



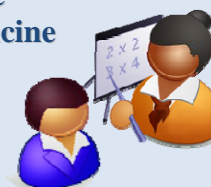
Teaching Trainers to Train (T3)

“Is Learning a Noun or Verb?”



July 2007

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AUTHOR PROFILE

As Assistant Director of Medical Education and Co-Chair of the Division of Education in the Department of Family and Social Medicine at Albert Einstein College of Medicine, I am working on curriculum development and revision and assessment of teaching and learning to achieve quality education programs for students, residents and faculty. A parallel process is development and coordination of faculty development programs for the clerkship faculty, the residency training faculty and a fellowship for junior faculty. In addition I enjoy the opportunity to teach in the medical school and residency program and serve on various education committees.

I earned my doctoral degree in May, 2001 from Columbia University, Teachers College in Higher Education, College Teaching and Academic Leadership. My doctoral research focused on my professional interest and passion, improved teaching and learning. As an educator in higher education I identified the need for more ethics education for dietetics students. In addition I realized the lack of education in this area was a result of educators not having resources to use with students. For my thesis, entitled *The Development of an Ethics Curriculum for Dietetics Students Utilizing Learner-Centered Pedagogy* I conducted an applied research project and developed an ethics curriculum for college students, which was learner-centered and considered the developmental stage of students and their individual learning styles. My degree, courses and research, met my expectations and allowed me to embellish my love for pedagogy that improves teaching and learning. Currently I am focusing my professional interests on trying to bring ethics to the fore front of the education and practice world.

In my previous position, as Faculty Coordinator for Curriculum Development and Assessment, I was primarily responsible for curriculum development and revision for both the general education and major program/courses. In addition as Associate Dean of Health, Education and Human Services, my focus was curriculum development, revision and assessment of the health programs.

I completed my Bachelor of Science Degree at Cornell University in Nutrition and my Master of Science at Columbia University, Teachers College in Nutrition Education. My nutrition practice interests align with lifestyle behavior change and the role of nutrition and exercise in promoting healthful behaviors throughout the lifecycle.

On a personal note I love to cook healthy fresh food, entertain, ski, bicycle (inside and out) and swim. I am currently trying to take up kayaking, a hobby of my spouse.

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PREFACE

Teaching and learning should include messages of safety, inclusion, presence, and respect for diversity of ideas and people and reverence for life. Teaching and learning should support three assumptions: (1) provide education that allows for “associated living”, learners talking and relating to each other in a diverse learning environment; (2) allow teachers and learners to enter conversation in dialogue; and (3) create a structure that encourages and fosters collaborative learning and experiential learning. The goal is to educate learners/practitioners who can reason as well as read; who possess insight as well as knowledge; who have the capacity for empathy and ethical conduct; who recognize and appreciate individual differences; and who possess the skills necessary for living and working in a complex diverse society. Prepare to teach by identifying your learner characteristics and your teaching approaches; connect these to the desired objectives and learning outcomes and align this with the content (i.e. curriculum). Always consider the amount of framework and direction (structure) provided the diversity in content, which is sequenced appropriately, and experiential/active learning as the core. Envelope this as a part of an environment where learning is safe (support), risk-taking is encouraged (challenge), dialogue is rational and there is listening and reflection on what is being said and taught. Coat this with enthusiasm for teaching and learning and your product, the knowledgeable and skilled learner/practitioner, will share in the success of this teaching and learning partnership and model it for others. (Fornari, 2001)

I. Introduction on the Teaching and Learning Paradigm: Principles, Guidelines and Behaviors

A. EDUCATIONAL THEORY 101(Kaufman, 2003)

Androgogy: “the art and science of helping adults learn.”

#1. Adult Learning Theory

Historical Roots of Adult Learning Principles

Since the 1970s, adult learning theory has offered a framework for educators and trainers whose job it is to train adults. Malcolm S. Knowles (1970, 1980)(Knowles, 1980) was among the first proponents of this approach.

