The assessment triad and e-exams: integrity, authenticity, and scalability

Dr Mathew Hillier
Monash University

Dr Andrew Fluck
University of Tasmania

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Assessment Integrity and the Role of Exams
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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, work and life.
Three dimensions – Good e-Exams

Authenticity
- Relevant and rigorous
- Valid and identity verified

Integrity
- Authenticity

Scalability
- Doable and cost effective
- Relevant and rigorous

Pick two? ....
We need to strive for all three.
Triad - Requirements

Authenticity:
Enabling a broad pedagogical landscape for the assessment of 21st Century capabilities. Go beyond a ‘quiz’ paradigm. Use ‘tools of the trade’ (word processor, spread sheet, database, math, stats, graphics, multimedia, software dev, simulations, CAD, discipline tools). Flexible for open/closed book (restricted online, or isolated offline, e-resources). Data open for analytics.

Scalability:
Mix multiple computer marked question types as well as constructed and process problems. Large scale equipment provision ≈ BYOD. Reliable ≠ networks!? = optional.

Integrity:
Three dimensions - Which e-Assessment Approach?

Available now?

Quick

Good

Cheap

Authentic 21C Assessment, scalable, robust, secure?

Administratively efficient, low cost?

Pick two? ....

Authentic e-exams are not readily available off-the shelf. Investment and time required.
Writing Tools

Authentic

Not
Engineering Problem Solving

Authentic

Not

Question Text

Defining Answers

Place curly brackets "{\}" around numeric value(s) requiring blank response field(s). Example: \(3\times3=9\).

Range: Insert a pipe "|" between a range of values.

Example: The price is \((12.2|14.5)\). Student answer between 12.2 and 14.5 will be considered valid.

Scientific notation: A period MUST be used as the decimal point marker and the letter "E" or "e" for exponent.

Example: \((6.022E23)\) to express Avogadro's number.

Complex numbers should be in the form \((a + bi)\) where "a" and "b" need to have explicitly stated values.

Example: \((1+1i)\) is valid whereas \((1+i)\) is not. Similarly, \((0+9i)\) is valid whereas \((9i)\) is not.

Acceptable Characters

Only numbers, decimal point markers (period or comma), sign indicators preceding a number (e.g., -5), or spaces (e.g., as thousand separators, 5 000) are allowed within curly brackets.

NOTE: For scientific notation, a period MUST be used as the decimal point marker.

Any other characters (e.g., $ or %) can be placed outside brackets, if needed. For example: \(3/10\) = \((30)\)% (Only 30 will need to be entered in the blank response field.)

When defining a range of values, the value preceding the pipe "|" must be smaller than the value after the pipe (e.g., \((12.2|14.5)\)).

12\times15=180

\begin{itemize}
  \item a) The centre to the boundary
  \item b) The circle
\end{itemize}
Why e-exams?

SAMR Model
Substitution
Augmentation
Modification
Redefinition
Ruben R. Puenteedura

The value of the ‘e’ in e-exams.
What are others doing?
Finland – School sector – Abitti system

BYOD + USB
Wireless
Powerless
Scalable
Encrypted

Authentic assessments?
Finland – university sector

Security:
- Time
- Place
- Identity
- Datacentre
- Scalable?

Finland – university sector
Iceland

Map: Haskolatorg 204

Key: Available In Use Unavailable Off

Total: 41 In Use: 26 Available: 13 Unavailable: 0 Off: 2 (Refresh Rate 10 seconds)

Fetch

e-resources

Monitoring panel

Save
e-responses

Teachers
Switzerland – Safe Exam Browser (ETH Zurich)

Virtual machine detection
Application locking
High level network monitor
Communication blocking
Built on SEB
Our e-Exam Project...

Aim for:

• Supervised
• High stakes
• On campus
• Large scale

(image credit: Dr Fluck UTAS)
# Phased implementation strategy

<table>
<thead>
<tr>
<th>Start &gt;</th>
<th>&gt; Current &gt;</th>
<th>&gt; &gt; &gt;</th>
<th>&gt; &gt; &gt;</th>
<th>&gt; &gt; &gt;</th>
<th>&gt; Future &gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get Ready</td>
<td>Phase 1</td>
<td>Phase 2</td>
<td>Phase 3</td>
<td>Phase 4</td>
<td>Phase 5</td>
</tr>
<tr>
<td>Institutional approvals, research ethics, hardware and infrastructure.</td>
<td>Paper equivalent small scale.</td>
<td>Post-paper small to medium.</td>
<td>Medium to large scale.</td>
<td>Whitelisted and logged Internet</td>
<td>Open but fully logged Internet</td>
</tr>
<tr>
<td>Crawling</td>
<td>Walking</td>
<td>Running</td>
<td>Jumping</td>
<td>Flying!</td>
<td></td>
</tr>
<tr>
<td>Basic doc exams to begin.</td>
<td>Expanding the media landscape.</td>
<td>Adding the power of an onboard LMS.</td>
<td>Network BYOD exam.</td>
<td>Network mixed mode BYOD exam.</td>
<td></td>
</tr>
</tbody>
</table>

http://ta.vu/e.exam-roadmap
It is a platform, not an app! ~ e-tools of the trade.
More information....

http://transformingexams.com

Demo videos start-up, use and recovery examples.

E-Exam project contact: mathew.hillier[at]monash.edu

Cite this resource