

# Transforming Exams: Results from the 2014 BYOD e-Exam Trials at University of Queensland

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**Get the demo and user guides**

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## Acknowledgement

Support for this project has been provided by the Australian Government Office for Learning and Teaching. The views expressed do not necessarily reflect the views of the Australian Government Office for Learning and Teaching or participating institutions.



# Rationale: About e-Exams

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 existing e-solutions to address these needs.*



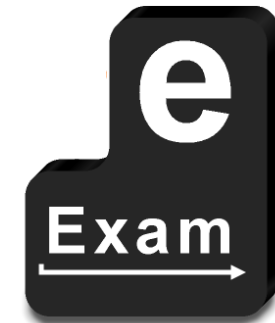
# So?

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.

# e-Exam System Affordances

Pertinent Features	Affordances
A 'Whole computer' environment (OS, LMS, applications...) on a stick.	Vastly expanded pedagogical scope over that of a browser window.
Typed student responses via Word processor, constructed via apps (human marked) or on-board learning management system quiz (computer marked).	Caters for introduction to advanced uses. Components added/removed to suit. Electronic collection facilitates analytics, item response analysis...
No live network required during exam, even for LMS questions.	Robust. Greater control. (network could be used for admin)
Student owned equipment used as host and left untouched.	An ethical approach to scalability (no invasive software to install)
Modular, open source code base and commodity 'off the shelf' components.	Leveraging popular and sustainable projects for better efficiency. Fully 'known' (no 'blackbox'). Available!
One version works on most Intel based laptops - Apple, 'windows', Linux, that have a USB port.	One software version can serve all. Streamlines development and maintenance.



Bootable  
'live'  
USB  
drive



# Current e-Exam System v5 Demo

Four-in-one demo system (desktop shown below)...

1. Word document based exams (paper equivalent / intro use **S1 & S2 2014**)
2. Word doc + multimedia + 3<sup>rd</sup> party software tools (more trials soon...)
3. LMS (Moodle) based exams (computer marked questions - TBA)
4. Remote (serves as a restricted gateway) to networked LMS.



Word doc exams



On-board LMs exams



# UQ 2014 Trial: Paper equivalent exams

First stage: Paper 'equivalent' via on-board word processor.  
*This was used for Semester 1 and 2 2014 Trials.*

**To start an e-Exam:**



1. Student boots laptop with USB

2. Students type ID, name & click 'Start Exam' button

3. Student can now start typing

Note: Automated background processes...

The system copies Question file and renames it with the supplied ID.

File is opened ready for the student to start (cover page info could be automated too)

Note – the system keeps a read-only backup of the questions!

The image shows two overlapping screenshots. The top one is a window titled 'e-Exam Starter' with a form for 'Student ID: 12345678', 'First Name(s): Joe', and 'Surname: Bloggs'. A 'Start Exam' button is visible. A large black arrow points from this button down to the second screenshot. The second screenshot shows a LibreOffice Writer window titled '12345678\_practice\_examSpe.doc - LibreOffice Writer'. The document is a cover page for 'Semester One Mid Semester Examinations, 2014' for 'PRAC0000 Practice Course' at 'THE UNIVERSITY OF QUEENSLAND AUSTRALIA'. It includes a table for 'All students to complete' with fields for Venue, Seat, Student Number, Family Name, First Name, and USB number. Below this is the exam title 'School of Life, The Universe and Everything EXAMINATION' and 'Exam Conditions'. A table for 'For Examiner Use Only' is at the bottom right. A large black arrow points from the bottom of the document area down to the footer.

# UQ 2014 Trial: Paper equivalent exams

**UQ trials, Semester 1 and 2 2014** : The aim was to explore the idea of BYOD e-exams, logistics, student impressions. Worth ~15%

- Paper 'equivalent' exams, computer optional, students choose pen or keyboard.
- Question types used: essay, short answer, limited MCQs (type 'x' in a box), matching, build table, label a diagram/image (fill table). Basic drawing features were available but not used by students. Student responses in blue text.
- All manual marking – but at least it was typed text!

Question 1: Those who are at risk of contracting the **EOTOLA** and should seek medical advice if displaying symptoms. Which of the following statements is true?

[1 mark]

Tick or type an 'x' into the box to indicate your response.

<input type="checkbox"/>	a) <u>Rhonus dolor arcu, eu mattis dolor vestibulum ac.</u>
<input checked="" type="checkbox"/>	b) <u>Maecenas rhon</u>
<input type="checkbox"/>	c) <u>Dolor arcu, eu t</u>
<input type="checkbox"/>	d) <u>Maecenas rhon</u>
<input type="checkbox"/>	e) <u>Both (c) and (d)</u>

Question 7: Some rationales for punishment are **XEZTAR**-oriented and some are **PEDLAR**-oriented. What does this mean?

[3 marks]

Please write / type your response inside the box below.

The student types their answer here. In this example the question and response area are placed in a two row table. The response table row is created with a single carriage return inside. The row or cell has a minimum height set (by dragging the bottom border). By using a single carriage return 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.



# UQ 2014 Trial: Paper equivalent exams



More question types used:

matching, construct a table, label a diagram/image (by filling a table). Manual marking.

Question 2. Match the following host-MOTA relations 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 libero vel, p
- d) Mauris vehicula eros a viverra pellentesque.
- e) Curabitur eu mi at nibh commodo varius non n
- f) Aenean eget orci porta, malesuada lorem sit an

Please write or type the letter of the descriptions list

Answer a to f.	Terms
<u>f</u>	I. <u>Paxogen</u>
<u>a</u>	II. <u>Sitabosis</u>
<u>c</u>	III. <u>Fakeasalism</u>
<u>e</u>	IV. <u>Wrongagelesis</u>

Question 3.

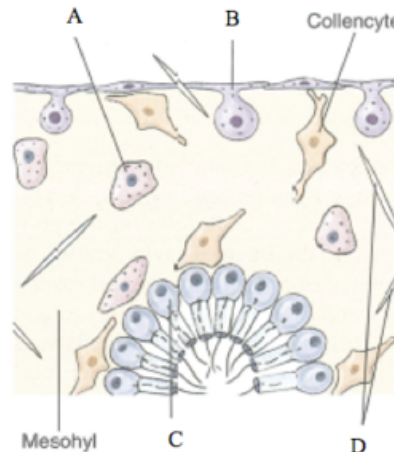
Samuel is 5 years old and attends racing cars 5 days per week. Eamon is 10 years old and rides a superbike around the same track. It is not a selected response item so some text will be expected.

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

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



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.

# UQ 2014 Trial: Paper equivalent exams

Responding to questions in-line in the word processor  
(note – the system keeps a read-only backup of the questions!)

Type where indicated....

Simple drawing tools...

Label a diagram...

Question 7: Some rationales for punishment are XEZTAR-oriented and some are PEDLAR-oriented. What does this mean? [3 marks]

Please write / type your response inside the box below.

The student types their answer here. In this example the question and response area are placed in a table row. The response table row is created with a single carriage return inside. The row or cell has a minimum height of 100 pixels. If the user presses the carriage return key, the row height 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 box should indicate the desired length of the response. The box will automatically expand when gets full.

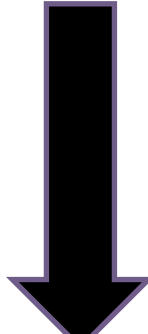
Type below a line or in a box

Question 7 [4 marks]: Place a rough drawing of yourself below (you can use the drawing tools in this program, or create the image using the GIMP as described on your student eExam instruction card).  
Please place your answer below this line.

Copy & Paste

GIMP Image Editor

Draw in GIMP



Question 8 [4 marks]: The following diagram has some unidentified parts indicated by part numbers.

Fill in table rows...  
Or type 'x' for MCQs

Please complete the table below to provide the label names for each part number.

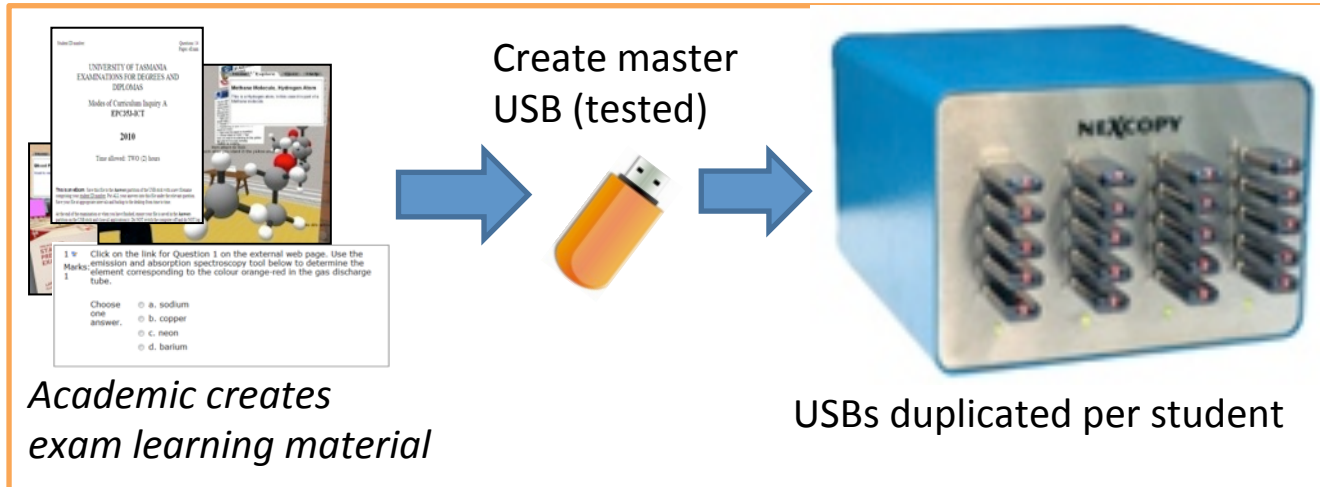
Part	Labels (please enter text in each row below.)
1)	top
2)	widest
3)	label

Note: Drawing tool was available but not used.

