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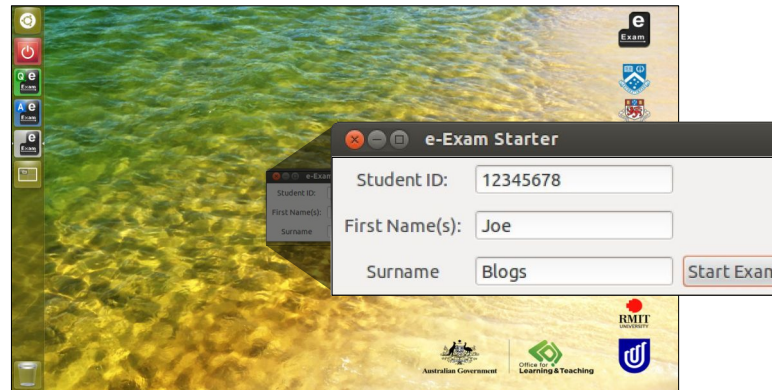
A Scalable Examination Platform For BYOD Invigilated Assessment



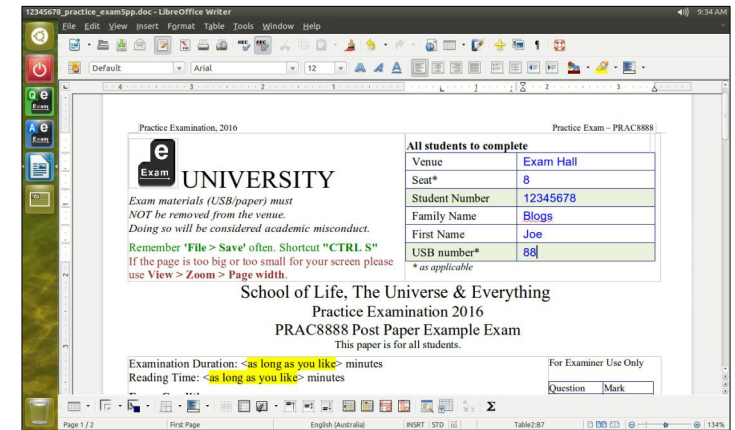
National e-Exam System Trials: Phase 1 Paper-equivalent e-Exams

Paper equivalent exams: students choose pen or keyboard.
Post-paper exams: everyone types.
Uses a fully functioning word processor.

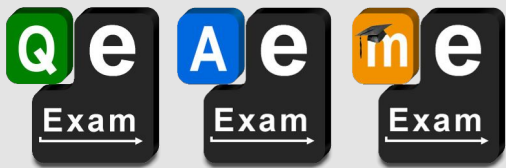
▶ 1) Boot your laptop with the e-Exam USB stick.
After the system has started, enter your student ID and name then click 'Start Exam'.



▶ 2) The exam file will be prefixed and labelled with your id, then opened ready to enter your responses.



Question paper and responses



LMS Moodle exams coming soon!

Typical e-Exam trial timeline

Pre-semester: Trial arranged with unit leader and a customised plan developed.

Week 1 to 3: Students choose to type or handwrite exam via online form.

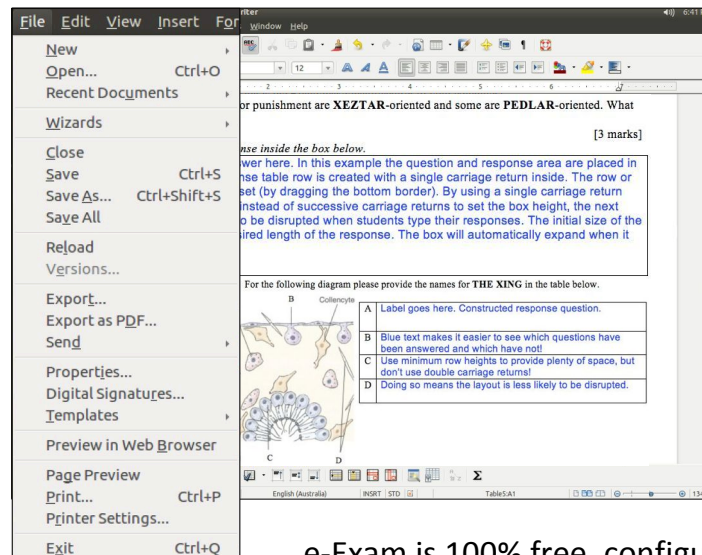
Two weeks prior to exam: Typists go to setup/practice session.

On the day of the exam: students who are typing bring along their laptop, a wired mouse and go to the assigned room while others handwrite with pen-on-paper.

