Nottingham Trent Caught **Red-Handed** in the Lab – online fingermark development NTU University labs in Lockdown

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1. Introduction

FORE 20004 Forensic Casework Examination

- BSc Forensic Science
- Year 2 / Level 5
- Forensic Science Practical labs
- Term 2 (after some practical experience in Term 1 prior to second lockdown)



Image 1: Pre-Covid lab sessions

- There can be few teaching experiences that are more 'hands-on' than a fingermark development lab.
- Literally 'hands-on', because the lab was about processing crime scene exhibits to see if anyone has left their fingermarks on a bloody knife or on a threatening handwritten note.
- Turning this practical experience into a digital online lab was a challenge, but one that was successfully overcome by teamwork.

2. Methodology



• Series of theory lectures from an external subject matter expert.

Pre-Covid Processes

- One 'Training Talk' / on-campus lecture to introduce the forensic subject and prepare students for the lab session the following week.
- Support materials PowerPoint.

Pre-Lab preparation

Fingermark

Development

Labs

Post-Covid Processes

- Series of online theory lectures from an external subject matter expert.
- Weekly Microsoft Teams seminars to give progress checks / support sessions and prepare students for the upcoming sessions.
- Details of exhibits to be examined uploaded to the learning room.
- Standard Operating Procedures / Lab Scripts uploaded to the learning room.
- More extensive reading lists / pre-reading links available through the learning room.

• 24-30 students in 3hr 'Strategy lab', designed to make their choices for how to recover the forensic evidence from the exhibits. Erasmus Darwin 223.

• 24-30 students in 6hr 'Fingermark Development lab', to recover the forensic

- Hands on access with the exhibits. Working in teams of approx. 4.
- Following a script handed out in the session.
- Shared access to 5 workstations with digital resources.

Strategy Labs

• Recording their strategy on contemporaneous lab notes. • Supported by 2 external subject matter experts.

evidence from the exhibits. Erasmus Darwin 223.

• Supported by 2 external subject matter experts.

• Shared access to 5 workstations with digital resources

• Recording their strategy on contemporaneous lab notes.

• Hands on access with the exhibits. Working in the same teams.

• Following a script handed out in the session, and their own strategy

- 18-24 students in a 2.5 hr online 'Strategy lab', designed to make their choices for how to recover the forensic evidence from the exhibits.
- Microsoft Teams Online session
- Digital access to the exhibits (Photographs from forensic lab technicians)
- Curated discussion from the external subject matter expert.
- Curated tour around digital resources **Strategy Labs**
 - Recording their strategy on contemporaneous lab notes following the session.

• 18-24 students in a 2.5 hr online 'Fingermark Development lab', designed to recover the forensic evidence from the exhibits.

- Microsoft Teams Online session
- Review of the Strategy Labs.
- Digital access to the exhibits (Photographs from forensic lab technicians)
- Choices as to which fingermark development process to do in which order selection is via Mentimeter.

• Technician-produced videos of lab processes were accessed in the studentdirected order. With useful discussions and interaction.

• Students recording their lab processes and outcomes on contemporaneous lab notes following the session. Including quality controls etc.

Images 2-5: screen captures from Technician online lab videos



3. Creating the Videos

4. Mentimeter Polling

5. Future practice

Single fingermark located

on internal side of envelope window

Fingermark **Development** Labs

- Assessments were made of the learning outcomes that the students still needed to achieve, even with lockdown limitations.
- Detailed requirements lists were provided to the technicians, including:
 - Which processes needed to be filmed
 - What exhibits needed to be used
 - What details needed to be included in the videos, such as batch numbers, expiry dates of chemicals, equipment specifications and maintenance records
 - Main stages of processing to be displayed
- Technicians provided prototype videos for approval, minimal changes needed.
- All videos delivered, again only minimal changes needed.
- Technicians delivered excellent, professional-level work.

- Mentimeter was used extensively in the online fingermark development labs.
- linitially used as a refresher of the strategy labs.
- Students then chose which processes to do in which order
- Microsoft Teams allowed the students to 'chat' in response to the votes, such as when they had selected the 'wrong' process in the 'wrong' sequence.
- 'Safe way to fail' and learn from errors, which would have been irretrievable in the 'real world'.



- There is no substitute for hands-on experience with experiential learning when performing kinaesthetic tasks
 - the fingermark development will / must return in future.
- However...
- Against expectations, some innovations will persist...
- Strategy lab will work better online bigger group discussion, more engagement, but may be done in a lecture theatre, rather than a lab?
- Mentimeter and Teams widens participation more students participate than in lectures / labs.
- Attendance was high, approx. 95% across the module, even with the loss of face to face teaching.
- Unsolicited positive feedback from students for the videos and the work from the technicians.
- Online materials will be used as a back-up for teaching in future, essential online supporting materials.

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- Dr Jennifer Miller
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- **Chinyere Williams**
- **Fiona Whittaker**
- Kate Jones

7. Equipment

- Filming:
- NIKON D750
- <u>360 degree filming:</u>
- Insta₃60 ONE R
- **Editing Software:** Video Distribution to
- Adobe Premier Rush
- Microsoft Teams Video Distribution between staff:
 - NOW Module Pages

Students:

- Microsoft Sharepoint
- <u>Student Polling:</u>
- Mentimeter