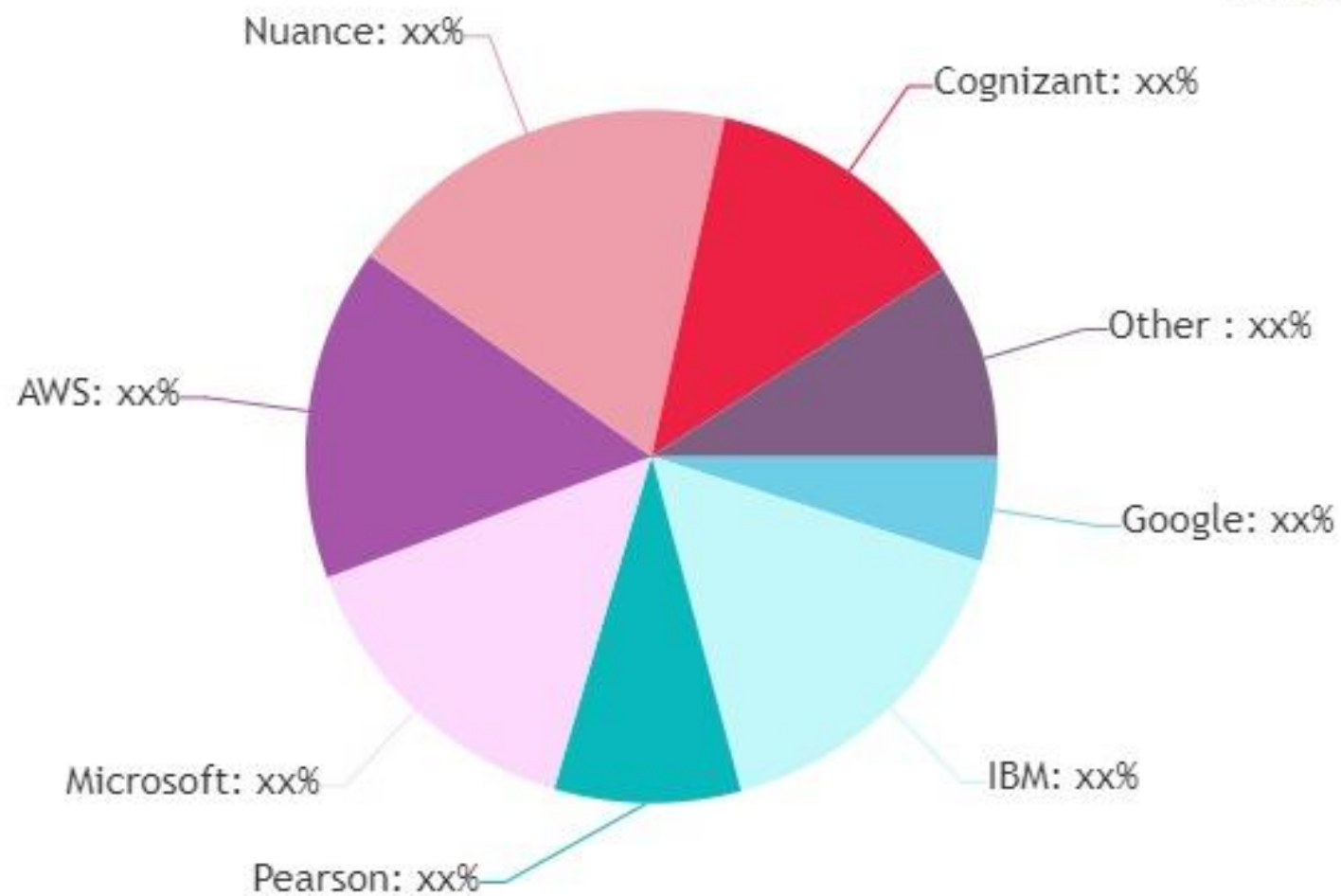
No shoes required:

At-home testing for them.
Stringent security for you.

Add online proctoring to your certification program.

[Contact us](#)

Market Player Product Sales Volume Market Shares





Pearson 2025

Transforming teaching and privatising education data

Sam Sellar and Anna Hogan
April 2019



Education International
Internationale de l'Éducation
Internacional de la Educación
Bildungsinternationale

What It Is

“invigilation of exam-takers remotely, using audio and video and other anti-cheating methods to ensure integrity, credibility and authenticity to online exams.”

Focus of AI-enabled Proctoring

- Detect Identity Fraud
- Analyze cheating behavior
- Discover Content Theft

How It Works

- **Online testing:** Need computer, webcam and good internet connection (512 kbps)
- **Advantages:** somewhat “controlled environment”, attempt to reduce cheating and plagiarism
- **Role of AI:** reduce and even eliminate instances of cheating during online exams, flag suspicious cases (e.g. non-visibility of face, phone, talking to someone else, suspicious eye movement)
- “Mettl’s futuristic AI algorithm is trained with more than 2.8 million proctored assessments. It can detect up to 18 dynamic digressions with over 95% accuracy.” Mercer

