Goals and Objectives: First Pants, Then Shoes

Dan Golden MD MHPE
Associate Professor
Department of Radiation and Cellular Oncology
ADME Fellow

(adapted with permission from prior FAME presentations given with **Jeanne Farnan MD MHPE** and **Tia Kostas MD**)

AT THE FOREFRONT
UChicago Medicine

Goofballs

How many Zoom calls have you had in the last 24 hours?

None

1-10

My life is a Zoom call

Today's Schedule

- 12:30-12:35: Introductions
- 12:35-12:40: Theory and Background
- 12:40-12:50: Goals and Objectives defined
- 12:50-1:05: Small group exercise
- 1:05-1:20: Report back
- 1:20-1:30: Wrap-up and Questions

Are you familiar with the "6 step" approach to curriculum development?

Yes

No

Are you comfortable writing goals and objectives?

“If you don't know where you are going, you might wind up someplace else”

Yogi Berra

Goal

- Teach about goals and objectives

Objectives

- Teach faculty about goals and objectives
- Inspire faculty to always include goals and objectives in everything that they do
- Convince faculty to teach all trainees how to develop goals and objectives

Goal

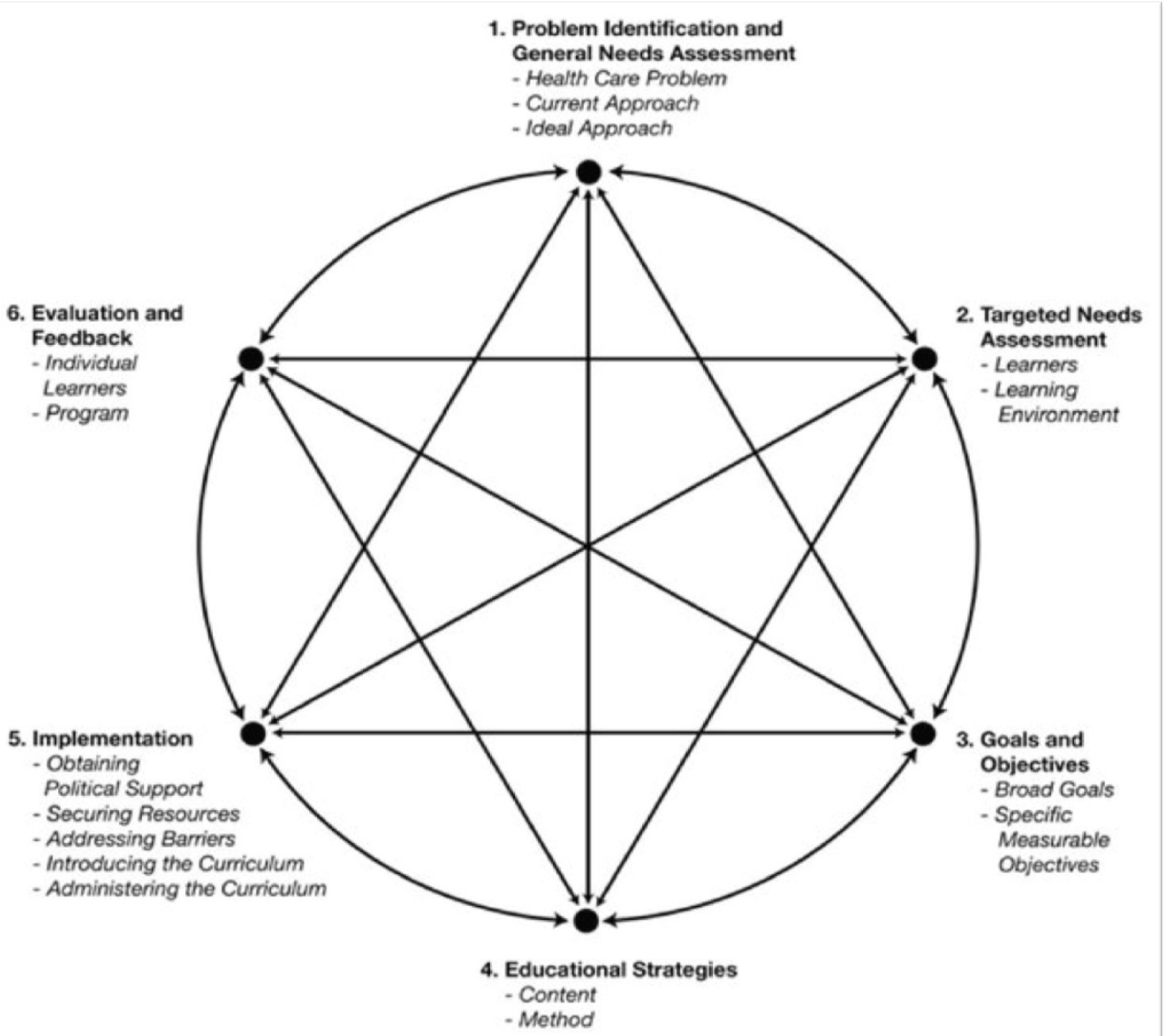
This session will provide faculty with knowledge and tools to write clear and concise goals and objectives for educational initiatives such as individual lectures, medical student clerkships, resident rotations, or continuing medical education activities.