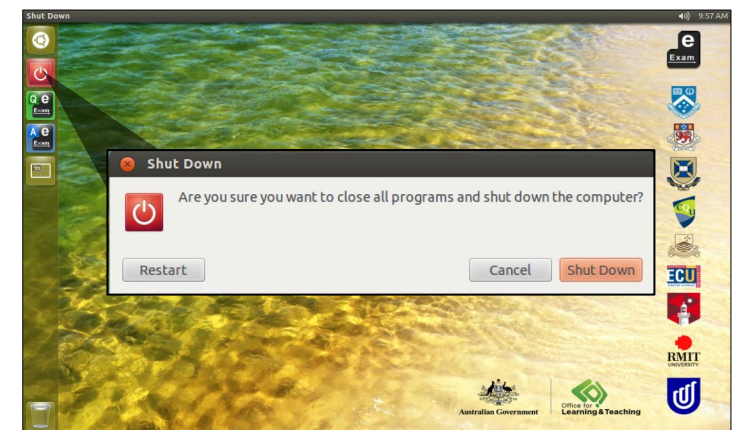
At the end of the exam: all students will be asked to complete a post-exam survey.

Project information and participation consent forms are available upon request.

▶ 3) Auto save occurs every 2 minutes. Manually save the document at any time. Use Exit when you are done.



▶ 4) When ready to hand-in your exam click the red 'shut down' button to close down properly.



▶ 5) Hand back the e-Exam system USB stick.



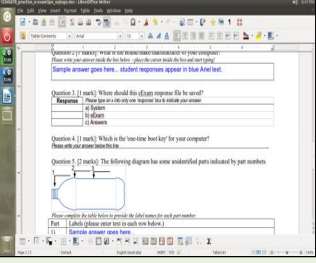

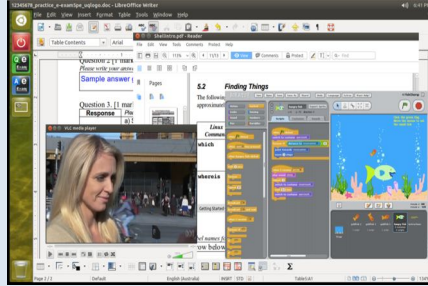
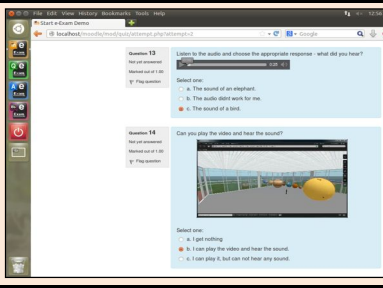

An Innovation and Development Grant: 2016-2018

e-Exam is 100% free, configurable, open source - contact mathew.hillier@monash.edu

Strategy for scaling up pedagogically rich e-Exams at an Institution

You must crawl before you can fly!

