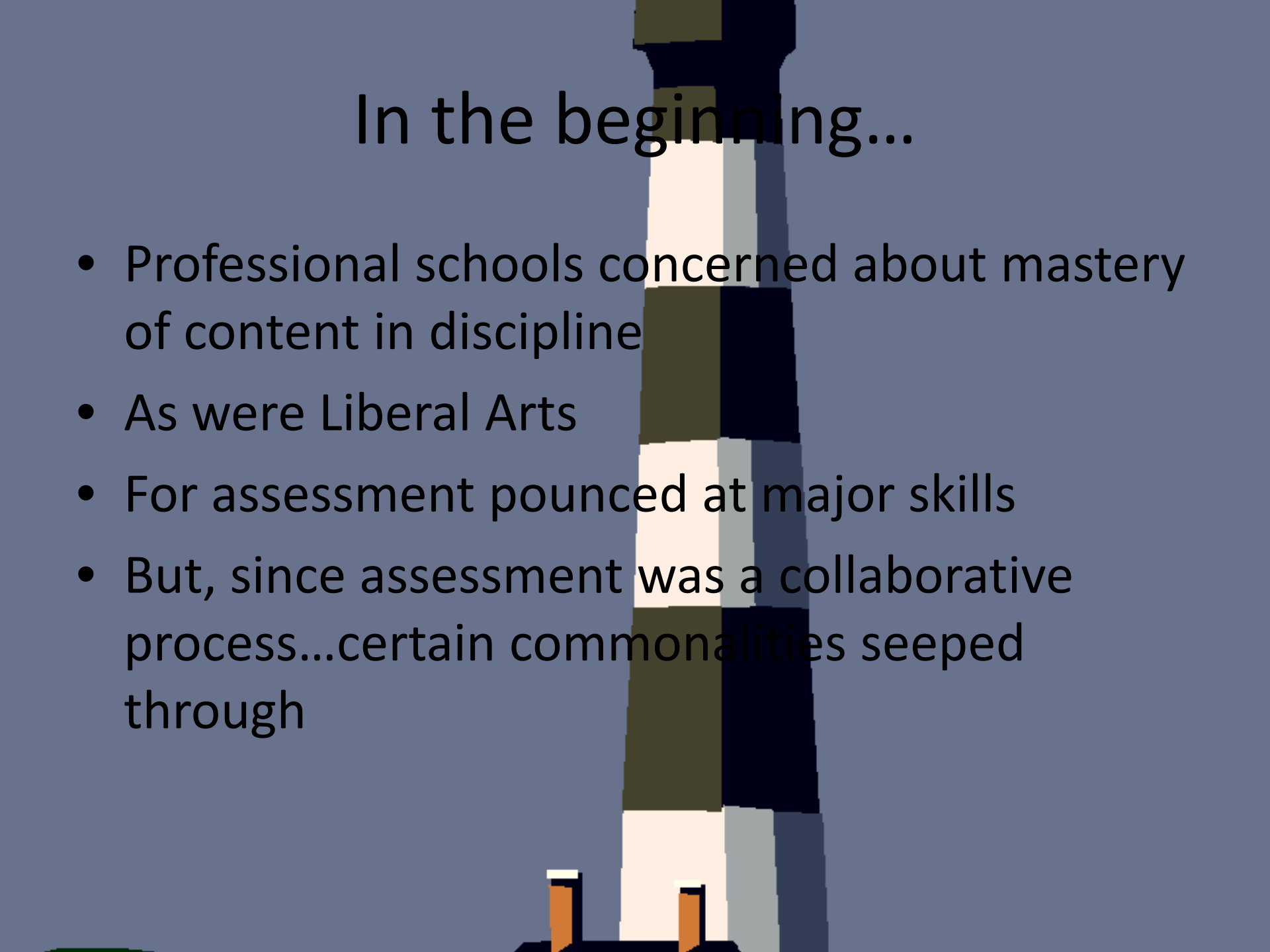
Assessment: The Empowerment of Higher Learning by Students