Cognitive Objectives

- By the end of today's session, attendees will:
  - (KNOWLEDGE) Define the acronym SMART for writing an objective
  - (COMPREHENSION) Define objectives as "Cognitive," "Affective," or "Psychomotor"
  - (APPLICATION) Use suggested verbs to write learner objectives applied to their personal teaching environment for each level of Bloom's taxonomy

Affective Objectives

- After completion of this session the faculty will:
  - Rate the importance of developing a clear goal with attainable and measurable objectives as “Quite” or “Extremely” important
  - Rate comfort with writing goals and objectives significantly higher than prior to the session


1. Problem Identification and General Needs Assessment
- Health Care Problem
- Current Approach
- Ideal Approach
2. Targeted Needs Assessment
- Learners
- Learning Environment
3. Goals and Objectives
- Broad Goals
- Specific Measurable Objectives
4. Educational Strategies
- Content
- Method
5. Implementation
- Obtaining Political Support
- Securing Resources
- Addressing Barriers
- Introducing the Curriculum
- Administering the Curriculum
6. Evaluation and Feedback
- Individual Learners
- Program

Which is the most importan of the 6 steps?

Problem ID/General Needs Assessment

Targeted Needs Assessment

Goals and Objectives

Educational Strategies

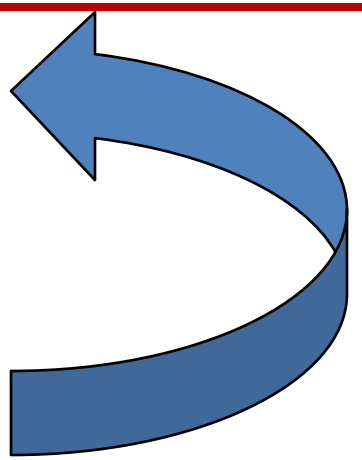
Implementation

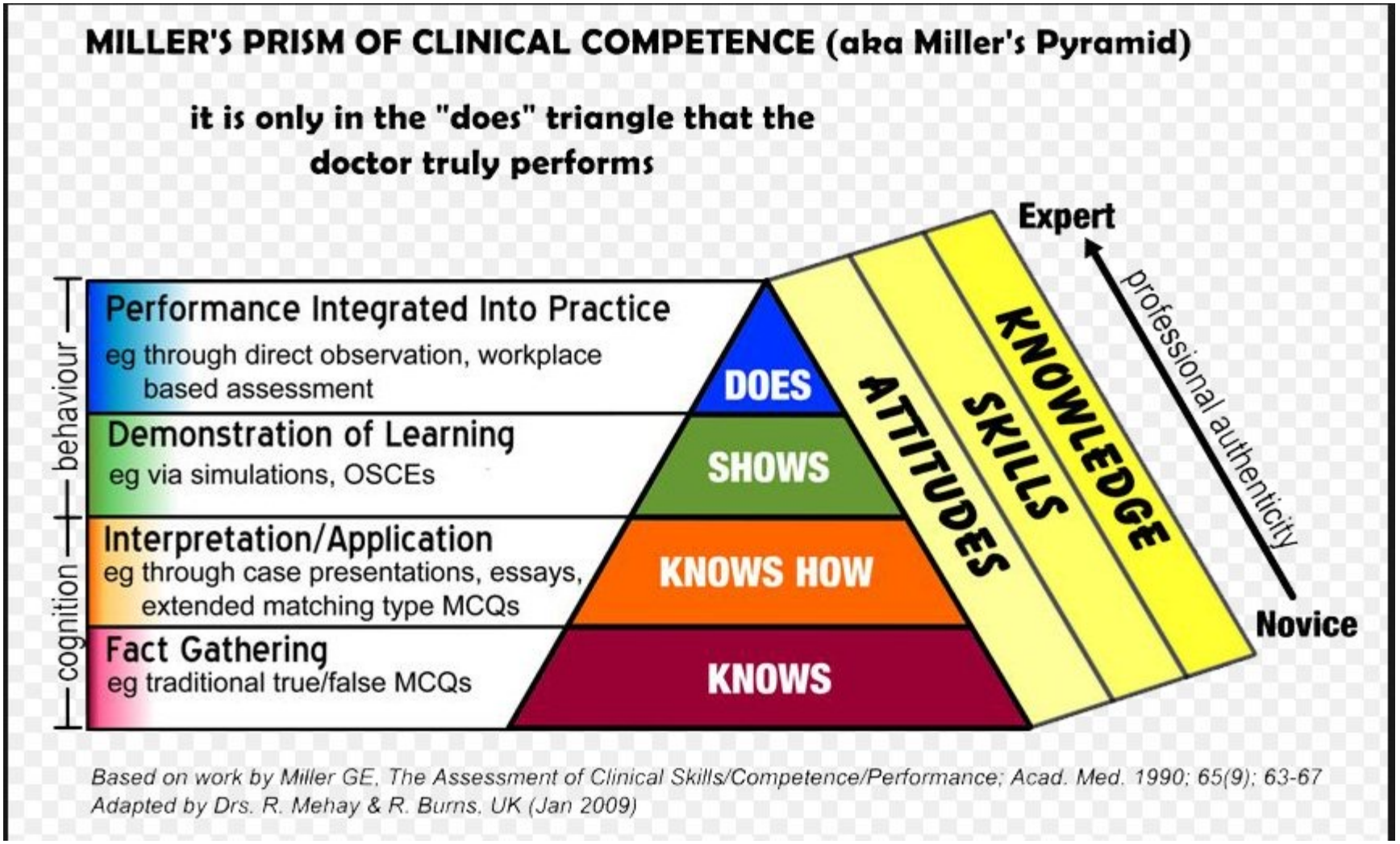
Evaluation and Feedback

Curriculum Development

The Six-Step Approach (Thomas 2016)

1. Problem Identification and General Needs Assessment
2. Needs Assessment of Targeted Learners
3. Goals and Objectives
4. Educational Strategies
5. Implementation
6. Evaluation and Feedback





How you will evaluate will determine how you can measure your educational success

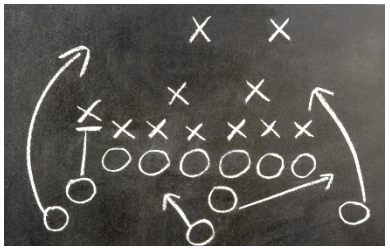
Definition: Goals vs Objectives

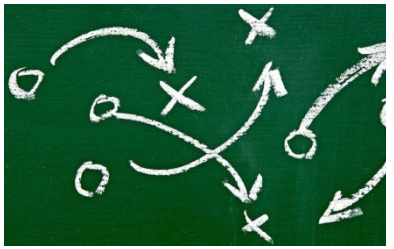
- Goal: General statement of expectations for the learner
  - What is your ultimate destination?

Objectives

- The **specific** **measurable** outcomes devised to assess whether the goal of the curriculum has been achieved

- What should the learner be able to do to demonstrate that they have attained the desired knowledge, skill, etc?





