



Society of Building Science Educators

Framework Assessment of Learning
Outcomes using Stated Pedagogical
Goals in Architectural Curricula

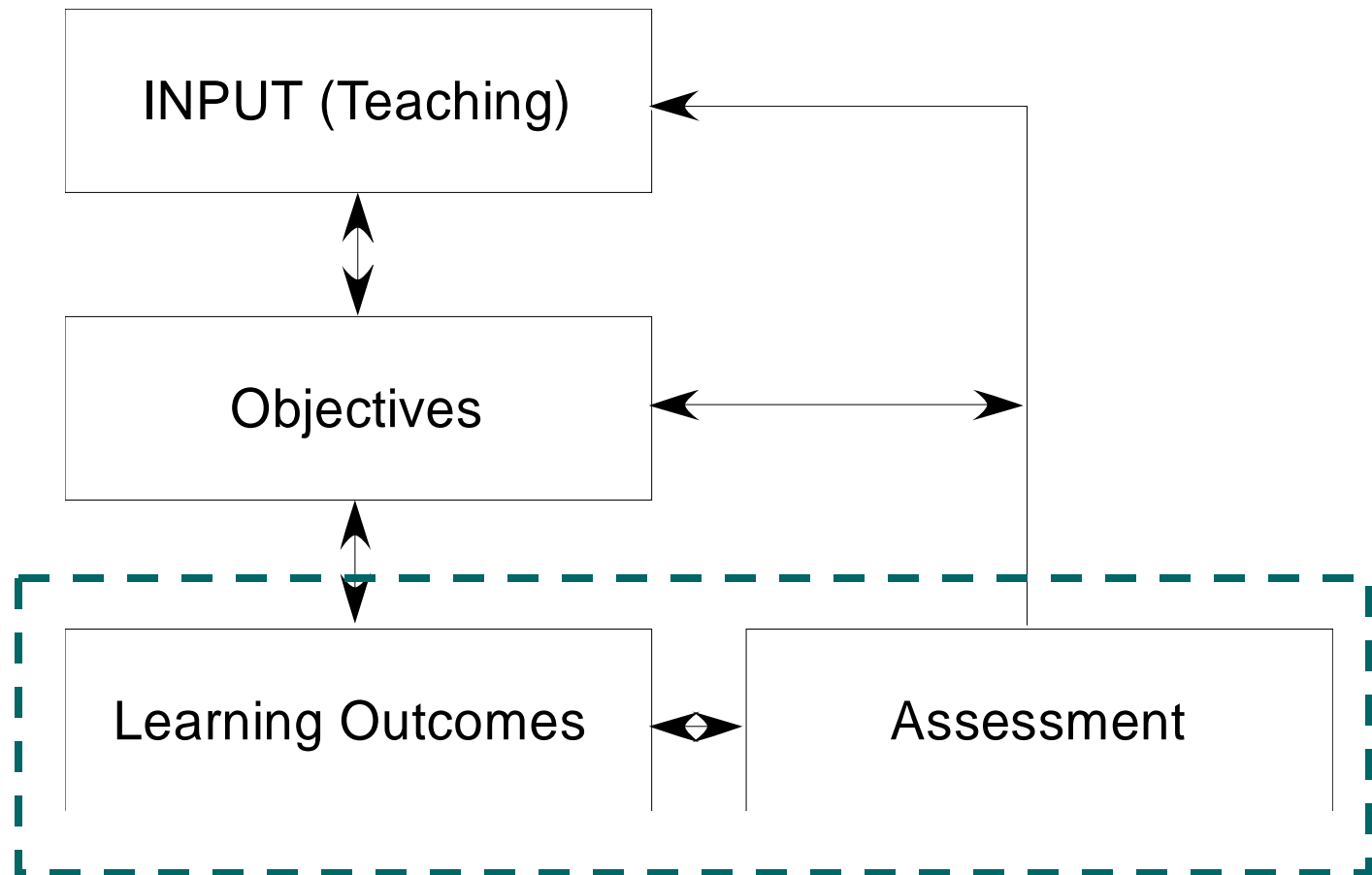
June 11, 2005



Why are we doing this?