The timeline duration is relative to the conditions at each institution

Start	>>>	> current phase 1 trials >	>>>	>>>	>>>	>>>	Future >
	Get Ready Institutional approvals, Research Ethics, Hardware and infrastructure.	Phase 1 Paper equivalent small scale. Basic doc exams only to begin! Crawling	Phase 2 Post-paper small to medium scale. Expanding the media landscape. Walking	Phase 3 Medium to large scale. Adding the power of an LMS. Running	Phase 4 Whitelisted and logged Internet Network during BYOD exam. Jumping	Phase 5 Open but fully logged Internet Network during BYOD exam. Flying!	
Type 1: Paper equivalent (e-Exams via word docs) 		Type 1: Paper equivalent e-Exams via word docs Students given choice to type or handwrite. Small numbers of typists ~ 20 to 50 on a first come basis. Simultaneous, on campus, supervised. No live network. Paper fallback/alt. BYO student laptops, Venue power sockets, spare laptops. Data collection, analysis, evaluation.	Type 1: Paper equivalent e-Exams via word docs Students given choice to type or handwrite. Medium numbers ~ 100-200. Simultaneous, on campus, supervised. No live network. Paper fallback/alt. BYO student laptops, Venue power sockets, spare laptops. Data collection, analysis, evaluation.	Type 1: Paper equivalent e-Exams via word docs Students given choice to type or handwrite. Large numbers ~ 200+ Simultaneous, on campus, supervised. No live network. Paper fallback/alt. BYO student laptops, Venue power sockets, spare laptops. Data collection, analysis, evaluation.	> Type 1 exams may continue alongside other exam types >		
	Type 2: Post paper (Word docs linked to media) 	Type 2.A: Post paper via word docs linked to media and other tools All students taking the assessment must type. Small to medium numbers ~ 50-200. Simultaneous, on campus, supervised. No live network. Docs linked to multimedia, 3rd party apps, simulation, PDF, etc. BYO student laptops, Venue power sockets, spare laptops. Data collection, analysis, evaluation.	Type 2.A: Post paper via word docs linked to media and other tools All students taking the assessment must type. Medium number of typists ~ 100-200. Simultaneous, on campus, supervised. No live network. Docs linked to multimedia, 3rd party apps, simulation, PDF, etc. BYO student laptops, Venue power sockets, spare laptops. Data collection, analysis, evaluation.	Type 2.A: Post paper via word docs linked to media and other tools All students taking the assessment must type. Medium number of typists ~ 100-200. Simultaneous, on campus, supervised. No live network. Docs linked to multimedia, 3rd party apps, simulation, PDF, etc. BYO student laptops, Venue power sockets, spare laptops. Data collection, analysis, evaluation.	Type 2.B: Post paper via word docs linked to media and select online refs All students taking the assessment must type. Large numbers ~ 200+ Simultaneous, on campus, supervised. Whitelist Internet. Docs linked to multimedia, 3rd party apps, simulation, PDF, etc. Mix BYO student laptops, Venue power sockets and Lab PCs. Data collection, analysis, evaluation.	Type 2.C: Post paper via word docs linked to media, open research online All students taking the assessment must type. Large numbers ~ 200+ Simultaneous, on campus, supervised. Fully logged open internet. Docs linked to multimedia, 3rd party apps, simulation, PDF, etc. Mix BYO student laptops, Venue power sockets and Lab PCs. Data collection, analysis, evaluation.	
		Type 3: On-board LMS (Moodle) 		Type 3.A: On-board LMS (Moodle) All students taking the assessment must type. Medium numbers of typists ~ 100-200 Simultaneous, on campus, supervised. No live network. On-board Moodle quiz tool. BYO student laptops, Venue power sockets, spare laptops. Data collection, analysis, evaluation.	Type 3.B: On-board LMS, online refs All students taking the assessment must type. Large numbers ~ 200+ Simultaneous, on campus, supervised. Whitelist Internet. On-board Moodle Quiz tool. Mix BYO student laptops, Venue power sockets and Lab PCs. Data collection, analysis, evaluation.	Type 3.C: On-board LMS, open research online All students taking the assessment must type. Large numbers ~ 200+ Simultaneous, on campus, supervised. Fully logged open internet. On-board Moodle Quiz tool. Mix BYO student laptops, Venue power sockets and Lab PCs. Data collection, analysis, evaluation.	
					Type 4: Online/Networked (Mixed mode) 	Type 4.B: Online/Networked. Mixed Mode, online refs All students taking the assessment must type. Medium numbers of typists ~ 100-200 Simultaneous, on campus, supervised. Whitelist Internet. Online LMS (Blackboard, Canvas, D2L etc.), on-board LMS, remote desktops, docs, media, sims, apps Mix and match! Mix BYO student laptops, Venue power sockets and Lab PCs. Data collection, analysis, evaluation.	Type 4.C: Online/Networked. Mixed Mode, open research online All students taking the assessment must type. Large numbers 200+ Simultaneous, on campus, supervised. Fully logged open internet. Online LMS (Blackboard, Canvas, D2L etc.), on-board LMS, remote desktops, docs, media, sims, apps Mix and match! Mix BYO student laptops, Venue power sockets and Lab PCs. Data collection, analysis, evaluation.

Our Take on e-Exams

- ◆ Expand the pedagogical landscape in the exam room!
- ◆ Balance authentic pedagogy, academic integrity and efficiency.
- ◆ Gives teachers the power to design authentic, rich, constructed tasks for supervised assessments.
- ◆ Students can use a full office suite, drawing tools, coding, multimedia, Moodle LMS, plus discipline specific tools via a plug-in architecture to construct their response.
- ◆ Exams can be set and typed in a range of languages.
- ◆ Focused towards 'on-campus', supervised assessments where all students sit at the same time. Off-campus exams are possible but still require investigation. Internet 'remote proctoring' is possible but is not recommended due to current technology services being open to exploits (further information available upon request).
- ◆ Sequential groups with document based exams use different versions or question banks via a LMS based exam (see exam type 3 & 4).
- ◆ BYO laptops for hardware provision - Apple and 'Windows' computers. Lab computers can be used, but do not scale-up to large numbers. Where a mix of BYOD and Labs are used, the e-Exam System provides a consistent student experience on all compatible computers.
- ◆ Use e-Exam System by starting from a 'live USB stick' that contains a customised operating system, rather than from the internal hard-disk drive.
- ◆ The institution has full control over software and data access without installing any invasive 'lock-down' software in student's computers. All computers are left untouched following the exam. The compatibility of each student's computer can be reliably determined once. Upgrades to the student's system won't impact the e-Exam System.
- ◆ We differentiate 'Online' exams that use a live network during the exam, while in 'computerised' exams a network is prohibited or optional. In phases 1 to 3 there is no network during the exam. Using a network during the exam increases the requirement for a highly robust infrastructure and the risk of a single point of failure affecting the whole cohort. By avoiding networking during the exam any technical failure is brief and limited to an individual, and easily addressed using current exam room protocols.

Enquires to Dr Mathew Hillier (project leader): mathew.hillier@monash.edu

Partners: Monash University, University of Tasmania, University of Queensland, Central Queensland University, Australian National University, Edith Cowan University, RMIT University, Macquarie University, University of South Australia.

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