Goal

Objectives

Driving directions to Willis Tower

A **promontory point**

1. Head **north** on **S Lake Shore Dr**

5.3 mi

2. Take the **Columbus Drive** exit on the left toward **Interstate 290**

217 ft

3. Continue onto **S Columbus Dr**

0.7 mi

4. Turn left onto **E Congress Pkwy**

0.7 mi

5. Turn right onto **S Financial Pl**

436 ft

6. Turn left onto **W Van Buren St**

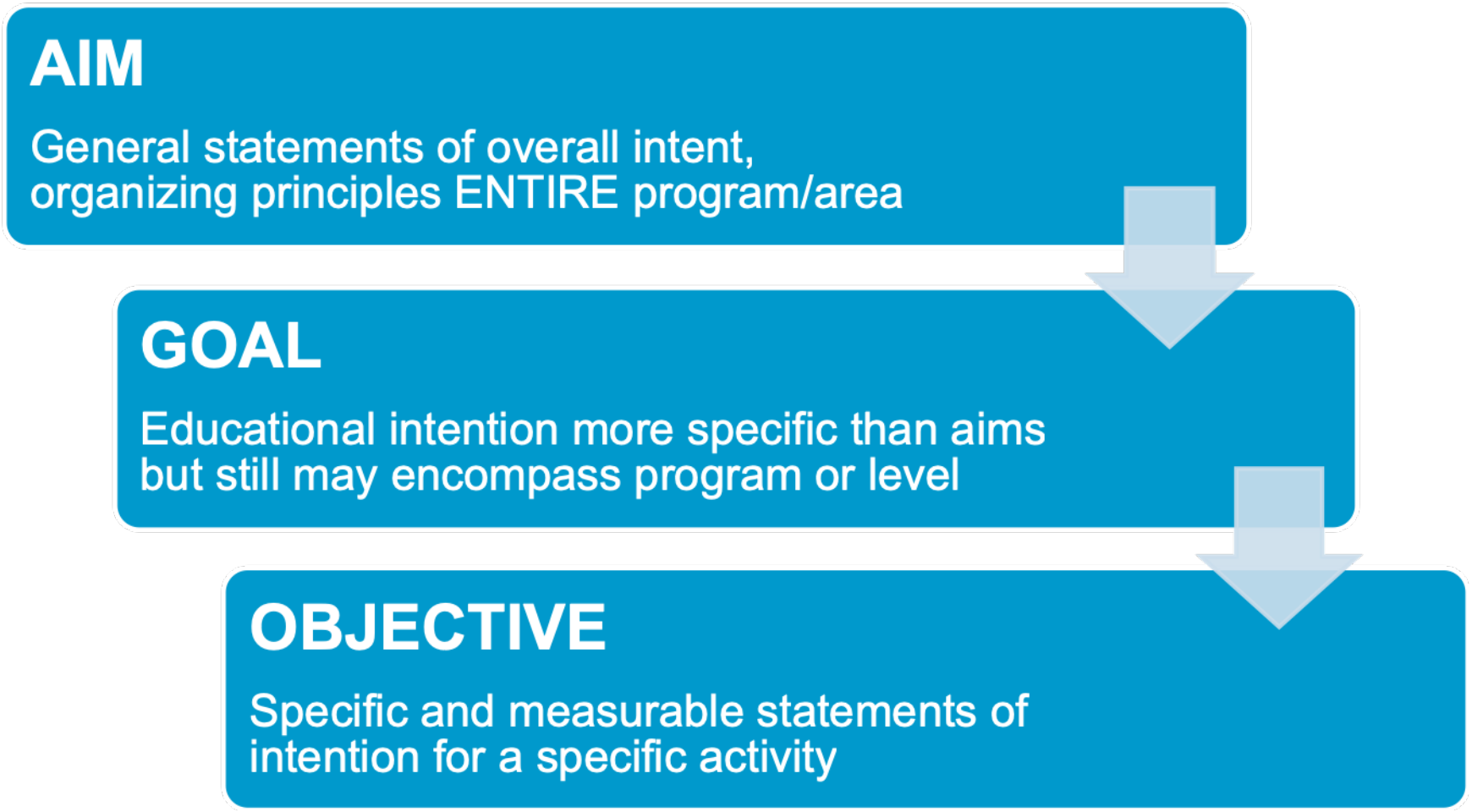
0.1 mi

7. Turn right at the 2nd cross street onto **S Franklin St**

0.1 mi

B **Willis Tower**
233 South Wacker Drive
Chicago, IL 60606

Aim vs Goal vs Objective



AT THE FOREFRONT UChicago Medicine

http://thesecondprinciple.com/instructional-design/writing-curriculum/

Radiology example

- Aim – Train competent diagnostic radiologists
- Goal – Train residents to be competent at interpreting neuroradiology studies
- Objectives
  - Specific measurable outcomes to demonstrate the learner has achieved the goal