- CQA+I = Continuous Quality Assessment and Improvement
- Provide continuous feedback mechanism
- Facilitates communication
- Provides a more explicit structure to program and course objectives
- Links to College/program goals to individual classes and projects

Assessment & the Feedback Loop

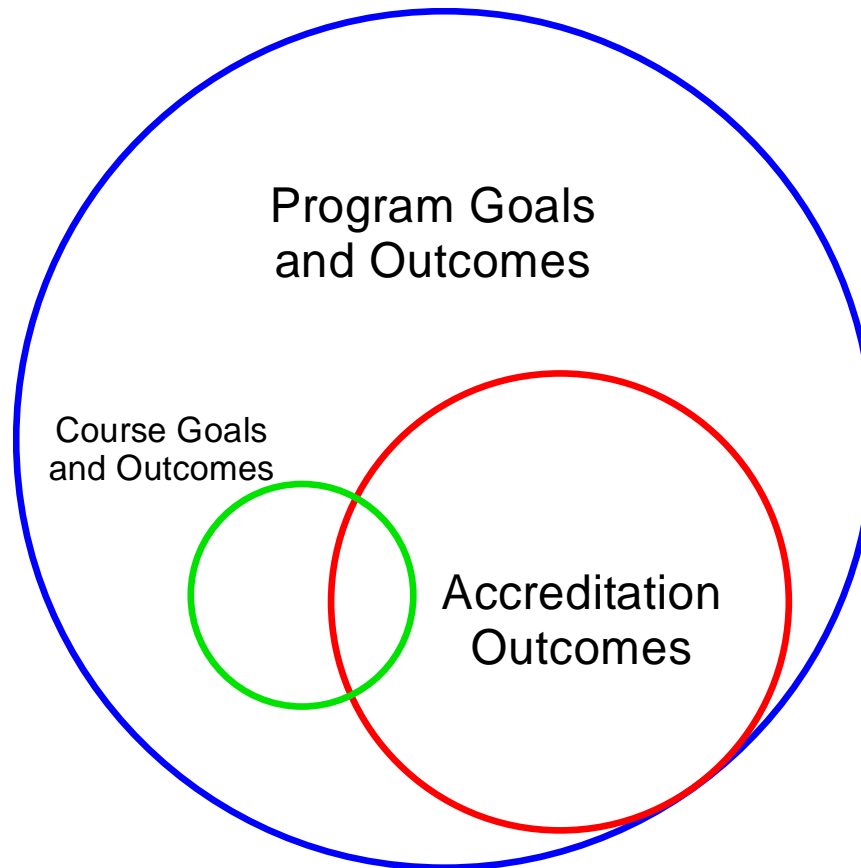




Assessment Tools and Methods

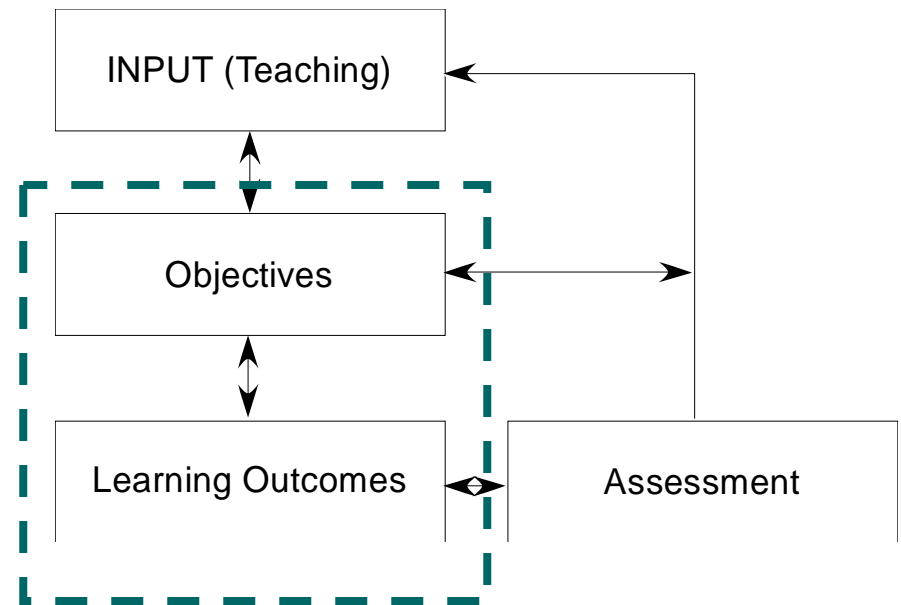
- Meeting class objectives and students learning outcomes
- GPA
- Capstone projects
- Surveys
- External evaluations
- Professional/Honor society involvement
- Advisory Board/s Evaluations
- Etc...