# e-Exam System Processes

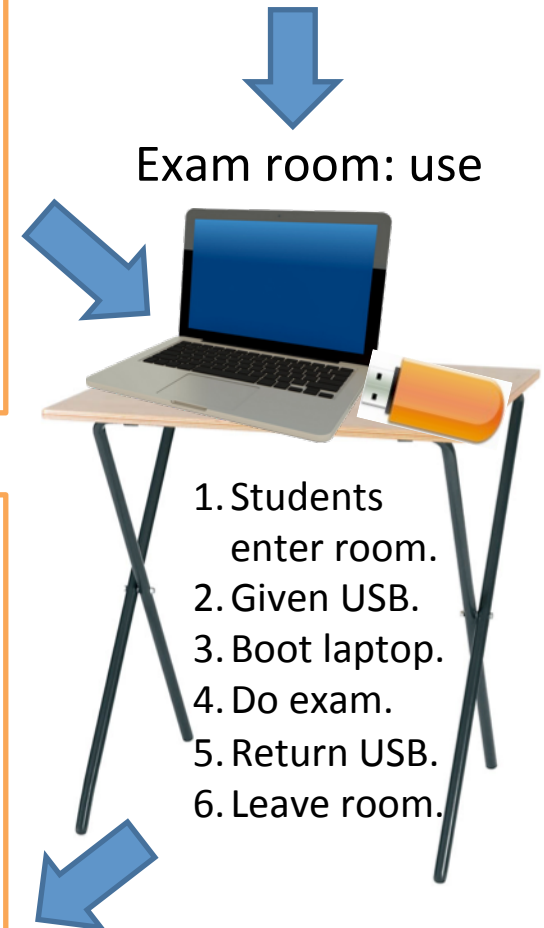
Process overview : set-up, use and assessment.

Set-up: prepare exam learning materials



Pre-session:  
Student Laptop setup.

Exam room: use



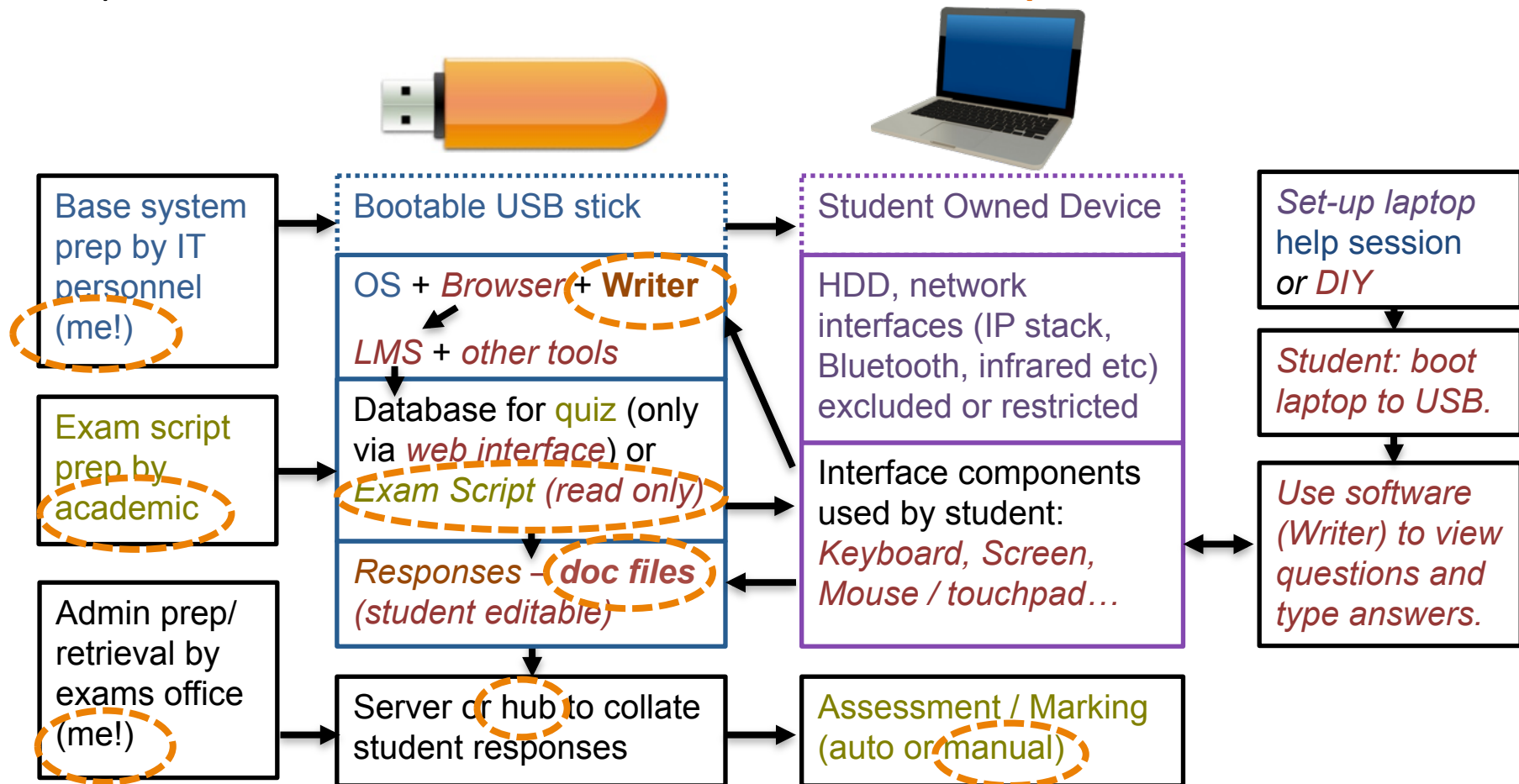
Post lesson: retrieve responses and assessment



(Based on the e-Exam System by Hillier & Fluck 2013)

# Architecture of e-Exam System

Modular architecture so academics / institutions can choose the features and mode of operation that suit them... **For 2014 UQ trials we kept to the basic features!**



Current OLT project adds these features to v5 (not used in UQ trial):

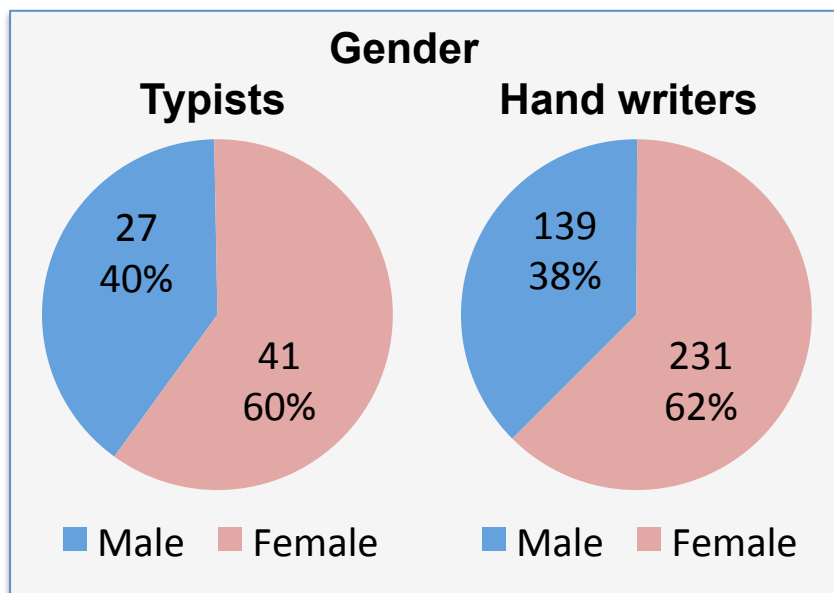
- On-board LMS for computer marked question types (Moodle) [demo available]
- Improved answer reticulation/workflows [TBA – in progress]

# UQ e-Exam Trial Outcomes 2014

## Data collected from students (updated October 2014)

- Via pre-exam project online survey: See Hillier & Tran 2014.
  - UQ students surveyed about their preconceptions about e-exams.
  - [http://transformingexams.com/files/HERDSA\\_special\\_presentation\\_july\\_2014\\_pre\\_survey-final\\_version.pdf](http://transformingexams.com/files/HERDSA_special_presentation_july_2014_pre_survey-final_version.pdf)
- Via pre-exam short survey (not shown here).
  - Conducted at the pre-exam practice setup sessions.
  - Covered: technical compatibility, hardware spec lists, student preliminary impressions.
- Via post-exam extended survey (**main results follow**)
  - Conducted at the conclusion of the exam (in the room).
  - Covered: 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](http://transformingexams.com/uq_trials/e-exams_2014_trial_results_sept.pdf)
- Future analysis – production (words, language density, marks).

Participation		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



It is important to note:

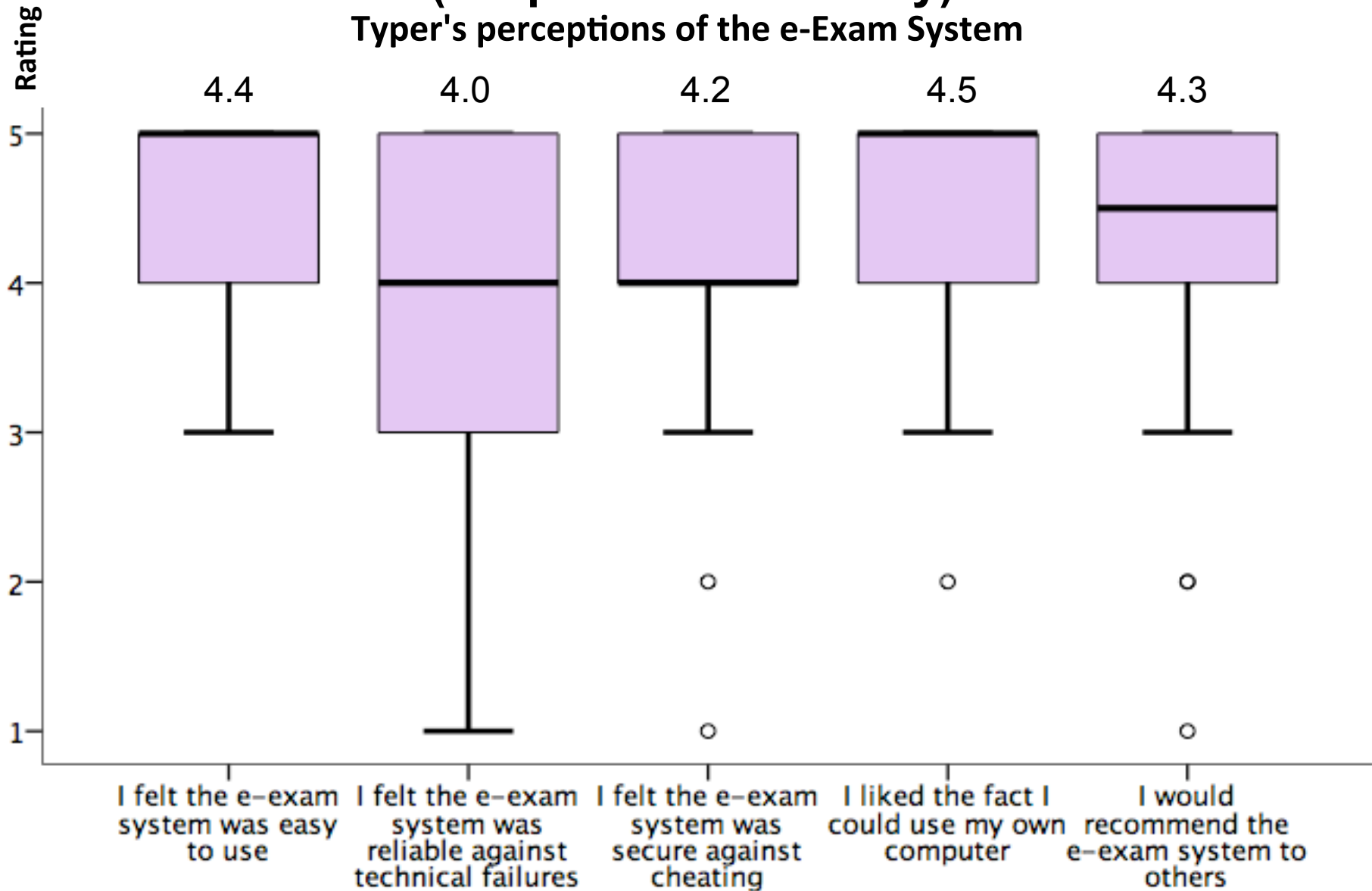
- First 'toe in the water' trials.
- Participation was optional.