Objectives need to be **SMART**!

You goal should be as specific as possible and answer the questions: **What** is your goal? **How** often or how much? **Where** will it take place?

How will you measure your goal? Measurement will give you **specific feedback** and hold you accountable.

Goals should push you, but it is important that they are **achievable.** Are your goals attainable?

Is your **goal and timeframe realistic** for the goal you have established?

Do you have a **timeframe** listed in your SMART goal? This helps you be **accountable** and helps in **motivation**.

Objectives

- **Specific**
  - Understand medical management of CHF

    vs.
  - List 3 medicines that decrease mortality in CHF

- **Measurable**
  - Improve oral communication of patient presentations

    vs.
  - The student will present all patients in SOAP format

- **Attainable, Realistic, Time-limited**
  - Teach using one-minute preceptor

    vs.
  - By the end of the course, faculty will demonstrate the one-minute preceptor skill in an OSTE

Writing objectives

4 key elements:

- Who will do how well/much of what by when?

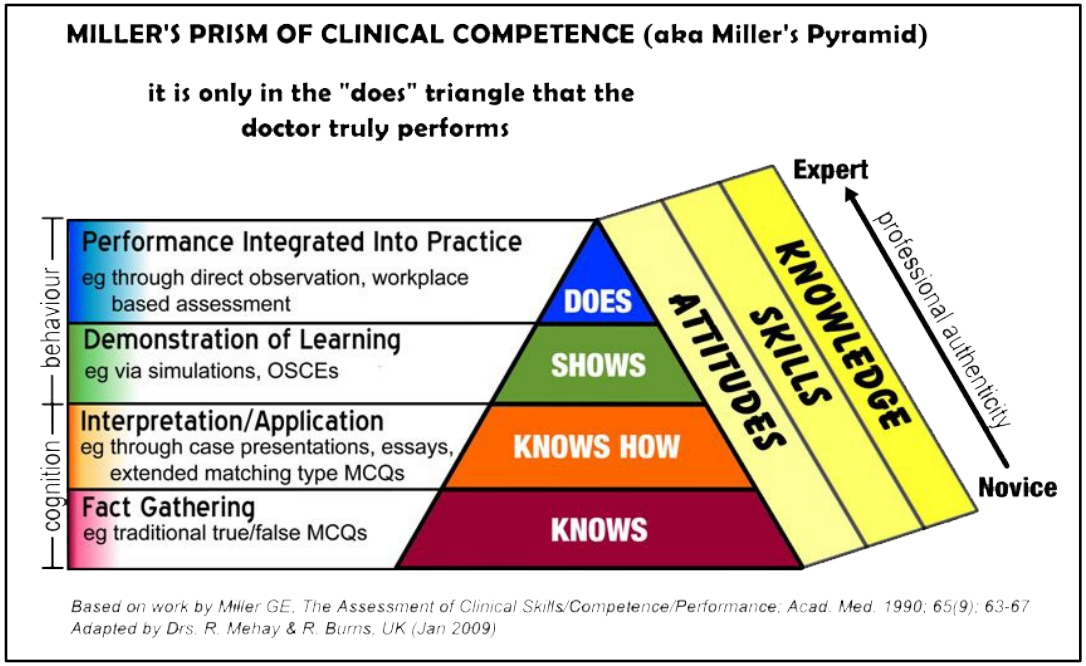
  1 2 3 4

Example:

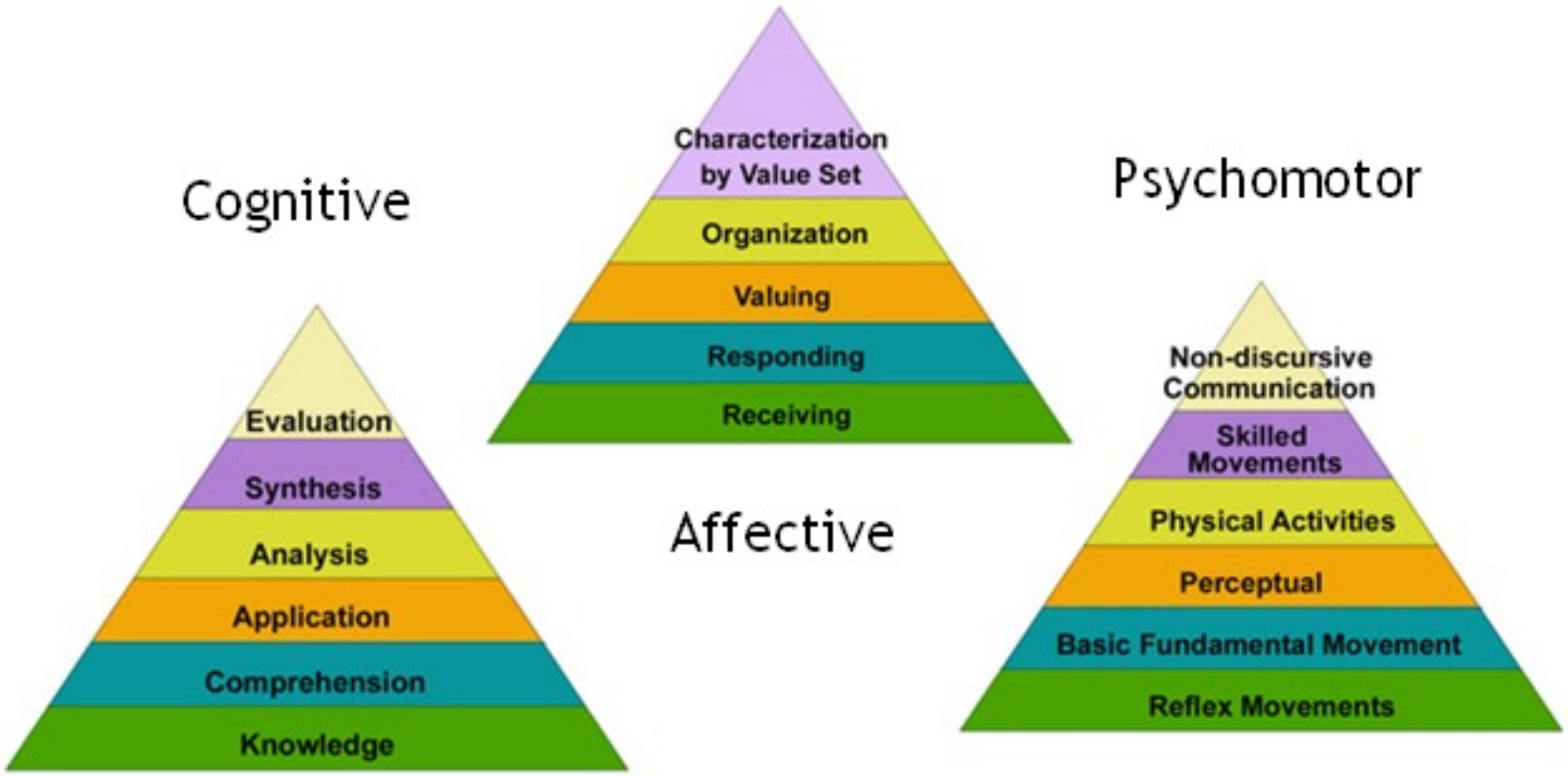
- The **student** (**who**) will **correctly** (**how much/how well**) **identify three medications that reduce CHF mortality** (**what**) by the **end of the clerkship** (**when**).

Types of Objectives using Bloom's Taxonomy

- **Cognitive**
  - Knowledge
  - Problem solving
- **Affective**
  - Attitude
- **Psychomotor**
  - Skills
  - Performance



Taxonomy Domains



Need to use **measurable** action verbs

- Which is easier to measure?