Relationships



Differences

- Objectives
 - **Instructors' desires**
 - Responds to program curriculum requirement
 - Mostly Non-measurable
- Outcomes
 - **What are the student expected to do**
 - Has to be measurable





Objective: Understanding

○ **Taxonomy of Understanding**

- Facet #1: Explanation
- Facet #2: Interpretations
- Facet #3: Application
- Facet #4: Perspective
- Facet #5: Empathy
- Facet #6: Self-Knowledge



Introduction

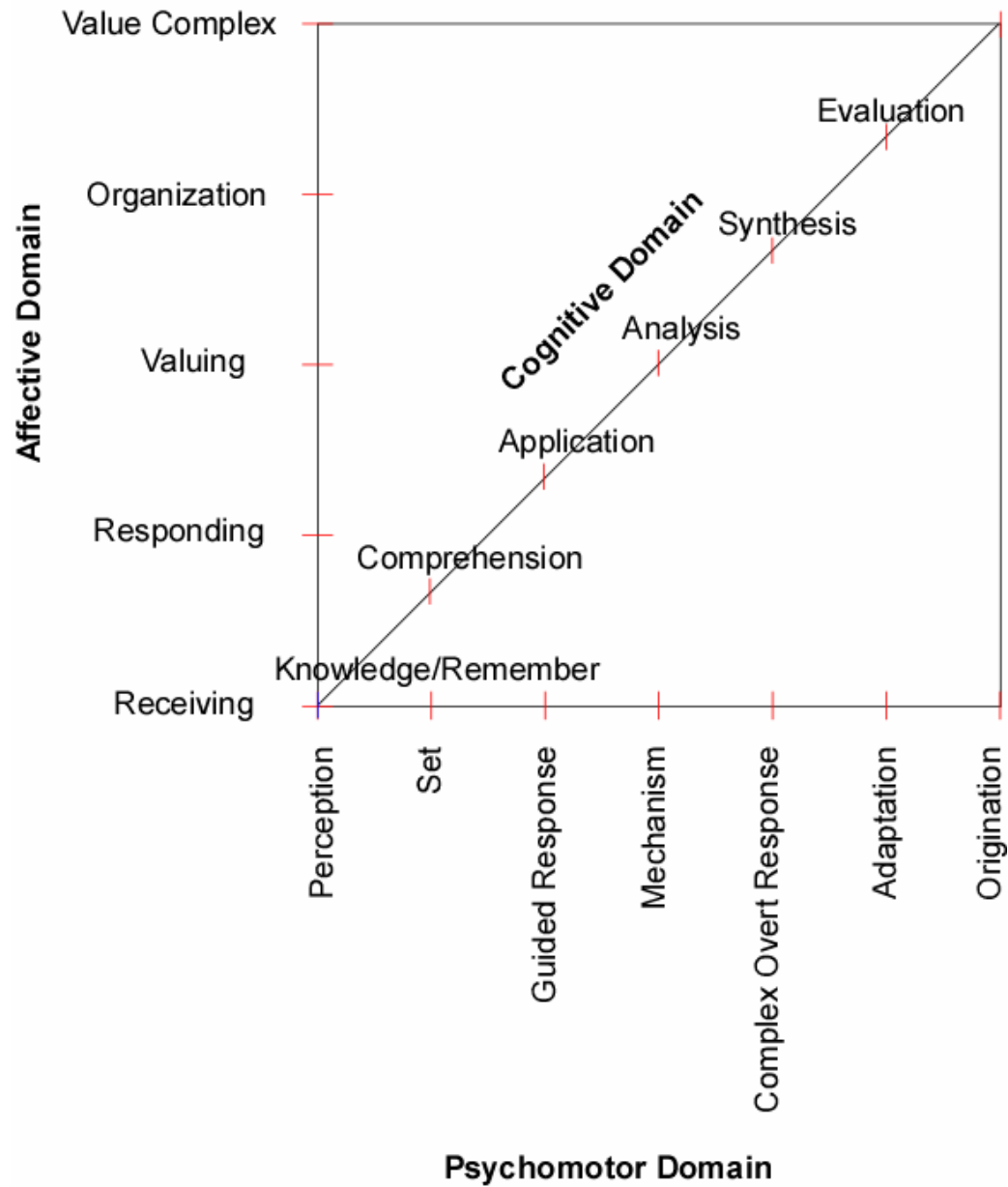
- Bloom's et. al. and Taxonomy of educational objectives
 - No value judgment about objectives
 - Logically developed and internally consistent
 - Compatible with current understanding of fields concerned
 - Prescriptive scheme



