

Transform your Educational Idea
into a Well-Designed Curriculum

Definition of curriculum: A planned educational experience

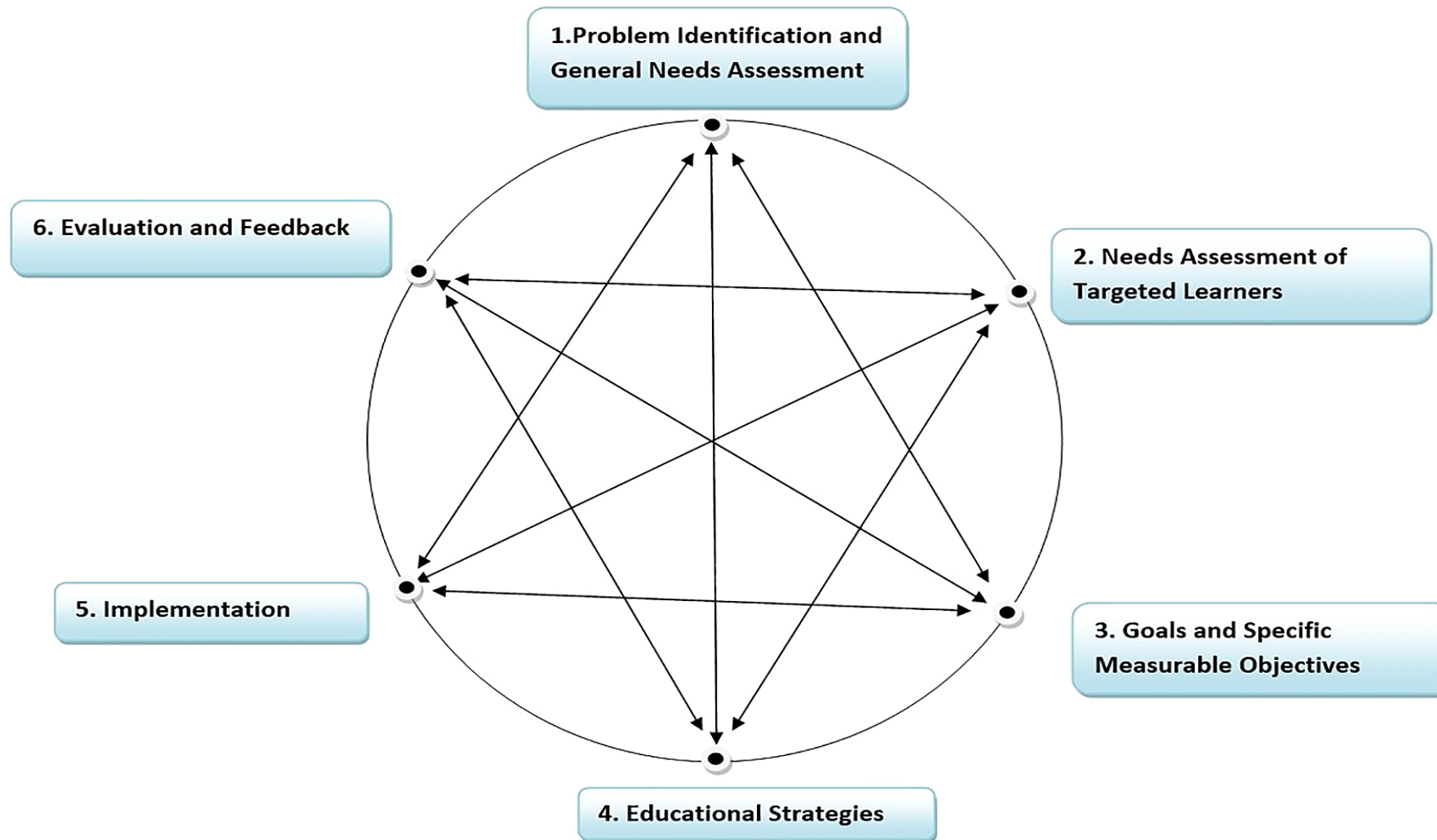
Accreditation bodies in medical education require written curricula with 3 components:

1. Learning objectives
2. Methods
3. Evaluation

Kern's 6-step model for curriculum development in medical education

1. Problem identification and general needs assessment
2. Targeted needs assessment
3. Goals and objectives
4. Educational strategies
5. Implementation
6. Evaluation and feedback

The process is not linear!