Before the Assessment

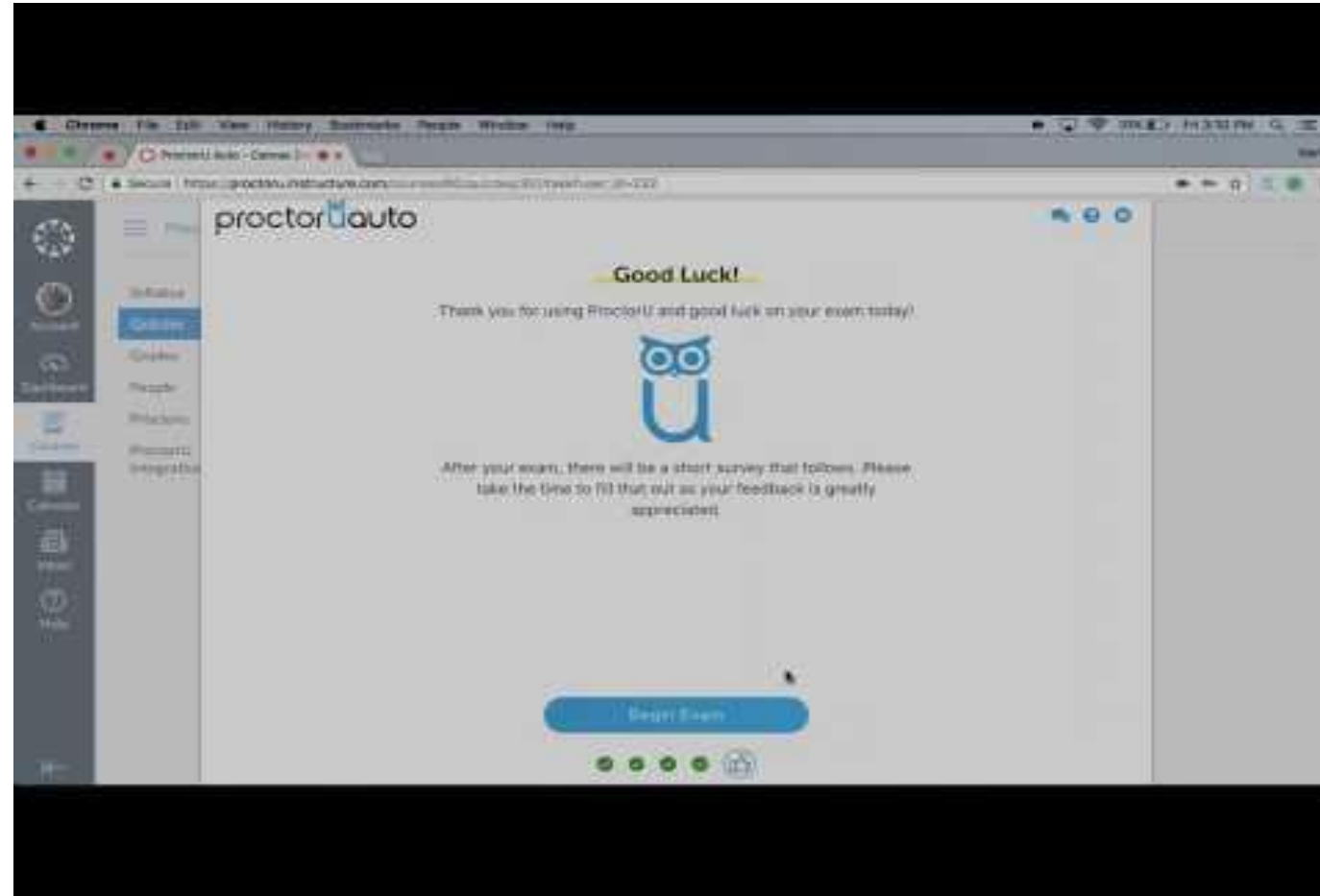
- **Sanitize the test taker's system**

- The exam is conducted on a secure browser, which prevents the test-taker from accessing any additional window and sharing screen with others.
- The candidate's IP address is captured to ensure that no other IP address is used to attempt the same assessment.
- Copy-paste is disabled

- **Authenticate the candidate**

- Enter registration details
- Take a picture
- Show a picture of ID proof
- **Scan the background**

What It Is Like to Take an Exam Proctored by ProctorU



AI Technologies Used During the Assessment

- **Voice Recognition**

Pick up sounds and match it with the background noise to remove instances of cheating by recognizing speech patterns.

- **Facial Recognition**

From identity verification to detecting new faces within a testing environment, facial recognition can be used in multiple ways.

- **Eye Movement Detection**

AI-integrated Eye Movement Detection can help recognize eye movement patterns to identify if the candidate is looking straight towards the screen or is looking into any object, book or mobile phone.

- **Plane Detection**

When it is combined with object recognition, the system will gain a better understanding of everything in a given space.

- **Mouth Detection**

The distance between the lip key points can be noted. The infringement is reported if the distance between the lip points of users increases than a specific value.

After the Assessment

A detailed proctoring report with:

- Candidate's audio and video recording is generated.
- All suspicious activities
- “Credibility Index” / "Suspicion Level"

Different Types of Online Proctoring

- Live Proctoring

Human invigilator monitors the exam via webcam

- Recorded Proctoring

Audio visual and screen sharing is recorded and later reviewed

- Auto proctoring

AI-based proctoring monitors the exam live

Comparison

Conventional method	Online AI Proctoring
Book a physical venue in advance	No booking required
Logistical execution	No logistic hassle
Dedicating invigilators for every exam room	Software to invigilate
Geographical restriction	Wider reach
Use lots of paper	Environmentally friendly
Pencils and erasers	Computer, high-speed internet and webcam

