Transforming Exams into e-Exams

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e-Exam

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Get the demo and user guides

http://**transformingexams.com**

Australian Government | Office for Learning & Teaching

THE UNIVERSITY OF QUEENSLAND AUSTRALIA

UNIVERSITY OF TASMANIA

Targeting…

- Supervised
- High stakes
- On campus
- Large scale

(image credit: Dr Fluck UTAS)

*What we are **not** specifically addressing here is off campus, online only, distance education, cross institutional students – there are some possible e-solutions to address these needs.*
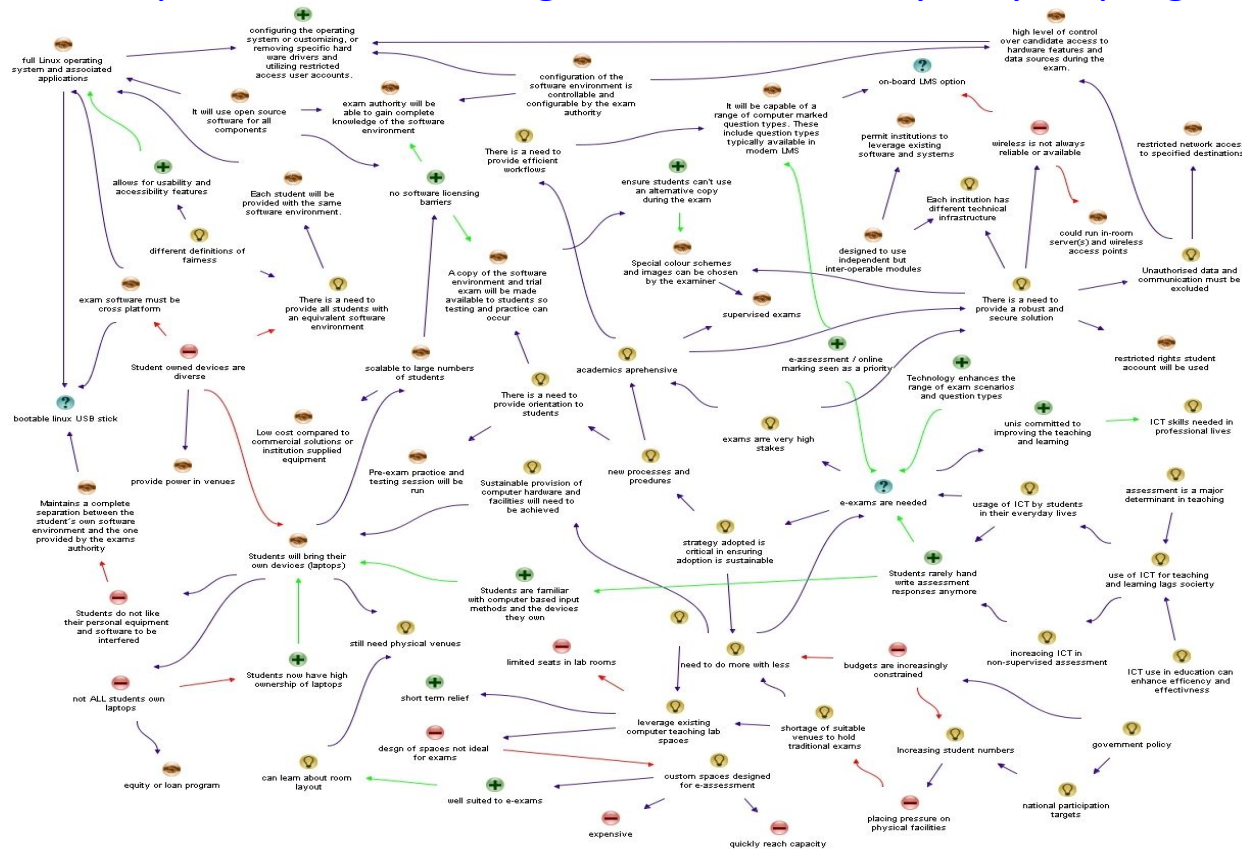
Why e-Exams?

Rationale: Concerns, drivers, possible solutions for e-Exams

A truly '**wicked**' problem and a long road to get it right!...

Hillier, Mathew and Fluck, Andrew (2013). Arguing again for e-exams in high stakes examinations. In: H. Carter, M. Gosper and J. Hedberg, Electric Dreams. Proceedings of the 30th ASCILITE Conference, Sydney, Australia, (385-396). 1-4 December.

http://www.ascilite.org.au/conferences/sydney13/program/papers/Hillier.pdf

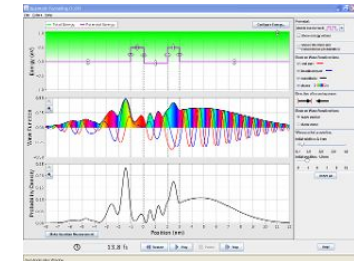bit.ly/eexam-map

Essentially...

We are faced with a growing disconnect between the way high stakes testing is conducted using pen on paper exams and students' everyday experiences of study and life.

Where we are going: Post-paper exams

We need greater pedagogical flexibility and more authentic assessments in the exam room. ... re alignment!

Simulations, tools of the trade, virtual experiments...

'Windows' software via WINE. E.g. CAD / 3D modeling, Celestia.

Moodle quiz with media (auto marked).

Where we are now: Paper Equivalent

Question types used: short answer/essay, matching, construct a table, label a diagram/image (by filling a table). Manual marking.

Question 2. Match the following host-MOTA [r...] below).

Possible descriptions:

a) Mauris id mi id orci interdum semper.
b) Sed eu neque ut est dignissim fringilla.
c) Vivamus in dolor euismod, luctus liber[...]
d) Mauris vehicula eros a viverra pellente[s]
e) Curabitur eu mi at nibh commodo variu[...]
f) Aenean eget orci porta, malesuada lore[...]

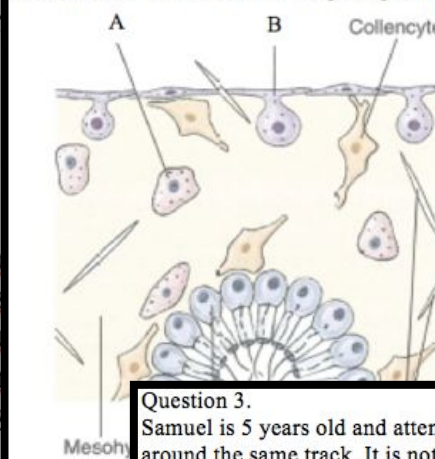Please write or type the letter of the descriptions listed [...]

Answer a to f.	Terms
f	I. Paxogen
a	II. Sitabosis
c	III. Fakeasalism
e	

Question 5: For the following diagram please provide the names for **THE XING** in the table below.

A   B   Collencyte

A	Label goes here. Constructed response question.
B	Blue text makes it easier to see which questions have been answered and which have not!
C	Use minimum row heights to provide plenty of space, but don't use double carriage returns!
D	Doing so means the layout is less likely to be disrupted.

Mesohy[...]

Question 3.
Samuel is 5 years old and attends racing cars 5 days per week. Eamon is 10 years old and rides a superbike around the same track. It is not a selected response item so some text will be expected.
In the table below, give two (2) examples of flippant faxadism relevant to his age range (4-6 years), and describe how Samuel and Eamon differ in their abilities to perform faxadism.
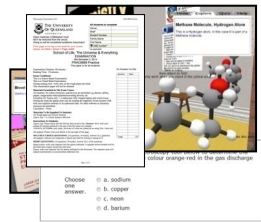
[4 marks]

Two different examples of flippant faxadism (one per row)	Describe Samuel's abilities (age 5)	Describe Eamon's abilities (age 10)
Type here	Minimum heights set for both rows	
		More details about setting heights appear later in these examples.