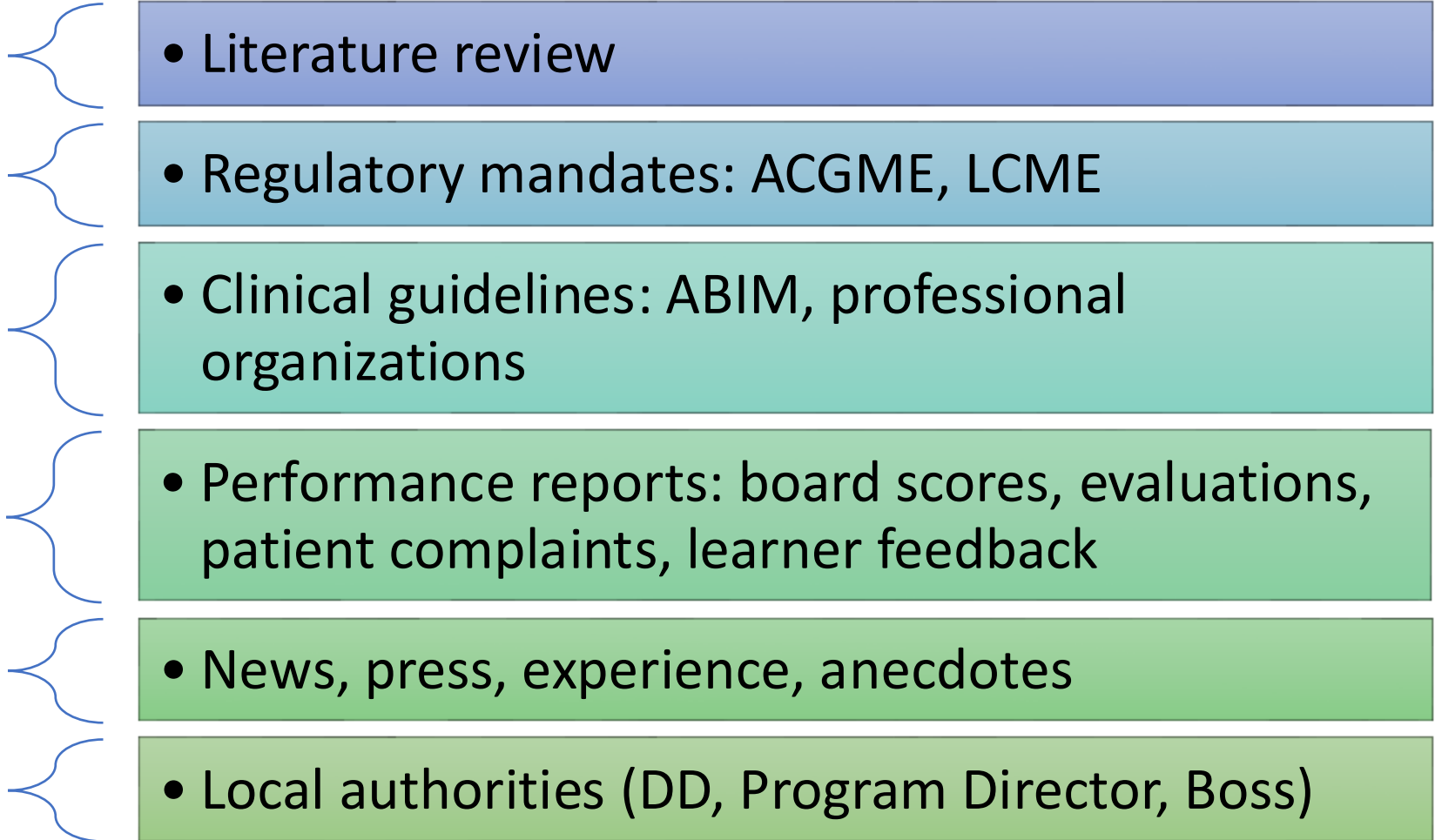


Step 1. Problem identification and general needs assessment

- ***What is the rationale??***
- It is critical to consider...
 - Why is my curriculum worth time and effort?
 - What is the health problem or outcome that needs to be addressed?
 - What is the ideal role a planned educational experience can have to improve health outcomes?
 - Whom does the problem affect (patients, learners, health care professionals, medical educators, society)?
 - What does it affect (clinical outcomes, quality of life, quality of care, cost, satisfaction)?