- Students will ***know*** how to tie a suture
- Students will ***list*** the steps of tying a suture

- Students will ***understand*** how to write a SOAP note
- Students will ***produce*** an example of a properly formatted SOAP note

COGNITIVE DOMAIN	**Remembering** Retrieving, recognizing, and recalling relevant knowledge from long term memory	**Understanding** Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining	**Applying** Carrying out or using a procedure through executing, or implementing	**Analyzing** Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, and attributing	**Evaluating** Making judgments based on criteria and standards through checking and critiquing	**Creating** Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing
Sample action verbs	arranges, defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states	comprehends, converts, diagrams, defends, distinguishes, estimates, explains, extends, generalizes, gives an example, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates	applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses	analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates	categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes	appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports

AFFECTIVE DOMAIN	**Receiving** Awareness, willingness to hear, selective attention	**Responding** Active participation in activities; learns from stimulus; attends and reacts to particular phenomenon; shows compliance in responding, willingness in responding or satisfaction in responding (motivation)	**Valuing** The worth or value a person attaches to a particular object, phenomenon, or behavior; ranges from simple acceptance (compliance) to commitment; based on the internalization of a set of specified values; clues are often expressed in overt behavior and are often identifiable	**Organization** Organizes values into priorities by contrasting different values; resolves conflicts between those values and creates new (or modified) value system; emphasis is on comparing, relating, and synthesizing values	**Internalizes Values** Has a value system that controls one's behavior; behavior is pervasive, consistent, predictable, and characteristically that of a learner.
Sample action verbs	acknowledge, asks, attentive, courteous, dutiful, follows, gives, listens, understands	answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, presents, tells	appreciates, cherish, treasure, demonstrates, initiates, invites, joins, justifies, proposes, respect, shares	compares, relates, synthesizes	acts, discriminates, displays, influences, modifies, performs, qualifies, questions, revises, serves, solves, verifies

PSYCHOMOTOR DOMAIN	**Perception** The ability to use sensory cues to guide motor activity; ability ranges from sensory stimulation to translation	**Set** Readiness to act; includes mental, physical, and emotional sets; these three sets are dispositions that predetermine a person's response to different situations	**Guided Response** The early stages in learning a complex skill which includes imitation and trial and error; adequacy of performance is achieved by practice	**Mechanism** The intermediate stage of learning a complex skill; learned responses have become habitual and the movements can be performed with some confidence and proficiency	**Complex Overt Response** The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy; performs without hesitation; automatic performance (Note: Same as mechanism but performed more quickly, better, and accurately)	**Adaptation** Skills are well developed and the person can modify movement patterns to fit special situations and requirements	**Origination** Creates new movement patterns to fit a particular situation or specific problem; learning outcomes emphasize creativity based on highly developed skills
Sample action verbs	chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects	begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers	copies, traces, follows, react, reproduce, responds	assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches		adapts, alters, changes, rearranges, reorganizes, revises, varies	arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates

Learner vs. Programmatic/Process objectives

- Performance
  - Specific measurable objectives that describe learners putting skills into practice
- Process
  - Specific measurable objectives that describe the actual process of the curriculum (attendance, completion of course, etc.)
- Outcomes
  - Specific measurable objectives describing outcomes or end products of the curriculum

Domain	Level on domain taxonomy	Learner objective	Process objective
Cognitive	Remembering	The medical student will correctly identify three radiation emergencies at the end of the lecture	80% of medical students will correctly identify three radiation emergencies at the end of the lecture
	Applying	The resident will correctly compute the appropriate number of monitor units to treat an emergency spinal cord compression at the end of the workshop	100% of residents will correctly compute the appropriate number of monitor units to treat an emergency spinal cord compression at the end of the workshop
	Evaluating	The radiation oncologist will correctly revise incorrect head and neck target volumes at the end of the interactive contouring workshop	80% of radiation oncologists will correctly revise incorrect head and neck target volumes at the end of the interactive contouring workshop

Small-group Exercise

Small-group exercise

- 5 minutes (group of 3)
  - Choose an educational milieu (resident lecture, resident rotation, medical student clerkship, etc)
  - Write one goal and three objectives
- 10 minutes (group of 3)
  - Share your goal/objectives with your group
  - Discuss if these are written correctly
- 10 minutes (entire group)
  - Discuss with your partner your critique, compare areas of common difficulty

Goal

This session will provide faculty with knowledge and tools to write clear and concise goals and objectives for educational initiatives such as individual lectures, medical student clerkships, resident rotations, or continuing medical education activities.