Advantages

- Effectiveness in (Not a consensus, but...):
- Promoting Learning (Okada & Scott, 2015; Wellman, 2005)
- Catching Cheating (Harmon & Lambrinos, 2008; Daffin & Jones, 2018)
- *“I definitely prefer an online viva instead of a F2F oral assessment. The reasons are the interaction with examiner is fast and objective. It is possible to attend the event anywhere through the Internet and webcam without any technical experience. I can focus on the answer to the question without looking at the examiner’s face and feeling worried.” (Student 6) (Okada & Scott, 2015)*

Disadvantages

- Technical Problems:
 - Get flagged for looking at the clock
 - Problems with computer (e.g., windows size, 7-hour exam because could not log in, change settings)
 - Can't talk to someone else (issues with siblings)
- Anxiety can lead to lower scores
- Determine intent behind an action is a problem
- Facial recognition does not work for some groups (e.g. racialized minorities)
- Privacy issues
- Efficiency
- More research is needed
- Lockdown browser, randomized test questions, inability to backtrack, and time limit yield good results. To know that you are somewhat "monitored"...

Proctortrack's Exam Proctoring System



[Covid-19 Support](#)

[Institutions](#)

[Students](#) ▾

[Instructors](#) ▾

[K-12](#)

[Solutions](#) ▾

**World's most advanced online
proctoring solutions delivering
trusted exam integrity.**

Four levels of Proctortrack offering affordable, accessible
online remote proctoring for all high and low stakes exams.

[Request Demo](#)

**Proctortrack leverages automation and live online remote proctoring using AI to
deliver innovation, quality and price leadership at scale.**

Laurent Ruhlmann's Experiment with Proctortrack

- Last term, he tested this AI-powered exam proctoring system with 5 students.
- The set up in Moodle was relatively easy.
- One student refused to complete the test, due to the intrusiveness of the system.
- Another student was asked to cheat during the proctored exam (by leaving a sheet of notes on his keyboard) and he managed to do so without being flagged by the system.

Top Hat's Exam Proctoring System

TOP HAT

Product ▾

Why Top Hat? ▾

Pricing

For Institutions

Teaching Resources ▾



Signup

ENGAGING
CLASSES

INTERACTIVE
READINGS

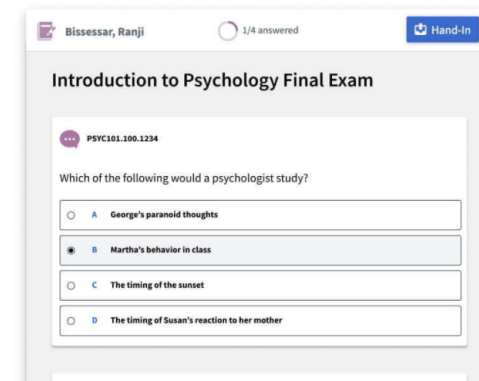
BUILT-IN
ASSESSMENTS

REMOTE
TESTS

Prevent student cheating with secure remote tests

Administer secure, proctored tests students can take on their own computers, at a pre-set time and from any location.

- ✓ Easily run summative tests with set start and end times
- ✓ Maintain academic integrity by verifying test-taker identities
- ✓ Monitor student activity and receive proctor reports that flag irregular student behavior



Mock Humanities Course | Top

app-ca.tophat.com/e/344105

COURSES

Mock Humanities Course

Join Code: 344105

CONTENT

Create

October 9th 2020 16:44:33

Report

Hand Back

Start Test

Settings

Export PDF

Edit

Delete

Fullscreen

Test Settings

Proctorio™ Secure Monitoring

Advanced options such as lockdown, recording student environment (video, audio, room scan etc.) and ID verification

Recommended for in-class and remote use

Detailed proctor report flagging suspicious behavior is made available once test is complete

Recommended

Custom

Lenient

Moderate

Strict

Recording Options

Record video

Record screen

Record room

Record audio

Record web traffic

Lockdown Options

Force fullscreen severe

Only one screen

No tabs

Close open tabs

Disable printing

Disable clipboard

Block downloads

Verification Options

Auto ID check

Verify desktop

Verify video

Verify audio

Cancel

Confirm

▼ Proctorio Frame Metrics

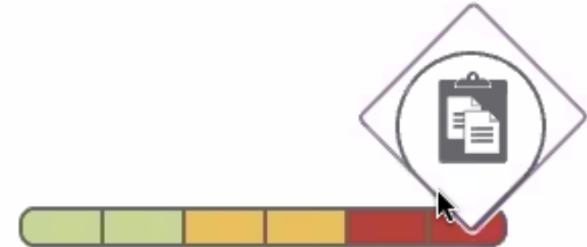
The severity of each metric sets the weight of a suspicious behavior in relation to the other behaviors. These metrics are calculated with each image. Each characteristic is derived for every image, regardless if the setting is enabled or not. The severity of these metrics can be changed at any time which will result in a re-calculation of the suspiciousness of a Proctorio proctored exam.



