

# **Managing Item Banks – Practical and Theoretical Issues**

**Brian Bontempo**  
**Mountain Measurement, Inc.**

**Fran Linart**  
**CompTIA**

**Casey Marks**  
**The National Council of State Boards of Nursing**

# Managing Item Banks – Practical and Theoretical Issues

## Agenda

- Introduction of the Speakers
- Overview of the Workshop Context
- Item Bank Management Issues
- Overview of the Item Lifecycle
- CompTIA Process
- NCLEX Process
- Mountain Measurement Perspective
- Questions & Answers

## Overview of the Workshop Context

- What is the most valuable asset of a testing program?

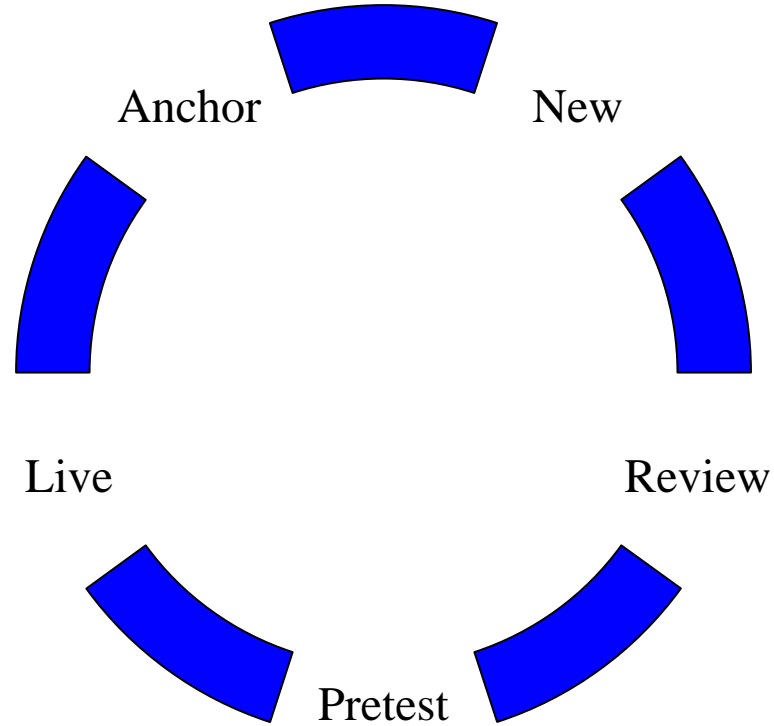
## Despite the Importance of Items...

- Missing Items
- Misunderstood Items
- Frustrated with access/control of Items
- Overwhelmed with the day to day management  
Items
- Security of Items

## Item Bank Management Issues

- Tracking items throughout the Item Lifecycle
- Managing Content
- Item Bank Security
- Interfacing with a Test Service

# Overview of the Item Life Cycle



## Galaxy of Item Statuses

- New
  - Ready for Review, Dead
- Reviewed (Editorial, Format, Bias, Key Validation)
  - Ready for Pretest, Ready for Revision, Dead
- Pretest Item Selection
  - Ready for Pretest, Ready for Revision, Good but Hold, Dead
- Pretest, Experimental, Beta-Test, Field-Test
  - Ready for Active, Ready for Revision, Ready for Re-pretesting, Dead
- Live Item Selection
  - Ready for Active, Good but Hold
- Active, Live, Operational, In use
  - Ready for Re-Active, Ready for Revision, Ready for Re-testing, Good but Hold, Dead
- Anchor Items, Linking Items

## CompTIA Process

- Not for profit trade association providing standards in certification, e-commerce, customer service, and workforce development!
- 11 certifications managed by 6 program managers
- We partner with multiple development vendors & multiple test delivery vendors
- 3 bullets are:
  - Item building
  - Interfacing with a test service provider
  - Security, security, and more security