Step 1. Problem identification and needs assessment

The better a problem is defined, the easier it is to design a curriculum to address it



- Literature review

- Regulatory mandates: ACGME, LCME

- Clinical guidelines: ABIM, professional organizations

- Performance reports: board scores, evaluations, patient complaints, learner feedback

- News, press, experience, anecdotes

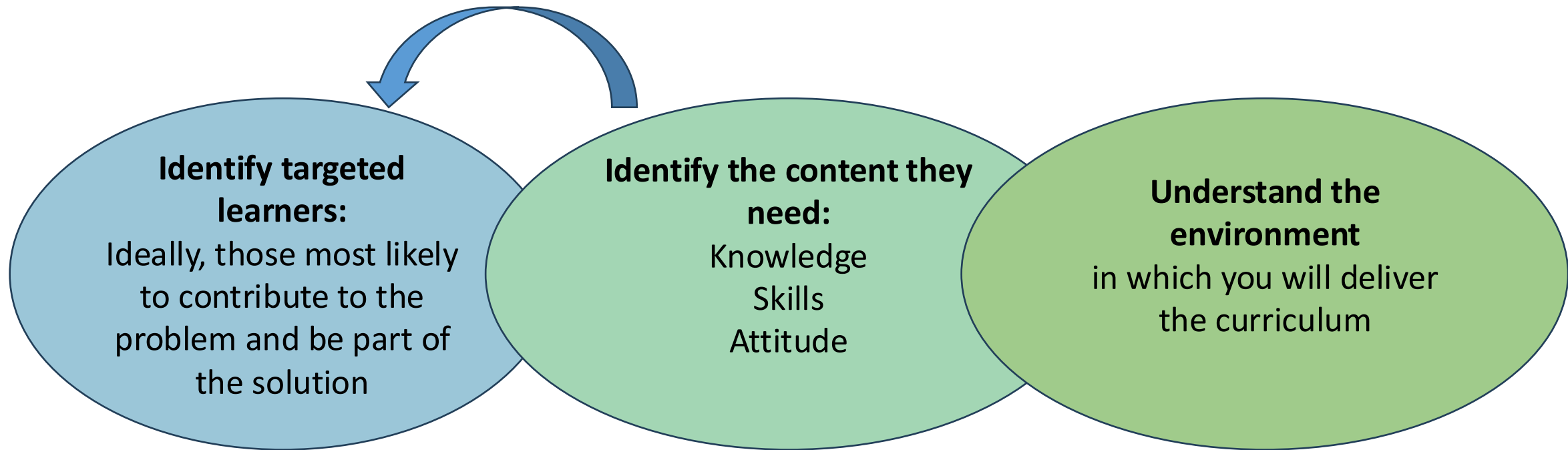
- Local authorities (DD, Program Director, Boss)

Publication requires strong evidence

if publication is your goal, the more rigorous your needs assessment should be

- **A literature review is essential**
- Identify gaps in what is known about the topic, what has been done, why your work is needed
- This becomes the introduction (and discussion) of a future grant application, abstract, or manuscript
- Document it, keep your references

Step 2. Targeted needs assessment



Involve stakeholders to ensure your success!

Prevent duplication, right learner level, system-level environment change to implement

Targeted needs assessment methods

- Multiple methods
 - Each with advantages and disadvantages
 - Consider your time, costs, resources
- May serve as a pre-test
- If publication, this should be rigorous
 - Don't forget to pilot surveys
- Consider barriers in advance
 - Patients, technology, resources, learners' time, etc

Informal discussion
Formal interviews
Focus group discussions
Questionnaires and surveys
Direct observation
Tests
Chart audits
Strategic planning sessions

Table 3.2, page 37-38

Step 3. Goals and Objectives

Goals: broad terms easy to communicate to all stakeholders (the program directors, the teachers, the learners).

Objectives: specific and measurable outcomes.