Navigating Away



Keystrokes



Copy & Paste



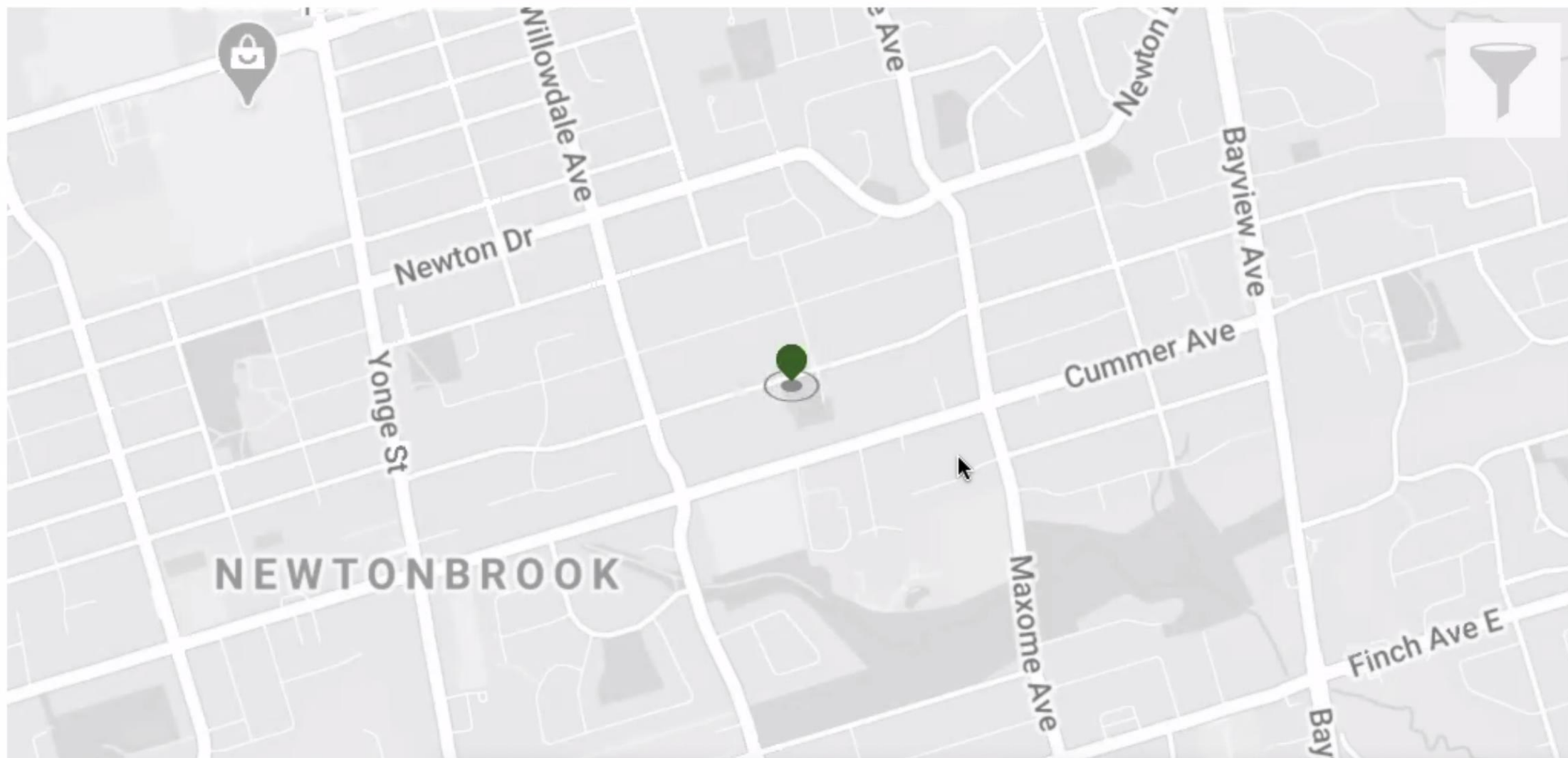
Browser Resize



Head and Eye Movement



Multi-Face



File Edit View History Bookmarks People Tab Window Help 89% Tue Oct 6 11:32 AM Dev Maletia

Exam Agreement Page

getproctorio.com/?d603645bf7d642a6bcc240f98694c4c9%2CZx%2BRDnBOLKOA3LNeJA%2BWgA%3D%3D%2CnJtozs6cQBajgZIOJrVfr...