In the beginning…

- Professional schools concerned about mastery of content in discipline
- As were Liberal Arts
- For assessment pounced at major skills
- But, since assessment was a collaborative process…certain commonalities seeped through



Biology: Major Goals

- ***Communicate*** complex biological concepts using appropriate vocabulary and scientific language
- ***Understand and critically interpret*** complex scientific concepts from graphs, figures, tables and written sections
- Learn fundamental content in ecology, evolution, genetics, and cell biology
- Adept at ***information retrieval*** from a wide variety of sources

General Education Goals

History

Established five objectives:

- Mastery of historical content
- Skills in historical thinking
- Skill in working with primary sources
- Skill in carrying out historical research
- Ability to communicate knowledge and understanding

Each of these objectives has four to six specific outcomes

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- E.g., Skills in historical thinking:
  - Understand and interpret events in their historical context
  - Understand complexity of human motivations and appreciate cultural differences in patterns of behavior and ideation
  - Demonstrate familiarity with a variety of genres of historical studies

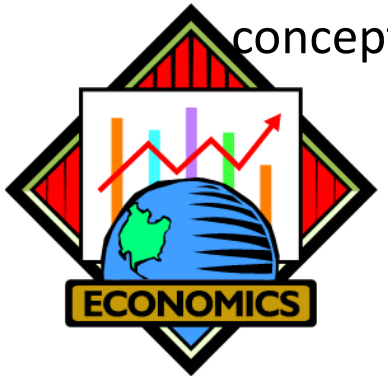
Bloom's affective qualities sneak into historical thinking

Outcomes measures or demonstrations

- Historical thinking
  - Performs associative thinking (as link event to context)
  - Performs critical thinking (as evaluating bias, audience, and completeness in texts)
  - Performs logical thinking (as link cause and effect)

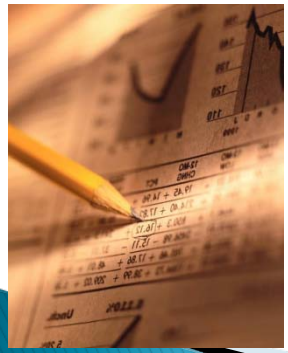
Unwitting happenings

- Economics Department
  - Wrote up learning goals for majors
    - Overarching concepts or skill sets
      - e.g., The Economics Major will acquire the following knowledge and skill set:
      - An understanding and applied knowledge of the core concepts and analytical tools of economic theory



Overarching goals tied to specific program objectives that identify key concepts and skills majors should have on graduation

e.g., Objective 2 Students will be able to: Apply and evaluate core concepts of economics (scarcity, opportunity cost, sunk costs, production possibilities frontier, basic trade theory)



Developed matrix listing the concepts and skills by course

Table 1. Topic Coverage (partial table)

Objective	1	2	3	4	5	6	7	8	9	10
ECO 11/ ECO 303 Intro Macro	X	X			X	X	X			
ECO 12/ ECO 304 Intro Micro	X	X	X	X			X			
ECO 21 Money and Banking					X	X	X			
ECO 25 Economic Geography		X								
ECO 32 Industrial Org. & Public Policy	X			X						
ECO 35 Public Finance and Taxation		X								
ECO 41 International Economics	X	X			X	X				
ECO 42 Eco. of Underdevel. Countries	X	X			X					
ECO 46 Current Economic Issues	X	X	X							
ECO 48 Economics and the Law	X	X		X						X
ECO 49 Econ of the Environment	X	X	X				X			X
ECO 54 History of Economic Thought	X	X								X
ECO 55 American Economic History										
ECO 61 Microeconomic Analysis	X	X	X				X			
ECO 62 Macroeconomic Analysis	X	X		X	X	X	X			
ECO 63 Labor Economics	X		X							
ECO 65 Money and Capital Markets	X					X				
ECO 72 Statistics								X	X	
ECO 73 Inter. Business Statistics								X	X	X

Table 1. Top Coverage (partial table)