Cognitive Objectives

- By the end of today's session, attendees will:
  - (KNOWLEDGE) Define the acronym SMART for writing an objective
  - (COMPREHENSION) Define objectives as "Cognitive," "Affective," or "Psychomotor"
  - (APPLICATION) Use suggested verbs to write learner objectives applied to their personal teaching environment for each level of Bloom's taxonomy

Affective Objectives

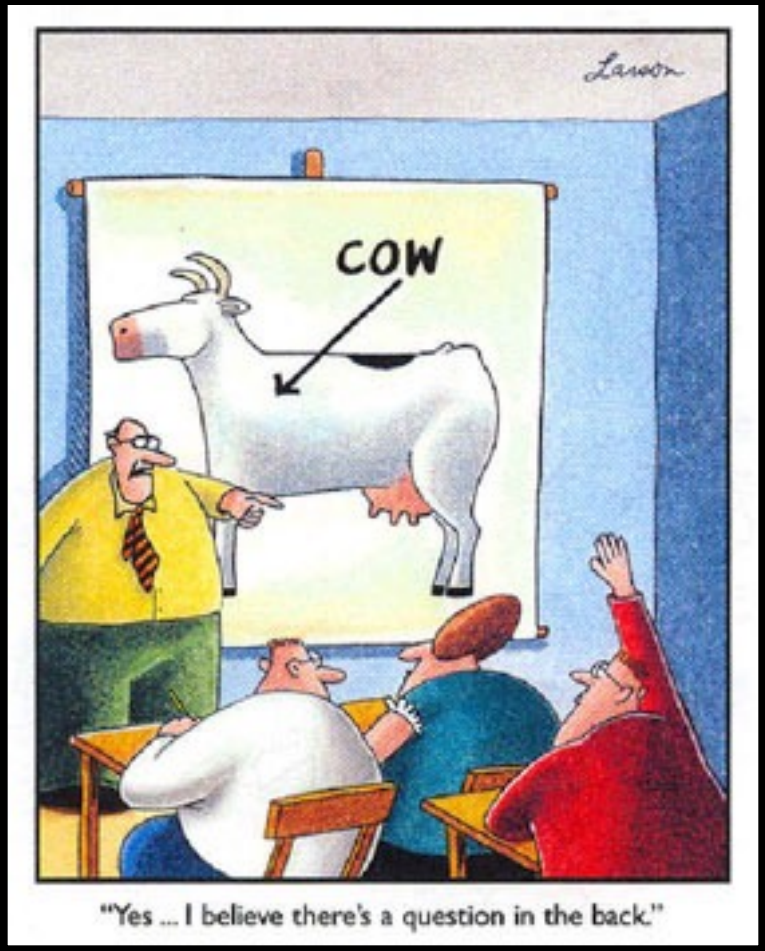
- After completion of this session the faculty will:
  - Rate the importance of developing a clear goal with attainable and measurable objectives as “Quite” or “Extremely” important
  - Rate comfort with writing goals and objectives significantly higher than prior to the session

Common pitfalls to avoid

- Objective is not specific
- Objective cannot be measured
- Objective is programmatic rather than learner focused

Did we meet our objectives?

Objective	Instruction	Assessment
Define the 6 steps for r curriculum developme		Post-assessment
Define objectives as "C or "Psychomotor		Discussion; small group exercise
Use suggested verbs to objective applied to th environment for each l taxonomy		Small group exercise revised objectives
Rate the importance of goal with attainable an objectives as "Quite" o		Discussion; post-assessment
Rate their comfort with objectives significantly the workshop		Discussion; post-assessment



dgolden@radonc.uchicago.edu @d_golden

UChicago Medicine