Question 7: Some rationales for punishment are **XEZT**[...] does this mean?

Please write / type your response inside the box below.

The student types their answer here. In this examp[le...] a two row table. The response table row is create[d...] cell has a minimum height set (by dragging the bo[...] and a minimum height cell instead of successive carriage returns to set the box height, the next question will be less likely to be disrupted when students type their responses. The initial size of the box should indicate the desired length of the response. The box will automatically expand when it gets full.

e-Exam Trials Workflow

Set-up: prepare exam learning materials

Academic creates exam learning material

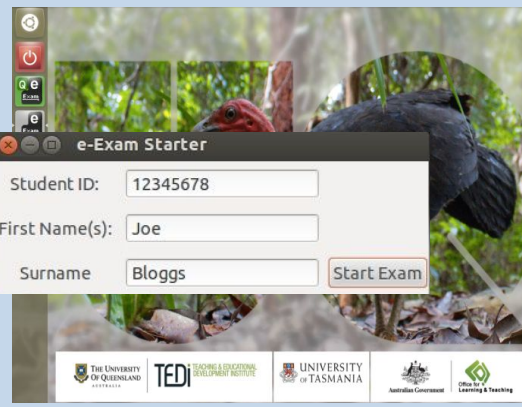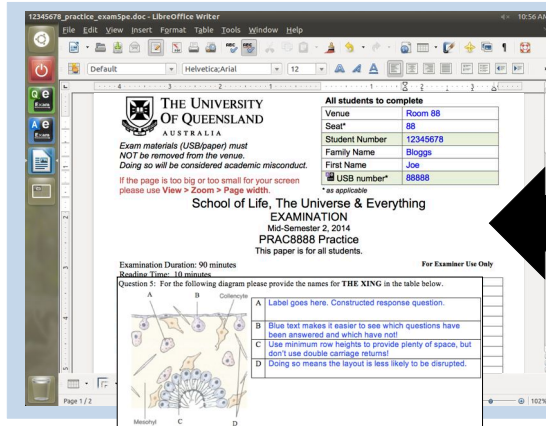Create master USB (tested)

USBs duplicated per student

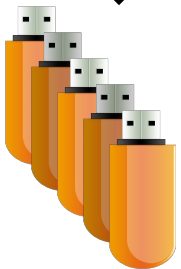## Pre-session:
Student laptop setup & practice.

Exam room use

e-Exam system takes over laptop. Ubuntu Live USB. Libre Office.

1. Students enter room.
2. Given USB.
3. Boot laptop.
4. Do exam.
5. Return USB.
6. Leave room.

Post session: retrieve responses and assessment

Collect USBs (responses)

Responses retrieved from USBs.

Collated e-responses sent to academic.

First and Most Recent e-Exams

VETS2100 S2 2014

Used standard teaching rooms, sought rooms with tables and power sockets.

DENT4092 S1 2015

← VETS: hand-writers sat in rows. Attempted to separate typists and hand-writers where possible. DENT: typists at the back, → hand-writers at the front.

UQ e-Exam Trials 2014

Data collected from students (opt-in S1 & S2 2014)

- Via pre-exam project online survey (UQ wide):

  Hillier, M. (2014). The Very Idea of e-Exams: Student (Pre)conceptions. Presented at the Australasian Society for Computers in Learning in Tertiary Education conference, Dunedin, New Zealand. Retrieved from http://ascilite.org/conferences/dunedin2014/files/fullpapers/91-Hillier.pdf

- Via pre-exam short survey (six courses – typists only - **next**).
  - Conducted at the pre-exam practice setup sessions.
  - Covered: student preliminary impressions, technical hardware compatibility.
- Via post-exam extended survey (six courses – all – **later this session**)
  - Conducted at the conclusion of the exam (in the room).
  - Covered: rationale, student exam experience, reaction to exam session conditions, e-exam system impressions, exam writing strategies and production, general non-exam writing strategies.
  - http://transformingexams.com/uq_trials/e-exams_2014_trial_results_sept.pdf
- Future analysis – production (words, language density, marks).
  - Further Dentistry and Criminology exams conducted April 2015.

Pre-exam Survey

Impressions of the e-exam system

Data collected from students (S1 & S2 2014) at pre-exam set-up/ practice sessions.
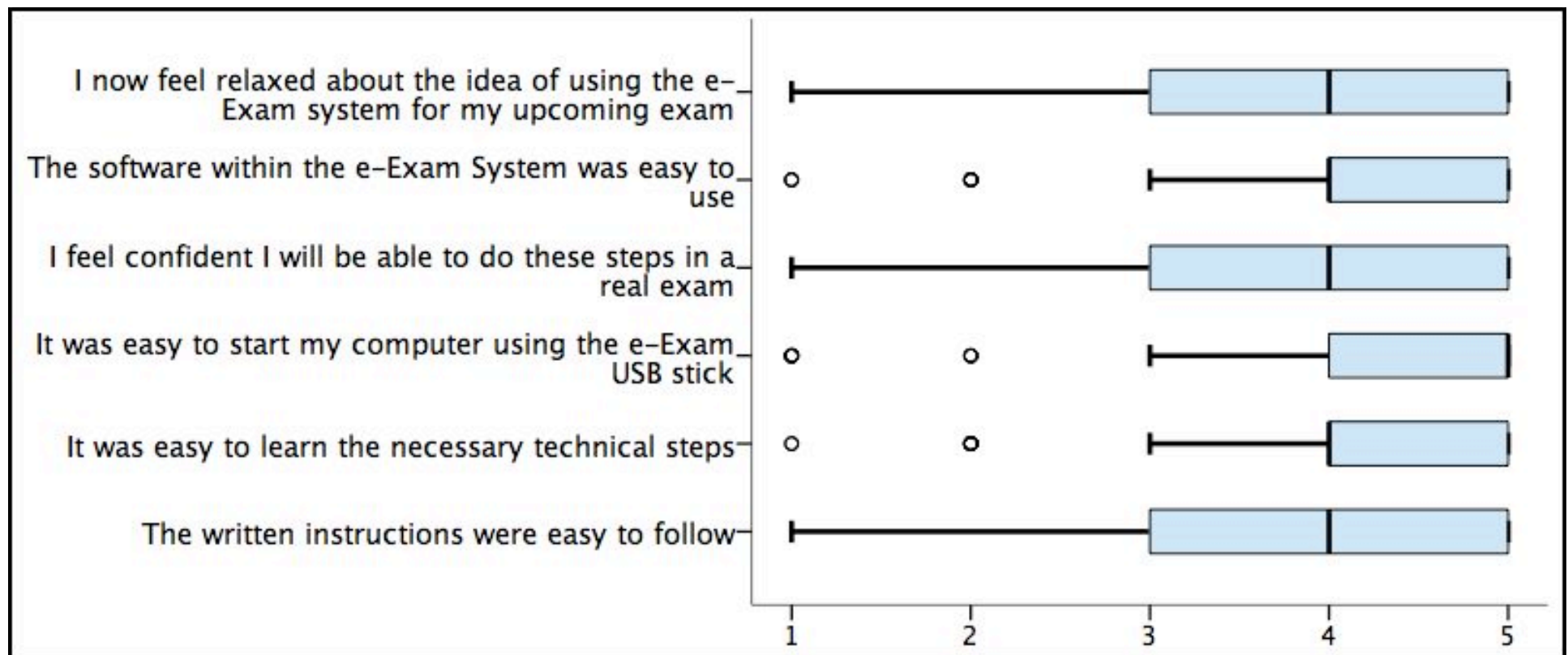
Trial Phase Attrition