Detailed case descriptions available:

[http://transformingexams.com/uq\\_trials/UQ\\_e-exam\\_cases\\_s1\\_and\\_s2\\_2014.pdf](http://transformingexams.com/uq_trials/UQ_e-exam_cases_s1_and_s2_2014.pdf)

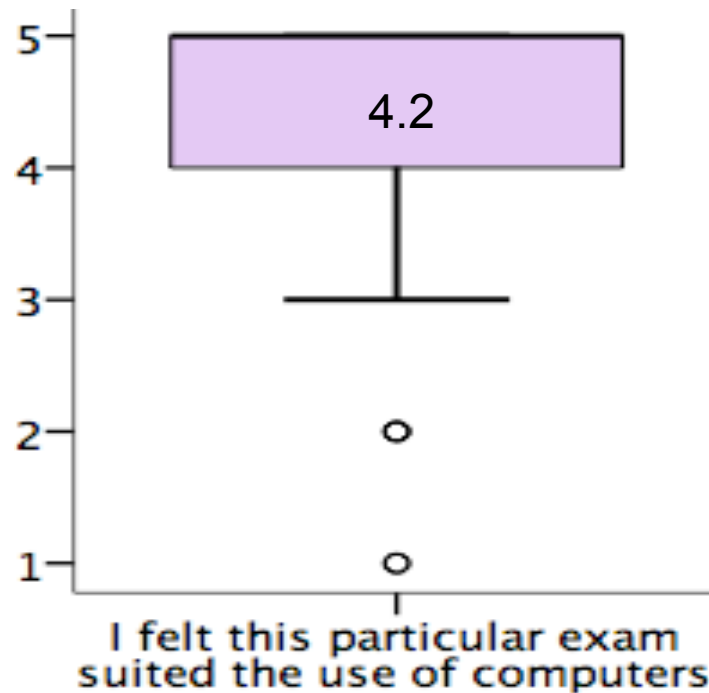
# Reported by those that used the system (via post-exam survey)

## Typers's perceptions of the e-Exam System



Likert scale/rating: 1 = strongly disagree to 5 = strongly agree [N = 69]. Means shown.

# Did typers think the exam suited the use of computers?

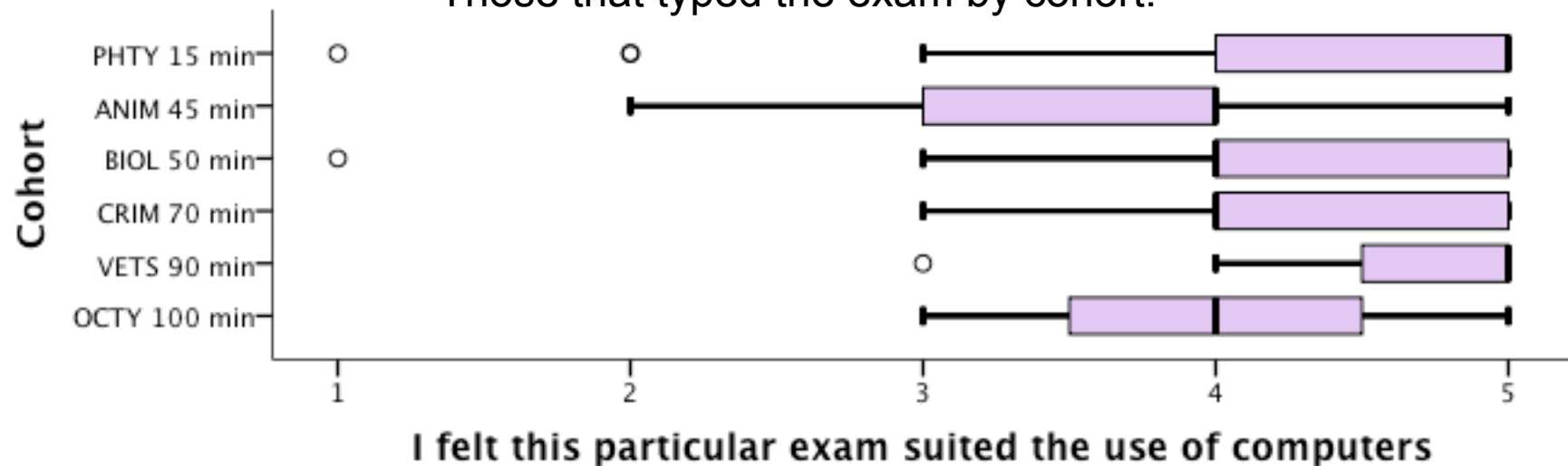


Those that typed the exam.  
All six cohorts combined (ANIM, BIOL, CRIM, OCTY, PHTY & VETS).  
Likert Scale: 5 = Strongly Agree, 1 = Strongly Disagree

Mean of 4.2 (value shown) N = 69.

Largely that was a 'yes'.

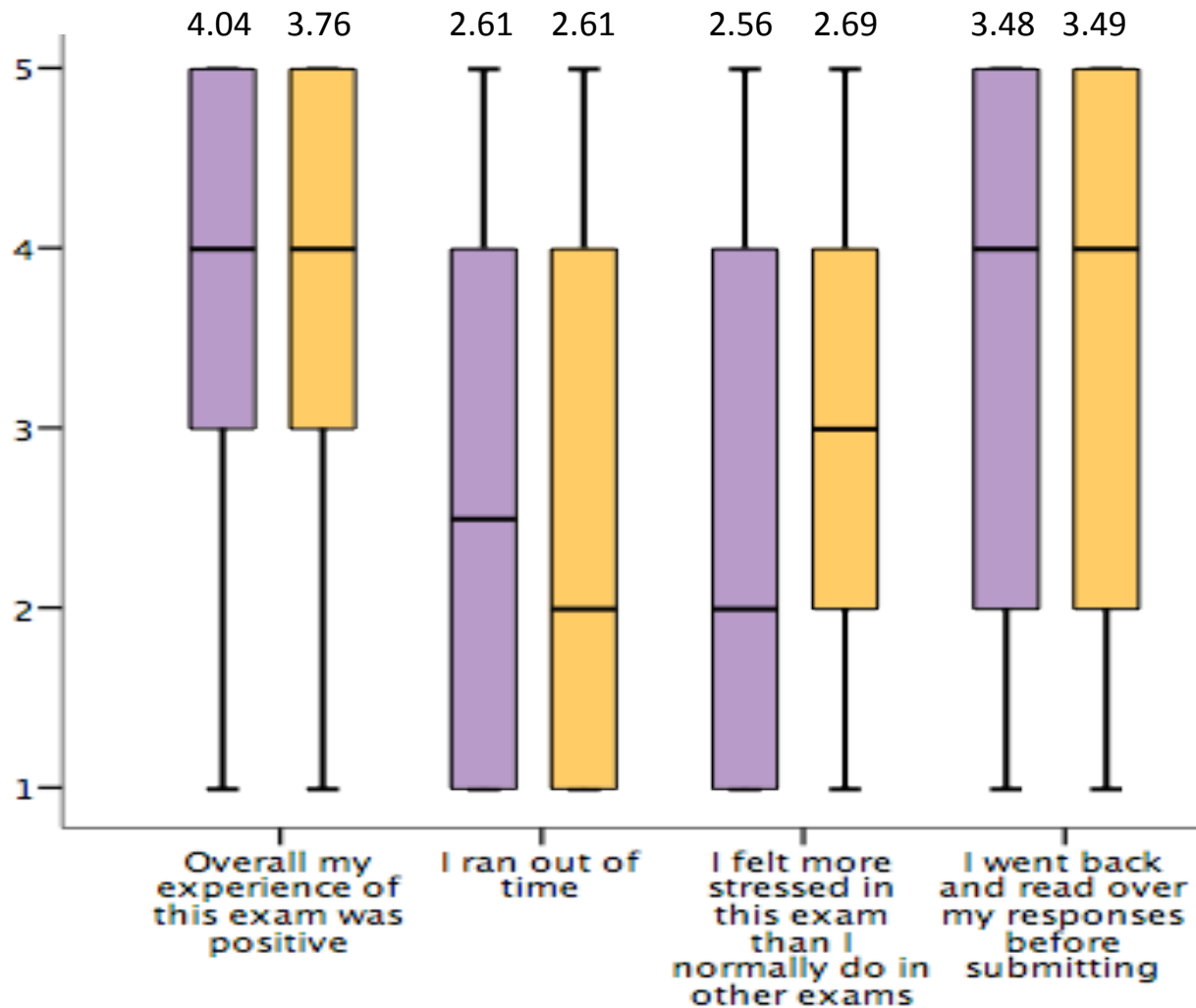
Those that typed the exam by cohort:





# Student reaction to exam conditions

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

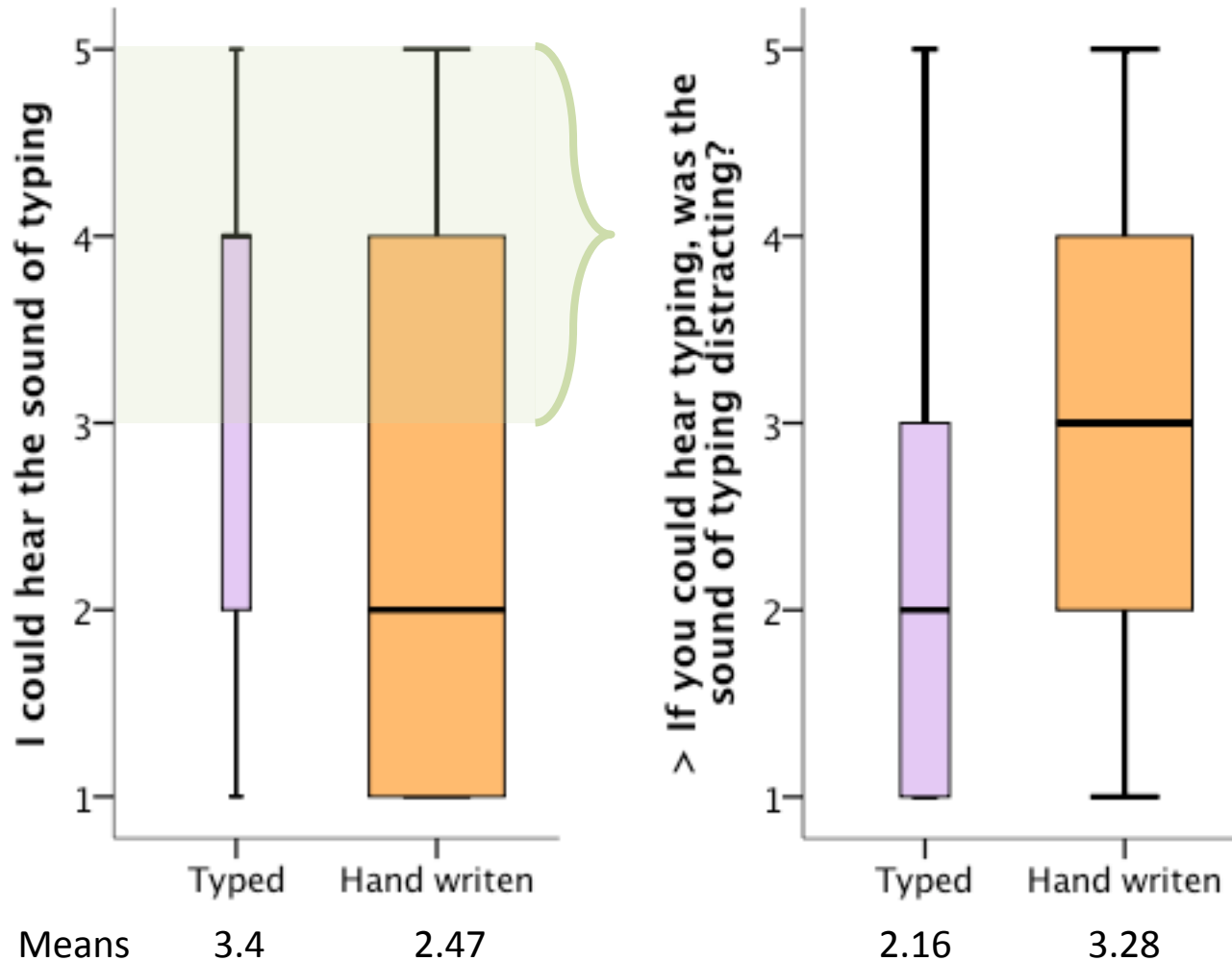


Likert scale: 5 = strongly agree, 1 = strongly disagree. Means shown.

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

# Was the sound of typing distracting?

In each boxplot **Typers (left)** and **Hand writers (right)**



The two cohorts ANIM and BIOL were removed from the analysis because typers and hand writers sat in different rooms.

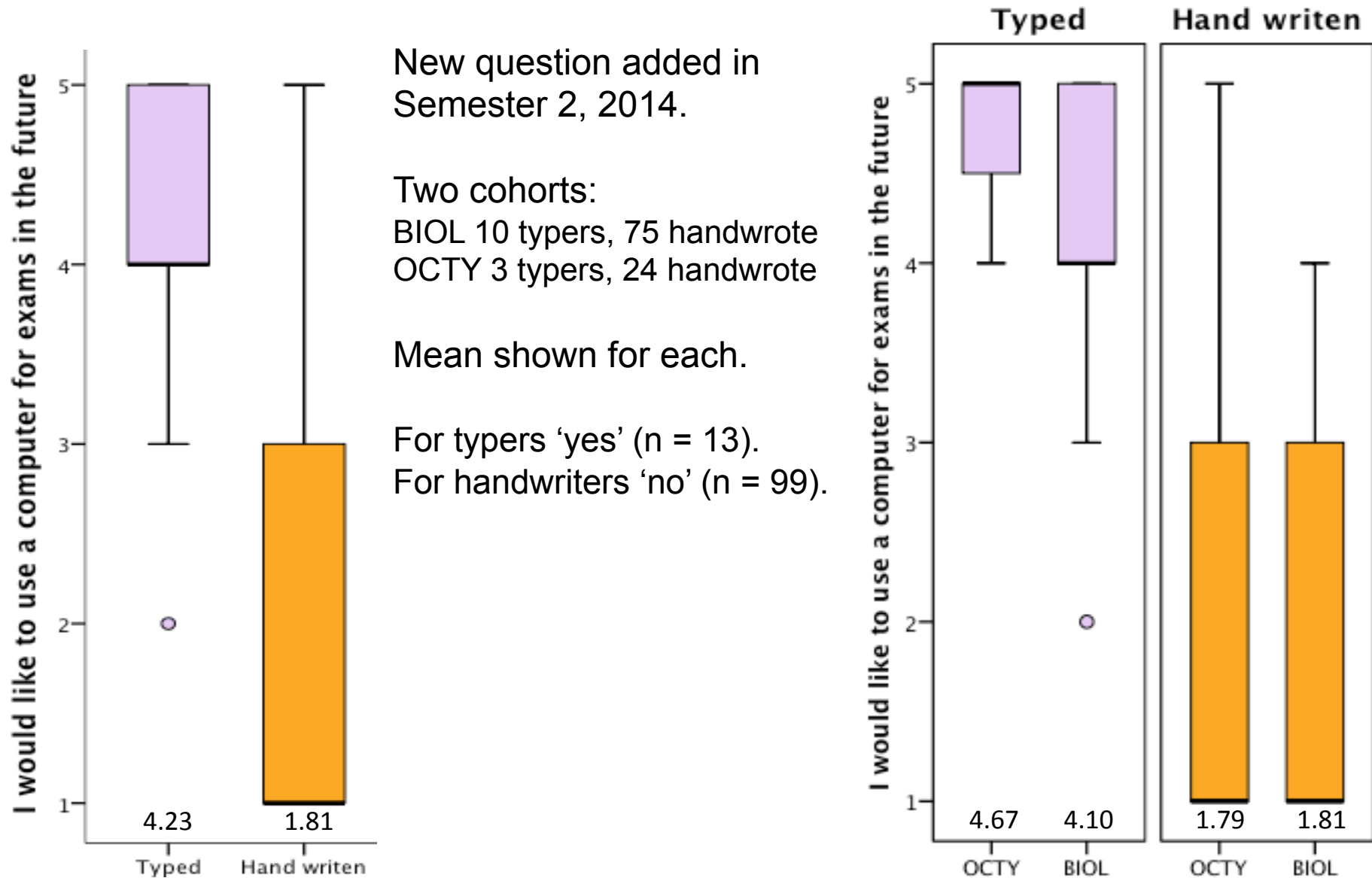
Those that could hear typing (who selected 5, 4 or 3) were included in the determination of distraction by typing sound.

Cohort exams were held in different venues.

Both exhibited significant differences to  $>.01$   
Likert Scale: 5 = Strongly Agree, 1 = Strongly Disagree

# Future intention to type

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



New question added in Semester 2, 2014.

Two cohorts:  
BIOL 10 typers, 75 handwrote  
OCTY 3 typers, 24 handwrote

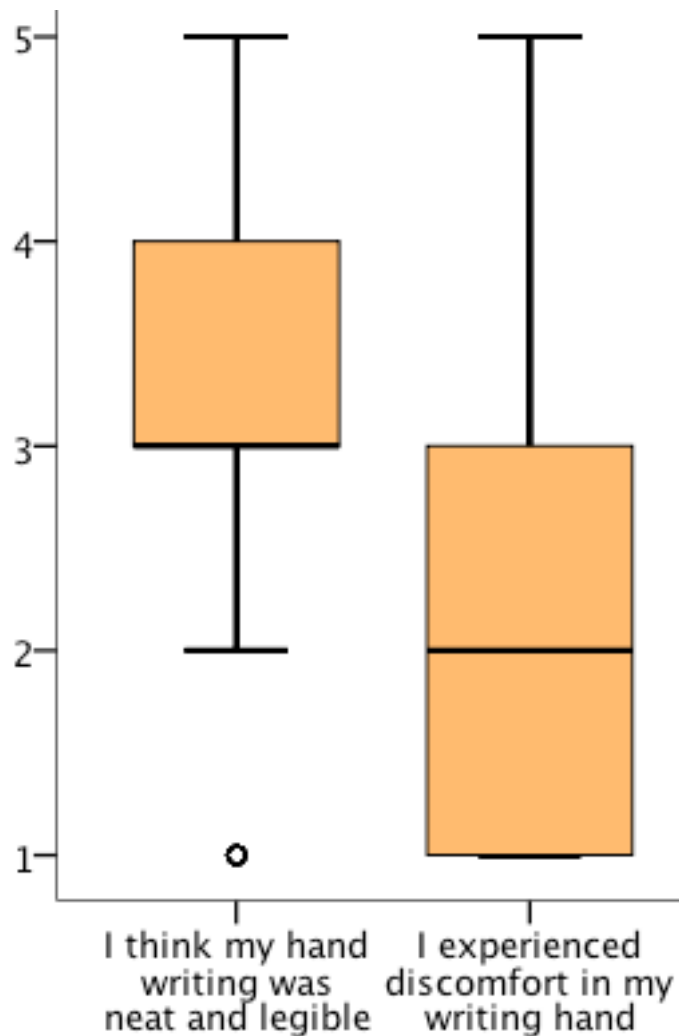
Mean shown for each.

For typers 'yes' (n = 13).  
For handwriters 'no' (n = 99).