Knowles believes that the adult learner brings life experiences to learning, incorporating and complementing the cognitive abilities of *Piaget's adolescent. As the individual matures:

1. his/her self-concept moves from dependency to self-direction
2. he/she accumulates a growing reservoir of experiences that becomes a resource for learning
3. his/her learning readiness becomes increasingly oriented to the tasks of various social roles
4. his/her time perspective changes from one of postponed knowledge application to immediate application
5. his/her orientation to learning shifts from subject-centered to problem-centered

****Note: This stage of adolescence brings cognition to its final form. This person no longer requires concrete objects to make rational judgments. At his point, he is capable of hypothetical and deductive reasoning. Teaching for the adolescent may be wide-ranging because he'll be able to consider many possibilities from several perspectives***

Knowles' Adult Learning Principles:

1. establish an effective learning climate, where learners feel safe and comfortable expressing themselves
2. involve learners in planning of methods and curricular content
3. involve learners in diagnosing their own needs
4. encourage learners to formulate their own learning objectives
5. encourage learners to identify resources and devise strategies for using the resources to achieve objectives
6. support learners in carrying out their plans

- involve learners in evaluating their own learning-this will develop skills of critical reflection

Adults

- Decide for themselves what is important to be learned
- Need to know why they need to learn something
- Need to validate the information based on their beliefs and values
- Expect what they are learning to be immediately useful
- Have substantial experience upon which to draw; may have fixed viewpoints
- Significant ability to serve as a knowledgeable resource to the trainer and fellow learners
- More responsive to internal motivators than external motivators
- Life centered in their orientation to learning

Activities: *How do these adult learning principles relate to designing learning activities and training in the clinical setting? Provide a specific example of using the principles to formulate a learning/training activity in the clinical setting.*

#2. Self Directed Learning Theory: organizes teaching and learning so that learning is within the learners' control

1. Identify a goal towards which learners strive so they are empowered to accept personal responsibility for their own learning, personal autonomy, and individual choice
2. The ability to be methodical and disciplined; logical and analytical; collaborative and interdependent; curious, open, creative and motivated; persistent and responsible; confident and competent; reflective and self-aware
3. Ability to ask questions, critically appraise new information, identify their own knowledge and skill gaps, and reflect critically on learning processes and outcomes

#3. Constructivism: learners construct their own knowledge on the basis of what they know; learning is active and learners judge/control when and how to modify their knowledge

1. The teacher is viewed not as the transmitter of knowledge but as a guide who facilitates learning
2. learning is based on prior knowledge and learning experiences need to expose inconsistencies between students' current understandings and their new experiences
3. Engage students in learning in an active way-use relevant problems
4. Allow time for examination of new experiences

#4. Reflective Practice (Schon): develop wisdom and artistry in practice by reshaping practice based on reflection (debriefing, feedback, journal recording)

1. Unexpected events or surprises trigger reflections
2. Reflection in Action: ability to learn and develop continually by creatively applying current and past experiences and reasoning unfamiliar events
3. Reflection on Action: thinking back on what happened in a past situation, which may have contributed to the unexpected event; think if the actions taken were appropriate and how the situation affects future practice

#5. Social Learning Theory

1. Adopting new skills and behaviors requires that the learner step into a new unfamiliar role
2. Doing/active learning ingrain's a behavior more effectively than reading or hearing about it
 - a. Emphasize role modeling and skill practice in training sessions.
3. While most learners initially resist role plays, having a chance to practice new skills in a safe environment can be very useful

#6. Positive Psychology/Solution-Oriented Therapy

1. Doing more of what we do well – it feels good and we can build confidence.
2. Leveraging strengths
3. Focusing on strengths can also generate enthusiasm in the learners – an important element if you want them to continue working in these areas

Activities:

- *Of the theories presented, which theory is most congruent with your teaching style?*
- *Of the theories presented, which do you want to consider adopting/adapting to your teaching style?*

Learning Points:

Learning Theories:

1. Adult Learning Theory
2. Self Directed Learning Theory
3. Constructivism
4. Reflective Practice (Schon)
5. Social Learning Theories
6. Positive Psychology/Solution- Oriented Therapy

B. WHAT ARE THE SEVEN PRINCIPLES OF GOOD PRACTICE IN EDUCATION (Chickering, 1991)

Good Practice in Education:

1. **Encourages contact between learners and faculty:** Frequent learner-faculty/trainer contact in and out of classes is the most important factor in learner motivation and involvement
2. **Develops reciprocity and cooperation among learners:** Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions sharpens thinking and deepens understanding
3. **Encourages active learning:** Learners must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives
4. **Gives prompt feedback:** Knowing what you know and don't know focuses learning. Learners need appropriate feedback on performance. When getting started, learners need help in assessing existing knowledge and competence. Learners need chances to reflect on what they have learned, what they still need to know, and how to assess themselves
5. **Emphasizes time on task:** Allocating realistic amounts of time means effective learning for learners and effective teaching for faculty. How an institution defines time expectations can establish the basis of high performance for all
6. **Communicates high expectations:** Expect more and you will get more
7. **Respects diverse talents and ways of learning:** There are many roads to learning. People bring different talents and styles of learning to any educational setting

What qualities must a quality education environment have?

1. A strong sense of shared purposes
2. Concrete support from administrators and faculty leaders for those purposes
3. Adequate funding appropriate for the purposes
4. Policies and procedures consistent with the purposes
5. Continuing examination of how well the purposes are being achieved

Checklist to Ensure Good Physical Environment for Teaching (Hutchinson, 2003)

- ✓ Is the room/space the right size and set up?
- ✓ Is the temperature comfortable?
- ✓ Are there distractions you can limit?
- ✓ Is AV equipment accessible and working, if needed?

Elements of a Positive Educational Environment for Learners:

1. Motivation is present
 - a. Intrinsic from learner (previous experiences, personal desire, relevance of learning to future)
 - b. Extrinsic from external factors (credentialing, grading, promotion, career development)
 - c. Facilitator role (enthusiasm for subject, interest in learner experiences, and clear direction)
2. Perceived relevance to learner (connect content/skills to immediate needs, future work, certificate or degree)
3. Perception of task to be learned and perception by learner of trainer

Activity: *Create your own list of principles for learners, faculty/trainers, environment-i.e. your personal teaching/training philosophy.*

How to Convert Educational Theory to Practice: Guiding Teaching Practices (Kaufman, 2003)

1. The learner is an active contributor to the educational process
2. Learning should relate to understanding and solving real life problems
3. Learner's current knowledge and experience are critical to new learning environments
4. Learners should be given the opportunity and support to use self-direction in learning
5. Learners should be given opportunities and support for practice, accompanied by self-assessment and constructive feedback from teachers and peers
6. Learners should be given opportunities to reflect on their own practice
7. Use of role models impacts learners; people teach the way they were taught; therefore good role modeling of educational principles in practice with junior faculty will make learners more effective teachers and should lead to better patient care over time; reflection on what learners observed can enhance outcomes

Learning in Practice

1. Recognize the individuality of the learner (prior learner experience and learning styles)
2. Foster coaching and partnership between learner and trainer
3. Develop a flexible and reflective educational style that is tailored to the individual learner
4. Engender in the learner a feeling of being valued
5. Construct a personal learning plan that includes formal appraisal and rigorous assessment of learner needs (consider motivation, perceived relevance, and perceptions of tasks)

6. Allow for reflection, by both the learner and the trainer is key

Activity: Describe three “real world” cases studies representing situations encountered in clinical settings focused on education/training. Brainstorm/solve the issues/problems presented using the educational practices/principles presented.



Learning Points:

Seven Principles of Good Practice in Education (Chickering, 1991)

1. Encourages contact between learners and faculty
2. Develops reciprocity and cooperation among learners
3. Encourages active learning
4. Gives prompt feedback
5. Emphasizes time on task
6. Communicates high expectations
7. Respects diverse talents and ways of learning

II. PLANNING TO TEACH

A. LEARNING PRINCIPLES

Learner preferences for information and communication exchange (Fleming, 2006)

When learners make changes to their study methods based on their preferences, their learning will be enhanced, that is, when they use strategies that align with their preferences. It is what you do after you learn your preference that has the potential to make a difference. Your preferences can be used to help you develop additional, effective strategies for learning.

Do You Know How You Learn?

VARK tells you something about yourself that you may or may not know. It is a short, simple inventory that has been well-received because its dimensions are intuitively understood and its applications are practical. It has helped people understand each other and to learn more effectively and faculty to become more sensitive to the diversity of teaching strategies necessary to reach all learners.