Number of typists at each stage of the trial (Survey responses)

| Steps of trial	Yes will type	Maybe type	Total typists	Attrition	No (hand-write)*
1 EOI	201		201		361
2.1 Pre - before try	94	16	110	91	10
2.2 Pre - after try	86	15	101	9	23
4 Exam (after)	71		71	30	450

- *Not all respondents completed every question.*
- *A number of students electing to hand-write did not fill in the EOI and the post-exam survey so are slightly under represented.*
- *Similarly not all attendees at the pre-exam set-up session returned a survey (~ 90%+ did).*
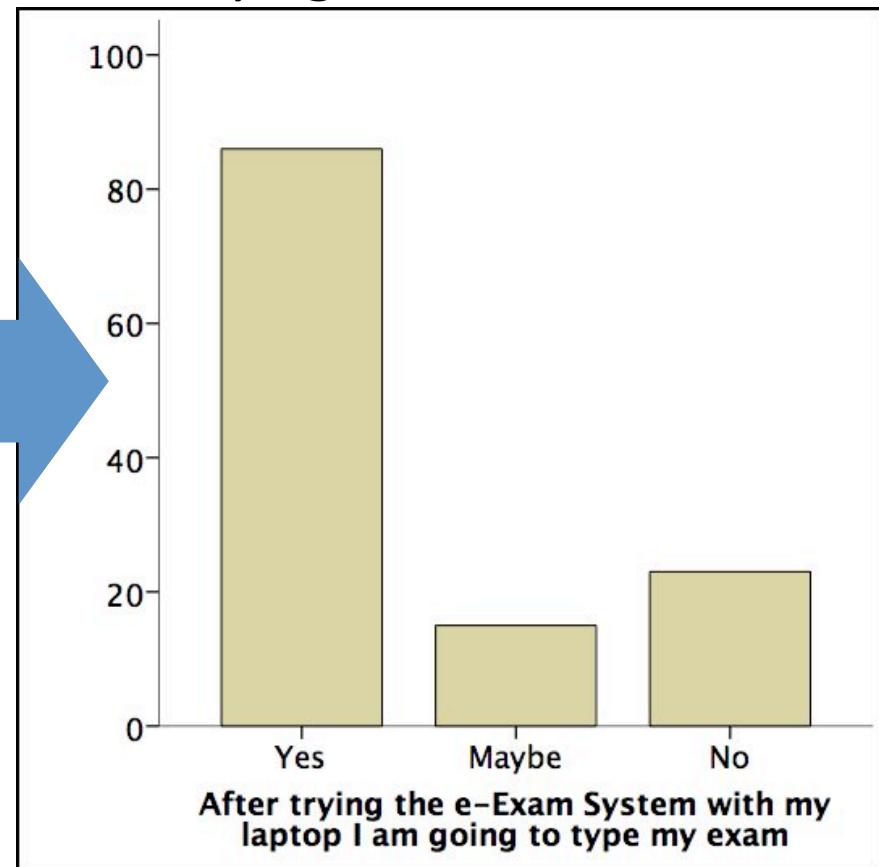
Pre-exam Survey

Data collected from students (S1 & S2 2014) at pre-exam set-up/practice sessions.

