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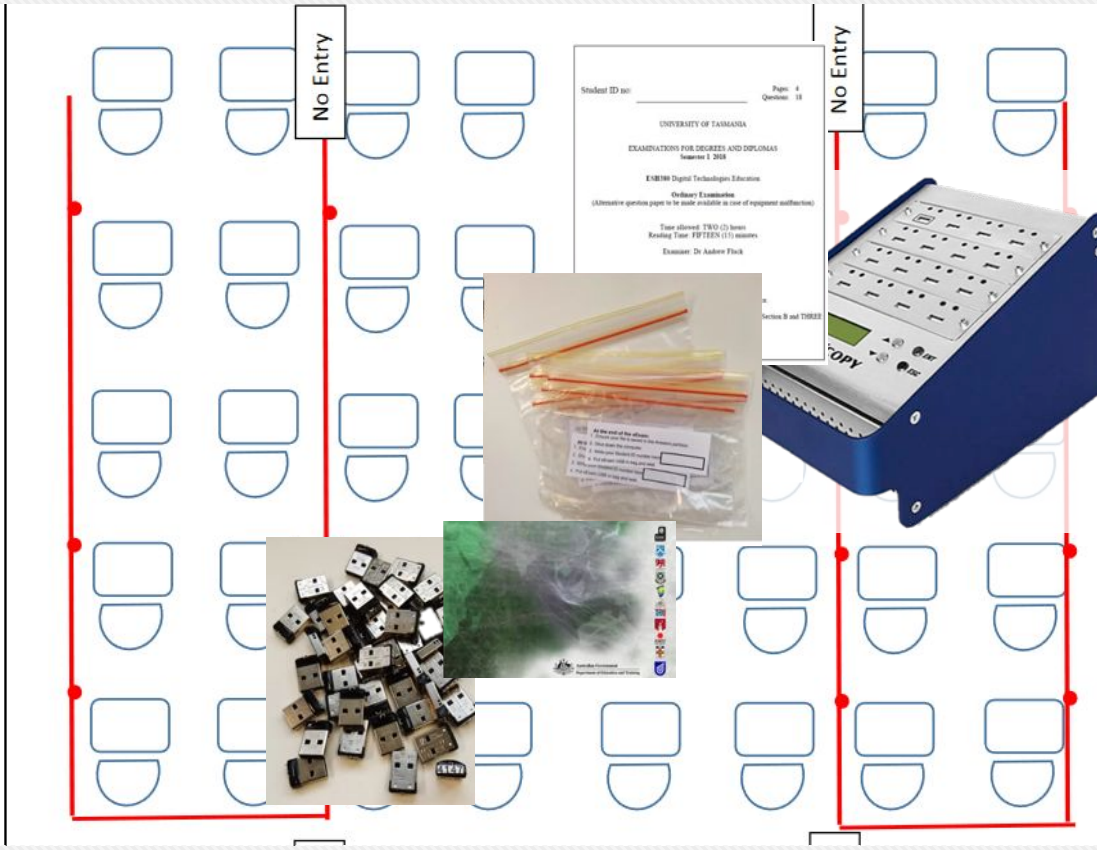
A Scalable Examination Platform for BYOD Invigilated Assessment

Running e-Exams on-campus and at a distance

Dr Andrew Fluck

University of Tasmania

e-Exam Symposium 24 Nov 2018
Melbourne, Australia



Australian Government
Department of Education and Training

MONASH University · The University Of Queensland · University of Tasmania · Australian National University · Macquarie University · ECU Edith Cowan University · CQUniversity Australia · RMIT University · UNSW Australia · University of South Australia

