Exam Technology Landscape

• *How can technology benefit exam development?*
  • Provide a secure environment to upload/create and share exam questions with other instructors
  • Categorize potential exam questions by topic, outcome or learning objective
  • Create exams using these categorized questions
  • Deliver exam to students via computer lab, personal laptops (Mac or PC), iPads to take the exam in secure environment
  • Review analytics of exam questions
Exam Technology Landscape

- *What are some of common software programs?*
- Respondus
- Questionmark
- Examsoft
- Exambuilder
- Software Secure
- Blackboard
- Other options
Exam Technology Landscape

• How do these programs work?
  • Faculty log on to site with personalized password
  • Upload existing questions from your computer and/or create new questions in the site
  • Organize questions using standard categories or personalized categories you may create
  • Categories may include topics, learning outcomes, learning objectives or other methods
  • Select questions from your question bank to create exam
  • Share secure drafts with other instructors in course
Exam Technology Landscape

- *How is an exam created using such software?*
- May start with your previous test questions uploaded from your computer
- Or create new questions in the software
- Questions may be tagged by subject matter, difficulty, instructor, outcomes, objectives
- More than one category may be used to tag questions
Exam Technology Landscape

- How are exams administered using this software?
  - Set parameters of test (release date & time, total time to take exam)
  - Instructor may scramble test questions or answers to provide different proximate screen views to students
  - Exam is delivered in classroom or lab for students to download
  - All internet capability is locked down (students cannot access internet or notes)
  - When exam is completed, release results to students
  - Item analysis and other test metrics available for instructor to review
Exam Technology Landscape

- *What are considerations in using exam-building software?*
- There is an initial investment of time to build question databanks
- Once that process is complete, process to build an exam is simple
- You may include questions to test for future exams
- Software will alert you when you last used a question
- You can create a sample exam for student self assessment
Exam Technology Landscape

- What are other benefits software for exam building?
- Program assessment of student outcomes
- Curricular review and real-time outcomes
- Accreditation data
- Curriculum mapping in real time
- Longitudinal monitoring of student progress (both individual and cohort)
- Improvement of student exams and question development
Exam Technology Landscape

• [http://resources.examsoft.com/h/i/202828791-examsoft-demonstration/227173](http://resources.examsoft.com/h/i/202828791-examsoft-demonstration/227173)

• (2-minute video ExamSoft)
Test Question Pools

• Types of questions
Test Question Pools

- Question metadata

**CATEGORIES AND KEYWORDS**

*Click Add to add a Category, Topic, Level of Difficulty, or Keyword to the question. Click the X to complete list of Categories, Topics, Levels of Difficulty, or Keywords.*

<table>
<thead>
<tr>
<th>Categories</th>
<th>ID</th>
<th>Add Tag</th>
<th>OK</th>
<th>Choose from Existing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics</td>
<td>None</td>
<td>Add Tag</td>
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<td></td>
</tr>
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<td>Levels of Difficulty</td>
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<td>OK</td>
<td></td>
</tr>
<tr>
<td>Keywords</td>
<td>None</td>
<td>Add Tag</td>
<td>OK</td>
<td></td>
</tr>
</tbody>
</table>
Test Question Features

• Give partial credit
• Make test questions appear in random order
• Award extra credit
• Provide students with immediate feedback
• Create & associate rubrics with tests
Test Question Analysis

• Test question analysis
  – Difficulty
  – Discrimination value (>0.3 good; 0.1–0.3 fair; <0.1 poor)
    • Indicates how well a question differentiates between students who know the subject matter and those who do not. Uses Pearson correlation.
    • Discrimination values cannot be calculated when the question's difficulty score is 100% or when all students receive the same score on a question.
Lock Down

• Respondus LockDown Browser
  – Cannot print or copy assessment or screen
  – Cannot open new browser tab or window
  – Cannot open other applications
  – Cannot close assessment prior to completing it
  – Can provide students with calculator
• Students must download the app (free)
• Monitor (web cam)
OTHER SPECIAL FEATURES
Accessibility Exceptions

• “Availability” exceptions
  – Specific students
  – Extra time
  – Multiple attempts (for those who need extra time to learn the technology)
  – Availability extension
  – Screen readers
Achievements Tool

- Motivate students
- Reward milestone completion
Mobile compatibility tests

**Limitations**
Can only test mobile compatibility using a computer
Tests cannot be timed on mobile devices