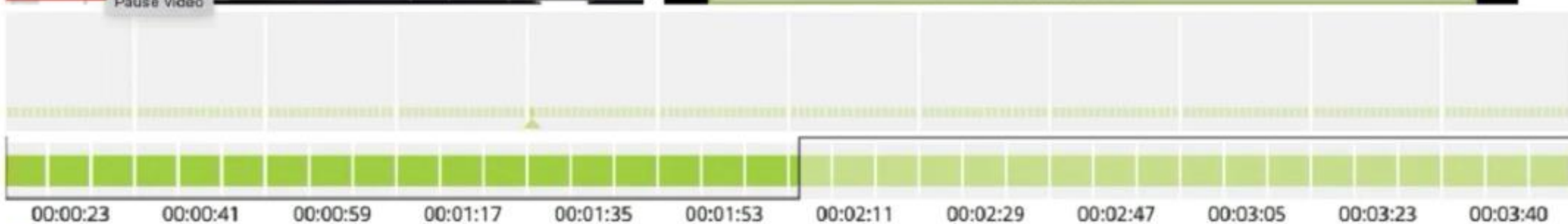
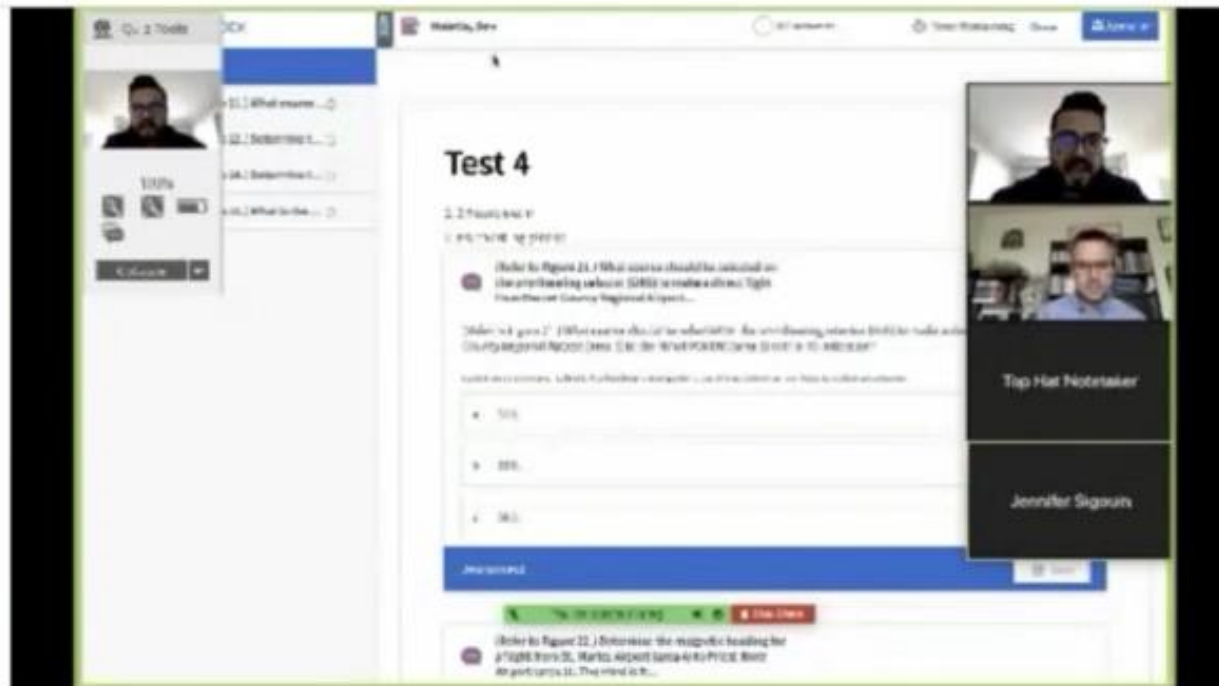
Exam Agreement

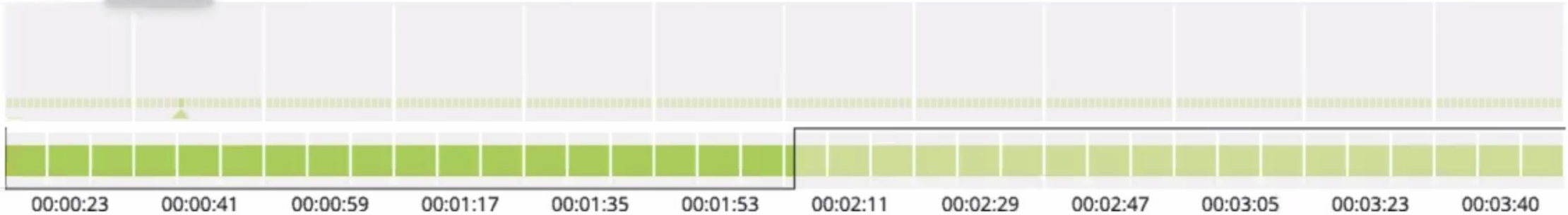
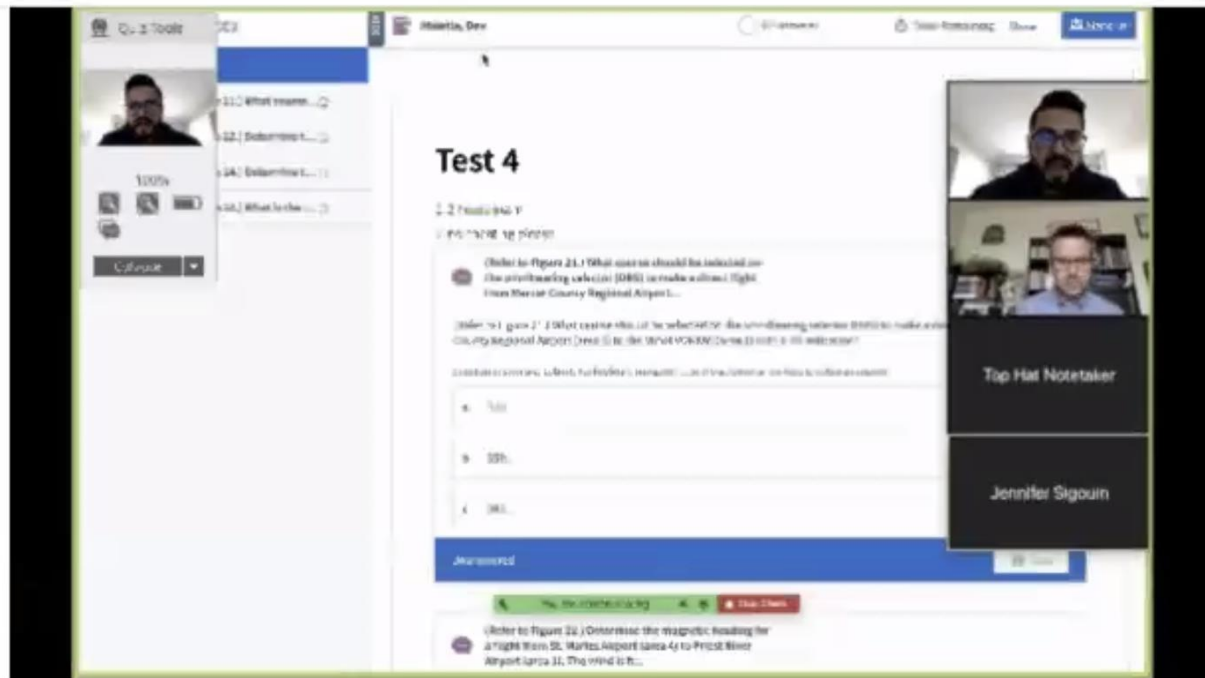