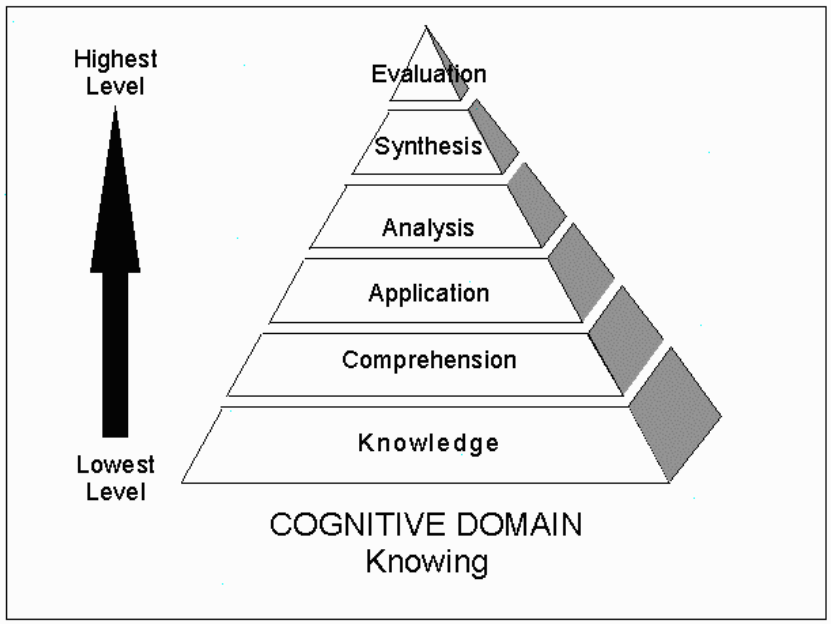
Objective	1	2	3	4	5	6	7	8	9	10
ECO 11/ ECO 303 Intro Macro	X	X			X	X	X			
ECO 12/ ECO 304 Intro Micro	X	X	X	X			X			
ECO 21 Money and Banking					X	X	X			
ECO 25 Economic Geography		X								
ECO 32 Industrial Org. & Public Policy	X			X						
ECO 35 Public Finance and Taxation		X								
ECO 41 International Economics	X	X			X	X				
ECO 42 Eco. of Underdevel. Countries	X	X			X					
ECO 46 Current Economic Issues	X	X	X							
ECO 48 Economics and the Law	X	X		X						X
ECO 49 Econ of the Environment	X	X	X				X			X
ECO 54 History of Economic Thought	X	X								X
ECO 55 American Economic History										
ECO 61 Microeconomic Analysis	X	X	X				X			
ECO 62 Macroeconomic Analysis	X	X		X	X	X	X			
ECO 63 Labor Economics	X		X							
ECO 65 Money and Capital Markets	X					X				
ECO 72 Statistics								X	X	
ECO 73 Inter. Business Statistics								X	X	X

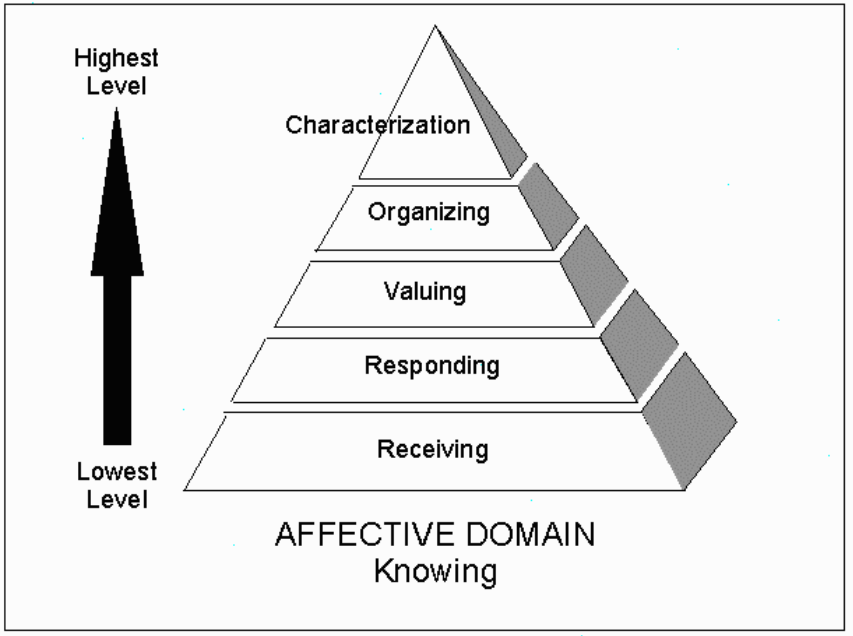
- Have your faculty used assessment to identify student learning outcomes that are evidence of learning in the major and in general education.