Running e-Exams on-campus and at a distance

Room configuration, set-up, training, logistics

Dr Andrew Fluck

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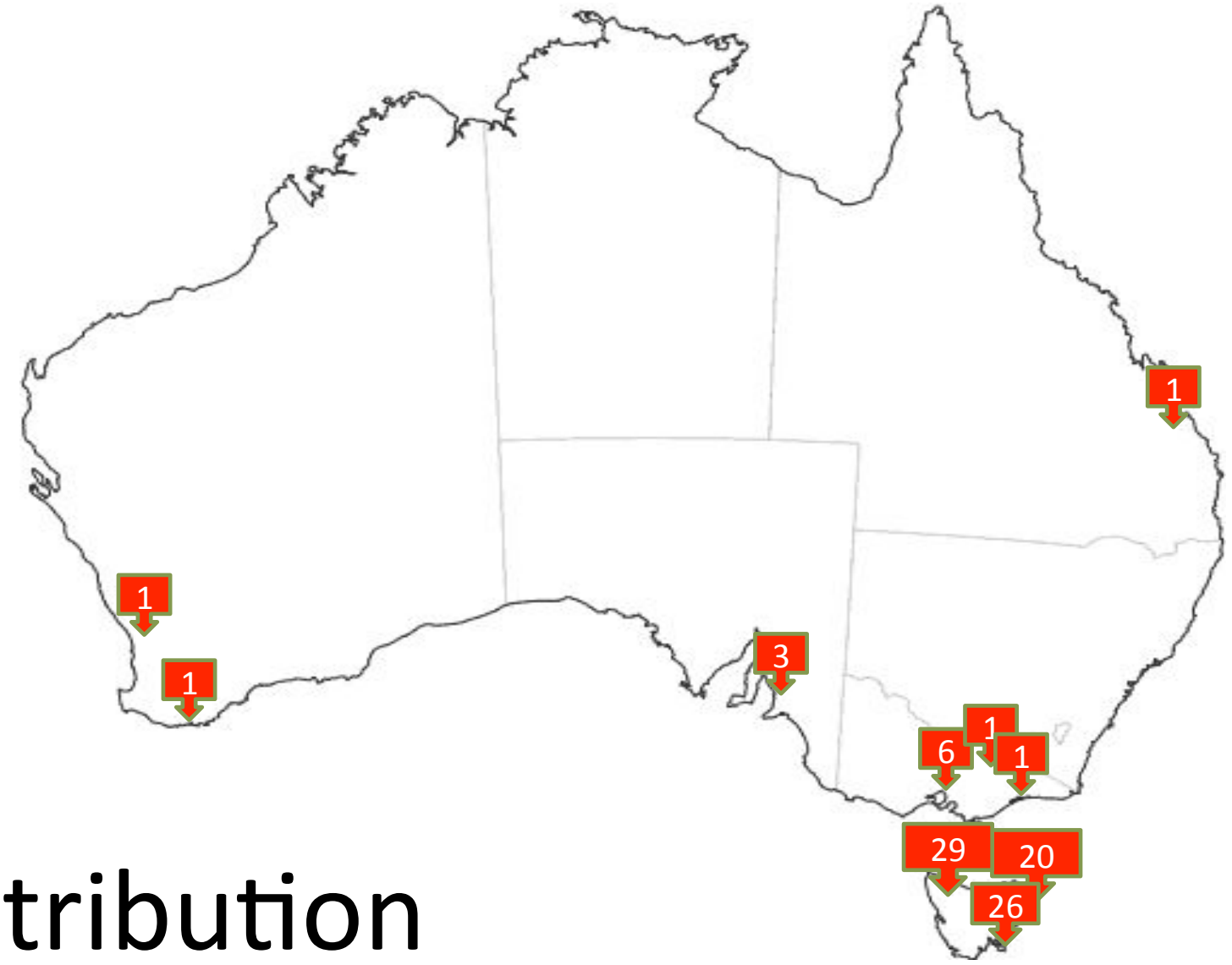
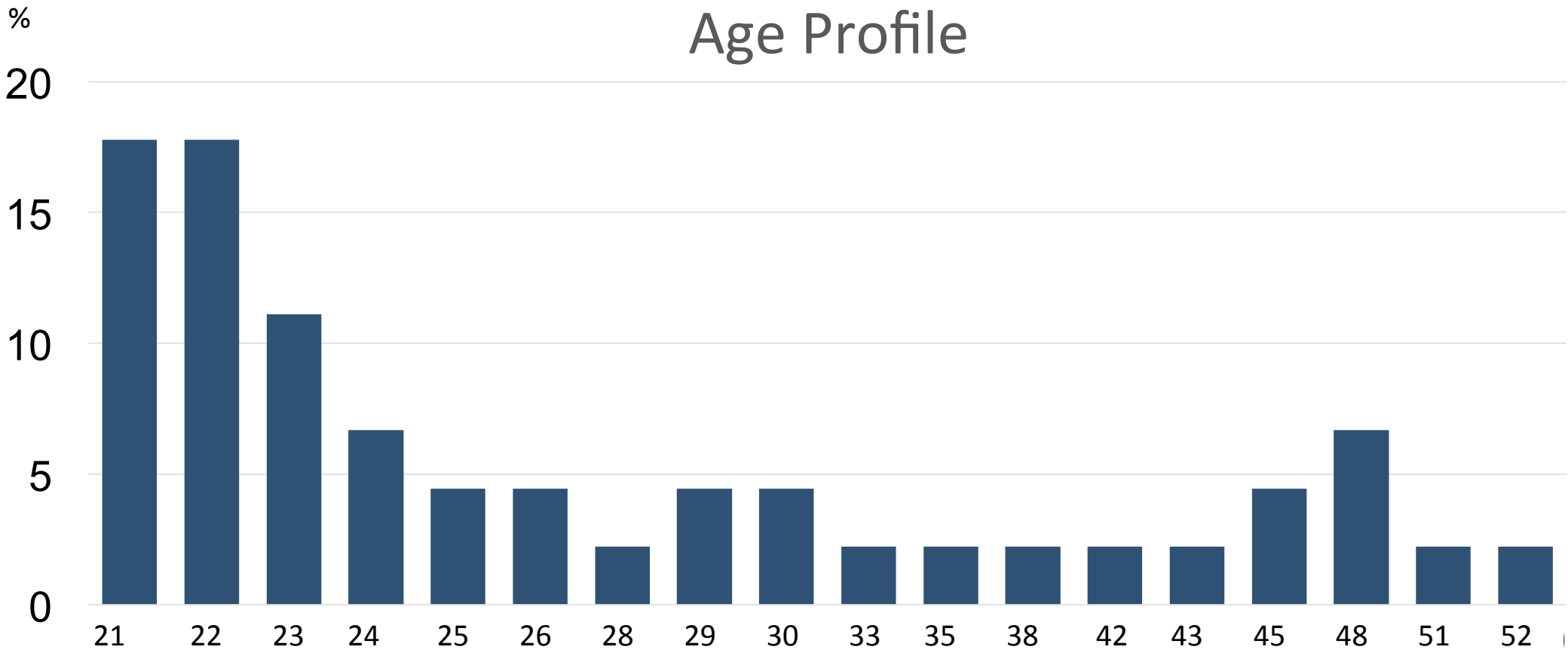
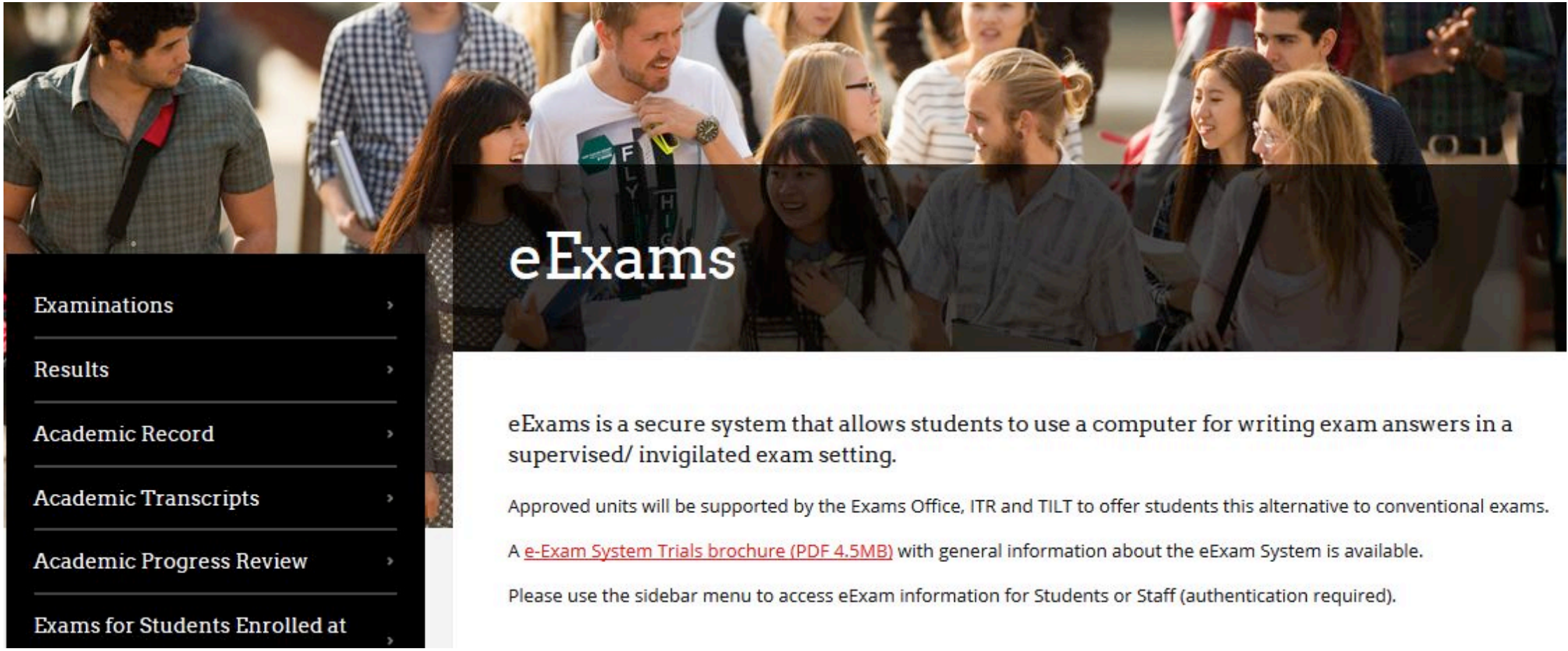
Student distribution