By clicking "I agree" I represent and warrant that I, Dev Maletia, am the person whose name is associated with the login used in this assessment system. I understand the prohibited actions and code of conduct as described in the applicable policy of this Institution. If over the age of 18, I acknowledge that I have read and agree to the [Terms of Service](#), and to the [Privacy Policy](#). If under the age of 18, I understand that when my parent or legal guardian provided consent to the Institution for my access to the Services, they consented to the same terms and privacy policy. If I or my parent or legal guardian have any questions, we will contact Proctorio before clicking "I agree" or otherwise using the Services.

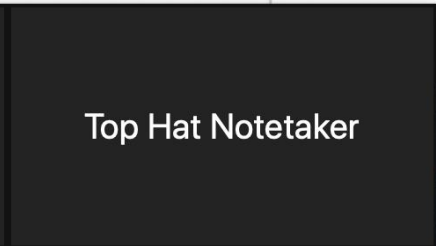
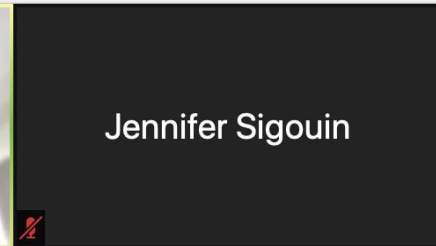
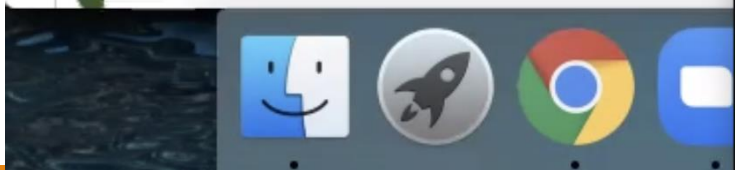
Carl Saucier-Bouffard Dev Maletia Jennifer Sigouin Top Hat Note

Demo of Top Hat's Exam Proctoring System Conducted by a Top Hat Employee





The attempt ended when the test taker submit





- Proctorio Gradebook
- Proctorio Settings
- Proctorio Map
- Display Options
- Export Options

Proctorio Exam Results

Delete Gradebook

Name		Submission Time	Attempt	Score	Annotations	Abnormalities	↓ Suspicion Level
	 Maletia, Dev	10/06/2020 11:36:48 am	1	N/A	0	0	12% 



**Experiment with Top
Hat's Exam Proctoring
System Conducted by
Myself As the Student**

×

Mock Humanities Course

Join Code: 344105

?

⚙

CLASSROOM

ASSIGNED 1

GRADEBOOK

☰ All Items ▾

Unanswered 1 <

📄

Mock Exam (Using Proctorio Plugin)

Test in Progress

•

📄

Mock Exam (Using Proctorio Plugin)

Start Test

Details

📅 Available from October 9th at 4:53 pm till October 9th at 5:05 pm

🕒 5 minutes to complete

🛡 This is a **monitored test**. Please ensure you follow the do's and dont's.

Do

✓ Save your answer to each question

✓ Allow access to your microphone

✓ Allow access to your webcam

Don't

✗ Exit the test window until you've handed in your test

Start Test

Before you Begin

This exam will be proctored. Here are a few things to know before you begin.



We will tell you when we start and stop recording.



Only your exam admin can see what is recorded.



Decisions are made by your exam admin, not us.

Proctorio d.o.o. complies with [GDPR](#), [FERPA](#), and other regulations. Read our [Privacy Policy](#).
Your data will be securely stored in **Quebec City, Quebec** for 1 month before being deleted.



What's recorded during the exam

camera feed • audio • computer screen • exam environment • websites visited • location • identity document



What's restricted during the exam

~~no exam re-entry~~ • one monitor • full-screen mode • no new tabs • no extensions • no clipboard • no printing • no downloads • ~~no right-clicking~~ • ~~cache cleared~~



24/7 support available during the exam

Click the Proctorio browser extension icon to chat with an agent within seconds.



We will tell you when we start and stop recording.



Only your exam admin can see what is recorded.



Decisions are made by your exam admin, not us.

Proctorio d.o.o. complies with [GDPR](#), [FERPA](#), and other [regulations](#). Read our [Privacy Policy](#).
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24/7 support available during the exam

Click the Proctorio browser extension icon to chat with an agent within seconds.

Accessibility options:

[Enable high visibility mode.](#)

[Learn more about Proctorio's approach to Accessibility.](#)

Before you can continue, please do the following:

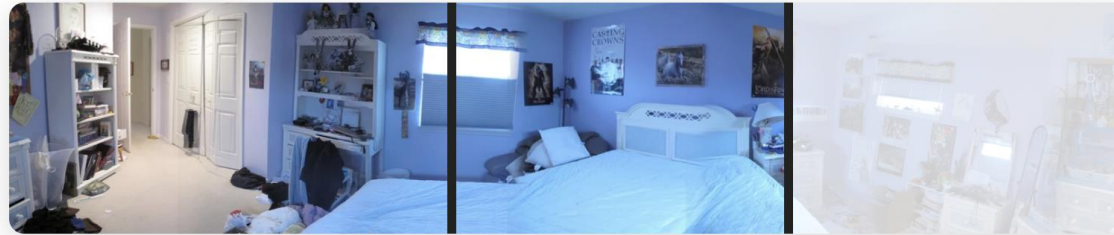
Close all other browser tabs and windows. (1 tab still open). [click here](#) to do this for me.