Likert Scale: 5 = Strongly Agree, 1 = Strongly Disagree

# Hand writing in the exam

All six cohorts

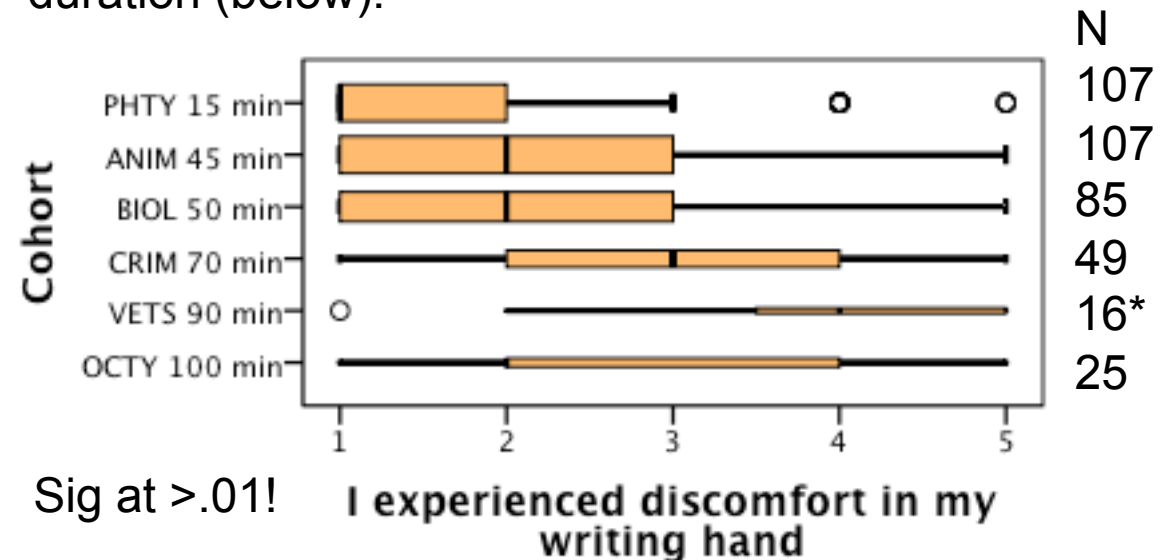


*Are some students over estimating the neatness of their hand writing?!*

Breakdown by cohort



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



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. <i>Familiarity: need to practice!</i>
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). <i>Need to practice! Investigate an 'I'm finished' script/button.</i>
Battery	0	Most plugged in. <i>Power needs to be available.</i>
Saving files	0	All good. (noticed one student used 'save as' when save was 'greyed out')
Software crashed/ computer froze	4	1 x Old 2009 white Macbook. Office suite quit to desktop. 3 x System drive ran out of space causing the system to crash.
Touchpad/ mouse	7	Sensitivity reported by participants. <i>Some adjustments were made.</i> <i>USB wired mice highly recommended! Investigate drivers.</i>
Scrolling	<b>15</b>	Two finger scrolling opposite to OSX, keyboard shortcuts. Small scroll bars. Sensitivity. <i>Familiarity: need to practice. Larger scroll bars. Investigate a user selectable option for touchpad/scroll behavior (and re-mapping of keyboard shortcuts).</i>

# Minor issues experienced during exams...

**15 x Scrolling** - relates to the ease/fluidity of moving up and down pages/screens.

Two finger touchpad scrolling in the e-exam system was in the opposite direction to OSX but the same as in MS Windows. The size of the scroll bars may have also been an issue when targeting the cursor. (may also relate to the next item)

**7 x Touchpad/mouse - the sensitivity/behaviour** of the software drivers and hardware. The interaction of the touchpad on their laptop and the software may not have been smooth. This may have resulted in erratic cursor movement or overly sensitive movements. Mice were recommended/provided in semester 2 trials.

Keyboard mapping differences from OSX. E.g. short cuts such as 'Command S' becomes 'Control S' in Ubuntu.

**Boot up/start up** - relates to the initial boot process. \* Many observed!

Issues mainly due to users forgetting the 'one time boot' key, or forgetting the key press combination on Apple laptops (i.e. holding down the power key rather than pressing and releasing it while holding down the ALT key to bring up the boot menu).

Technical boot issues were not experienced during exams. This is testament to the need to run pre-exam set-up/practice sessions.

**These can be addressed** though a combination of:

- \* use USB wired mice and/or user selectable/auto keyboard mapping upon boot.
- \* more pre-exam practice by students to familiarise with the software and processes,
- \* ensuring help/testing/set-up assistance is available to catch hardware incompatibilities before they get to the exam room (recommend mock exams too).

# Major issues experienced during exams...

**1 x** Old 2009 white Macbook. Libre office application unexpectedly quit to desktop two mins into a 15 min exam. Continued on paper and given 2 mins extra time. *Better pre-exam testing should catch. Persistent logging to be implemented. Further work on 'recovery' autosave and a 'full' autosave is needed.* \*Recorded via observation.

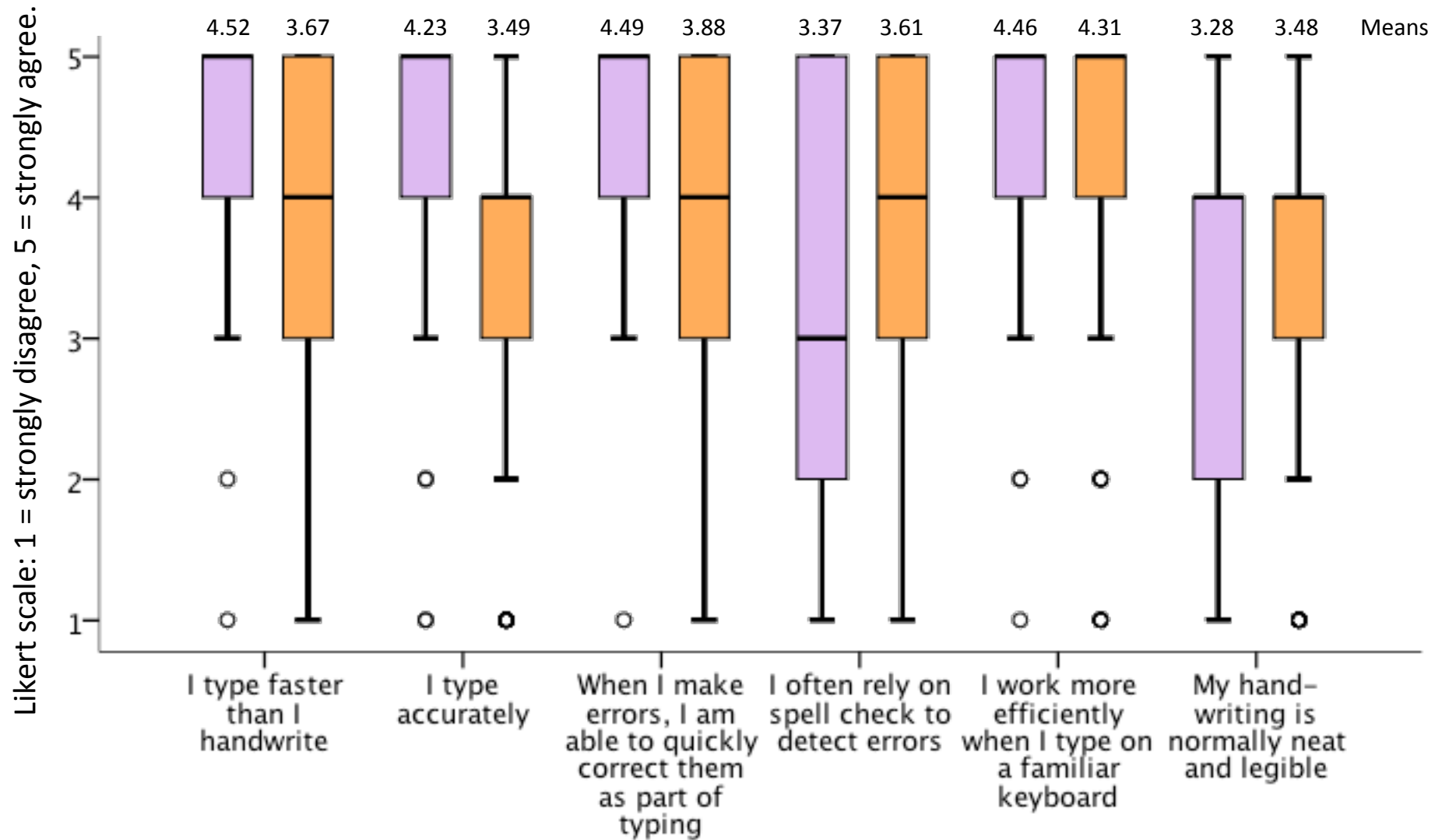
**3 x** System drive ran out of space causing the system to crash. Behavior of auto save function identified as the cause due to recent changes. Impacted OCTY exam only. Students continued on paper. All student data was recovered following the exam. *Changes were rolled back for the next exam that had no further issues. To fix in the next round of updates. More extensive testing regime. A data recovery procedure/advisory has been written.*

**Further development** is needed to address these issues.

Warnings remain in readme files available on public download sites.

# Student reaction to exam conditions

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

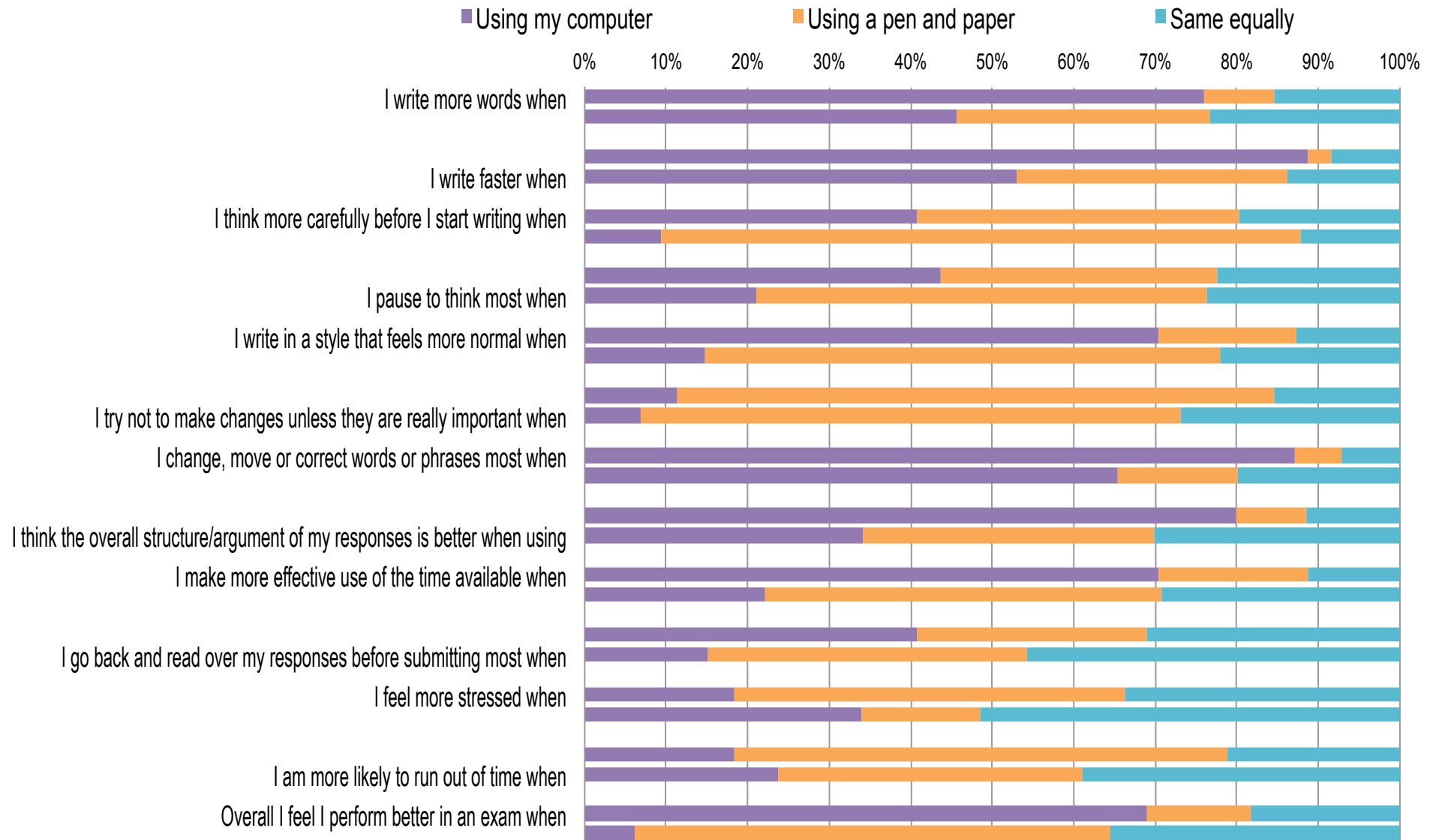


Mann-Whitney U	8213	7551.5	8523	11097	10917.5	11621.5
Z	-4.637	-5.089	-4.248	-1.342	-1.656	-0.77
Sig. (2-tailed)	>.001	>.001	>.001	0.179	0.098	0.441



