



CEdMA Certification SIG

Friday January 21, 2011

9.00 am – 10.00 am Pacific

“Comparing Approaches to Certification Training”

Liz Burns, Juniper Networks

Joe Cannata, Brocade

Beverly Van de Velde, Symantec



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Comparing Approaches to Certification Testing

Beverly Van de Velde, Liz Burns, Joe Cannata





Agenda

- Paradigm shifts in testing – fact or fiction
 - Remote proctoring
 - Performance based testing
 - Provisional scoring and data forensics



Methodologies to Deliver Testing

- Computer-based testing
 - Unproctored
 - Proctored (local and remote)
- Performance based testing
 - Simulations or live hands-on labs
 - Proctored (local and remote)
 - Testing and interviewing

Remote Proctoring Innovators



- Face recognition authentication and keystroke biometrics
- Live testing session
- Requires generic web camera



- Fingerprint authentication
- Video taped testing session
- Requires proprietary hardware attachment



- Comprehensive document authentication and face recognition
- Live testing session
- Requires proprietary testing station



Innovations in Testing – Remote Proctoring

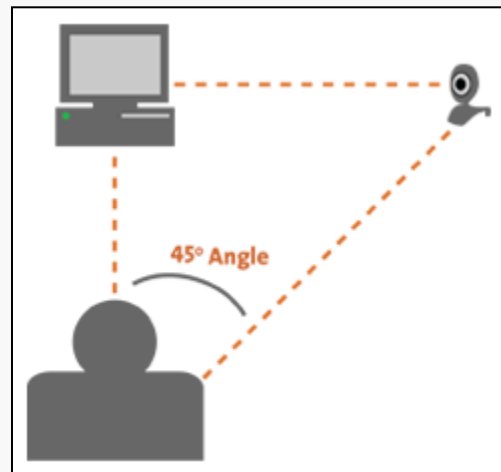
- Kryterion's solution
 - Webassessor Sentinel Security Shield™
 - Webcam with placement specifications
 - Lock down the computer
 - Keystroke monitoring but no logging
 - Strict testing environment requirements
 - 12 x 7 availability

KRYTERION™
ONLINE SECURE TESTING



Innovations in Testing – Remote Proctoring

- The camera must be set on a stand, to provide a view of the keyboard, hands and face, 45° to left or right of computer



- Disconnecting the camera forces a logoff

KRYTERION[™]
ONLINE SECURE TESTING

Innovations in Testing – Client Proctoring

- Kryterion's solution
 - Expands availability of testing at tradeshow
 - Schedule workstations with unique candidate codes
 - Deliver exams in real-time
 - Manage and track client proctors
 - Streamline implementation
 - Export/proofread once
 - No test publishing fees



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Remote Proctoring – Software Secure

- Focused on distance learning and academics
- Uses a proprietary camera, fingerprint authenticator
- Requires shipping of this device back and forth between candidate and vendor
 - Software Secure includes this in services offered
- Not live proctoring – video taped



Remote Proctoring – Innovative Exams™

- Uses specially built kiosk located where there is a critical mass of candidates
- Newest innovator in the space
- Used by Accenture and CompTIA
- Solution for test sponsors and large test consumers
- Document and facial recognition authentication
- Live proctoring sessions





Questions to You

- How many of you are considering remote proctoring for their programs?
- If so, for what parts of your programs; high stakes, low stakes, lower or higher level credentials?



Performance Based Testing

An examination approach wherein candidates must interact with real or simulated systems

- Direct ROI on Performance Based Testing difficult to achieve. Often depends on which is used:
 - Lab exams
 - Simulations/emulations
 - Scenario-based questions (loosely tied to performance-based)
- Some question if these are really a better measure of ability and knowledge
- Perception of candidates and employers is that they are better than traditional methods



Lab Exams – Benefits

- Accurately reproduces work environments
- Mirrors real-life job with a hands-on format
- Ability to deviate from a standard process or procedure to achieve an outcome
- Accurate assessment of effectiveness of delivered training
- Accurate assessment of student performance
- Increased success through increased credibility, validity, and adoption
- Better integrity by reductions in exam piracy and fraud



Lab Exams – Juniper Experience

- Relatively new at this
- Candidates LOVE these exams
 - Creates “prestige” for program and candidates
- At lower volumes (300/month) not making money
- Scalability requires automation, often customized
 - Lab automation
 - Registration and payment process
 - Grading
- No “silver bullet” yet on how to secure and scale