Your exam hasn't started yet! First, we need to set up your system.

Fix errors to continue

Room Scan

We need you to take your camera and **scan your test environment**.



At the very beginning of your exam, **you will be asked** to show your exam environment. You must slowly move your webcam, showing the surrounding and desk area. If you are using notes, calculators or textbooks, please clearly show these items.

Sometimes this can be tricky, especially when using a built-in webcam. Before moving on, we recommend you visit the [help center article](#).

I understand »

|| Proctorio is sharing your screen.

Stop sharing

Hide

The attempt ended when the test taker closed or reloaded the exam tab. [Learn more about this alert.](#)

Web Traffic Index

(websites visited by the test taker during the exam)

The test taker visited 0 websites during the exam

There must be more than three attempts to calculate the exam abnormalities. Please check back later. [Learn more about this alert](#)

[Show details](#)

Computer Performance Index

(may indicate reasons for computer issues)

 Internet type: residential

 Test taker had decent overall performance

 Test taker had poor internet performance

 Test taker had good computer performance

 Test taker had an abnormal screen resolution (1440x900)

 Test taker had reduced video quality for 3% of the exam

 The exam was taken using Mac OS X 10.14.6 on Chrome 85

 Test taker started the exam with 1.1GB of free RAM, even though Proctorio requires 2GB. Prior to entering the exam, the test taker was warned that performance issues might occur due to hardware insufficiencies.

[Learn more about Computer Performance Index](#)



WHAT CONSTITUTES THE "GRAND ORAL"?

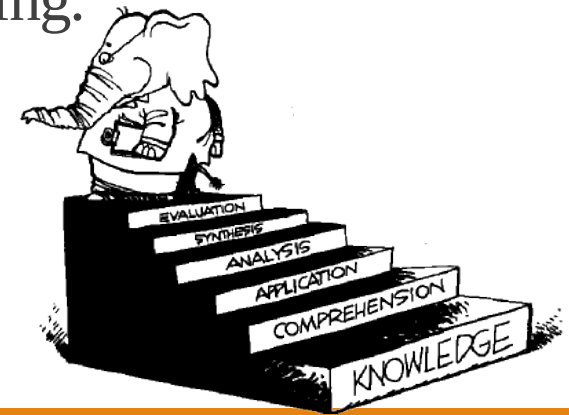
Sciences Po's emblematic "Grand Oral" examination draws on the students' experience during their final year off-campus semester, whether it be an internship, a study period abroad, a Master's thesis, a personal project or any one of the specific projects in place in certain Schools. Students must select one particular issue with a connection to the core subjects studied during their Master's.

In order to pass the "Grand Oral" exam, which is one of the compulsory requirements for obtaining a degree (see [article 44 of the Academic Rules and Regulations, PDF, 136 Ko](#)), students must achieve at least a 50% mark (minimum of 10/20). Repeat sessions will be held for students who do not achieve this during the initial exam.

20. Mon NOV 16	CHAPTER 6 (chapter 8 in the text)	CHAPTER 6: INTEREST GROUPS, SOCIAL MOVEMENTS AND POLITICAL COMMUNICATION Topics: Political influence, social movements ✳ Assignment TBD	 ZOOM	Chapter 5 Chapter 5 online quiz due 4% Ch. 6 pp. 136-151 15pp
21. Wed NOV 18	FINAL TEST REVIEW		 ZOOM	
22. Mon NOV 23	CHAPTER 6 (chapter 8 in the text)	CHAPTER 6: INTEREST GROUPS, SOCIAL MOVEMENTS AND POLITICAL COMMUNICATION Topics: Political influence, social movements		
23. Wed NOV 25	CHAPTER 6 (chapter 8 in the text)	CHAPTER 6: INTEREST GROUPS, SOCIAL MOVEMENTS AND POLITICAL COMMUNICATION Topics: the Communications media ✳ Chapter 6 online quiz assigned	 ZOOM	TBD TBD assignment due 6% Ch. 6 pp. 151-157 6pp
24. Mon NOV 30	CHAPTER 6 (chapter 8 in the text)	CHAPTER 6: INTEREST GROUPS, SOCIAL MOVEMENTS AND POLITICAL COMMUNICATION Topics: the Communications media FINAL TEST (individual exit interview)	 ZOOM	
25. Wed DEC 2	FINAL TEST (individual exit interview) ✳ Reflection paper assigned		 ZOOM	Chapter 6 Chapter 6 online quiz due 4%
26. Mon DEC 7	FINAL TEST (individual exit interview)		 ZOOM	
27. Wed DEC 9	FINAL TEST (individual exit interview)		 ZOOM	
28. Mon DEC 14	FINAL TEST (individual exit interview)		 ZOOM	Reflection paper Reflection paper due 6%

Other Strategies

- Individual meetings: taking advantage of asynchronous design.
- Cheat sheet.
- Building trust & giving responsibility: self-grading.
- Testing for learning outcomes.
- Two-stage examination: minimizing cheating vs. maximizing learning.