# Student consideration of general exam conditions when using computer versus pen:

All six cohorts. Response pairs: those who typed (line 1) & those that hand-wrote\* (line 2)

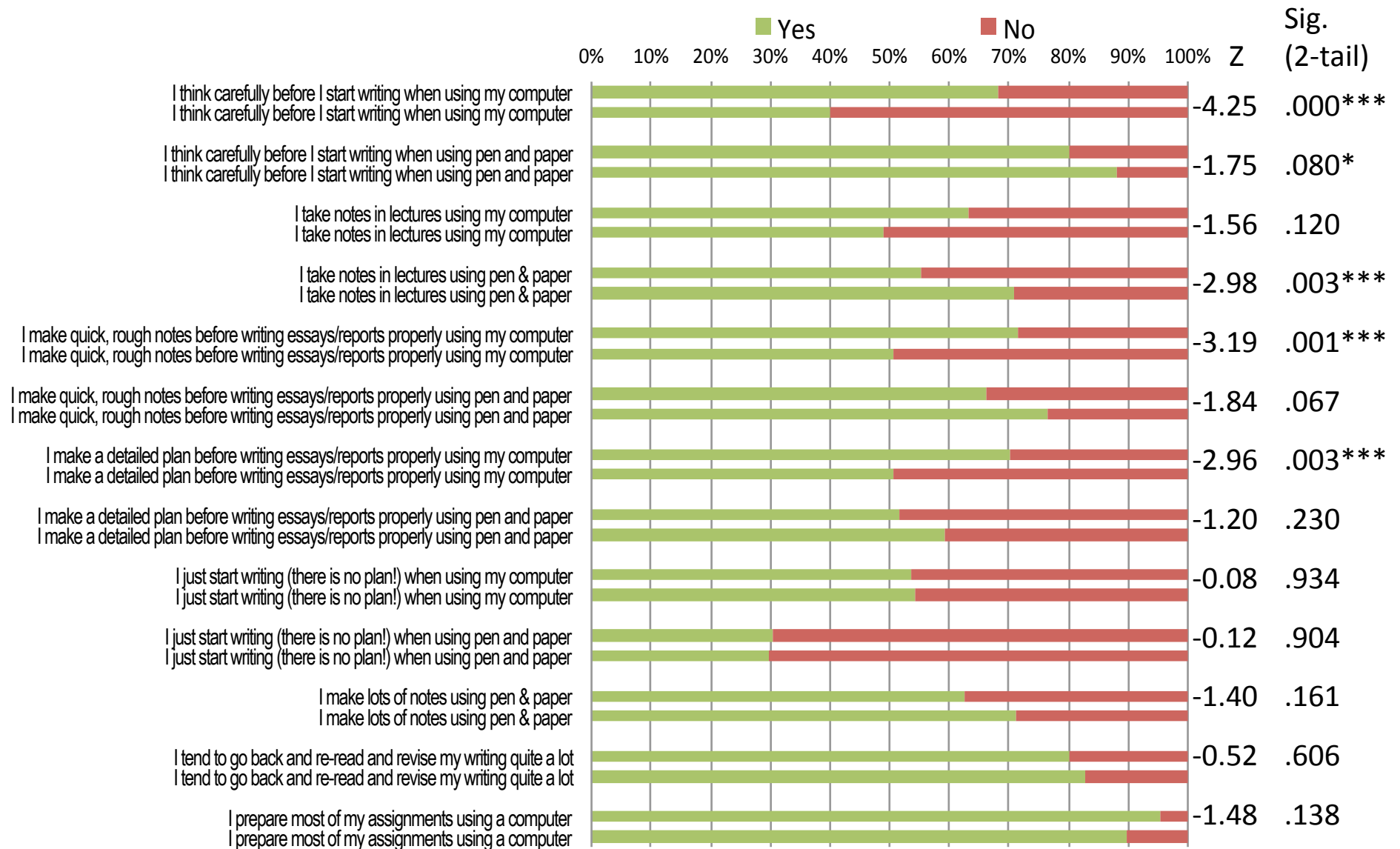


\* Note - Many of those that hand-wrote their exam had no prior experience of using a computer for an exam so the results presented here are largely speculative on their part.

However, it is reasonable to assume that they drew on their general use of computers.

# Writing strategies under non-exam conditions – general writing habits:

All six cohorts. Response pairs: Typers (line 1) and Hand writers (line 2)



Nonparametric U & Z used to compare those who typed in the exam to those that hand wrote.

Note! The September 2014 edition of this chart was incorrectly reversed against the stats.

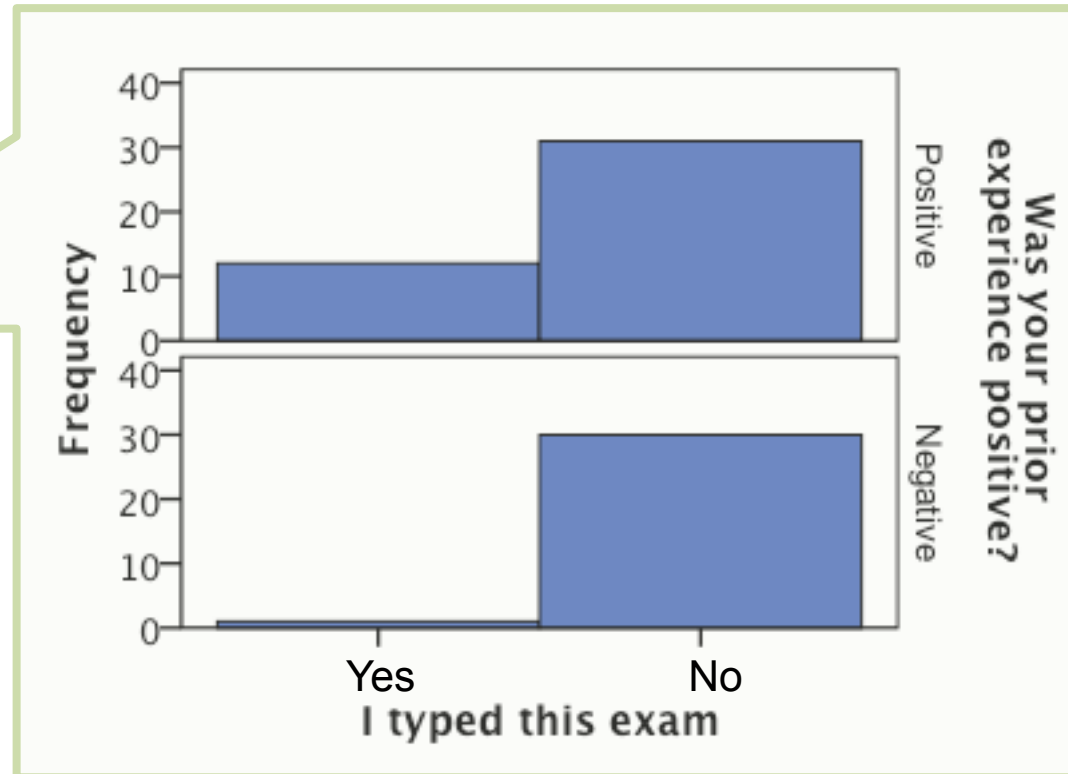
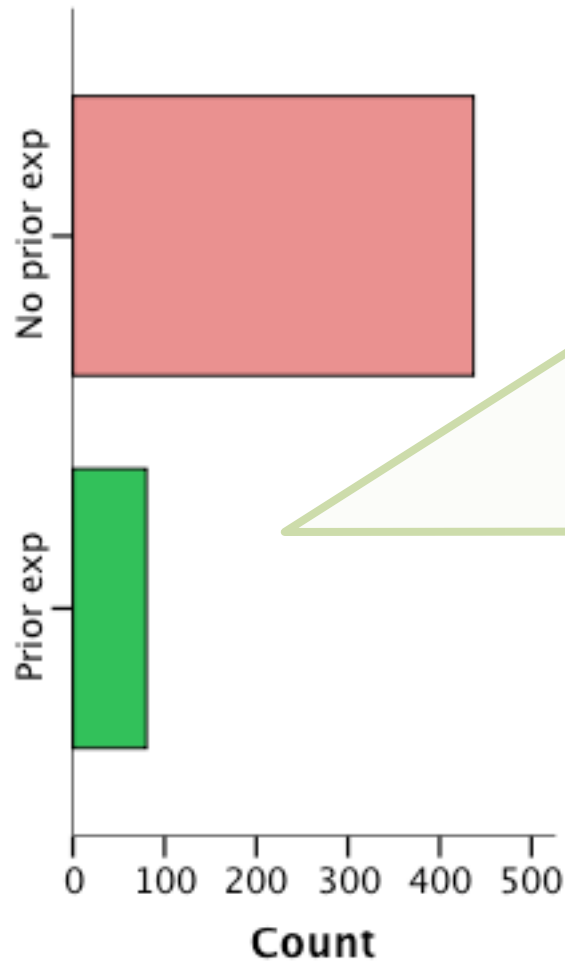
# Did the nature of prior experience of e-exams impact on the decision to type this exam?

All participants, all cohorts.