Goals, examples

Medicine clerkship rotation for medical students

- *To learn the initial evaluation and management for the most common diagnoses seen on the general internal medicine inpatient service.*

Patient safety curriculum in a residency program

- *To enhance the culture of patient safety among Internal Medicine residents by improving their knowledge, skills, and attitudes for the system-level elements related to patient safety.*

Objectives

1. Should be **SMART**
2. Can be for knowledge, skills, and/or attitudes
3. Have a hierarchy of complexity and achievement depending on the learner's level (Bloom's Taxonomy)
4. Can be at the learner level or the program level

Specific
Measurable
Achievable
Relevant
Timely

Chose the correct verb for the K, S, A

Knowledge (cognitive)

List
Recite
Recognize
Define
Describe
Explain
Implement
Analyze
Evaluate (critique, judge)
Create (design, construct)

Skills (psychomotor)

Demonstrate
Show

“Will have counseled a patient”

Attitudes (values, bias)

Demonstrate
Describe
Explain

“will have demonstrated a deeper awareness of their own biases, as demonstrated in a reflective writing assignment”

Objectives

1. Should be SMART
2. Can be for knowledge, skills, or attitudes (or multiple)
3. Have a hierarchy of complexity and achievement depending on the learner's level (Bloom's Taxonomy)
4. **Can be at the learner level or the program level**

Learner level:

- Each resident during the PGY2 year will complete a trend tracker to demonstrate awareness of patient safety reporting

Program level:

- By the end of this AY, 90% of PGY2 residents will have completed a trend tracker as part of the hospital patient safety effort

Step 4. Educational strategies/methods

- The means by which the curricular objectives will be achieved - the **intervention**
- Apply cognitive science of adult learning
- 3 guidelines to consider:
 1. Congruence between objectives and methods (see next slide)
 2. Use multiple educational methods
 3. Choose educational methods that are feasible with your resources

Lots of educational methods

- Readings
- Lectures
- On-line resources
- Team-based learning activities
- Real life experiences
- Simulation (standardized patients, mannequins, role play)
- Audio/video review of learner
- Discussion (large or small group)
- Reflection (oral or written)
- Role play

Educational methods should match objectives

Objective	Methods
Knowledge	Readings, lectures, on-line resources, team-based learning
Skills	Real life experiences, simulation (standardized patients, role play), audio/video review of learner
Affective/attitudinal	Discussion (large or small group), reflection (oral or written), role play

Educational methods should match setting(s)

Setting(s)	Methods
Classroom	Lecture, simulation (standardized patients, role play, recording of learner)
Clinical settings	Real life experiences (one-on one precepting), case presentation, rounds, direct care
Team based	Problem-based learning, team based learning, simulation, discussion (large or small group), written assignments
Independent	Readings, written reflections, tests, on line modules

Use educational methods to enhance learning

- Attention Grabbers
 - Openers – cartoon, quote, statistics
 - Video clips
 - Brainstorming, best/worst
 - Closers
- Skill builders
 - Formal presentation/lecture
 - Cases
 - Independent use of written or technology-based materials
 - Role play or simulation
- Catalyst
 - Progressive disclosure cases
 - Quiz, audience response systems
 - Small group activities
 - Think, write/pair, share
- Intensifiers
 - Narrative writing, reflection
 - Learner presentations
 - Debriefing
 - Facilitation
 - Commitment to Act

Step 5. Implementation of one hour session

Time	Min	Teaching method	Description	Equipment, supplies	
12:08 – 12:10	2	Attention grabber	Personal anecdote		
12:10-12:15	5	Attention grabber	Large group discussion on board; Best/worst		White board, markers
12:15-12:30	15	Skill builder	Didactics		Slides, laptop
12:30-12:40	10	Intensifier	Case with application; progressive disclosure		
12:40-12:50	10	Intensifier	Think-pair-share		Worksheet
12:50-12:55	5	Intensifier	Large group debrief		White board, markers
12:55-1:00	5	Catalyst	Summary, and commitment to change (homework)		worksheet

Step 5. Implementation of longitudinal curriculum

Time	Teaching method	Description	Equipment, supplies
Session 1 (times, location)	Skill building	Didactics: Topic 1 Topic 2	Communication before the session Pre-test (IRB approval?) Reserve room Snacks
Session 2	Catalyst	Sim lab	Reserve room Simulated patients or models Preceptors Direct observation tools (checklist) Station assignments
Session 3	Intensifier	Learner presentation of relevant case or didactic	Reserve room Assign learner Preceptor
Session 4...			Post-test, evaluation form or QR code

Make a timeline – in reverse order (example below)

