Scalable Authentic Assessment in the Information Age (A Year of Living Dangerously)

Cliff Ashford
Delivery Lead, eSolutions, Monash University
OUR GLOBAL FOOTPRINT

100+ partner universities

PRATO, ITALY
MUMBAI, INDIA
KUALA LUMPUR, MALAYSIA

SUZHO, CHINA

MELBOURNE, AUSTRALIA LOCATIONS:
CLAYTON | CAULFIELD | PARKVILLE | PENINSULA

STUDY ABROAD EXPERIENCES
900+
INCOMING TO AUSTRALIA

4500+
OUTGOING TO PLACES AROUND THE WORLD
Any idea what he’s doing?
What?

Creation
- Ways to test knowledge
- Validating method
- Reuse / Rework
- Security

Staging
- Quality Assurance
- Scheduling
- Risk Planning
- Security
- Measurement

Sitting
- Invigilation
- Monitoring
- Medical
- Cheating
- Security
- Measurement

Marking
- Management
- Bias
- Adjustment
- Security
Why?

**Sacks of Paper**

**Human Error**

**Administration by Whiteboard**

**Analytics**

**Authenticity**

**Student Experience**
MONASH UNIVERSITY ADMINISTERS 360,000 SITTINGS ANNUALLY

125,000 ON CAMPUS (PER SEMESTER)

<table>
<thead>
<tr>
<th>Semester One 2018</th>
<th>Semester Two 2018</th>
<th>Semester One 2019</th>
<th>Semester Two 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>10,000</td>
<td>37,000</td>
<td>40,000</td>
</tr>
</tbody>
</table>

CONVERSION 31%
Who?

Assessment Services
Operational exam delivery, event management, venue set up, invigilation, exam creation, BYOD, contingency arrangements, delivering at scale.

Technology
Platform stability & robustness, security, wi-fi, scalability, technical development, user experience, laptops, BYOD, venue fit-out.

Pedagogy
Authentic assessment, sound pedagogical design, faculty and student engagement, education innovation.

Vern Garth, Assoc. Director, Exam Services, SEBS

Cliff Ashford, Delivery Lead, eSolutions

Kris Ryan, Academic Director Education Innovation
Who?
Timeline...

SMALL PILOT

- 3 Units
- Faculty of Law, Business & Economics, IT
- Vendor managed – software and hardware
- 100 Students per sitting
- Multiple Choice + Short Answer
- Wi-Fi Network

"We need to do something in this area..."
Timeline...

MARKET SCAN
- 5 VENDORS
- 7 LOCAL AND INTERNATIONAL UNIVERSITIES

RE-EXAMINE ORIGINAL REASONING
- CORE FUNCTION OF AN INSTITUTION
- MASTERS OF OWN DESTINY
- FOCUS ON STUDENT EXPERIENCE
- UNDERSTAND ALL ASPECTS OF HIGH RISK ACTIVITY
- MOVE BEYOND THE CONCEPT OF ‘EXAMS’
Timeline...

Let's do it ourselves...
- Express a vision
- Identify platform
- Choose a partner
- Convince the university
- Engage with students
- ... and later staff

Plan for the future
Build for the now
- Get everyone we can off paper
- Initiate BYOD Policy, but provide laptops now
- Ensure absolute reliability
- Focus first on largest impact - students
- Engage key innovators in the future state
Increased cost per EFTSL

Student benefits in one unit or occasional

Student benefits once or twice

Student often benefits

Improved Educational Proposition

Worse educational proposition

Decreased cost per EFTSL

Non Negotiables

- Scalable
- Interdisciplinary applications
- Focus on student outcomes
- Plan for evidence
- Plan for transition
- Independent risk assessment
The Money Slide

80% Online

Marking Long Form Questions

$7,000,000*

Savings Per Annum

*Based on Monash Findings combined with literature review
Opportunities

A Lean process by reducing manual handling, and possibilities for error.

Faster ROI by getting something working then iterate enhancements

Sustainable – Learn the problem space and never repeat mistakes.

Scalable efficiencies
Embracing automation and the flexibility of cloud services.