Lab Exams – Juniper Experience

- Exam development costly and time consuming
 - Three to six months to beta
- Require live proctoring and grading by technical resources
- Delivery, proctoring and grading create significant subjectivity and variability



Simulations

- Written in multiple languages
 - VB, Flash, Java
- Multiple branching paths required
 - Step scoring
- Narrowly focused
 - Examinee can't just poke around GUI
- Task being measured should be simple
 - Still stay within usual time per question values

Innovations in Testing – Scenario Testing

Testing

Tracking

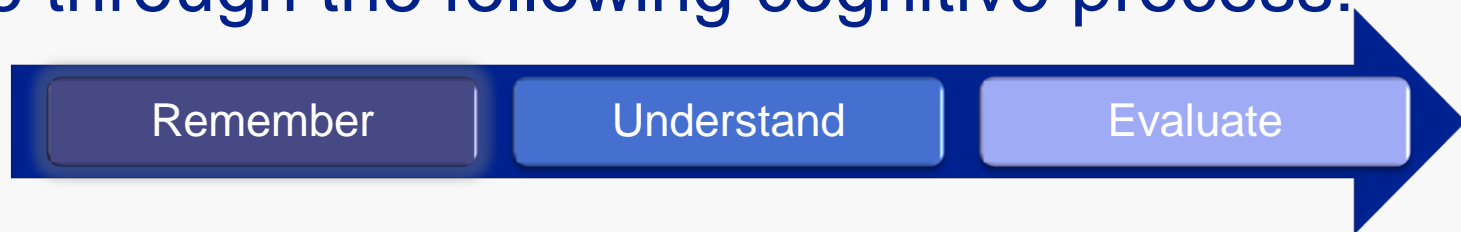
Recognition

- Use when simulation or performance-based testing is cost prohibitive
- Test beyond knowledge recall into deeper processes of comprehension and real world software application problem solving
- Apply cognitive complexity for defining objectives and writing items
- Develop scenario items with graphics



Innovations in Testing – Scenario Testing

- Candidates take longer to answer items requiring a higher level of cognitive complexity
- To answer scenario items correctly, candidates go through the following cognitive process:

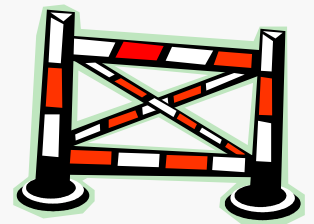


1. Recall knowledge by retrieving applicable knowledge from memory typically learned from training materials or having attended a course with hands on labs.
2. Understanding and applying that knowledge in order to form meaning from information while demonstrating comprehension of materials or processes in familiar or hypothetical scenario-based situations.
3. Analyze and evaluate to solve a problem by integrating new or given information with known information, criteria, or processes in order to make judgments, critical decisions, or formulate a solution.



Alternative Scoring Methodologies

- Delayed scoring
 - Protects answer key
- Provisional scoring
 - Prevents passing from fraud threshold violations
- Changes the landscape for cheaters
- Adds barriers to fraud





Provisional Solution

- Candidate provided a “preliminary pass” or a fail
 - Answer key is sent to TSP
- Results sent to vendor for analysis
 - Vendor defines fraud thresholds
- Final “pass” or “fail” comes only after complete data forensic analyses completed



Innovations in Testing – Delayed Scoring

- Alpine Testing Solutions



- Protect the exam key
- Make it more difficult for exam misconduct
- Keep exam answer keys separate from the TSPs
- Evaluate security of items / data forensics / psychometrics / policy violations
- Take appropriate action before allowing a score
- Automate arduous process for verifying violations





Innovations in Testing – Delayed Scoring

- How It Works
 - Ensure exam key protection and security detection prior to exam scoring
 - Key answers incorrectly at the testing centers
 - Notice patterns of misconduct with new types of security reporting
 - Delay processing of exam results
 - Respond to anomalies



Innovations in Testing – Delayed Scoring

- Benefits
 - Reduces exam development costs
 - Increases validity evidence for making pass/fail decisions
 - Protects program integrity and industry recognition
 - Protects intellectual property
 - Shifts control from the test service provider to the program/organization





Q & A

- Your thoughts?