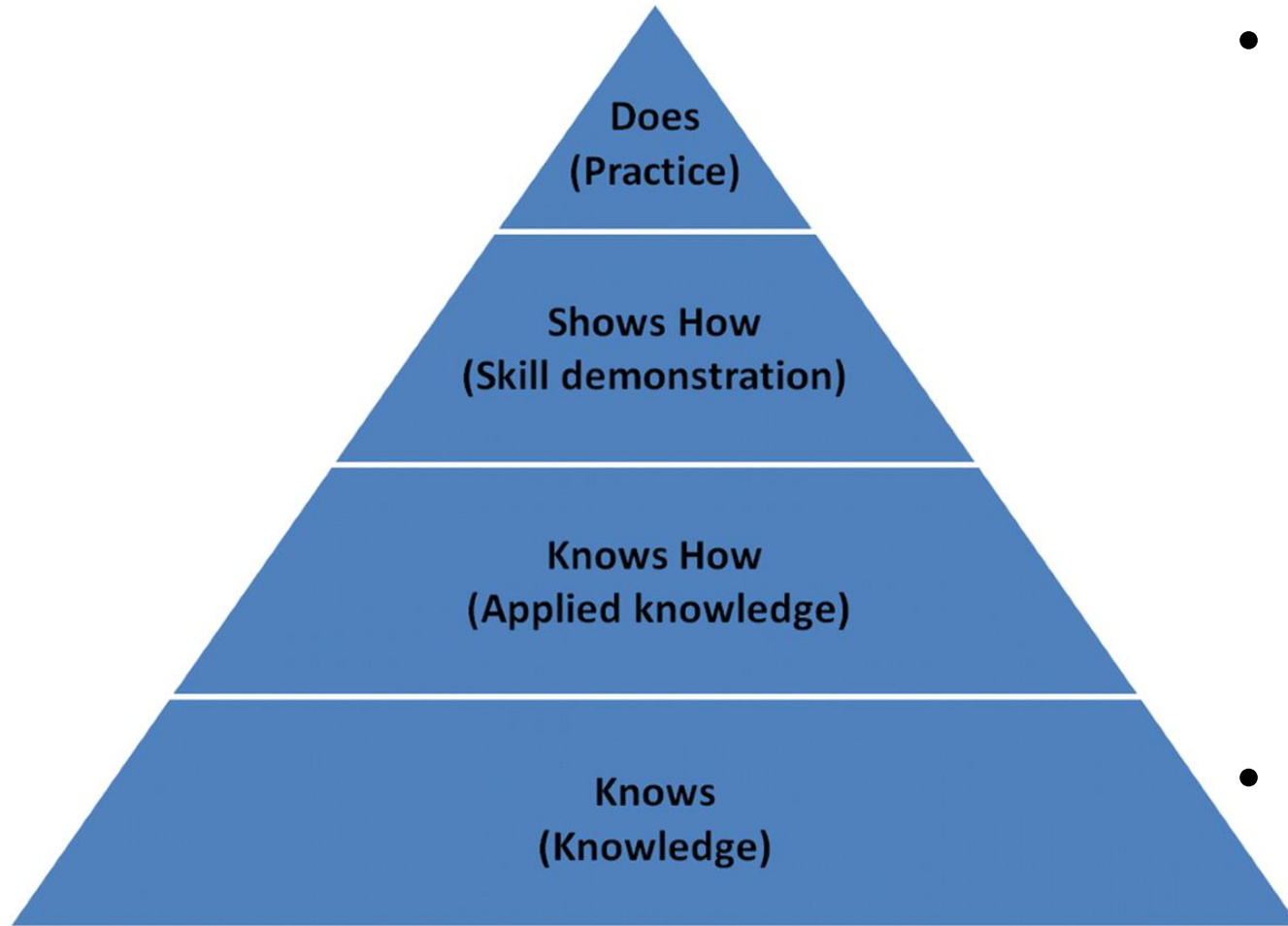
- ☐ July 15: curricular session 1
- ☐ July 1: first class starts
- ☐ July 1-15: communicate with participants
 - ☐ Email weekly
 - ☐ PD announces at didactic conference
- ☐ June 1-15: confirm room, food, supplies
- ☐ May 30: order food
- ☐ March 1: book room
- ☐ Feb 1: submit to IRB
- ☐ Jan 1-25: create survey, pilot survey to residents, modify survey

Step 6. Evaluation and Feedback

Why evaluate?