Before trying e-exam
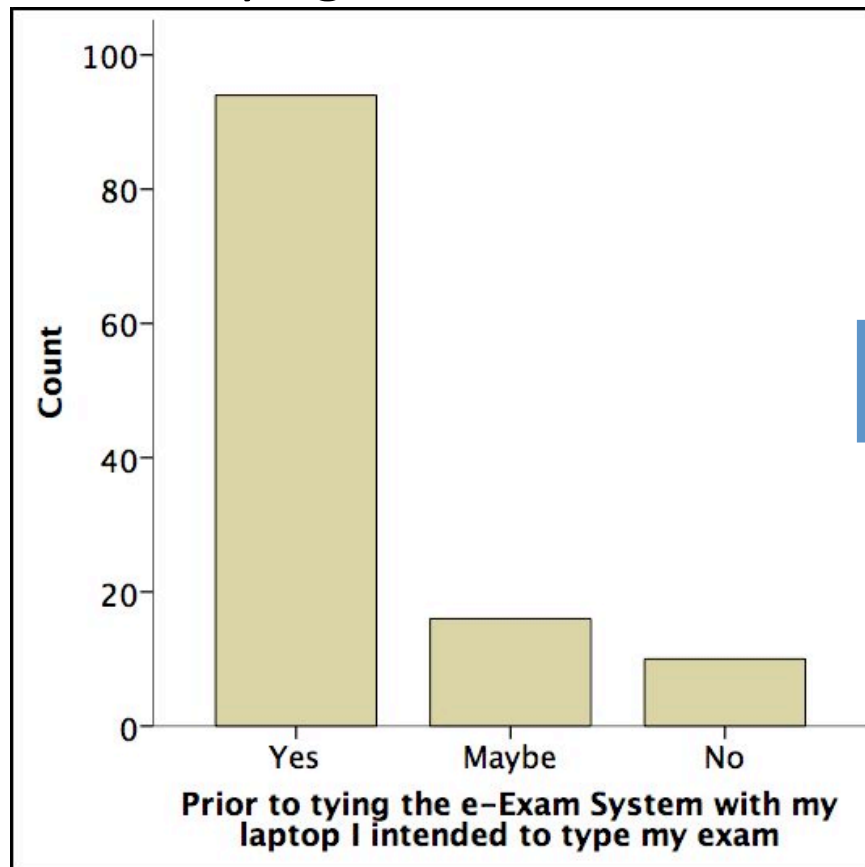
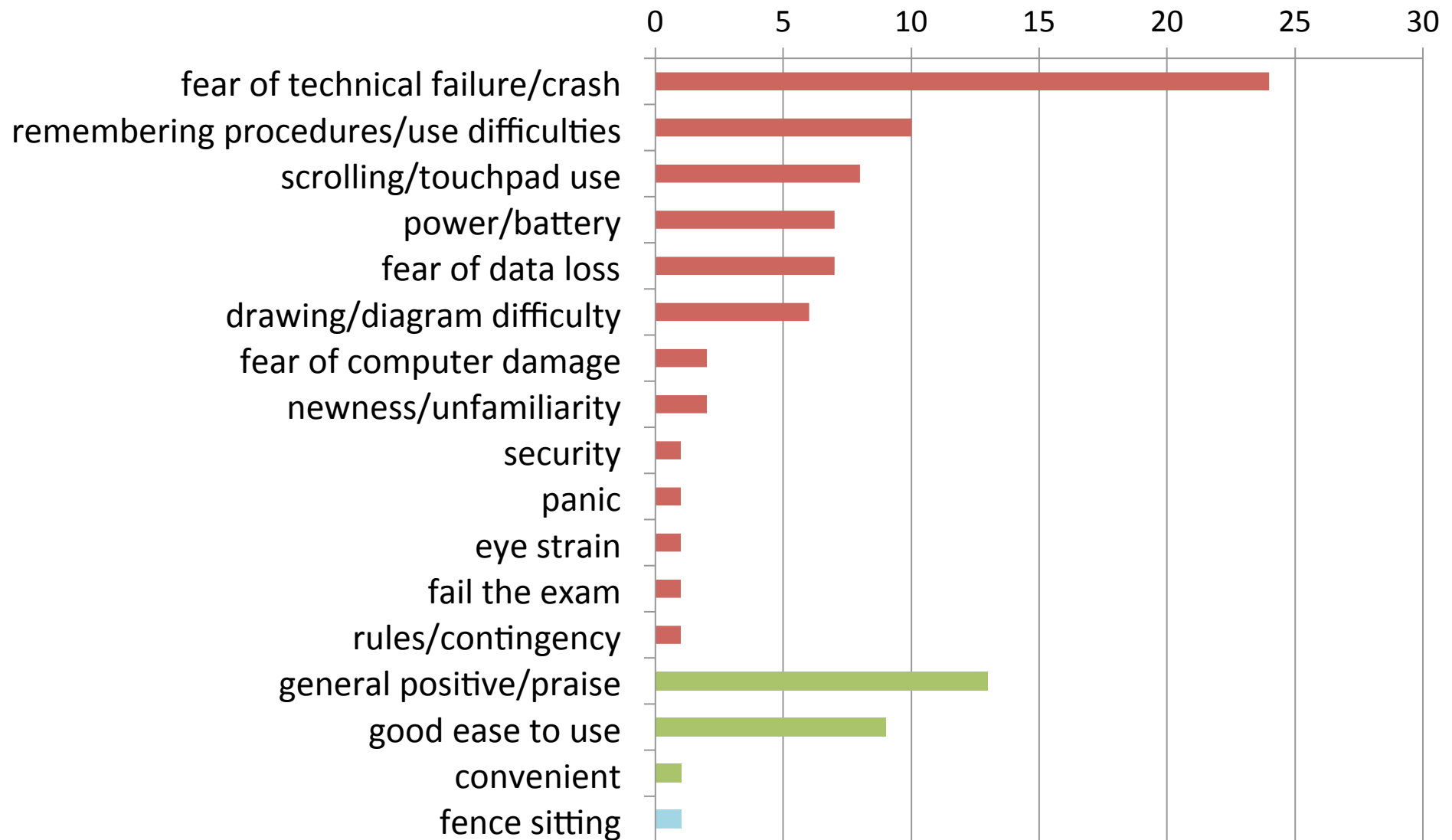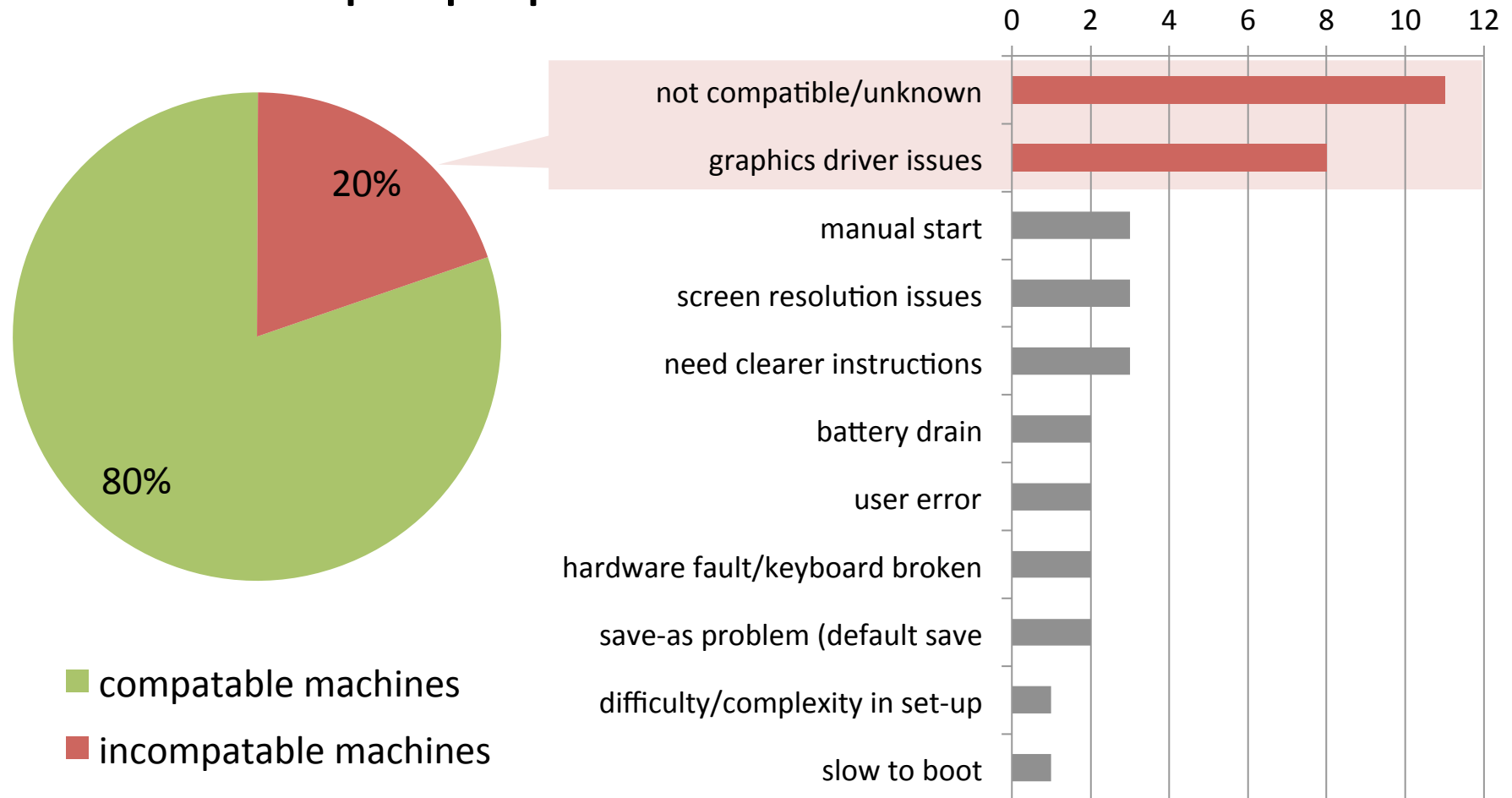After trying e-exam

Pre-exam Survey

Open text comments – concerns and praise

Pre-exam Laptop Testing

Number of laptops passed and technical issues.

So... we had a pool of loan laptops.

Upgrade to next version of OS will help too.

UQ e-Exam Trials 2014

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- Via pre-exam short survey (six courses – typists only).
  - Conducted at the pre-exam practice setup sessions.
  - Covered: student preliminary impressions, technical hardware compatibility.

- Via post-exam extended survey (six courses – all students – **next**)
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  - http://transformingexams.com/uq_trials/e-exams_2014_trial_results_sept.pdf

- Future analysis – production (words, language density, marks).
  - Further Dentistry and Criminology exams conducted April 2015.

Participation across the six 2014 courses in the trials	Typed	Handwrote
ANIM — Animal Biology: 45 min mixed short answer and MCQ (type 'x')	5	109
BIOL — Zoology (BIOL): 50 min short answer (Multiple choice section done pen on OMR sheet)	10	81
CRIM — Criminology: 70 minutes. Single long essay response section (and a Multiple choice section done pen on OMR sheet)	17	50
OCTY — Occupational Therapy: 100 min mixed short answer and MCQ (type 'x')	3	24
PHTY — Physiotherapy: 15 min (watch video and write) before OSCE	25	108
VETS — Veterinary technology: 90 min theory, mostly short answer	11	78
	71	450