The acronym **VARK stands for Visual, Aural, Read/write, and Kinesthetic** sensory modalities that are used for learning information. Fleming and Mills (1992) suggested four categories that seemed to reflect the experiences of the learners and teachers. Although there is some overlap between categories, they are defined as follows.

Visual (V):

This preference includes the depiction of information in charts, graphs, flow charts, and all the symbolic arrows, circles, hierarchies and other devices that instructors use to represent what could have been presented in words. It does NOT include movies, videos or PowerPoint.

Aural / Auditory (A):

This perceptual mode describes a preference for information that is "heard or spoken." Students with this modality report that they learn best from lectures, tutorials, tapes, group discussion, email, speaking, web chat, talking things through.

Read/write (R):

This preference is for information displayed as words. Not surprisingly, many academics have a strong preference for this modality. This preference emphasizes text-based input and output - reading and writing in all its forms.

Kinesthetic (K):

By definition, this modality refers to the "perceptual preference related to the use of experience and practice (simulated or real)." Although such an experience may invoke other modalities, the key is that the student is connected to reality, "either through concrete personal experiences, examples, practice or simulation."

Access the VARK Questionnaire at:

<http://www.vark-learn.com/english/page.asp?p=advice>

Kolb's Experiential Learning Theory (learning styles) Model (Kolb and Kolb, 2000)

Kolb includes this '**cycle of learning**' as a central principle his experiential learning theory, typically expressed as four-stage cycle of learning, in which '**immediate or concrete experiences**' provide a basis for '**observations and reflections**'. These '**observations and reflections**' are assimilated and distilled into '**abstract concepts**' producing new implications for action which can be '**actively tested**' in turn creating new experiences.

Kolb says that ideally (and by inference not always) this process represents a learning cycle or spiral where the learner '**touches all the bases**', i.e., a **cycle of experiencing, reflecting, thinking, and acting**. Immediate or concrete experiences lead to observations and reflections. These reflections are then assimilated (absorbed and translated) into abstract concepts with implications for action, which the person can actively test and experiment with, which in turn enable the creation of new experiences.

Kolb's model therefore works on two levels –

A four-stage cycle:

- Concrete Experience - (CE)
- Reflective Observation - (RO)
- Abstract Conceptualization - (AC)
- Active Experimentation - (AE)

A four-type definition of learning styles, (each representing the combination of two preferred styles), for which Kolb used the terms:

- Diverging (CE/RO)
- Assimilating (AC/RO)
- Converging (AC/AE)
- Accommodating (CE/AE)

The Four Kolb Learning Styles (Kolb, 1984):

Diverging (feeling and watching - CE/RO) - These people are able to look at things from different perspectives. They are sensitive. They prefer to watch rather than do, tending to gather information and use imagination to solve problems. They are best at viewing concrete situations several different viewpoints. Kolb called this style 'Diverging' because these people perform better in situations that require ideas-generation, for example, brainstorming. People with a Diverging learning style have broad cultural interests and like to gather information. They are interested in people, tend to be imaginative and emotional, and tend to be strong in the arts. People with the Diverging style prefer to work in groups, to listen with an open mind and to receive personal feedback.

Assimilating (watching and thinking - AC/RO) - The Assimilating learning preference is for a concise, logical approach. Ideas and concepts are more important than people. These people require good clear explanation rather than practical opportunity. They excel at understanding wide-ranging information and organizing it a clear logical format. People with an Assimilating learning style are less focused on people and more interested in ideas and abstract concepts. People with this style are more attracted to logically sound theories than approaches based on practical value. These learning style people are important for effectiveness in information and science careers. In formal learning situations, people with this style prefer readings, lectures, exploring analytical models, and having time to think things through.

Converging (doing and thinking - AC/AE) - People with a Converging learning style can solve problems and will use their learning to find solutions to practical issues. They prefer technical tasks, and are less concerned with people and interpersonal aspects. People with a Converging learning style are best at finding practical uses for ideas and theories. They can solve problems and make decisions by finding solutions to questions and problems. People with a Converging learning style are more attracted to technical tasks and problems than social or interpersonal issues. A Converging learning style enables specialist and technology abilities. People with a Converging style like to experiment with new ideas, to simulate, and to work with practical applications.

