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# Analyzing and Using Results of Student Learning Objectives

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Institutional Effectiveness & Research

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# Who or what is being assessed?

- Though we rely on information originating from students, the outcomes of individual students are not the focus of assessment, nor is it intended to be a “faculty accountability” tool
  - ***The academic program itself is the focus of assessment; aggregated results from groups of students regarding their educational objectives are used to assess the program***
  - Therefore, a representative sample of students is often sufficient for effective assessment of academic programs
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# How does the assessment process work?

- The institution makes explicit its mission and purposes
  - Based on these, faculty develop a set of desired student learning objectives for each program
  - ***Measures are developed and implemented to determine to what extent the desired student learning objectives are being achieved***
  - ***Based on these measures, improvements are made in the teaching and learning process***
  - ***Documentation of results for internal and external review takes place***
  - ***The improvements made to teaching and learning are themselves evaluated for effectiveness, as is the assessment program itself (continuous feedback loop)***
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# Framework for Good Assessment Practice

1. Each academic program must have end-of-program learning objectives.
  2. Each program must employ direct measures of student learning objectives.
  3. Each program must employ multiple measures of student learning objectives.
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# Framework for Good Assessment Practice

4. Each program must analyze the results of its assessment measures, and the analysis must have the following characteristics:
    - a. *Faculty-driven and faculty-owned*
    - b. *Relates results back to specific program learning objectives*
    - c. *Thoroughly and thoughtfully documented*
    - d. *Evaluative as well as descriptive*
    - e. *Criteria for success are developed and used*
    - f. *Needs to be able to result in corrective actions*
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# Framework for Good Assessment Practice

5. Feedback from the assessment process is used to improve the program and the teaching and learning processes within the program. This feedback has the following characteristics:
    - a. *Developed by faculty and department head*
    - b. *Relates back to specific program learning objectives*
    - c. *Relates both to “what we teach” (curriculum) and “how we teach” (pedagogy)*
    - d. *Maps feedback on objectives back to specific courses*
    - e. *Actions taken based on feedback are reflected in program planning and budgeting processes*
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# What are the key questions assessment should answer?

- What should college graduates know, be able to do, and value?
  - Have the graduates of our institutions acquired this learning?
  - What are the contributions of the institution and its programs to student growth?
  - How can student learning be improved?
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# Issues in Implementing Assessment Measures

- When will the data be collected?
  - Who will collect the data?
  - How will the assessment be accomplished?
  - How will confidentiality be protected, if necessary?
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# When Do I Collect Data?

- When
    - During each semester
    - At the end of every semester
    - Annually
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# How Do I Collect Data?

## □ How

- In the classroom
    - In appropriate existing courses
    - In a capstone course
    - In a common experience “end of program” course
  - Comprehensive exams
  - Licensure exams
  - Essays
  - Internships
  - Juried Performances
  - Portfolio
  - Senior Project
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# Issues in Implementing Assessment Measures

- Who will analyze the data?
  - How will the data be analyzed?
  - Who will use the data, how will they use the data and when will they use the data?
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# How Do I Analyze Assessment Data?

## □ How

- Compare year to year and/or
  - Compare class to class and/or
  - Compare procedure to procedure
  
  - Examine number (N, frequency) and percentage (percentile, quartile) and/or
  - Examine mean (average) and/or
  - Examine median
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# When Do I Analyze Assessment Data?

- When
    - Each the end of each semester
    - As it is collected
    - Once a year
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# What do all these terms mean?

- N: is just the total *number* of responses
  - Frequency: a count of how often something occurred or an answer was given
  - Percentage: the ratio of frequency to total number
    - 5 (frequency) out of 100 (N) equals 20%
  - Mean: equals the average
  - Median: the number at which half are below and half are above.
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# Data Terms in Action