Best practice approach with analytics, security and privacy embedded from the beginning.
Partners
The System

1. What do we remember on Anzac Day?
   - a. The landing of the Australian and New Zealand Army Corps at Gallipoli, Turkey
   - b. The landing of the First Fleet at Sydney Cove
   - c. The arrival of the first free settlers from Great Britain

2. What are the colours of the Australian Aboriginal Flag?
   - a. Black, red and yellow
   - b. Green, white and black
   - c. Blue, white and green

3. Which of these is a responsibility of Australian citizens aged 18 years or over?
   - a. To attend local council meetings
   - b. To vote in elections
The Physical Implementation
Big, bold and Secure

Caulfield Racecourse

Triple Redundant Network Connection

Monash University
Infrastructure

- 56 Kilometres of Network Cable
- $80,000 Patch Leads
- 60 Video Cameras
- 850m Cable Ties
- 2 x 10GB Dark Fibre
- 40 Trolleys
- 1,500 Laptops
The Response
# Post Exam Surveys

<table>
<thead>
<tr>
<th></th>
<th># of actual sittings to date</th>
<th># of actual eExams units to date</th>
<th># of BYOD sittings to date</th>
<th># submitted answers to students survey</th>
<th># of responses answering all questions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34,541</td>
<td>153</td>
<td>2,490</td>
<td>10,915</td>
<td>10,507</td>
</tr>
</tbody>
</table>

## Student Survey Results

<table>
<thead>
<tr>
<th>Question</th>
<th>Positive (%)</th>
<th>Negative (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1. Suitability of hardware</td>
<td>84%</td>
<td>16%</td>
</tr>
<tr>
<td>Q2. Interface</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Q3. Benefits of in-question software features</td>
<td>71%</td>
<td>29%</td>
</tr>
<tr>
<td>Q4. Importance of handwriting over eExams</td>
<td>79%</td>
<td>21%</td>
</tr>
<tr>
<td>Q5. Preference of eExams over paper exams</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>Q6. eExams are less stressful than paper exams</td>
<td>57%</td>
<td>43%</td>
</tr>
<tr>
<td>Q7. Recommend use of eExams for other units</td>
<td>69%</td>
<td>31%</td>
</tr>
<tr>
<td>Q8. Role of eExams in HE</td>
<td>75%</td>
<td>25%</td>
</tr>
<tr>
<td>Q9. Prepare me for my discipline upon graduation</td>
<td>70%</td>
<td>30%</td>
</tr>
</tbody>
</table>
Focus Groups

**What they liked so far...**

- Overall, less time marking
- 100% legible responses
- Mark as soon as exam finishes
- Mark exams anywhere
- Chief examiners could track progress of batches
- Access to analytics
- Exam duration same as paper
- True blind marking
- Same as in-semester experience
- Future possibilities
- Mock exams prepared students

**What they want next...**

- Exam marking usability
- Question databank with analytics
- Extend question functionality
- Analytics locked until all marking complete
- Clearer processes within faculty
- Gradebook & Callista (SMS) integration
- Freehand support
“My goodness, this is absolutely wonderful. Where has this system been all my academic life..? no exam bags, ease of use of the system, sharing among markers, READING the student responses, no handwriting of marks, blinded marking...bloody brilliant.”

Associate Dean (Education)
Faculty of Pharmacy and Pharmaceutical Sciences
**Student Feedback**

**HEADLINE OUTCOMES**

- 77% of students would recommend e-Assessment to other students
- 70% of students would prefer taking an e-Assessment to a paper exam

“I really loved it, I wish my other exams this semester are also done through e-assessment. It’s so much easier to edit and clarify my thoughts and I think it helped improve the quality of my answers”

“Overall, being able to type the exam significantly aided my performance as I barely handwrite nowadays.”

**Invigilated and take-home Mock Exams**

**Drop-in Sessions**

**Co-designed Interface**

**Library Support**

**In-class Support Materials**
Where next?
Key Takeaways

MONASH SCALE
• 75 000 STUDENTS
• 360 000 ‘HIGH STAKES SITTINGS’
• 250 000 ON CAMPUS PER ANNUM

DEVELOPMENT TIMELINE
• DEVELOPMENT START – FEB 2018
• MAY 2018: 600 SITTINGS
• NOV 2018: 10,000 SITTINGS
• JUN 2019: 37,000 SITTINGS
• NOV 2019: 40,000 SITTINGS

OPERATIONAL SCALE
• VENUE CAPACITY 4,500 SEATS
• SUPPLIED 1,500 LAPTOPS

PROJECT SCALE
• TEAM 250 - 300 MONASH STAFF
• MANAGED SERVICE FOR AWS HOSTING

PRIMARY FOCUS AREAS:
  o STUDENT EXPERIENCE
  o RESILIENCE
  o AUTHENTICITY

MORE FLEXIBLE ASSESSMENT ENABLES BETTER LEARNING OPPORTUNITIES

ANY ASPECT MAY BE VETOED BY ANY OF THE THREE SPONSORSHIP AREAS
Any Questions?