Accommodating (doing and feeling - CE/AE) - The Accommodating learning style is 'hands-on', and relies on intuition rather than logic. These people use other people's analysis, and prefer to take a practical, experiential approach. They are attracted to new challenges and experiences, and to carrying out plans. They commonly act on 'gut' instinct rather than logical analysis. People with an Accommodating learning style will tend to rely on others for information than carry out their own analysis. This learning style is prevalent and useful in roles requiring action and initiative. People with an Accommodating learning style prefer to work in teams to complete tasks. They set targets and actively work in the field trying different ways to achieve an objective.

B. Identify Content, Learners and Context

Define the scope

- patient population and aspects of population health
- category of care: i.e. prevention, disease-model, normal life cycle, procedures
- context of care setting
- subject matter: theory, core knowledge and skills and psychosocial components

Ideal Approach (A Loop) (Kern et al., 1998)

Create a template, include:

- **Identify and incorporate relevant competencies**
- **Identify characteristics of learners and teacher**
 - Needs of the learners:
 - Pretest to evaluate prior/current knowledge, skills/experiences
 - Self evaluation of competency (knowledge and/or skills) by learner prior to beginning curricular unit
 - Needs of the teachers:
- **Goals and objectives drive structure and content of activities**
 - Must be specific and measurable
 - What knowledge and skill(s) do you want the learner to have upon completion of the curricular unit?
 - Connect to competency based assessment: knowledge, skills and attitudes
 - Clarify/anchor expectations of learner
 - Incorporate evidence-based best practices
 - Provide current information/resources
 - Realistic available resources
- **Identify Educational Teaching Strategies**
 - Direct observation in patient care setting (may or may not include reflection, but desirable)
 - Didactics- topic and case-based-use experts when appropriate
 - Case presentations/debriefings with directed readings
 - Evidence-based Journal Club debate
 - Practice based inquiry
 - Reflection by learner: individual and dialogue among peers and teachers
- **Implementation**
 - Assure curriculum is available to teachers and learners –hard copy, electronic, web-based
 - Media required
 - Pilot with learners at one site
 - Increase sites were teaching and learning can happen after revisions from pilot
- **Evaluation and Feedback**
 - Post Test
 - Competency Assessment (Dreyfus Model)

- Self assessment
 - 360/Global Assessment
 - Patient assessment of junior faculty (continuity)
 - Support staff assessment of learner
 - Nursing assessment of learner
 - Faculty assessment of learner
 - Chart review for measurable objectives
 - Course Evaluation by learner
 - Learner Evaluation of Teaching
- Evaluate outcome and improve process and content

KERN MODEL OF CURRICULUM DEVELOPMENT (Kern et al., 1998)