	<b>Objective 1</b>	<b>Objective 2</b>	<b>Objective 3</b>	<b>Total Score</b>	<b>Mean Score</b>
Todd	42.5	39.7	42.0	124.2	41.4
Keene	48.5	52.5	59.1	160.1	53.4
Telford	53.1	48.7	51.0	152.8	50.9
Walters	39.5	32.5	33.6	105.6	35.2
Sullivan	51.1	48.2	44.3	143.6	47.9
Burnam	41.0	39.5	33.2	113.7	37.9
Mean	46.0	43.5	43.9	133.3	44.4
N = 6					
Frequency with Total Score below 145 = 4					
Percentage with Total Score below 145 = 66%					
Mean Total Score = 133.3					
Average score for Objective 1 = 46.0					
Median Total Score = 125					

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# Issues in Using Various Types of Data

- N:
    - Is the N large enough?
    - Is the group representative – characteristics, how sampled?
  - Frequency:
    - By itself is not sufficient – pair it with the N and/or the %
  - Percentage %
    - Best when paired with frequency
    - Use when want to know how many did or said something
  - Mean
    - Use when want to know the “average” response
  - Median
    - Use when “outliers” make the mean meaningless
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# Questions to ask when analyzing results of data:

- How do the results compare with what we expected to happen (criteria of success)? Did we get where we wanted to go?
    - Is there still room for improvement?
    - What could we do to make this better?
  - What have we learned?
  - What do we know about the needs of our stakeholders now? What should we do differently in the future?
  - Will the objective and/or KPI stay the same or change based on this past year's experience?
    - What should be this year's/next year's priorities, based on what we now know?
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# How Do I Use Results To Improve My Program?

- “Map” the results back to the courses in which that objective is taught to possibly make:
    - Curricular Changes
      - New Courses
      - Revised Courses
      - Revised Course Sequence
    - Admission Criteria Changes
    - Instructional Methodology Changes
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# How does assessment relate to what takes place in courses?

- Each student learning objective can be “mapped” back to the courses in which it was taught (either introduced or reinforced)
  - Then when certain objectives are identified as needing improvement, we can work back to the courses where that skill or knowledge was introduced or reinforced, and strengthen that activity
  - The following matrix shows a sample graphic relationship between objectives and courses (the same can be done within a course relating its objectives to measures/activities)
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# Sample Course-Objective Linkage Matrix

	<b>Courses Taken by Student in Major:</b>						
	<u>English 101</u>	<u>Psych 105</u>	<u>Math 150</u>	<u>Engr 120</u>	<u>Engr 121</u>	<u>Engr 220</u>	<u>Engr 221</u>
Objective #1	Intro						
Objective #2			Intro		Reinforce	Reinforce	Reinforce
Objective #3				Intro	Reinforce		
Objective #4				Intro	Reinforce	Reinforce	Reinforce
Objective #5				Intro			Reinforce

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# How Do I “Close The Loop”?

- Use the results for improvement
  - Check if the improvements result in the intended change in student learning
  
  - Document!
  - Document!
  - Document!
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# Analyzing and Using Assessment Results Specific Examples

- Capstone/Senior Project
  - Comprehensive Exam
  - Portfolio/Juried Performance
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# How Do I Use a Capstone/Senior Project as Program Assessment?

## □ **Capstone/Senior Project:**

**Prepare a marketing and print campaign for a client with written prospectus and oral presentation**

- **Objective 1:** Graduates will be able to write clearly and appropriately for the task
  - **Objective 2:** Graduates will be able to make an effective sales presentation
  - **Objective 3:** Graduates will be able to think critically
  - **Objective 4:** Graduates will be able to design an effective print advertisement
  - **Objective 5:** Graduates will be able to develop appropriate marketing strategies
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# How Do I Use a Capstone/Senior Project as Program Assessment?

- Link project components to specific objectives
    - Written portion assesses Objective 1
    - Oral Presentation assesses Objective 2
    - Written portion and Oral Presentation assess Objective 3
    - Specific components of both written and oral portions assess Objectives 4 and 5.
  - Develop scoring rubrics
  - Establish criteria for success for the *program*
    - The average grade on the senior project will be no less than a 3.5 or 70%
    - On no individual objective area will the average be less than 3.5 points
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# Capstone/Senior Project as Program Assessment