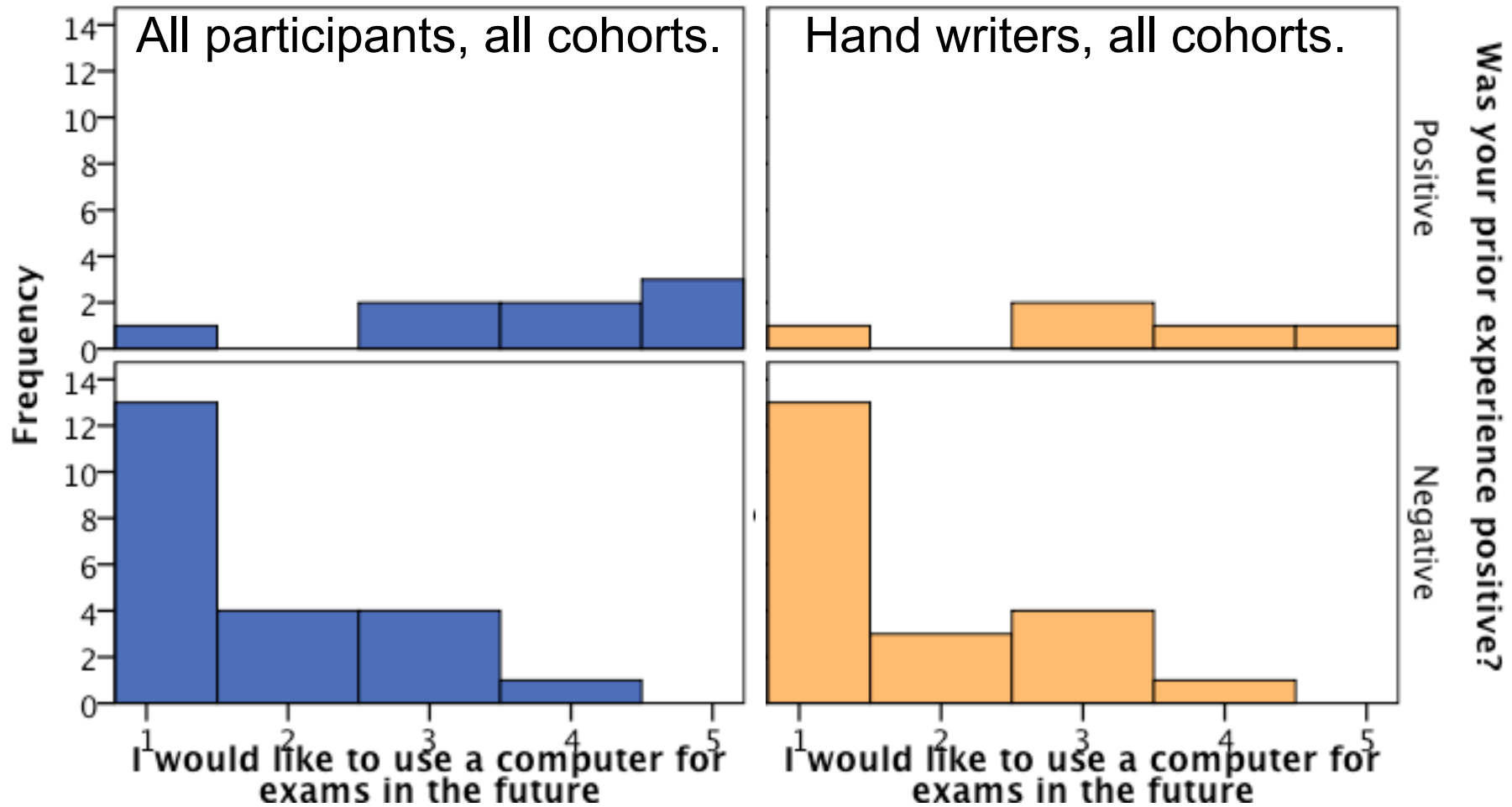
Of those with Prior exp.	All
Mann-Whitney U	502
Z	-2.734
Sig. (2-tailed)	>.01

Looks like a 'yes'!

Before this exam, I had used a computer to type responses to a short answer or essay style exam.



## Does the nature of prior experience of e-exams impact future intended use?



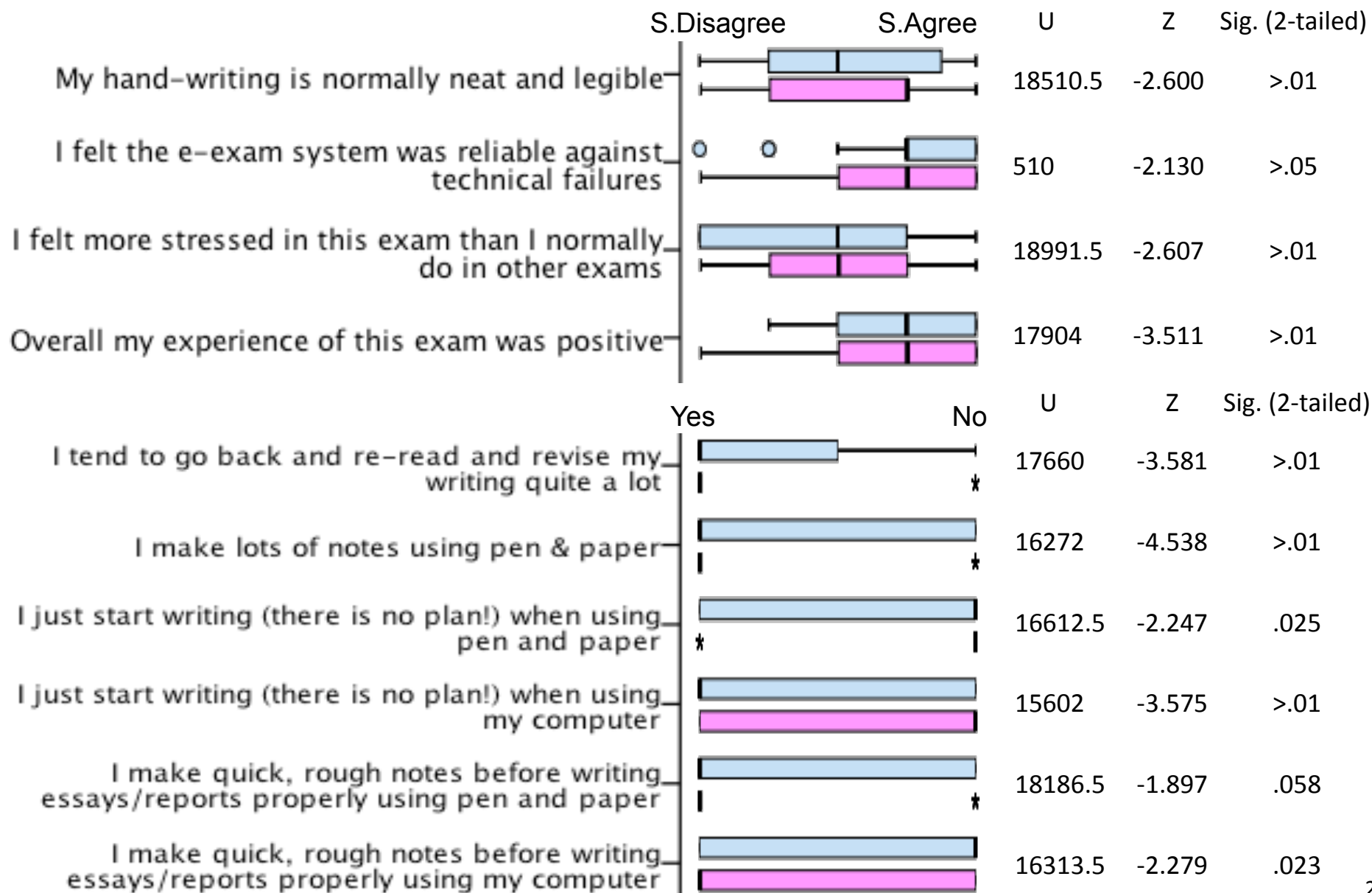
	All	Hand writers
Mann-Whitney U	22.5	21
Z	-3.262	-2.248
Sig. (2-tailed)	>.01	>.05

Looks like a 'yes'!

# The role of gender in exams and writing habits

All participants, all cohorts. 9 out of 52 items were significant with one coming close.

The significant items are shown below with Male (Line 1) and Female (Line 2).



# The Next phase: Post-paper exams with multimedia

**UQ 2015? TBA:** Post-paper exams via word processor (used at UTAS)

Include links to on-board media, PDFs and other software tools.

The image shows a computer screen with a word processor window and a video player window. The word processor window displays exam questions:

- Please describe the picture shown below.  
Please write your answer below this line.
- Click on [this link](#) or open the file in the Materials folder.  
Please write your answer below this line.
- Place a drawing of yourself below (you can use the GIMP as described on your student eXAM page).  
Please put your answer below this line.
- View the video file by clicking on [this link](#) in the Materials folder.  
a) Could you see the video playing on your screen?

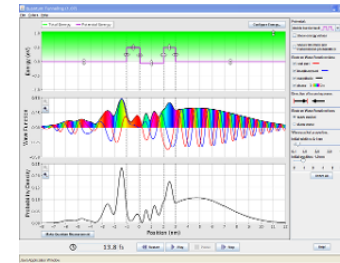
The video player window shows a simulation titled "GENOMICS DIGITAL LAB". The simulation interface includes a "PLANT PROPERTIES" panel with the following data:

PLANT PROPERTIES
LIGHT: 100%
GASES: CARBON DIOXIDE: 100% OXYGEN: 100%
LIQUID: WATER: 100%
CHLOROPLAST: 100%
LIGHT REACTION: 0:47 / 1:18
SUGARS: 0

The simulation also shows a "WHERE THE CHLOROPLAST THE LIGHT REACTION TAKES PLACE" section with a diagram of a chloroplast and various organelles. The video player shows a progress bar at 0:27 / 1:18.