- Essence of being

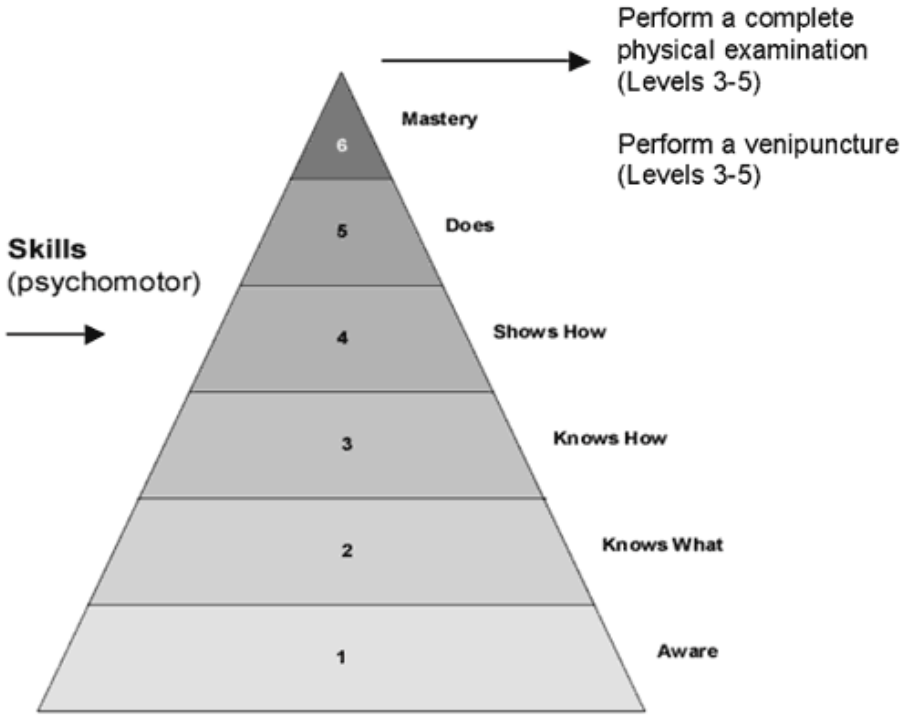
- Shared variance

Bloom's Taxonomy





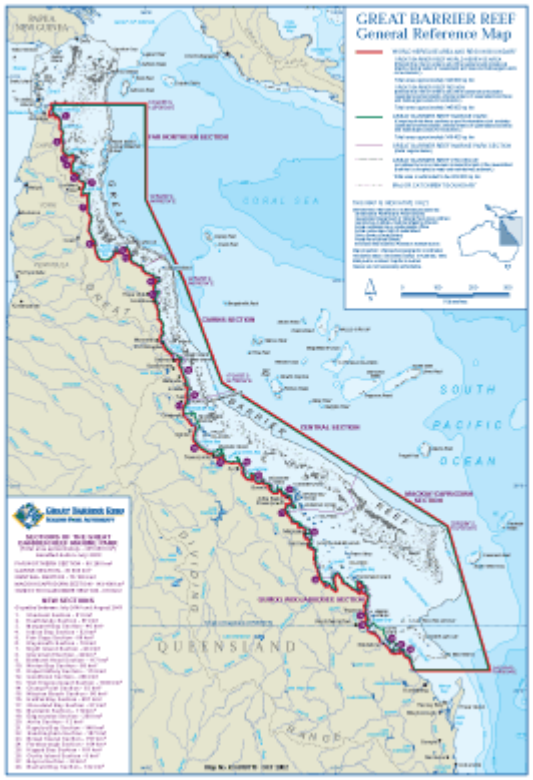
Bloom's Taxonomy (continued)