Assessment Data Entry/Reporting Template						
Student	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Mean
Smith	4	5	2	5	3	3.80
Jones	3	5	2	5	2	3.40
Brown	4	5	1	5	2	3.40
O'Brien	4	4	3	5	3	3.80
Griffin	3	5	4	4	3	3.80
Finnerty	2	5	2	5	3	3.40
O'Hara	4	4	2	4	2	3.20
Mean	3.43	4.71	2.29	4.71	2.57	3.54
Objective 1: Graduates will be able to write clearly and appropriately for the task						
Objective 2: Graduates will be able to make an effective sales presentation						
Objective 3: Graduates will be able to think critically						
Objective 4: Graduates will be able to design an effective print advertisement						
Objective 5: Graduates will be able to develop appropriate marketing strategies						

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# Capstone/Senior Project as Program Assessment

- Program Improvement
    - Changes in course content to emphasize writing skills, critical thinking skills and marketing strategies in certain courses
    - Changes in course sequence
    - Creation of new course
    - Look carefully at the capstone/senior project
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# How Do I Use Comprehensive Exam as Program Assessment?

- Link exam questions to program student learning objectives
    - Questions 1-17 assess Objective 1
    - Questions 18-34 assess Objective 2
    - Questions 35-50 assess Objective 3
  
  - Establish criteria for success for the *program*
    - The average grade on the senior exam will be no less than 70%
    - On no individual objective area will the average be less than 24 points
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# Comprehensive Exam as Program Assessment

Assessment Data Entry/Reporting Template				
Comprehensive Exam				
Student	Objective 1	Objective 2	Objective 3	Total
Smith	23.0	33.0	22.0	78.0
Jones	14.0	26.0	21.0	61.0
Brown	28.0	29.0	20.0	77.0
O'Brien	34.0	31.0	29.0	94.0
Griffin	19.0	31.0	16.0	66.0
Finnerty	32.0	26.0	18.0	76.0
Clay	30.0	28.0	22.0	80.0
Mean	25.7	29.1	21.1	76.0

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# Comprehensive Exam as Program Assessment

- Program Improvement
    - Changes in course content to emphasize Objective 3 in certain courses
    - Changes in course sequence
    - Creation of a new course
    - Re-visit importance of Objective 3 as a Student Learning Objective
    - Look carefully at the exam
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# How Do I Use Portfolio/Juried Performance as Program Assessment?

- Programs such as those in music and art frequently require senior recital or exhibition
  - Programs such as teacher education, psychology, and creative writing frequently require a portfolio
  
  - Program Outcome:
    - Program graduates will be able to deliver a polished and technically correct performance.
    - Program graduates will demonstrate through a portfolio an in depth understanding of and use of skills particular to the discipline
  
  - Means of assessment
    - Rubric scored by jury
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# How Do I Use Portfolio/Juried Performance as Program Assessment?

- Means of assessment
    - Rubric scored by jury rating on a scale of 1 to 5 proficiency in tone, intonation, accuracy, rhythm, technique, and interpretation or phrasing
  - Criteria for program success
    - Average ratings will be at least 3.0 across all elements on the rubric
    - On no element will the average be less than 2.5
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# Juried Performance as Means of Program Assessment

Juried Performance as Means of Assessment							
Student	Tone	Intonation	Accuracy	Rhythm	Technique	Interpretation/Phrasing	Mean
Walters	2	2	3	2	4	4	2.8
Keene	3	2	3	3	3	4	3.0
Telford	3	2	3	3	4	4	3.2
Sullivan	4	2	3	4	3	4	3.3
Burnam	2	2	3	3	2	3	2.5
Clay	4	2	4	3	3	2	3.0
Martin	3	2	3	3	4	3	3.0
Commonwealth	3	1	4	4	3	3	3.0
Mean	3.0	1.9	3.3	3.1	3.3	3.4	3.0