Findings – Semester 1, 2016
(Digital Technologies unit in Bachelor of Education)



Institutional web-site



eExams for Students

Your unit coordinator may offer you the chance to take your examination using a computer, or this may be a requirement. See your unit outline.

Remember to check your exam timetable - if you nominated for the eExam you may still have to go to the eExam room even if you have changed your mind and want to do the exam on paper.

You can try the eExam System on your own computer to see if it suits you and to ensure your computer is compatible. During the eExam you will need a laptop computer with a minimum 10" screen, at least 1Gb of RAM and an Intel processor which can boot from a USB stick for the examination. You may also bring a wired (not wireless) mouse and earphone(s) if required.There are two ways to find out if your computer is compatible with the eExam System:

- Attend a face-to-face 'taster' workshop with the computer you will be using (details from your unit coordinator); OR
- Create your own practice eExam USB and try it out (instructions here).

Whichever method you use, you will need to print out your personal eExam compliance certificate and produce it when you enter the eExam venue.

Follow the eExam candidate instructions (PDF 574 KB) for a safe and reliable eExam.

If you have any concerns, eExams Guidance (PDF 229.1 KB) will help you.

eExam self-certification – build a certificate for yourself and your computer

When you have successfully booted the computer you intend to use with the practice eExam USB, please record the details below. This process will create the certificate you'll need to produce on the day of the exam.

Name

Student ID Number

Today's Date 21/11/2018

About your computer:

1. Main colour of the computer casing
2. Manufactures or maker (e.g. Samsung, Lenovo etc)
3. Model number or type (e.g. MacBook Pro)

Were you able to boot key your computer using the practice eExam USB? **Yes**

What one-time boot key did you use when you powered up your computer?

Describe any other processes you needed to follow before or after power-up?

Could you play the video? **Yes**

Could you hear the sound through your headphonee? **Yes**

THANK YOU

Submit

UNIVERSITY of TASMANIA

eExam Certificate

This certificate is provided as evidence a student can run the eExam system on their particular computer. It is only valid if no substantial changes are made to the computer before the exam.

Fred Smith (Student ID: 123456) demonstrated on 21/11/2018 they could boot their computer from a practice eExam USB. The computer was a Silver Lenovo model IdeaPad 3056.

Video was available.

Sound could be heard through the headphones

The one-time boot key at start up was F12 and the following procedures were also necessary I had to quit from Windows 10 beforehand using the SHIFT key, then select 'boot from USB'..

Bring the computer described with this certificate to the eExam.

eExams for Staff

THE MANUAL

- Academics
- IT officers
- Supervisors

eExam Manual

University of Tasmania

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Additional documentation is available from:

http://www.transformingexams.com/guides.html

Academics / Teachers

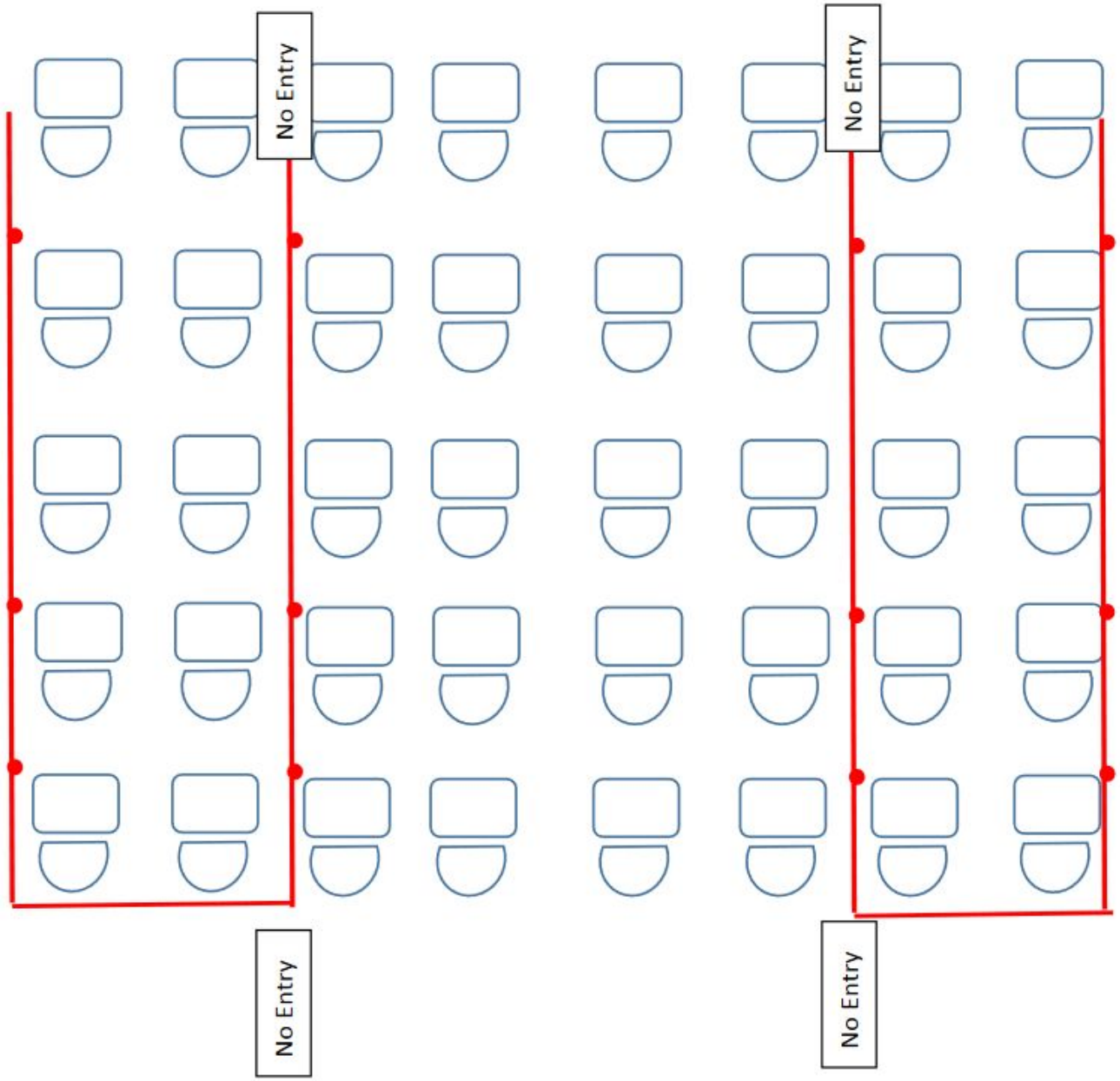
- Very little change to process.
- Provide a WORD document alongside the traditional PDF file.

Exam hall set up

IT officers

Power supply line

No entry to each second row



IT Services eExam Support Requirements per 100 candidates

	BUMP In and Out for all eExams at a venue (once only task per 3-week exam session) - Lay power cables in segregated aisles	**Boot-Phase** - 10 minutes prior to eExam start - 20 minutes following eExam start	**During eExam**
eExams 6	2 x CSO for 30 minutes (unless Bump In or Out is scheduled during a lunch break, then 6 x CSO will be required)	1 x CSO for 30 minutes	None

eExam venues should be prepared a day before session if possible to restrict contingency requirements.

CSO = Computer support officer

Supervisors

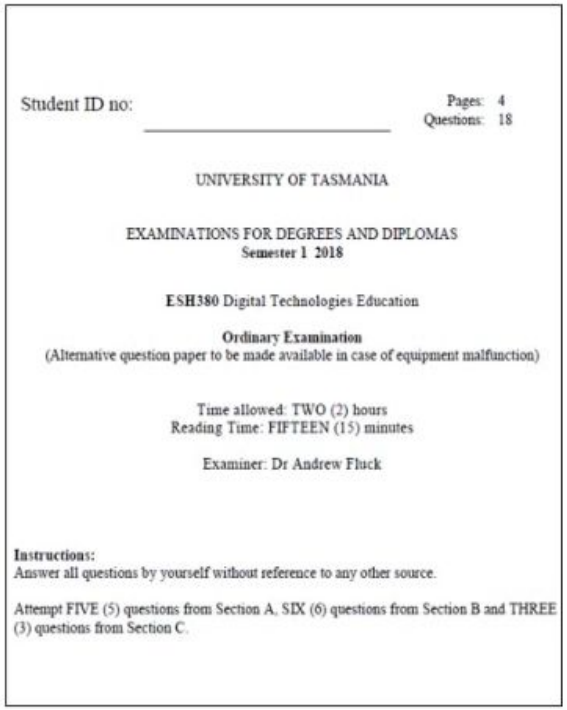
- Announcements to candidates
- Training video (12 minutes)
- Materials provided

What's provided for each eExam

1. Enough eExam USB thumbdrives for the candidates.

2. Similar number of collection plastic bags

3. EITHER a backup printed paper OR access to a print-on-demand PDF file.



Student ID no: _____ Pages: 4 Questions: 18

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EXAMINATIONS FOR DEGREES AND DIPLOMAS
Semester 1 2018