Learning Taxonomy

- Useful framework: Faculty not typically aware of how to conceptualize and articulate learning goals in multiple domains
- Faculty often have decided that concepts vary in difficulty both at course level and program sequence.
- Sometimes basis for grades in a class and others for program assessment

BLOOM'S COGNITIVE LEARNING APPLIED TO MAPS



Knowledge (Remembering): Identify latitude and longitude

Comprehension (Understanding): Use scale to measure distance
(Harder: Calculate ratio scale)

Application (Applying): Discover parallel structure of GBR and coast. Reef serves to protect coast but also houses tremendous ecosystems

Analysis (Analyzing): Using what we know about this reef, compare structure and ecosystem and illustrate how reefs around the world may differ or be similar

Evaluate (Evaluating): Is GBR being managed correctly?

Synthesis: What influence does its management have on other coral reefs around the world?
Creating: Using these techniques to develop new ideas and approaches for coral reef management

Your use of Bloom's Taxonomy?

- How have students been informed of assessment initiative, processes, or have you kept them secret?
- What assessment processes, such as establishment or creation of goals, objectives, measures, have led to better teaching?
- What new skills have you incubated in your students?

General Education
Concepts and skills of separate disciplines intersect

- Biology and English: Using writing to interpret science
- Geography and Mathematics: Rate of change
- History and Geography: Map identification and interpretation
- History and Mathematics: Timelines
- Economics and Math: Graphs and diagrams

And Build on Each Other

And new classroom strategies to assist student learning

- Presenting lectures making instructor's own historical thinking explicit, modeling for students
- Offering in-class analysis of maps and geographic (locational) relationships they convey (*my favorite!)*

Benefits of mandated homework

- Scale is difficult concept (ratios from 6th grade)
- Needed in earth science and geography
- Given as an exercise in introductory lab
  - Students may have understood in lab, but did not follow through
- Years later, because of assessment, now mandating homework from one lab to the next.
  - Students take 5-10 minutes
  - 1 percent to 40-60 percent

Major skills and liberal arts interact

- Turns out the required core courses include some of these concepts and skills identified as important to majors
  - Shows that a rationale exists for inner components or constructs of core
    - As concepts and skills of major are parts of liberal arts and vice-versa
  - By providing students with instruction to develop these skills from different academic disciplines
    - Leads to liberal arts education
  - Shows that faculty are including liberal arts thinking in major courses
  - Taking the implicit and making it explicit, and…

Reminder, but a good reminder…….

- The great defenders or apologists for liberal arts must recognize that disciplines not in the liberal arts, even in professional programs, can provide liberal arts skills…

- As pointed out in 2007 report from LEAP National Leadership Council

Must not forget assessment

- Many faculty, in the professional schools and liberal arts, are beginning to recognize interconnections within their majors and with other majors and with general education

Empowerment: Student-Centric or Student-Centered

- Students taking more responsibility for their learning
- And understanding that faculty are a resource to *learn with*
- Partnership with campus support areas
  - In beginning, informal rather than a broad mandate
    - Sometimes with uncertainties on both sides
  - New data management system with on-line self- registration…improve student self-direction
  - More cooperation in sharing of student predicaments and achievements geared to improving retention
- First-year Experience
  - Use assessment, data, staff and faculty experience and understanding of culture (and changes that need to be made in it)

  To help our students be more prepared for the college classroom and overall learning experience

  Faculty Committee with Charge and Goals from upper administration (and thus commitment for change and resource support (scaffolding)).