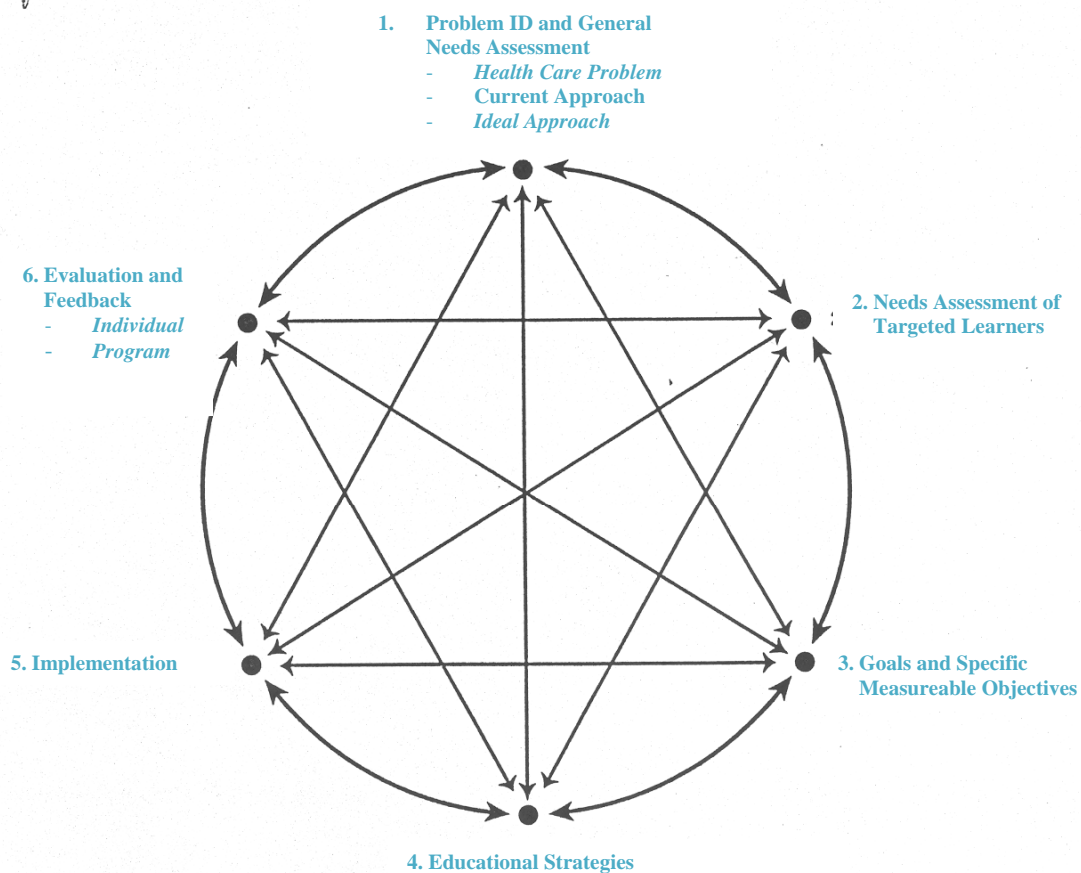


Figure 1.1. A Six-Step Approach to Curriculum Development

C. CREATING SIGNIFICANT LEARNING EXPERIENCES (Fink, 2003)

Planning a Didactic Teaching Session/Topic: 3 parts

I. Build Strong Primary Components

- 1) Where is the course happening, i.e. situational factors
 - a. # of learners, setting, sequence as part of a bigger curriculum, professional preparation before course
 - b. Subject matter: foundational, knowledge based, skilled based, changing
 - c. Learner characteristics
 - d. Teacher characteristics
 - e. Pedagogical challenge to teaching this subject well?
- 2) What are the learning goals for the course?
 - a) Knowledge, application, integration, humanism and/or caring (attitudes), life-long learning
- 3) How will the learners and you know if they get there?
 - a) Feedback and assessment processes (tests, skill assessment, future practice)
- 4) How are you going to get there?
 - a) Active learning principles
 - b) Doing and observing experiences
 - c) Opportunity for reflective dialogue-strategies
- 5) Who Can Help?
 - a) Resources

II. Assembling the Components into a Dynamic, Coherent Whole

- 1) What are the major topics in a teaching session?
 - a) 4-7 major topics/ideas
 - b) Sequence appropriately
 - c) Integrate ideas, topics or themes
- 2) What will the learners need to do?
 - a) Identify specific learning activities
 - b) Overlay effective instructional strategies, including sequencing and building on previous learner experiences
- 3) What is the overall scheme of learning activities?
 - a) Consider in-class and out-of-class activities
 - b) Consider didactic time, reading, case discussion, review, exams

III. Taking Care of Details

1. Are you grading the material? If yes, how? Develop a grading system
2. Anticipate what could go wrong in the session
3. Inform learners of what is expected-share a syllabus/schedule
4. How will you know how the course is going? How it went?
 - a) Plan an evaluation
 - b) Plan for mid and end feedback
 - c) Identify specific questions
 - d) Sources of information

Activity: *Establish where you are in your curricula planning and move to the next step.*



Learning Points:

Planning a Didactic Teaching Session/ Topic: 3 parts

1. Build Strong Primary Components
2. Assembling the Components into a Dynamic, Coherent Whole
3. Taking Care of Details

D. WHAT ARE GOALS AND OBJECTIVES?

Statements of the knowledge, skill or attitude to be learned

Goal: broad content/knowledge/topic area; select broad content areas using to understand or comprehend

Objective: Specific content to be learned within a broad content area; specific to each goal and prepare a statement with a subject (i.e. learner) verb (reflect level of learning desired) and the content (content, skill, attitude)

1. Sequence goals and objectives relevant to content presented
2. Cover less than more
3. Assess if objectives reflect diverse levels of learners
4. Use verbs that address higher level learning beyond knowledge.