## Item Building



Microsoft Word Document

### CRITICAL ISSUES

### QUALIFIERS

### RESOLUTIONS

Large item pools	<ul style="list-style-type: none"> <li>- Volunteers donate time</li> <li>- Volunteers “pay” their way</li> </ul>	Remote item writing! Items remain exam specific.
SMEs & Security	Identify, train, reduce item exposure, ensure security of items.	Collect / review / approve / NDA Item writing tool. Prosecution
Global	Localization	Not on beta items; documented processes
Quick turn around	New test = 9 months Test rev = 120 days	Remote item writing enables SMEs to write 800 items in a two week period.
Annual test update	Coordinate with trainers & publishers	Coordinate with trainers & publishers
Consistency	Multiple vendors, program managers, TSPs & SMEs	Processes, RFP template; style guide
Test publishing	Same look & feel at all test sites	Processes for QC, templates
Item banking	Security, security, security!	<ul style="list-style-type: none"> <li>• TSP tool / CD / Secure storage. Vendor destroy. Back-up, off-site storage</li> </ul>

## Item Building – Benefits!

- PLC: documented test development process providing benchmarks & standards for performance
  - Quality exams
  - Consistency
  - Improved processes / reduced costs
  - Security
- Large item pools: multiple forms; increased security

**2003 Goal: In-house item banking tool**

## NCLEX Process

- National Council of State Boards of Nursing (NCSBN) is a not-for-profit organization that assists 61 state and territorial boards of nursing with the regulation of Registered and Licensed Practical/Vocational nurses.
- The primary function of NCSBN is the development and administration of the National Nurse Licensure Examinations for Registered and Practical Nurses, the NCLEX-RN<sup>®</sup> and NCLEX-PN<sup>®</sup>
- Three areas of particular interest for NCSBN include:
  - Item Building
  - Interfacing with a Test Service
  - Managing Test Content

## NCLEX Process-Item Building

- Item development process governed by:
  - Examination format
    - Variable length CAT
    - Continuous administration
  - Candidate volume
    - dictates needs
    - defines pretest slots available
  - Examination changes
    - Test plan/passing standard
    - Item development/examination usage policies
    - Current items banks/pools
  - All volunteer item writing/reviewing
    - No compensation/expenses reimbursed

## NCLEX Process- Managing Test Content

- NCSBN staff manages process
  - In house staff of content experts
  - Examination Committee oversees and identifies needs
  - Test service turns NCSBN needs into items
- Use of item development tools
  - Allows continuous monitoring of item banks/pools
    - By NCSBN staff and Test Service simultaneously
  - Allows content management at item level
  - Dozens of variables per item recorded
    - Versioning
    - ‘Enemy’ items identified
    - Expired, ‘less than optimal’, pretest, and operational items stored and managed in one place

## NCLEX Process- Interfacing with a Test Service

- NCSBN uses a single test service for item development, psychometrics and test delivery
- Successfully completed a recent major CAT to CAT test service transition
- Key performance metrics for test service specified in contract
- Partnership between NCSBN and test service facilitates service beyond what is dictated in the contract

## Mountain Measurement, Inc.

- Psychometric Consultation
  - Item Banking
  - Item Response Theory
  - Computerized-Adaptive Testing
  - Standard Setting
  - Speededness (Time Limit)
- Test Development Services
  - Test Design
  - Test Construction
  - Psychometric Analyses
  - Standard Setting
- Testing Industry Software Products (coming soon)
  - Open Source Solutions

## Mountain Measurement Perspective

- Questions to ask yourself when determining an appropriate level of contact with your item bank if it is managed by a test service
- Guiding principals for developing an effective item lifecycle
- Tips for monitoring your content more effectively



## MM - What level of contact should I have with my item bank?

- Do you have staff dedicated to item development?
- How many item development cycles happen per year?
- Are you comfortable with the level of security (both network and building) that your organization can provide to the item bank?
- Are you prepared for managing or conducting test construction activities?
- Are you using your content for other purposes besides test development?
- Are you using your test data for research?

## MM - Guiding principals for developing an effective item lifecycle

- Develop a process flow
- Develop an item status schema
  - The fewer classifications, the better
  - Have a minimum N per classification
  - Design your item status schema to be in-line with your process flow
- Develop and use reports that provide details about where items are in the process
- Discuss the item bank at regular intervals
- Create and use milestones effectively in the process

## MM - Monitoring your content more effectively

- Use item statistics
- Use content classifications
- Code items with cognitive complexity categories
- Beware of key overuse
- Beware of item bias (DIF)
- Track item length (both in words and in time)
- When using multiple item types, monitor each type individually
- Monitor the items performance during the items live use
- Plan and focus your item development efforts using data from your item bank

# Questions and Answers

Thank you for attending!



Please remember to complete the session evaluation before leaving