Gender

Typists

27 40%

41 60%

■ Male ■ Female

Hand writers

139 38%

231 62%
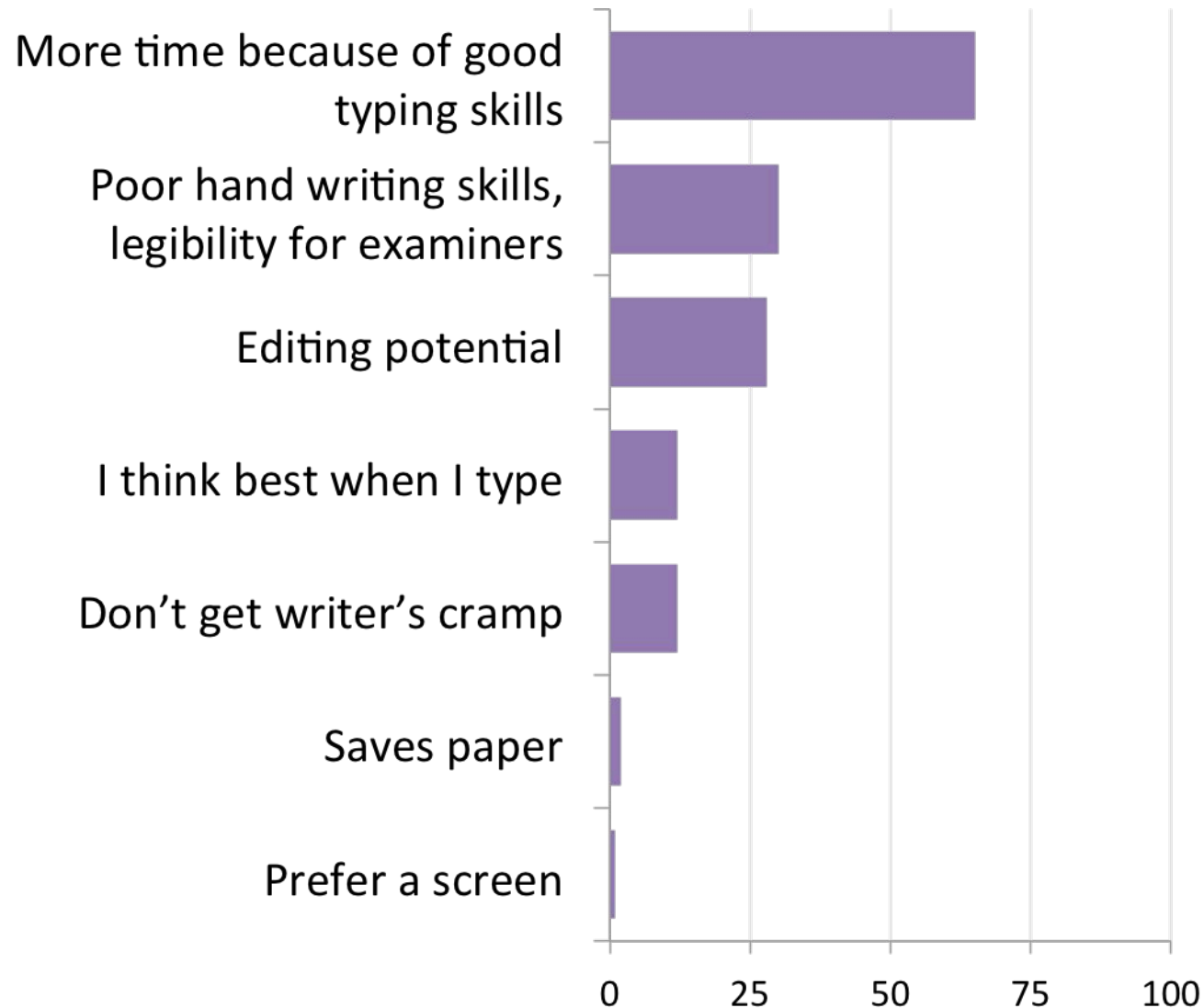
■ Male ■ Female
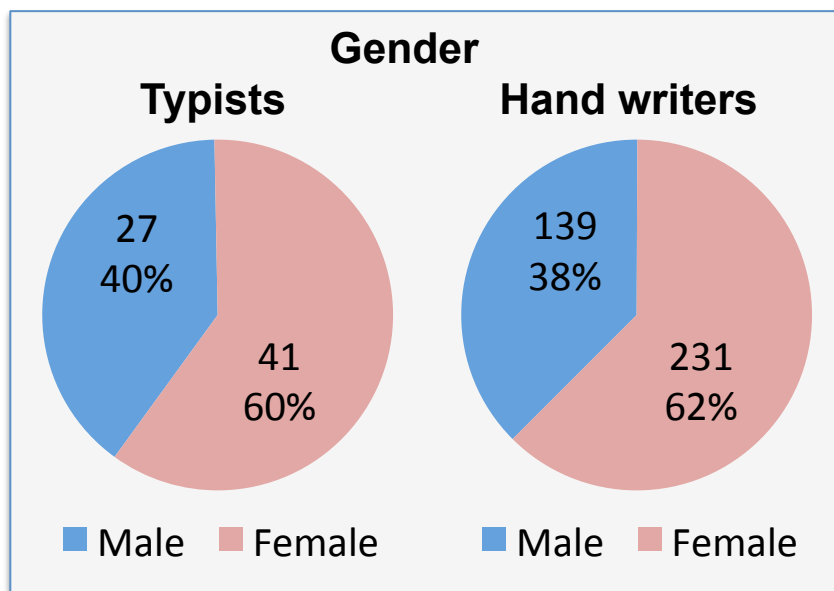
It is important to note:
- First 'toe in the water' trials.
- Participation was optional.
- Mid term exams worth an average of 15% of the course grade.

Detailed case descriptions available:
http://transformingexams.com/uq_trials/UQ_e-exam_cases_s1_and_s2_2014.pdf
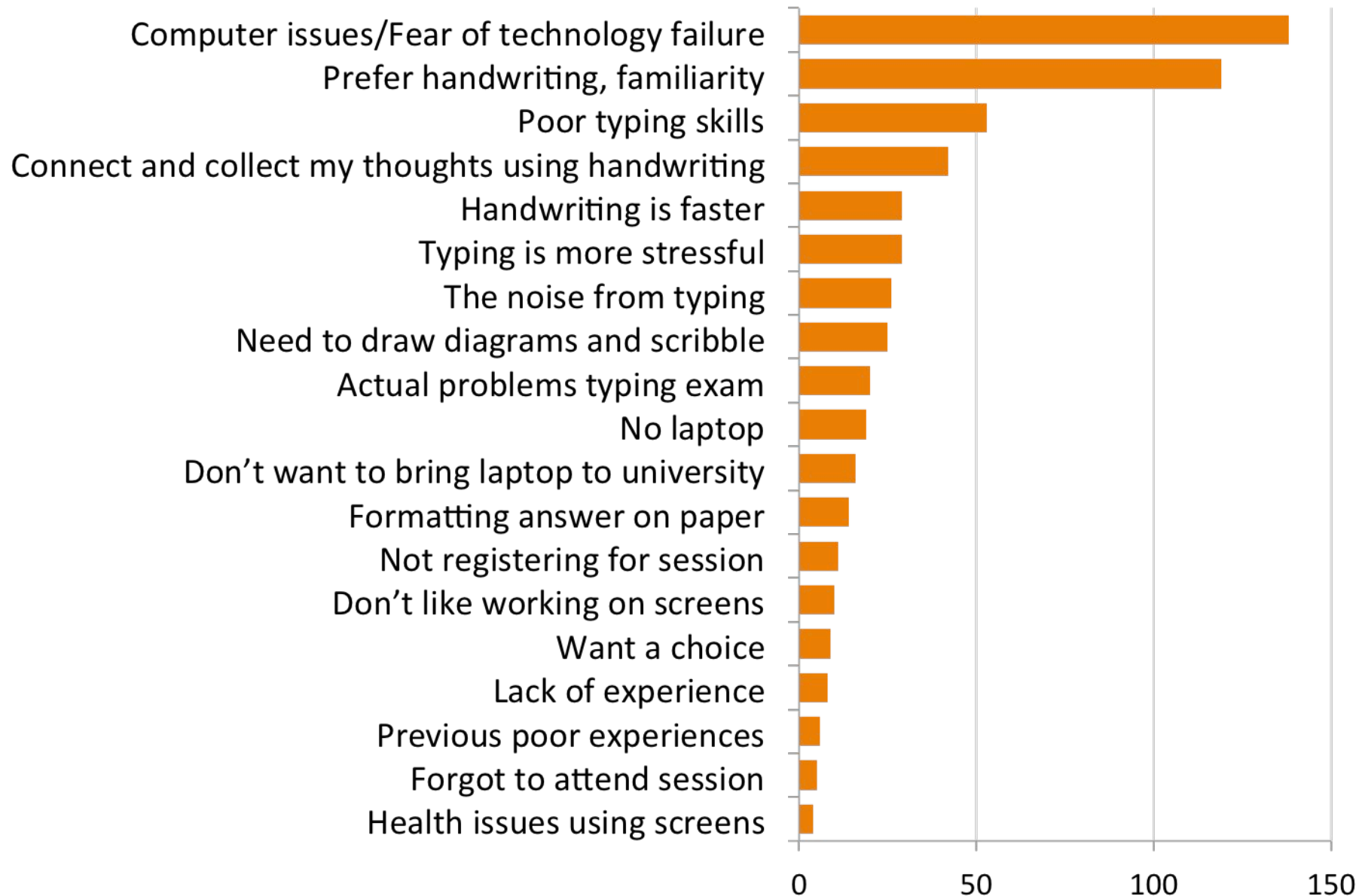
Reasons for typing the exam