Domains of Learning Outcomes

- Cognitive
- Affective
- Psychomotor

Taxonomy of Educational Outcomes





Cognitive Domain

- ***Level 1: Knowledge***
 - Remember previously learned materials
- ***Level 2 Comprehension***
 - Grasp the meaning of material
- ***Level 3: Application***
 - Use of learned material in new and realistic situations
- ***Level 4: Analysis***
 - Understand the organizational structure of an issue by breaking it down into its component parts
- ***Level 5: Synthesis***
 - Combine parts to form a new whole
- ***Level 6: Evaluation***
 - Judge the value of material for a given purpose



Affective Domain

- ***Level 1: Receiving***
 - Willingness to attend to particular phenomena or stimuli
- ***Level 2: Responding***
 - Participate actively on the resolution of a problem
- ***Level 3: Valuing***
 - Attach worth or value to a particular object, phenomenon, or behavior
- ***Level 4: Organization***
 - Bring together different values, resolve conflicts between them, and begin to build an internally consistent value system
- ***Level 5: Value Complex***
 - Develop a characteristic life style based on a value system that has controlled behavior for a sufficient length of time



Psychomotor Domain

- **Level 1: Perception**
 - Use of senses to obtain cues that guide motor activity
- **Level 2: Set**
 - Stimulate readiness to take action
- **Level 3: Guided Response**
 - Learn a complex skill using examples as well as trial and error
- **Level 4: Mechanism**
 - Perform acts where the learned responses have become habitual and the movements perform confidence and proficiency.
- **Level 5: Complex Overt Response**
 - Skillful performance of abilities that involve complex decision-making
- **Level 6: Adaptation**
 - Skill to modify knowledge to fit new situations
- **Level 7: Origination**
 - Develop an original skill that replaces the initially learned skill



Outcome Verbiage

- Attached a list of verbs to be used with the appropriate Domain and at intended level
- A course may have outcomes spanning different levels
- “Design and Create” –some issues