Finally, if you were unable to maintain the commitments you made in the checklist before the test, state it at the end of your file. You will not be penalized for your honest acknowledgement.

Save your file and close it. Click on [Add submission](#) below, then upload your [Test 1 Econ](#) file.

I will be completely honest I did looks at some notes on my phone on how to do a production possibilities curve because I did not have enough time to add examples since I was working all weekend.

Also I did not have enough time to complete the first part of the test especially the graphs because the essay question took me too long to do.

Ahmad Banki wrote on tue oct-13-2020 at 16:27 :

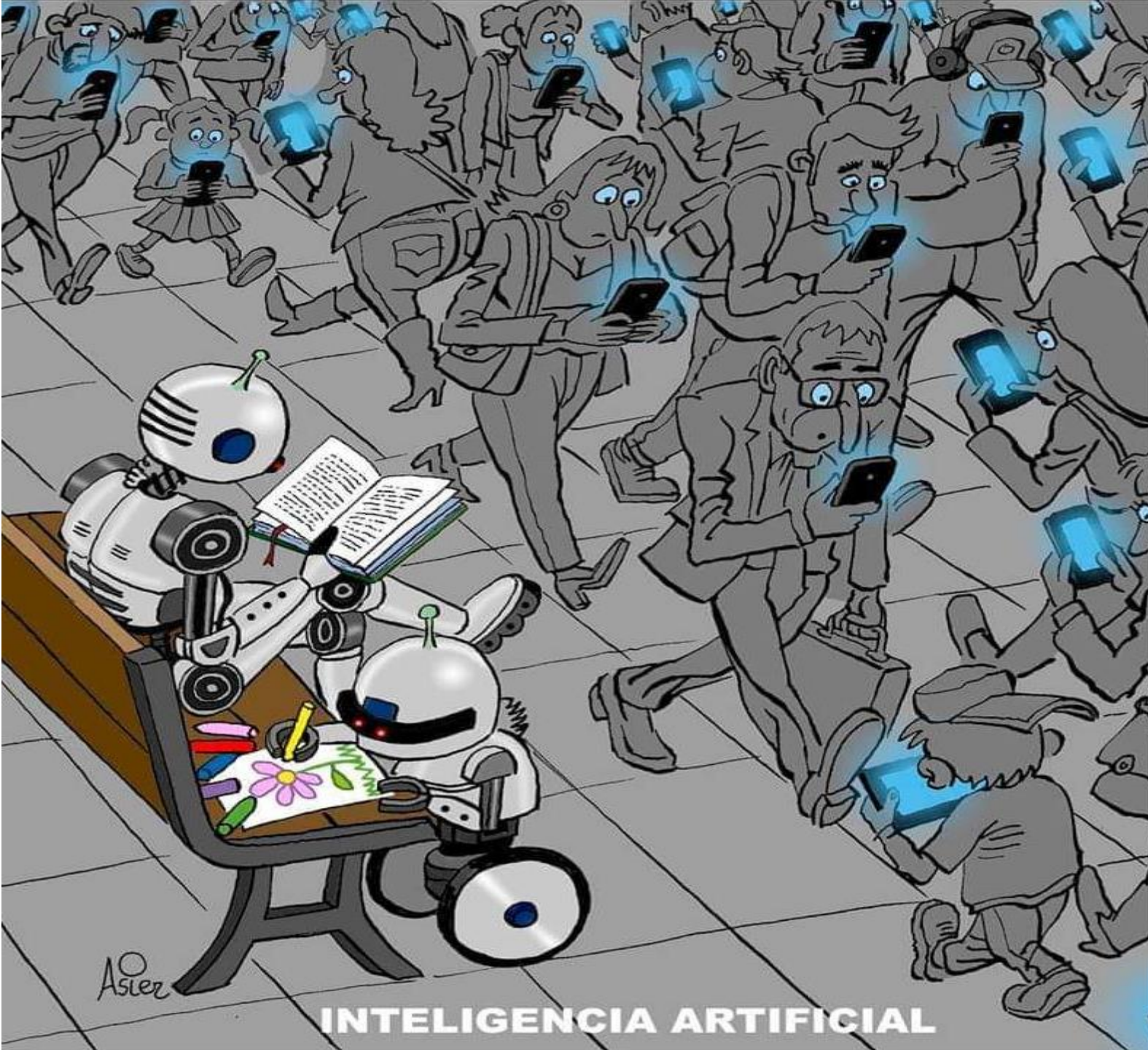
Hi Leyla,

I just graded your test, and I was quite impressed by your excellent letter. I was upset that you didn't get to finish your last graph. At the end of the second stage you wrote: "I will be completely honest I did looks at some notes on my phone on how to do a production possibilities curve because I did not have enough time to add examples since I was working all weekend."

Thank you very much for being honest with your teacher. Always keep this quality alive in yourself. I realize that taking a test can be stressful and you were pressed for time, so it makes sense that you were tempted to use your notes.

I'd also like to ask you to put yourself in your teacher's place: he cares the most about your learning. Your PPC (the first graph) is still not complete. So I'll give you a second chance. I'll let you redo the graph section of your test. You can update any of your three graphs. Do this on a piece of paper with your hand, then take a picture of it and send it to me via MIO. You already have the Word document with your letter, so you can refer to that. This way I can give you more points for the graph section. I don't like to penalize you for running out of time, and would like to reward you for your honesty.

I'll give you 10 minutes for this, starting from when you read this MIO (I'll check the time).



INTELIGENCIA ARTIFICIAL

Q & A