(added 30 October 2014)

Reasons for handwriting the exam
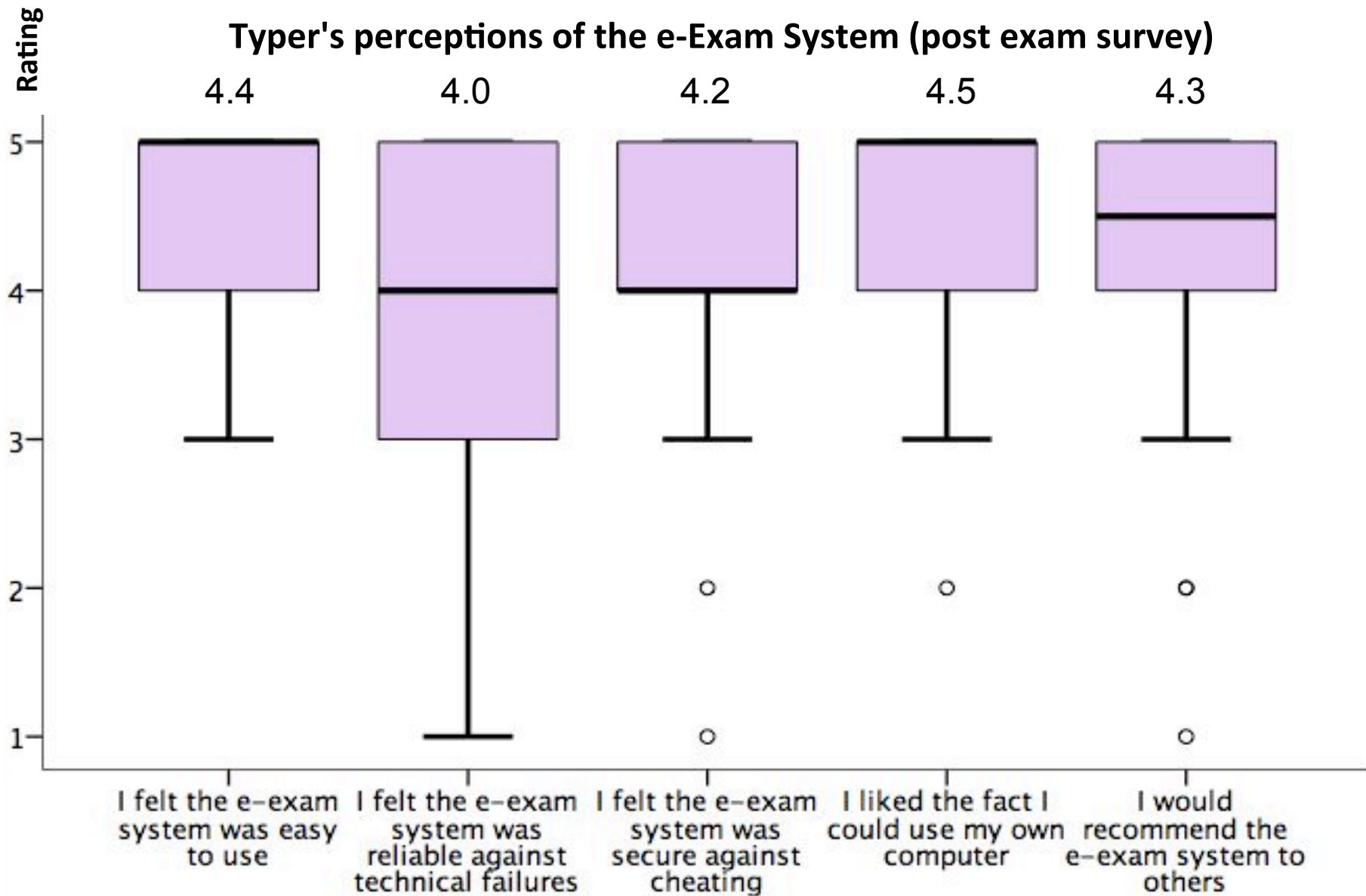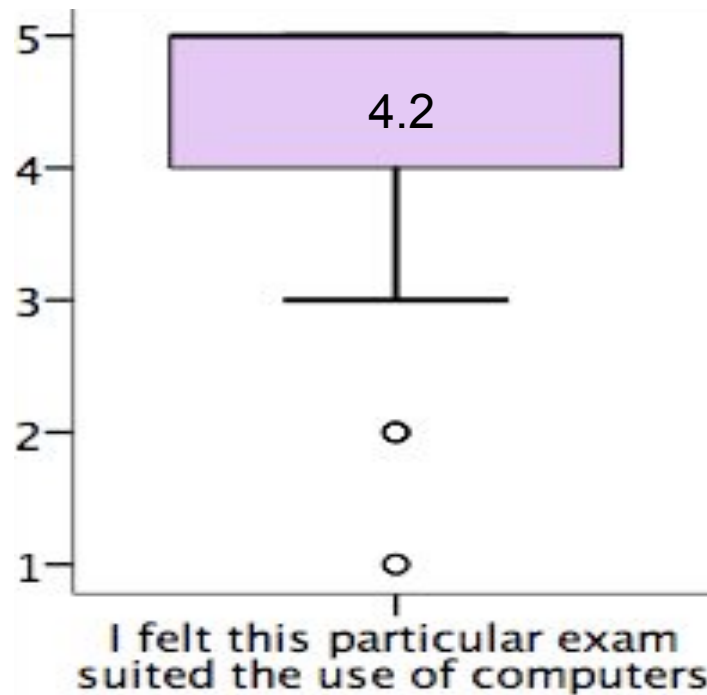
(added 30 October 2014)

Those that used the system said…

Typer's perceptions of the e-Exam System (post exam survey)