- Evaluation closes the loop on your curriculum
 - Were the goals and objectives met?
 - Does the curriculum need to be modified?
- To give **formative** feedback to a learner, or a program/curricular director
- To give **summative** feedback to the learner (advancement, completion) or the program (additional resources)

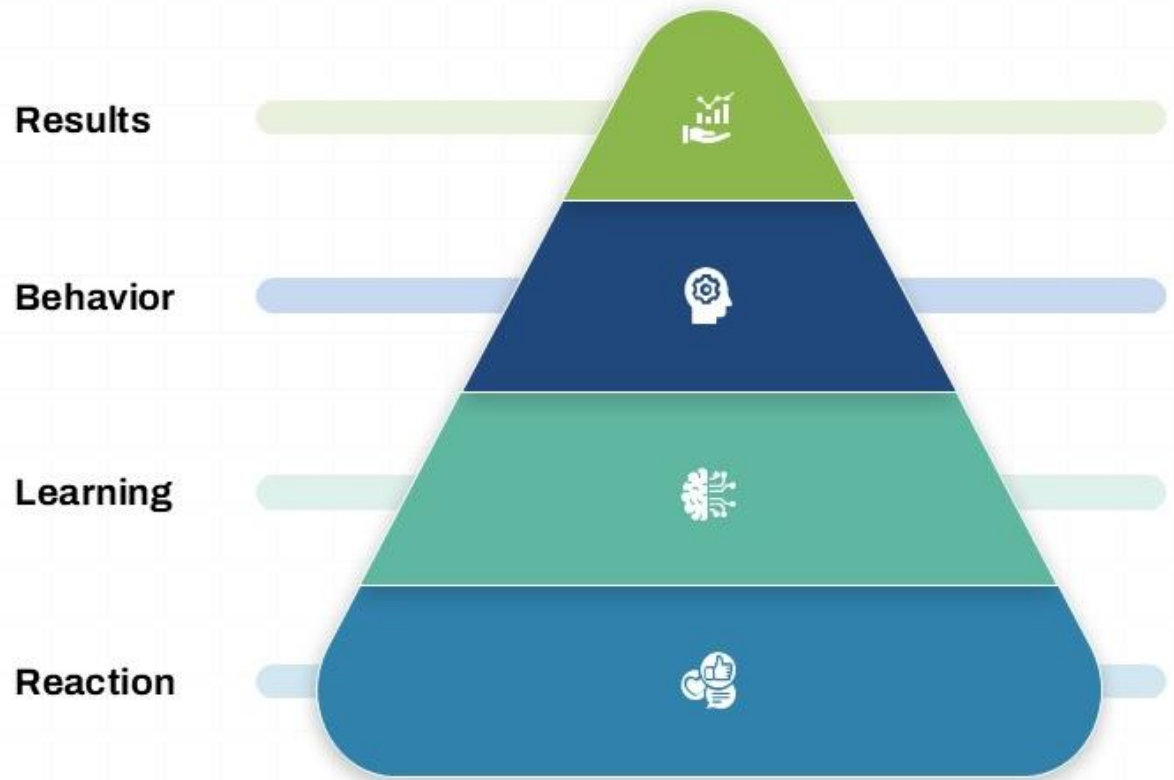
Step 6. Evaluation and Feedback: Learner



Miller's pyramid of competence

- Evaluation of the *learner*
 - Examinations
 - Evaluation forms (360)
 - Essays/reflections
 - Self-assessment
 - Direct observation (actual, simulations)
 - Documentation (chart audits, procedure log)
 - OSCE
- Did they achieve the objectives?

Step6. Evaluation and Feedback: the Program



Kirkpatrick Model

- Evaluation of the program outcomes
 - Global rating forms
 - Self-assessment forms
 - Essays
 - Focus groups
 - Examinations – written, oral
 - Direct observation – checklists
 - Performance audits
 - Portfolios
- **Aggregate** of all the learners, or other outcomes (e.g. feasibility)

Evaluation designs

- Multiple designs
 - Post test only
 - Pre/post test
 - Experimental vs control group
- Additional considerations:
 - your resources & expertise
 - complexity of the design
 - natural maturation of the learner
 - effects of testing
- Consider involving a statistician early