

The James Madison University Story

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Quantitative and Scientific Reasoning Assessment

- 1997: New General Education program
- We piloted our first version of the test in 1996
- A revolution in assessment thinking
- 2006: Our NSF Grant was funded
- 2007: Our 9th version of the tests



How Do We Get People to Play?

We Want to Work Smarter, not Harder!

- We have an infrastructure for assessment
 - Center for Assessment and Research Studies
 - Uses an assessment liaison system
 - Dean of Undergraduate Studies
 - Oversees General Education, Advising, and other offices
 - Five Cluster Areas of Study
 - Cluster Steering Committees



These are Working Committees

- Chaired by the Cluster Coordinator
 - They have release time
- Representatives from every department with a course that counts toward General Education completion
- CARS assessment liaison assigned to each
- Committee work is **recognized** as service to the department and the university
- Quality assessment is a form of scholarship



Inferences About General Education

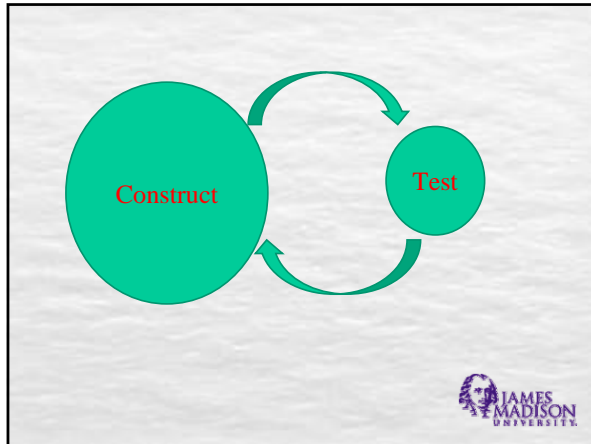
- It can take years to define meaningful learning objectives
 - Most institutions have not really completed this step successfully
 - Very difficult to write good items
 - Items cannot privilege one course over another
 - No factoids or trivial pursuit items
 - Takes you back to the construct again and again



We Modified Our Objectives

- At one time, we had 17 QR/SR objectives!
 - Finally reduced to 8
 - Content alignment exercises helped us
 - QR now has 2 objectives
 - We still cannot make inferences at the objective level
 - Need higher reliability estimates
 - We feel pretty confident talking about QR and SR now





Student Learning Objectives

- This is the Engine that drives assessment
- **QR Learning Objectives:**
 1. Use graphical, symbolic, and numerical methods to analyze, organize, and interpret natural phenomenon. (21 items)
 2. Discriminate between association and causation, and identify the types of evidence used to establish causation. (10 items)
- QR Test has 25 items (a few overlap)

Compelling Student Data

- Since Fall 2000, we have tested over
 - 8,000 Entering 1st-Year Students
 - 7,000 Sophomore and Junior Students
- We have improved our test 5 times
 - Version 6—now on Version 9
 - Reliability has improved:
 - QR: from .50 to .66
 - SR: from .54 to .74
 - We use fewer but better items

Compelling Student Data

- Our faculty are getting better at writing items
 - We are guided by the work of George Cobb at Mount Holyoke on how to write items
 - Our faculty write better items outside of their teaching area
 - That's when they are using General Education
 - Our students like this test

Compelling Student Data

- Questions We Can Answer:
 - Do Grades Matter?
 - Does Taking More Classes Improve Test Scores?
 - Do AP Courses Predict Performance?
 - Do JMU Courses Predict Performance?
 - Do Transfer Credits Predict Performance?
 - Do Students Change Over Time?
 - Do Students Perform at the Level Our Faculty Would Like to See?

Mapping Our Items to Objectives

- Our test items map to the objectives of other institutions:
 - *Truman State University: 100%
 - *Michigan State University: 98%
 - *Virginia State University: 97%
 - *St. Mary's University (TX) 92%
 - Virginia Tech 84%
 - Virginia CC System 78%
- Our NSF grant helped us to advance assessment of QR and SR with 4 partner institutions*

Other Institutions Like Our Tests

➤ **Other Scientific Reasoning Test Users:**

- Radford University
- East Stroudsburg University
- Liberty University
- University of Mary Washington
- University of Miami



Other Institutions Like To Use Our Tests

➤ Other Scientific Reasoning Test Users:

- Georgia Tech University
- Liberty University
- Radford University
- University of Mary Washington
- University of Miami
- Virginia Tech



Plans for the Future

- Work on using faculty expectations for student performance
- Developing a system for providing students with feedback on their performances
 - Using eCampus
 - Norm referenced interpretations
 - Criterion referenced interpretations
- Conducting our Self-Study this year



Questions?

Contact Information

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