Likert scale/rating: 1 = strongly disagree to 5 = strongly agree [N = 69]. Means shown.
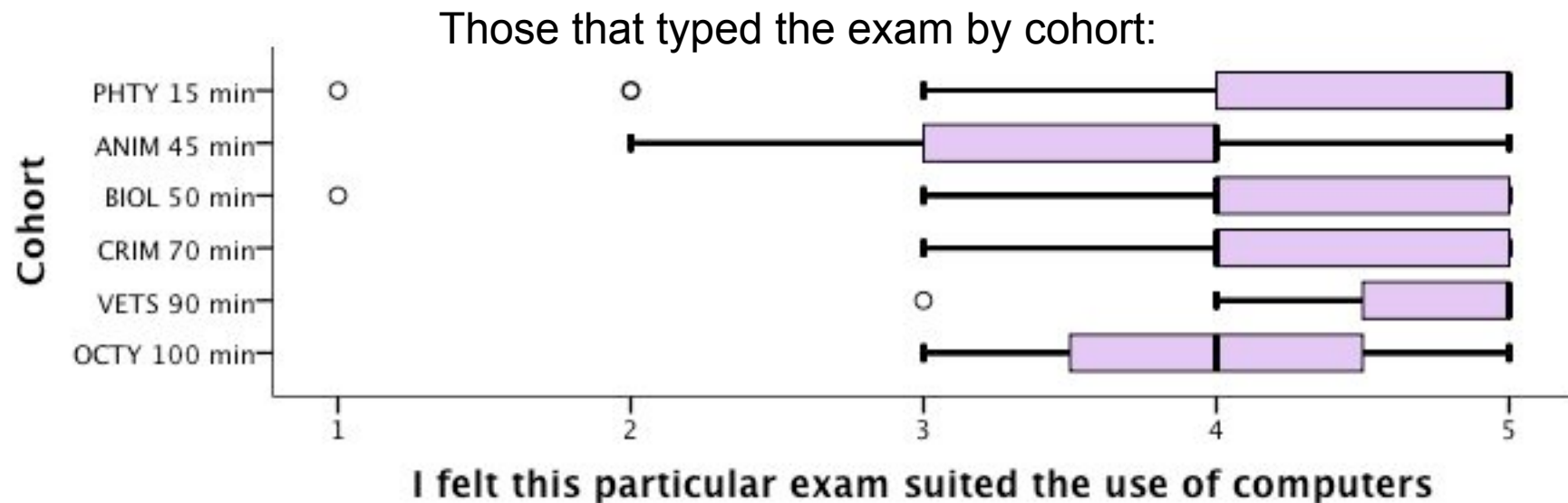
Did typers think the exam suited the use of computers?

Those that typed the exam.
All six cohorts combined (ANIM, BIOL, CRIM, OCTY, PHTY & VETS).
Likert Scale: 5 = Strongly Agree, 1 = Strongly Disagree

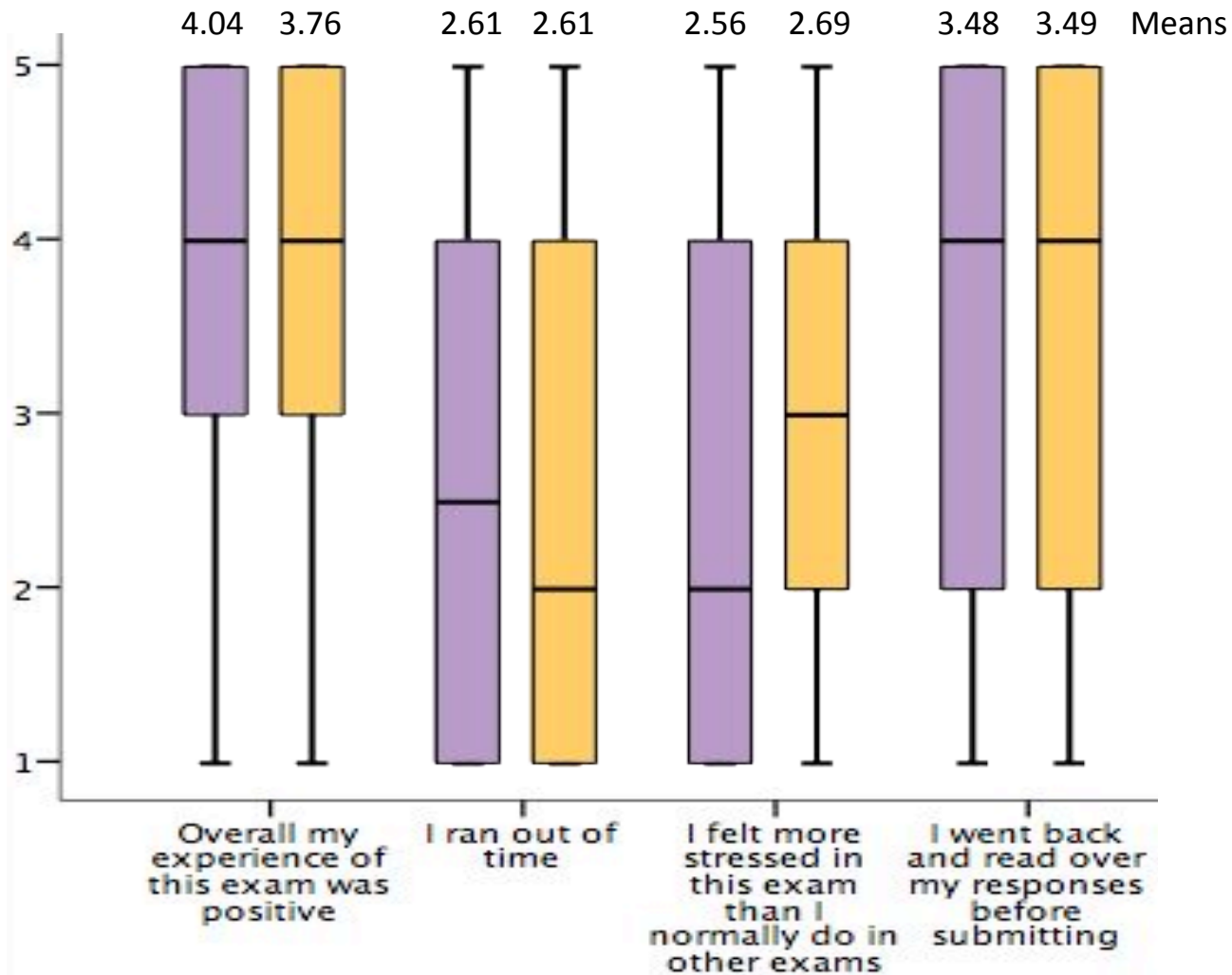Mean of 4.2 (value shown) N = 69.

Largely that was a 'yes'.

Those that typed the exam by cohort:

I felt this particular exam suited the use of computers

Student reaction to exam conditions

Typers (left) and **Hand writers (right)**

	Overall my experience of this exam was positive	I ran out of time	I felt more stressed in this exam than I normally do in other exams	I went back and read over my responses before submitting
U	13242.5	15203	14527.5	15145.5
Z	-2.132	-0.083	-0.751	-0.394
Sig. (2-tail)	0.033	0.934	0.452	0.694

Means shown: 4.04 3.76 | 2.61 2.61 | 2.56 2.69 | 3.48 3.49

Likert scale: 5 = strongly agree, 1 = strongly disagree. Means shown.