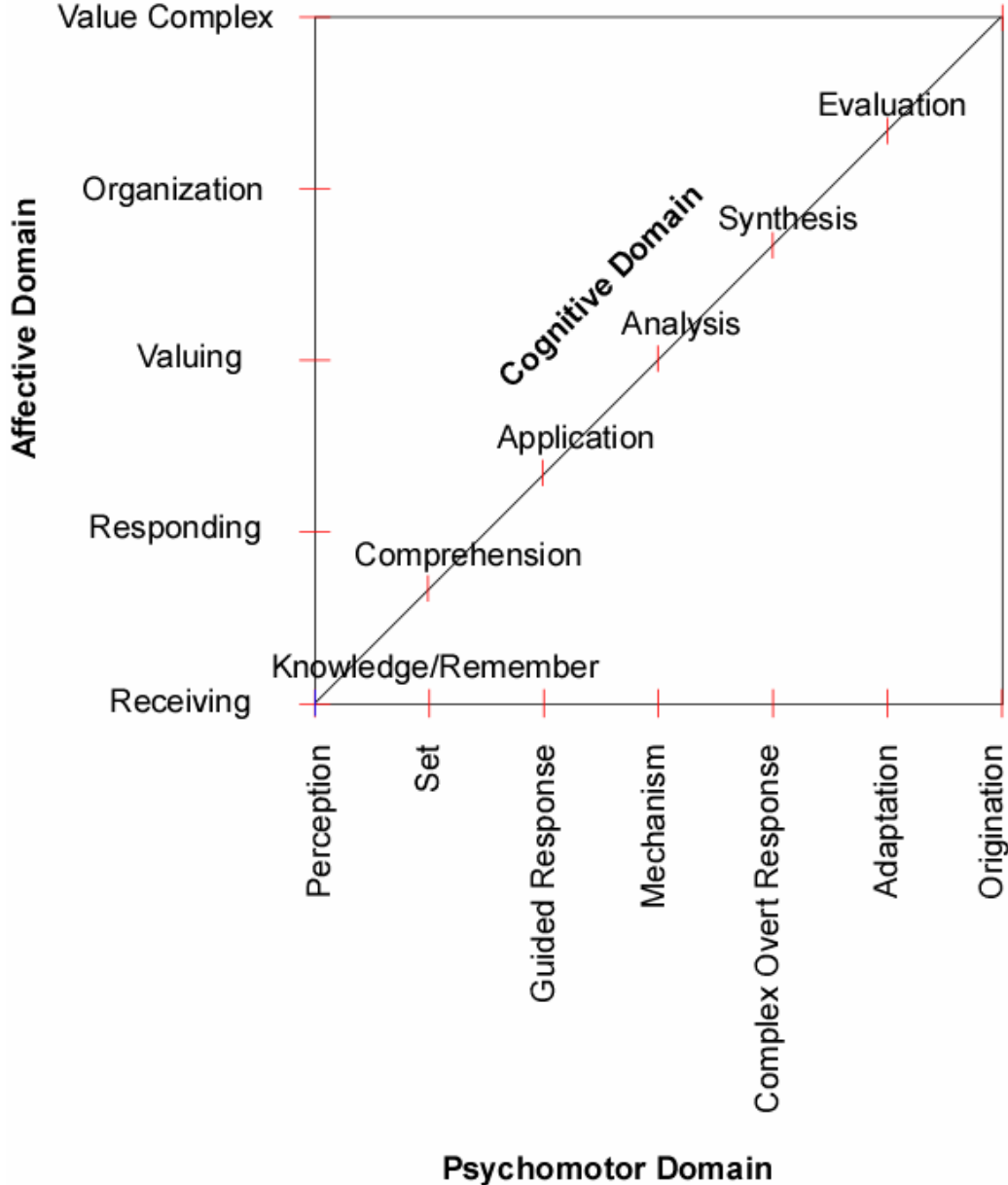
The Process

- Determine Program learning objectives and classify them into areas
- Establish Class objectives
- Assign appropriate outcomes
- Compare outcomes of class to program objectives
- Compare class outcomes with accreditation requirements
- Develop project type from intersection between appropriate cognitive dimension and knowledge dimension
- Develop project objectives
- Collective classes (curriculum) outcomes should cover all program objectives and accreditation requirements

