



Analyzing Test Results

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Teaching Goals

Rate the importance of each goal to what you aim to have students accomplish in your course:

66% of CCAC faculty rated “learn concepts and theories of this subject” as essential

Teaching Goal Inventory survey, Fall 2005



Objectives of Today's Session

Attendees will be able to:

- Identify potentially misleading or flawed test items
- Create a test blueprint for matching test items to course learning outcomes
- Analyze how well students achieved learning outcomes
- Use this information to improve learning



Analyzing Results



Organizing Your Data



- After grading exams:
 - Sort them from highest to lowest score
 - Create a grid or spreadsheet to record the incorrect responses to each item for each student

Organizing Your Data

		← Students from High to Low Score →											
		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
T e s t I t e m s	Q1			x					x		x		
	Q2							x		x		x	
	Q3						x			x		x	x
	Q4										x		x
	Q5	x	x	x	x						x		x
	Q6							x				x	
	Q7						x		x	x			
	Q8												x
	Q9		x			x	x	x	x		x	x	x
	Q10							x					
	Q11				x				x	x	x	x	
	Q12			x	x	x	x					x	x
	Q13												
	Q14	x				x			x	x	x	x	x
	Q15												
	Q16		x			x		x					x
	Q17									x			x
	Q18						x				x	x	
	Q19												
	Q20								x	x			x



Difficulty



- What percentage of students answered each question correctly?
 - Take a close look at a question if more than half of the students answered it incorrectly.
 - Did student performance meet your own standard for easy or difficult items?

Difficulty

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# incorrect
Q1			x					x		x			3
Q2							x		x		x		3
Q3						x			x		x	x	4
Q4										x		x	2
Q5	x	x	x	x						x		x	6
Q6							x				x		2
Q7						x		x	x				3
Q8												x	1
Q9		x			x	x	x	x		x	x	x	8
Q10							x						1
Q11				x				x	x	x	x		5
Q12			x	x	x	x					x	x	6
Q13													0
Q14	x				x			x	x	x	x	x	7
Q15													0
Q16		x			x		x					x	4
Q17									x			x	2
Q18						x				x	x		3
Q19													0
Q20								x	x			x	3



Discrimination



- How well does each test item discriminate between high and low scorers?
 - Students who do well on the test should be more likely to answer any one item correctly.
 - Compare the number of incorrect answers from top and bottom performers.
 - Take a look at items with “negative” discrimination. (More students in the top group answered the question incorrectly.)

Discrimination

		Number Incorrect in the Top Group	Number incorrect in the Bottom Group	Difference (Bottom - Top)
T e s t I t e m s	Q1	1	1	0
	Q2	0	2	2
	Q3	0	3	3
	Q4	0	2	2
	Q5	4	2	-2
	Q6	0	1	1
	Q7	0	1	1
	Q8	0	1	1
	Q9	1	3	2
	Q10	0	0	0
	Q11	1	3	2
	Q12	2	2	0
	Q13	0	0	0
	Q14	1	4	3
	Q15	0	0	0
	Q16	1	1	0
	Q17	0	2	2
	Q18	0	2	2
	Q19	0	0	0
	Q20	0	2	2



How to Use This Information

- For flawed test questions:
 - Revise items for future editions of the test
 - Consider throwing these items out and rescore the test

- For good questions with poor results:
 - Provide feedback to students; correct misconceptions
 - Consider conducting formative assessments before testing students (CATs)
 - Consider changing your teaching methods or course content



Using Test Results for Assessment



Test Blueprint



- A list of course learning outcomes that students are expected to demonstrate on the test
 - Match the learning outcomes to test items
 - This is direct evidence of what students have and have not learned
 - A test for direct evidence - Based on the answer to this question, I will be able to determine if a student achieved all or a *part of* a learning outcome

Test Blueprint

	Learning Outcomes	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# incorrect
Q1				x					x		x			3
Q2	2							x		x		x		3
Q3							x			x		x	x	4
Q4											x		x	2
Q5		x	x	x	x						x		x	6
Q6	2							x				x		2
Q7							x		x	x				3
Q8	1												x	1
Q9			x			x	x	x	x		x	x	x	8
Q10	1							x						1
Q11	2				x				x	x	x	x		5
Q12	3			x	x	x	x					x	x	6
Q13	1													0
Q14	3	x				x			x	x	x	x	x	7
Q15	1													0
Q16	3		x			x		x					x	4
Q17	2									x			x	2
Q18							x				x	x		3
Q19	1													0
Q20									x	x			x	3



Item Analysis



- A process of examining class-wide or course-wide performance on individual test items
 - Sort the results by learning outcome
 - How well did the class achieve each outcome?

Item Analysis

	Learning Outcomes	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	# incorrect
Q8	1												x	1
Q10	1							x						1
Q13	1													0
Q15	1													0
Q19	1													0
Q2	2							x		x		x		3
Q6	2							x				x		2
Q11	2				x				x	x	x	x		5
Q17	2									x			x	2
Q12	3			x	x	x	x					x	x	6
Q14	3	x				x			x	x	x	x	x	7
Q16	3		x			x		x					x	4
Q1				x					x		x			3
Q3							x			x		x	x	4
Q4											x		x	2
Q5		x	x	x	x						x		x	6
Q7							x		x	x				3
Q9			x			x	x	x	x		x	x	x	8
Q18							x				x	x		3
Q20									x	x			x	3



How to Use This Information

- Identify strengths in student learning
 - continue doing what you're doing!
- Use identified weaknesses to improve student learning by:
 - Providing feedback to correct misconceptions
 - Modifying course content
 - Changing your approach for teaching a concept or skill
- Consider submitting a Faculty CAT Summary Sheet



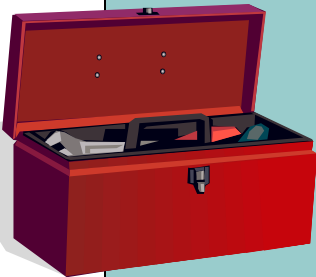
Thank You!

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www.ccac.edu/assessment

Check out the Assessment Tool Kit!