<i>Bloom's Taxonomy (Bloom, 1956)</i>	
Select Verbs	Focus
Cognitive (knowledge)	Focused on recall or recognition, understand (comprehension), apply, analyze/interpret, synthesize and evaluate (assess).
Affective (Attitude)	Focused on awareness (receive), react (respond), value, organize personal values, internalize/ adopt values/behaviors.
Psychomotor (skills)	Focused on imitate (copy), manipulate (reproduce), develop precision (execute), articulate, become expert/mastery.

A simple acronym used to assess objectives is called **SMART objectives**.

SMART stands for:

1. **Specific** – Objectives should specify what they want to achieve (concrete with action verbs).
2. **Measurable** – You should be able to measure whether you are meeting the objectives or not (numeric, quantity, quality, cost).
3. **Achievable** - Are the objectives you set, achievable and attainable?
4. **Realistic/Results** – Can you realistically achieve the objectives with the resources you have? Measures outcomes?
5. **Time** – When do you want to achieve the set objectives? Date?

Activity: Plan 3 objectives in each of the Bloom's Domain (cognitive, psychomotor, affective) using two different verbs, i.e. two levels of learning, i.e. 6 total. Apply SMART to check the objectives written.



Learning Points:

Bloom's Taxonomy (Bloom, 1956)

- *Cognitive* (knowledge), focused on recall or recognition, understand (comprehension), apply analyze/interpret, synthesize and evaluated (assess).
- *Affective* (attitude), focused on awareness (receive), react (respond), value, organize personal values, internalize/adopt values/behaviors.
- *Psychomotor* (skills), focused on imitate (copy), manipulate (reproduce), develop precision (executive), articulate, become expert/mastery.

III. CLASSROOM ASSESSMENT TECHNIQUES

(Angelo and Cross, 1993)

A. ASSESSING LEARNER NEEDS i.e. CLASSROOM ASSESSMENT

An approach designed to help teachers find out what learners are learning in the classroom and how well they are learning. This approach is

- learner-centered
- teacher-directed
- mutually beneficial
- formative
- context-specific
- ongoing
- good practice

Diagnosing a Learner

- Ask Questions
 - Diagnosis, treatment or workup questions
- Diagnose learner
 - Get a commitment and probe for evidence that assesses learner knowledge and reasoning skills
- Pause and wait for an answer
- Teach/Tailored Instruction
 - General rules
 - Provide feedback
 - Reinforce what is right
 - Correct mistakes

B. CLASSROOM ASSESSMENT TECHNIQUES (Angelo and Cross, 1993)

1. Minute Paper

“What was the most important thing you learned? “ What important question remains unanswered?” Allows teacher to collect written feedback on student learning; provides manageable, timely and useful feedback based on a quick check of student learning.

2. Muddiest Point

“What was the muddiest point in this_____?” Identifies what learners find least clear or most confusing and this data can influence future teaching.

3. Concept Maps

Drawing or diagrams showing the mental connections that learners make between a major concept and other supporting concepts; allows the teacher to observe the learners conceptual schema, i.e. their pattern of associations in relationship to the main concept being taught.

4. Directed Paraphrasing

The ability of the learner to translate highly specialized information into language a client/patient can understand; this enables the teacher to assess the learners' ability to summarize and restate important information to assure they have internalized their learning.

5. Learner-Generated Test Questions

Learners prepare test questions and model answers. Identifies what learners think are important, what they think is useful information and how well they can answer the questions. This is very useful for knowledge assessment.

6. Goal Ranking and Matching

Learners list their own learning goals and rank order them for the teaching session. The teacher can address the degree of "fit" between the learners' personal goals and the instructional goals. This leads to opportunities for shared goals. Clarification of goals is a life long learning skill for all learners.

Activity: Which of these classroom assessment techniques are you willing to try when training in the clinical setting? Describe application to a specific clinical teaching situation.