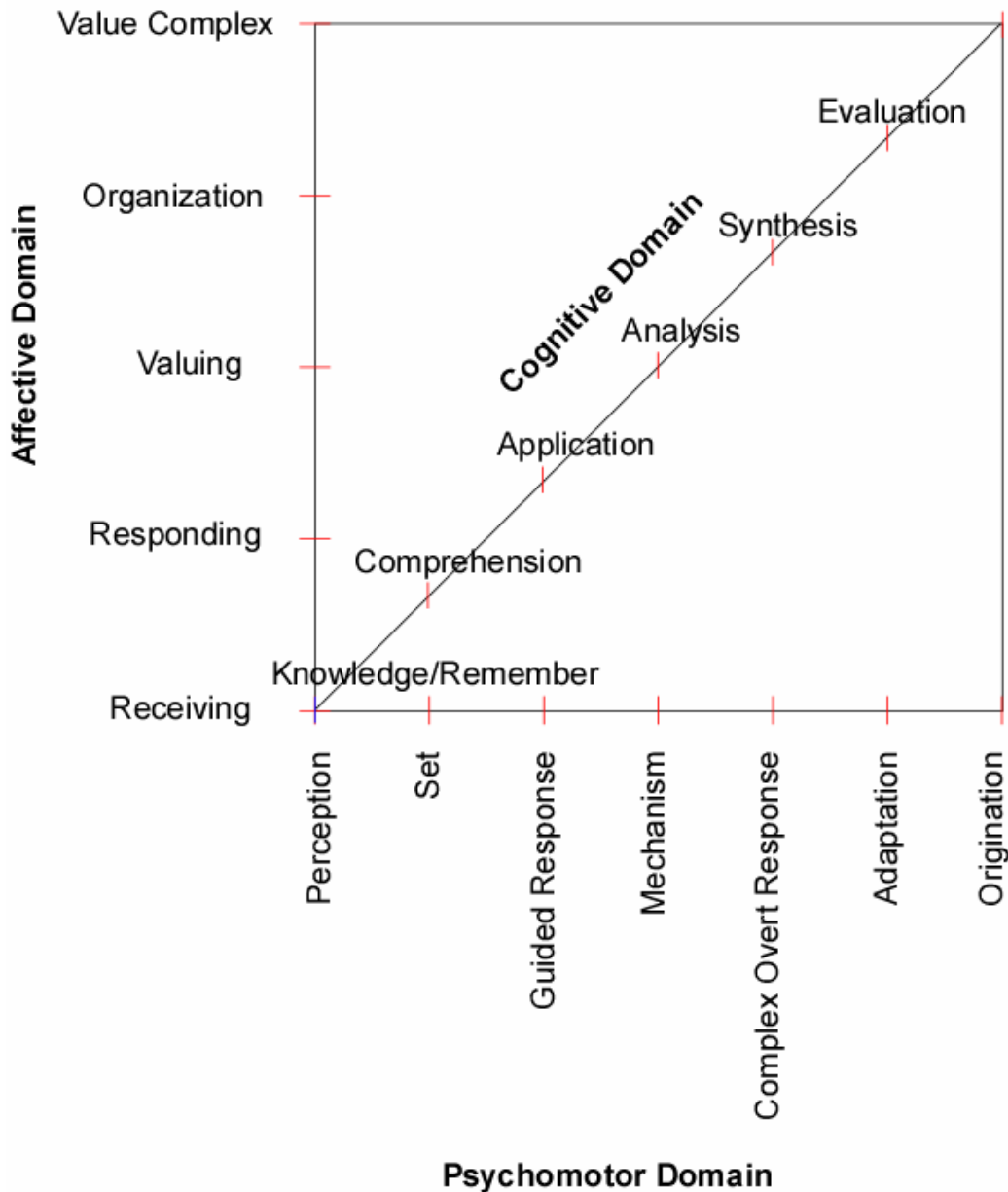
Worksheet 1
Brief Description of Program Learning Areas

Program Learning Areas	
Communication Skills	Ability to communicate effectively through aural, written, graphical, and visual forms
Design Skills	Ability to synthesize meaningful design decisions based on implementation of critical think, thoughtful evaluate of observation of a stated problem
Socio-Cultural Issues	Understanding of diverse socio-cultural and humanistic traditions
History/ Theory	Understanding of the role of history in shaping contemporary issues and the theoretical context of architectural design and the society in general
Diversity/ Global Issues	Recognition of the role of professionals in a diverse and global society
Collaborative Skills	Ability to work effectively in teams
Contemporary Issues	Understanding the role of architecture in shaping contemporary issues and how it is affected by these in return
Technical Issues	Understanding of selected technical specialties
Professional/ Ethics	Recognition of ethical and professional responsibilities

Taxonomy of Educational Outcomes



Taxonomy of Educational Outcomes



Worksheet 4

Assessment of Learning Outcomes through intersecting the Knowledge Domain with the Knowledge Dimension

The Knowledge Dimension		The Cognitive Process Dimension					
		Knowledge (Remember)	Comprehension	Application	Analysis	Synthesis	Evaluation
A	Factual Knowledge						
B	Conceptual Knowledge						
C	Procedural Knowledge						
D	Meta-Cognitive Knowledge						

THE KNOWLEDGE DIMENSION: *From: "A Taxonomy for Learning, Teaching, and Assessing"* by Anderson, et. al. 2001

□ ***FACTUAL KNOWLEDGE***

The basic elements students must know to be acquainted with a discipline or solve problems in it

- Knowledge of terminology
- Knowledge of specific details and elements

□ ***CONCEPTUAL KNOWLEDGE***

The interrelationships among the basic elements within a larger structure that enable them to function together

- Knowledge of classifications and categories
- Knowledge of principles and generalizations
- Knowledge of theories, models, and structures

□ ***PROCEDURAL KNOWLEDGE***

How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods

- Knowledge of subject-specific skills and algorithms
- Knowledge of subject-specific techniques and methods
- Knowledge of criteria for determining when to use appropriate procedures

□ ***META-COGNITIVE KNOWLEDGE***

Knowledge of cognition in general as well as awareness and knowledge of one's own cognition

- Strategic knowledge
- Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge
- Self-knowledge