Hand writing in the exam

All six cohorts
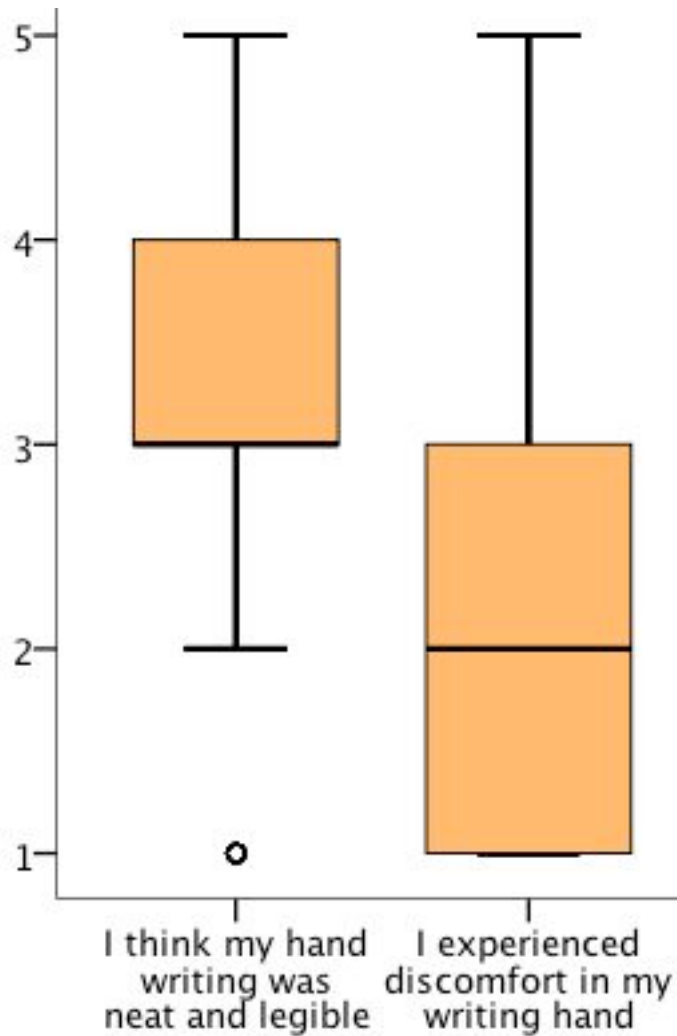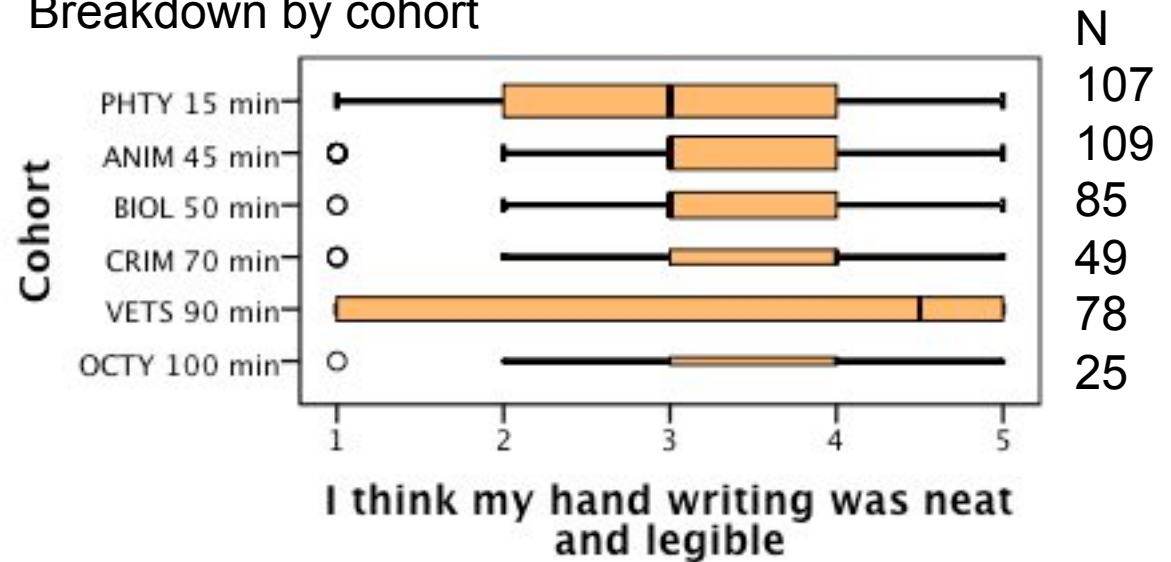

Are some students over estimating the neatness of their hand writing?!

Breakdown by cohort

I think my hand writing was neat and legible

Cohort	N
PHTY 15 min	107
ANIM 45 min	109
BIOL 50 min	85
CRIM 70 min	49
VETS 90 min	78
OCTY 100 min	25

Discomfort from using a pen increased with exam duration (below).

I experienced discomfort in my writing hand

Cohort	N
PHTY 15 min	107
ANIM 45 min	107
BIOL 50 min	85
CRIM 70 min	49
VETS 90 min	16*
OCTY 100 min	25

Sig at >.01!

* Note 20% response rate by VETS for this item. All others near 90%

Trial Technical Issues

Issue log: 15 of the 69 who typed reported 'technical issues' via the post-exam survey. 1 more was identified by observation. The majority were minor.

| Issue	N	Notes, Additional Observations, Suggested Solutions
Boot/start up	2	In reality most participants needed assistance/forgot boot key. *Familiarity: need to practice!*
Entering ID	0	All good. (some students entered 's' rather than 8 digit number but system copes fine).
Using the software	1	Some did not know how to 'exit' gracefully (i.e. File save, file exit, shutdown). *Need to practice! Investigate an 'I'm finished' script/button.*
Battery	0	Most plugged in. *Power needs to be available.*
Saving files	0	All good. (noticed one student used 'save as' when save was 'greyed out') now fixed
Software crashed/ computer froze	4	1 x Old 2009 white Macbook. Office suite quit to desktop. (pre-setup to catch these!) 3 x System drive ran out of space causing the system to crash (now fixed).
Touchpad/ mouse	7	Sensitivity reported by participants. *Some adjustments were made. USB wired mice highly recommended! Investigate drivers.*
Scrolling	**15**	Two finger scrolling opposite to OSX, keyboard shortcuts. Small scroll bars. Sensitivity. *Familiarity: need to practice. Larger scroll bars. Investigate a user selectable option for touchpad/scroll behavior (and re-mapping of keyboard shortcuts).*

e-Exam Project Resources

More information….

Demo set-up Guide,

Student Practice and User Guide

http://transformingexams.com
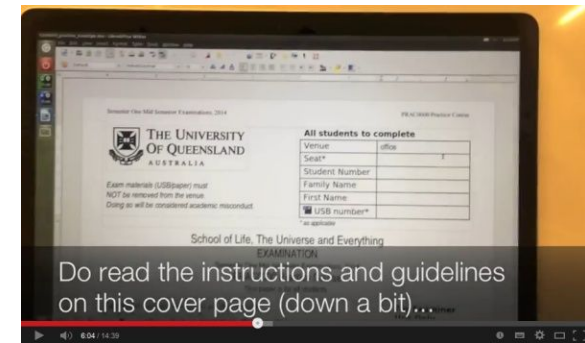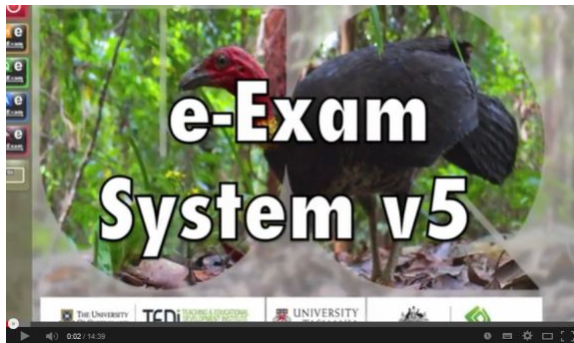
Demo videos start-up, use and recovery examples.

Apple http://bit.ly/eexam-demo-vid-a

'Wintel' (Dell) http://bit.ly/eexam-demo-vid-d

Contact: m.hillier[at]uq.edu.au

End

Cite this resource

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Feedback Survey

http://ta.vu/eexamsurv