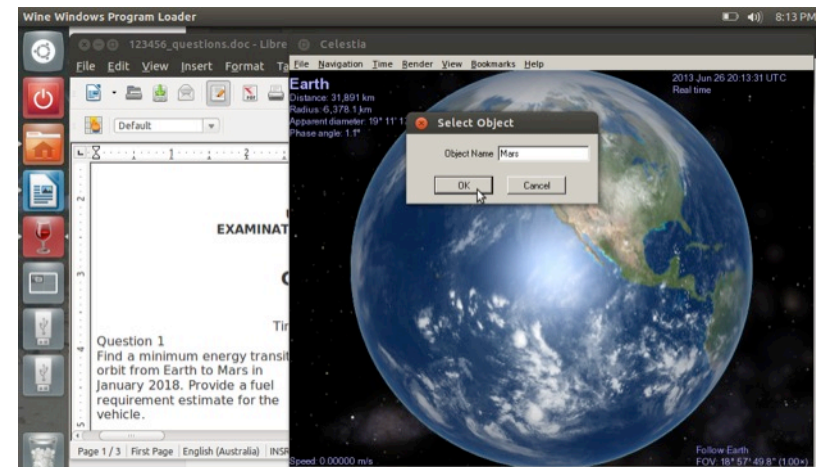
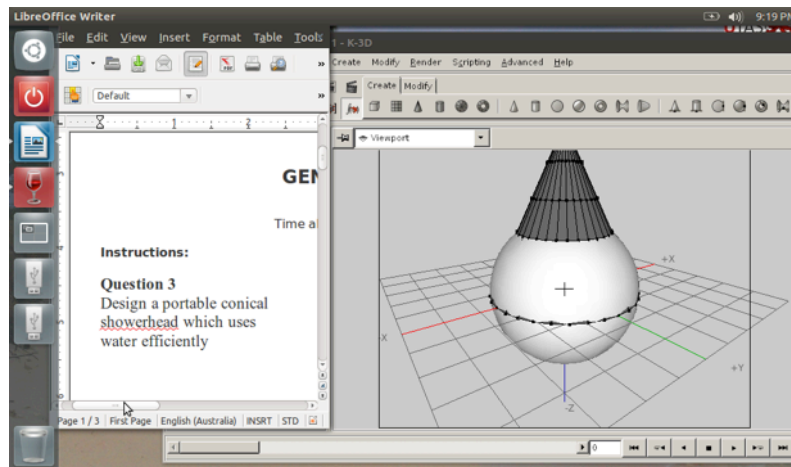
# The next phase: can include software tools

Simulations, tools, virtual experiments, serious games...  
Business, history, language/communication, science labs...



More examples <http://www.transformingassessment.com/moodle/course/view.php?id=38>

Including 'Windows' software; CAD / 3D modeling, Celestia via WINE



Ref: Dr Fluck, UTAS

# The Future: LMS on e-Exam v5 (Demo)

**Computer marked question types** via on-board LMS (new to v5) with Integrated multimedia – high def video is possible!

*Trials TBA!*

The screenshot shows a web browser window titled "Start e-Exam Demo" with the URL "localhost/moodle/mod/quiz/attempt.php?attempt=2". The page displays a navigation sidebar on the left with a "QUIZ NAVIGATION" section for user "John Smith", showing question numbers 1 through 14. The main content area contains an "Information" box stating that most questions are computer marked, followed by "Question 1" (a true/false question about Moodle) and "Question 2" (a matching question with the answer "matching" entered in a text box).

This close-up shows two questions. The first is an audio question: "Listen to the audio and choose the appropriate response - what did you hear?" with a 0:25 audio player and three radio button options: "a. The sound of an elephant.", "b. The audio didnt work for me.", and "c. The sound of a bird." (option c is selected). The second question is a video question: "Can you play the video and hear the sound?" featuring a video player showing a 3D scene with a yellow sphere and other objects. Below the video are three radio button options: "a. I get nothing", "b. I can play the video and hear the sound." (option b is selected), and "c. I can play it, but can not hear any sound."



# The Future: Advanced Example - Virtual 3D Spaces

Proposal for offline Virtual OSCE, practicals etc. Technology is already working 'online'.

1 Click on the link for Question 1 on the external web page. Use the emission and absorption spectroscopy tool below to determine the element corresponding to the colour orange-red in the gas discharge tube.

Marks: 1

Choose one answer.

- a. sodium
- b. copper
- c. neon
- d. barium

*Data flows as if the student was doing the activity in the LMS*



Set up Quiz in the LMS. Results are stored in the in grade book.

Screenshot of Moodle SLOODLE Controller configuration page. It shows a list of SLOODLE objects for configuration, including Choice, LoginZone, HotSpot, Password Reset, Presenter, PrimDrop, Quiz Chair, Quiz Pile-On, Registration/Enrolment Booth, SLOODLE Set, Second Life Tracker, Sloodle API HQ, Sloodle Award System, Vending Machine, and WebIntercom.

Attempts: 16

Showing graded and ungraded attempts for each user. The one attempt for each user that is graded is highlighted. The grading method for this quiz is **Highest grade**.

	First name / Surname	Started on	Completed	Time taken	Score/10	#1	#2	#3	#4
Geoffrey Crip	Geoffrey Crip	5 May 2010, 08:09 PM	9 November 2010, 09:50 PM	184 days 2 hours	3.5	0/2.5	2.5/2.5	0/2.5	0/2.5
		29 June 2010, 02:53 PM	9 November 2010, 09:50 PM	129 days 6 hours	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
		4 July 2010, 02:46 PM	9 November 2010, 09:50 PM	122 days 7 hours	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
		4 July 2010, 03:22 PM	9 November 2010, 09:50 PM	122 days 6 hours	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
		4 July 2010, 04:14 PM	9 November 2010, 09:50 PM	122 days 7 hours	3.5	2.5/2.5	2.5/2.5	2.5/2.5	0/2.5
		9 July 2010, 02:41 PM	9 November 2010, 09:50 PM	120 days 7 hours	3.5	0/2.5	2.5/2.5	0/2.5	0/2.5
		9 May 2010, 09:04 PM	9 November 2010, 09:50 PM	184 days	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
		4 May 2010, 10:19 AM	9 November 2010, 09:50 PM	183 days 11 hours	3.5	0/2.5	2.5/2.5	0/2.5	0/2.5
		4 May 2010, 10:25 AM	9 November 2010, 09:50 PM	183 days 11 hours	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
		6 May 2010, 12:52 PM	9 November 2010, 09:50 PM	183 days 8 hours	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
		6 May 2010, 07:12 PM	9 November 2010, 09:50 PM	183 days 2 hours	3.5	0/2.5	2.5/2.5	0/2.5	0/2.5
		7 May 2010, 12:28 PM	9 November 2010, 09:50 PM	182 days 9 hours	3.5	0/2.5	2.5/2.5	0/2.5	0/2.5
		3 June 2010, 03:47 PM	9 November 2010, 09:50 PM	155 days 6 hours	3.5	0/2.5	2.5/2.5	0/2.5	0/2.5
		16 June 2010, 05:25 PM	9 November 2010, 09:50 PM	142 days 4 hours	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
		7 May 2010, 03:44 PM	7 May 2010, 03:45 PM	31 secs	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
		29 June 2010, 03:36 PM	29 June 2010, 03:36 PM	24 secs	5	2.5/2.5	2.5/2.5	0/2.5	0/2.5
	<b>Overall average</b>				<b>6.25</b>	<b>2.5/2.5</b>	<b>2.5/2.5</b>	<b>1.25/2.5</b>	<b>0/2.5</b>



A set of scripts for Moodle and VW that acts as a bridge.

3D virtual world interface showing a student in a virtual lab. The interface includes a 'Chemistry' sign, a molecular model, a 'Physics' sign, and a 'Blood Pressure Cuff' object. A text box displays a quiz question about centripetal force. A 'START' button is visible on a screen.

Student undertakes assessment in the virtual world



# Remote connection to networked LMS

## Computer marked question types via institutional LMS

Needs network. Provides a restricted gateway – e.g. demo can *\*only\** connect to UQ Blackboard (IP address) and no other server. New to v5.

Trials TBA – *dependant upon reliable/robust network connections!*

The image displays two screenshots of the Blackboard Learn interface. The top screenshot shows the 'Preview Test: Example test - e-exam mode' page. The page header includes 'THE UNIVERSITY OF QUEENSLAND AUSTRALIA' and 'eLearning@UQ'. The main content area contains a table with the following details:

Description	Example test to try marking (Normally the description of the test for students would appear here)
Instructions	Normally the instructions for students would appear here
Timed Test	This Test has the time limit of 1 hour. You are notified when time expires, and you may continue or submit. Warnings appear when <b>half the time, 5 minutes, 1 minute and 30 seconds</b> remain. <i>[The timer does not appear when previewing this Test]</i>
Multiple Attempts	Not allowed. This Test can only be taken once.
Force Completion	Once started, this Test must be completed in one sitting.

Below the table, there is a section for 'Question Completion Status:' and a warning: 'Moving to another question will save this response.' The current question is 'Question 1' with a value of '10 points' and a 'Saved' status. The question text is 'What is two times twenty-one?' and the answer '42' is entered in the input field.

The bottom screenshot shows the 'Learn.UQ' login page. It features the University of Queensland logo and the text 'Learn.UQ'. There are input fields for 'USERNAME:' and 'PASSWORD:', and a 'Login' button. At the bottom, there is a small text block: 'Staff and students: To log into Blackboard use your UQ username/student ID and password. If you don't know your password contact the ITS Helpdesk on 07 336 56000 or 1300 738 052 (australia, wide), or by email: Supportdesk@uq.edu.au'

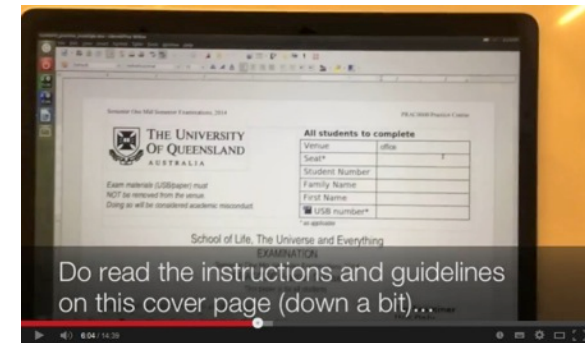
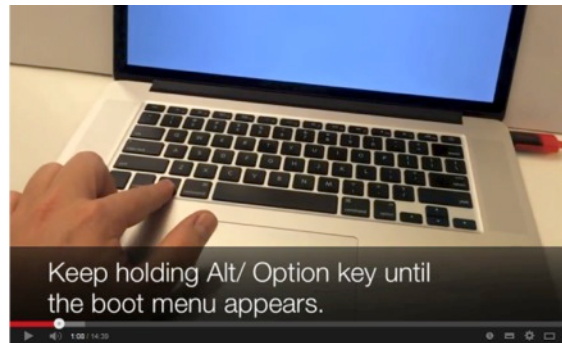
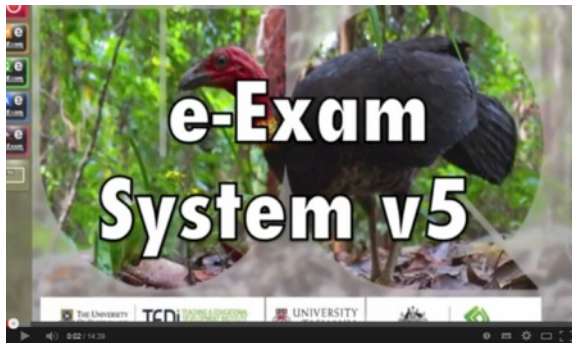
# e-Exam Project Resources

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>

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# Cite

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