ESH380 Digital Technologies Education

Ordinary Examination
(Alternative question paper to be made available in case of equipment malfunction)

Time allowed: TWO (2) hours
Reading Time: FIFTEEN (15) minutes

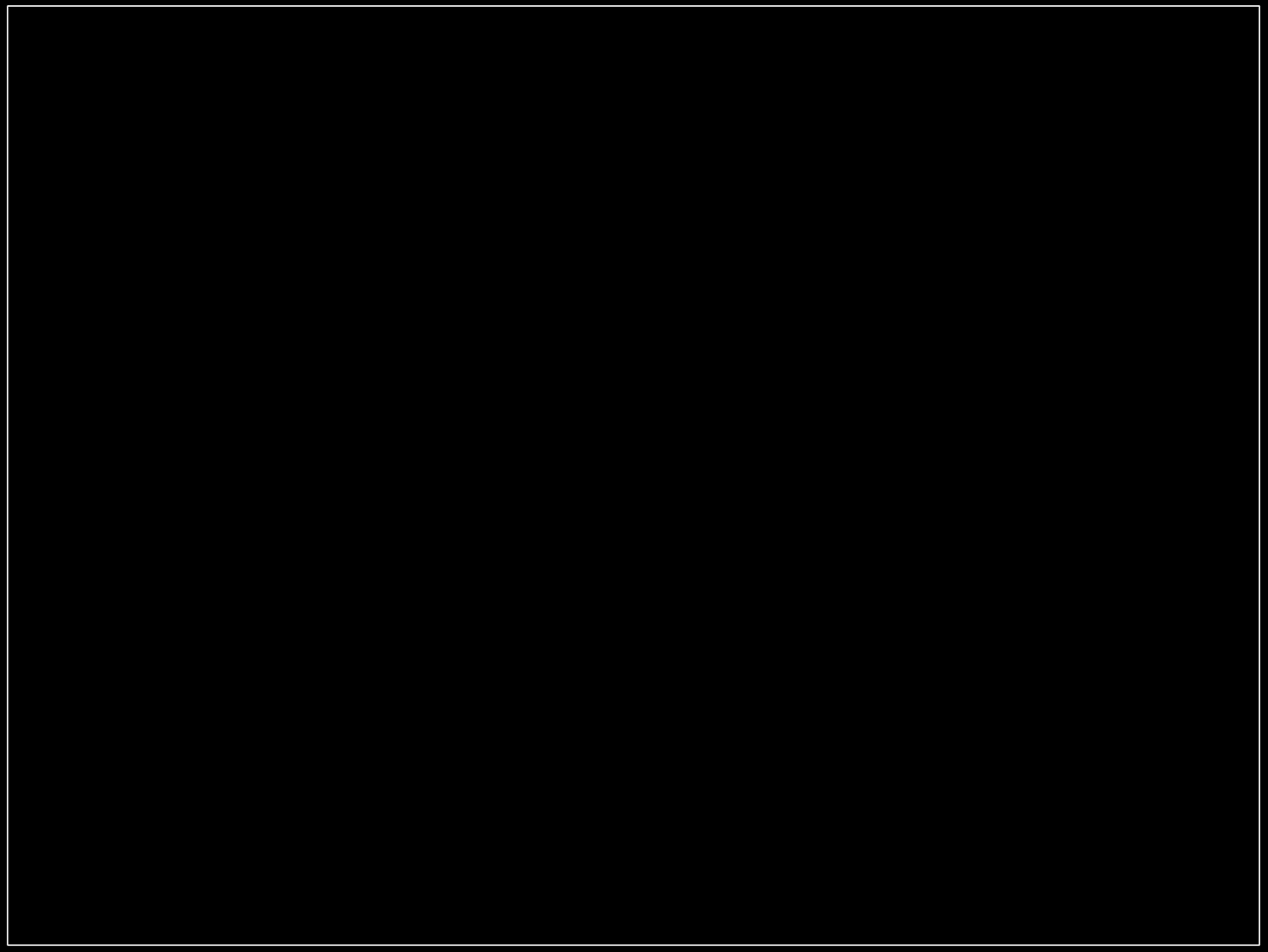
Examiner: Dr Andrew Fluck

Instructions:
Answer all questions by yourself without reference to any other source.

Attempt FIVE (5) questions from Section A, SIX (6) questions from Section B and THREE (3) questions from Section C.