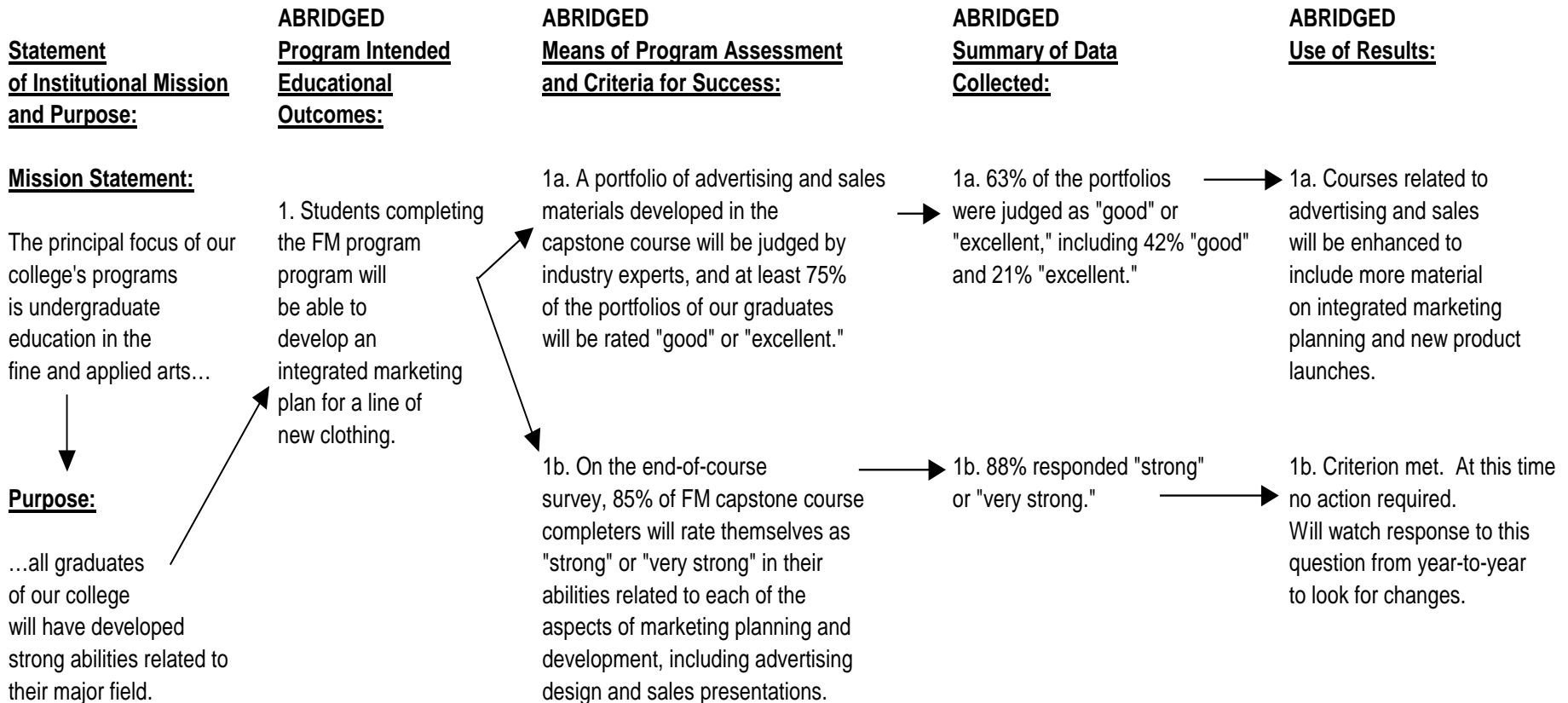


# What is the five-column model?

- Summarizes each program's assessment process in a one-page, tabular format
- Flows from mission/purposes to EOP objectives to measures/success criteria to analysis to feedback that closes the loop
- Provides faculty with simple, widely accepted format that promotes consistency and comparability across programs and terms
- Reviewers are generally familiar and comfortable with this model and its use across a broad range of academic programs

Source of next slide: Adapted from "The Departmental Guide and Record Book for Student Outcomes Assessment and Institutional Effectiveness" by Nichols and Nichols

## Fashion Merchandising (FM) Program Five-Column Model for Assessment



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# Five Column Model at ECU

- TracDat reports are based on a modified Five-Column Model
  - The University Assessment Report produces a document very similar to the previous slide (See handout)
  - The Assessment Plan and Assessment Impact Reports both produce documents focusing on specific components of the Five-Column Model
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