4. A confidential desktop security image

The video



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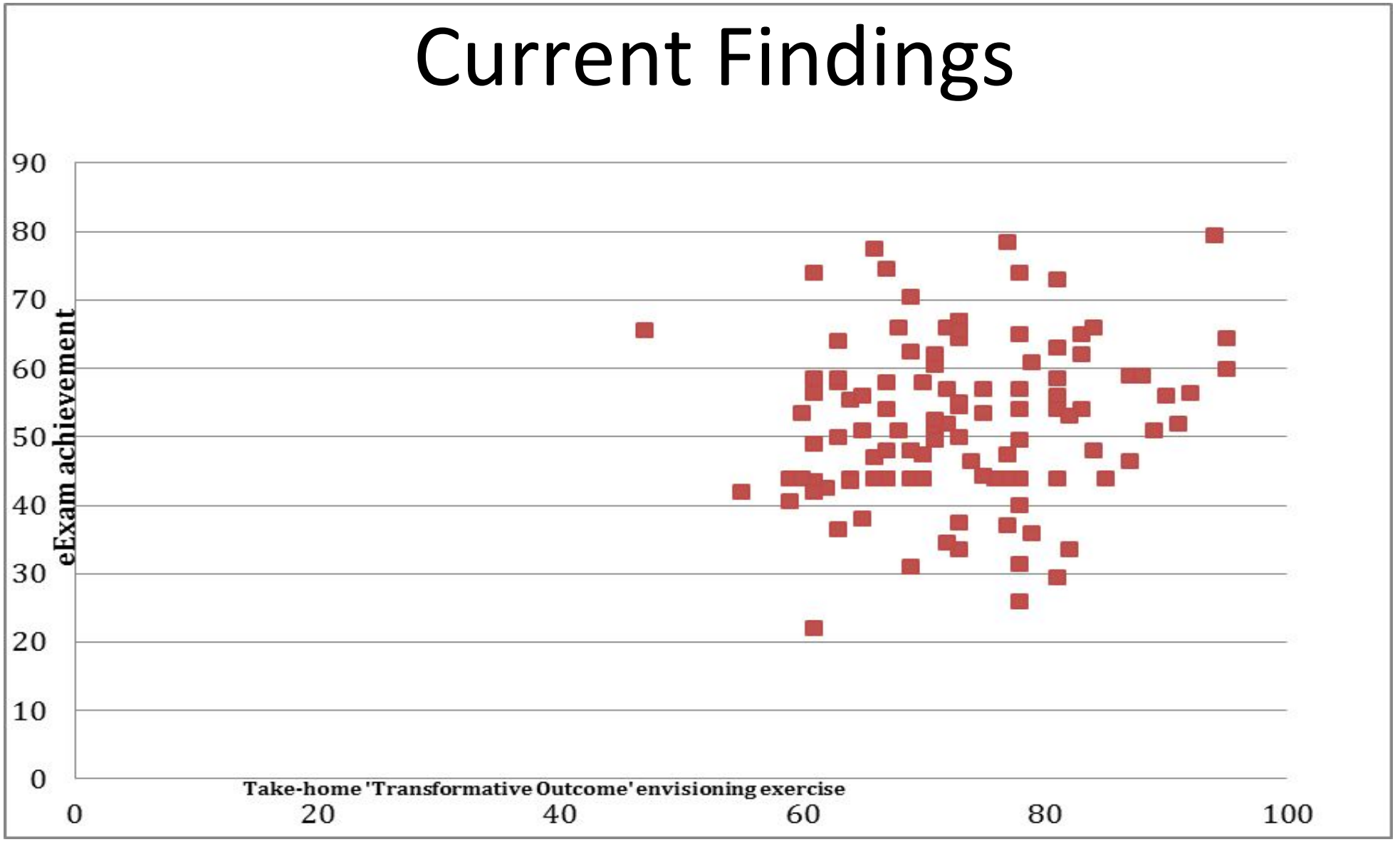
Current Findings



Meeting Possible Challenges

Sindre & Vegendla, 2015

This article uses attack-defence trees to provide an analysis comparing the threats and countermeasures against cheating at controlled exams with paper-based exams versus BYOD e-exams. The conclusion is that neither has a clear advantage from a security perspective.

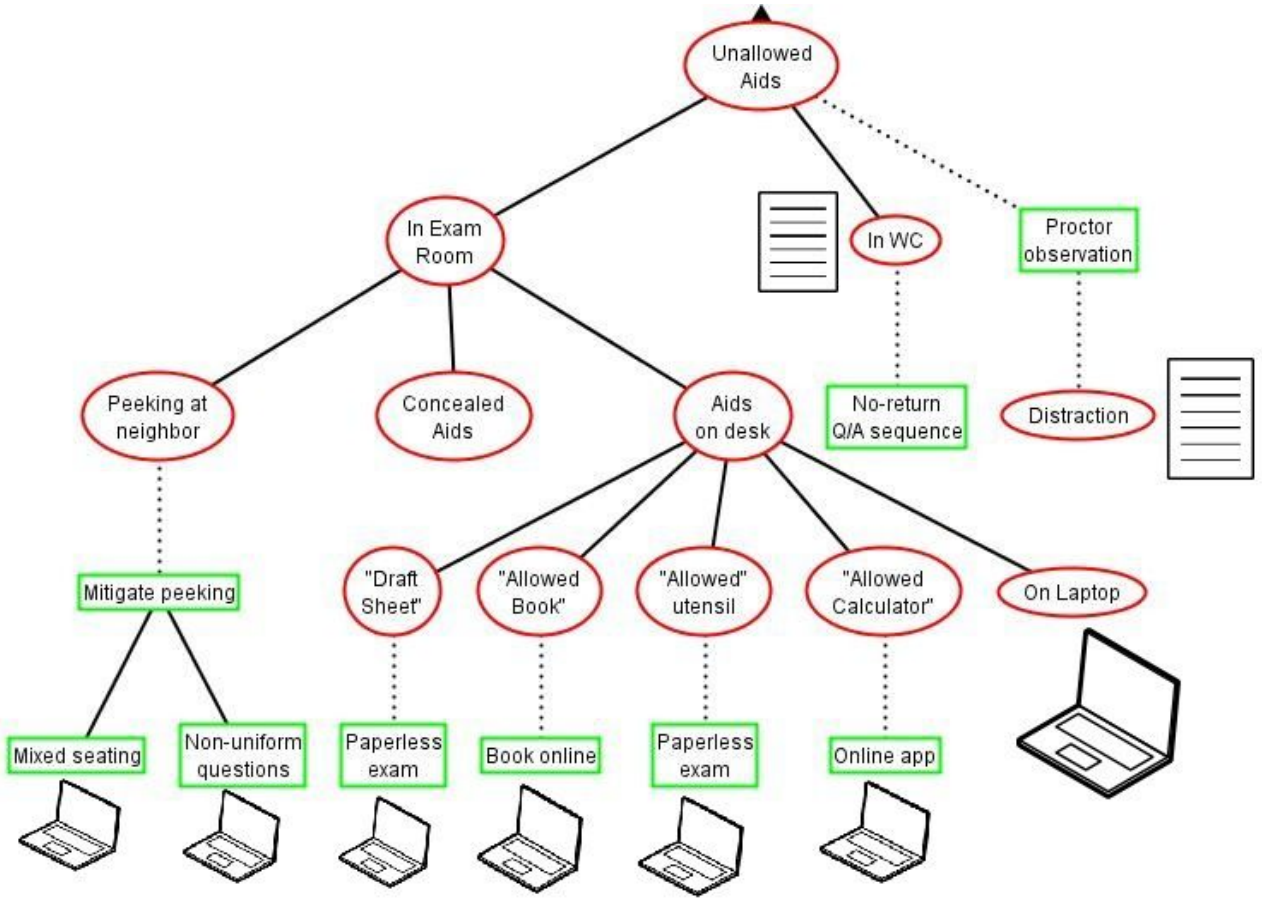
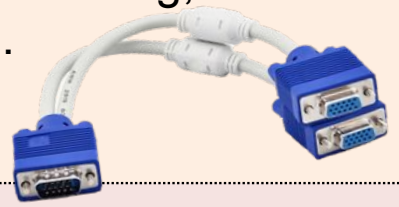


Figure 3 ADTree for Unallowed aids

Online, Offline, On Campus or Distance

Trade-offs to be made in seeking an e-exam solution.

	On Campus (controlled spaces)	Distance (at home)
Online (net)	• Space issues for institutions. • Improved exam management efficiency. • Equipment: need computer labs to cater for 2000 at once or BYO laptops. • Most secure: live IT monitoring/control, spaces are supervised. • Needs reliable network (single point of failure).	• No space issue for institutions. • More efficient exam management. • Equipment: Students supply equipment. • Less secure: limited IT monitoring, wider spaces are unsupervised. • Needs reliable network.
Offline	• Space issues for institutions. • Moderate improvements in exam management. • Equipment: need computer labs to cater for 2000 at once or BYO. • More secure: IT control possible, spaces are supervised. • Network reliability not an issue.	• No space issue for institutions. • Less efficient exam management. • Equipment: Students supply equipment. • Not secure: no useful monitoring/essentially unsupervised. • Network reliability not an issue.



Questions?

e-Exam Symposium

24 Nov 2018

Monash University Caulfield Campus

Melbourne, Australia

Lead Speaker: **Dr Andrew Fluck**

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