Learning Points:

Classroom Assessment Techniques (Angelo and Cross, 1993):

1. Minute Paper
2. Muddiest Point
3. Concept Maps
4. Directed Paraphrasing
5. Learner-Generated Test Questions
6. Goal Ranking and Matching

C. RECOGNIZING AND ADDRESSING CHALLENGING TEACHER-LEARNER SITUATIONS: EMOTIONS

(<http://depts.washington.edu/toolbox/toc.html>, 2006)

Patient care is emotional work, but clinicians are rarely given the training or opportunity to express emotions that accompany this work. Often people are even unaware of their underlying emotional state. Unaddressed emotions often appear elsewhere, either in anger, resistance, or a desire to end the encounter (teaching or patient) early. If emotions are unacknowledged, they can serve as a barrier to further learning. It is important to acknowledge emotions when they come up, so the work of learning and caring can continue.

Teacher/Trainer Tips (Group or Individual Setting)

1. Name the emotion with the learners
2. Explore the emotion with the learners
3. If learner names the emotion directly, share your observation and give feedback to the learner
4. Connect emotions to practice and the importance of identifying them to patient care outcomes
5. Flag the emotion as something to discuss at a later date and possibly ask the learner to reflect before discussed in the future

Summary

- Addressing learner emotion by either naming it, acknowledging it, or exploring it, can help raise self-awareness within the learner about places where they have difficulty
- Identifying how emotions can impact patient interactions can help learners find positive coping strategies for their emotions, such as simply acknowledging they are part of a normal response to working with patients in difficult and sad situations

Activity: Identify a challenging situation with a learner filled with emotion or a learner who is denying emotion. Identify the emotion involved and role-model how to explore with the adult learner and achieve an outcome balanced for the learner and patient.

Working Ethically with Patients: A partnership of teaching and learning (Spencer, 2003)

- Keep patient confidentiality at the core of all teaching
- Obtain consent from the patient
- Assure learners demonstrate respect and understand confidentiality principles
- Brief the patient before the teaching session
- If possible, involve the patient in teaching
- Ask the patient for feedback about the learner (skills, attitudes and professionalism)
- Debrief with the patient after the session about the student

D. PREPARING TO TEACH

Learning is an active, constructive process that is contextual: new knowledge is acquired in relation to previous knowledge; information becomes meaningful when it is presented in some type of framework. Learning is the acquisition and development of memories and behaviors, including skills, knowledge, understanding, values, and wisdom. It is the goal of education, and the product of experience. (<http://en.wikipedia.org/wiki/Learning,2007>)

Clinical Teaching: focused on and directly involving patients and their problems (Spencer, 2003)

Strengths	Challenges	Common problems
Focused on real problems	Time pressures	Lack of clear objectives and expectations
Learners motivated by relevance	Competing demands	Focus on factual recall and not problem solving
Active participation	Often opportunistic-cannot plan and needs to be spontaneous	Teaching pitched at wrong level (intellectual challenge)
Modeling by teachers of professional knowledge, behaviors and attitudes	# of learners/# of patients	Passive observation
Skills are taught and learned as an integrated whole	Limited resources	Inadequate supervision of learner and feedback to learner
	Environment may not medical education friendly	Little opportunity for reflection and discussion
	Rewards for teaching are poor	Teaching by humiliation
	Variable in quality	Informed consent (not attaining)
		Respect for patients privacy and dignity (HIPAA)
		Continuity with co-existing curriculum

PLANNING TO TEACH

- Provides structure and context
- As a teacher ask: Who am I teaching? What am I teaching? How will I teach it? How will I know if the learners understand?
- Framework for reflection and evaluation
- Understand variation in how students learn
- Help students during experiential learning to move around the cycle of theory, experience and reflection
- Questioning and giving explanations followed by attentive listening with a focus on areas of difficulties or identifying where more information is needed
- Use the One-minute Preceptor Model
- Block out time in a clinical setting to teach
 - Observe and discuss patient between patients
 - Lead all or part of the consultation/patient interaction with preceptor present and discussion after the patient is seen
 - Learner sees the patient alone and then the preceptor comes in after discussing the patient (preceptor does not see the learner in action)
- Powerful role models

Optional Inventories for Reference

Clinical Teaching Perception Inventory®

<http://www.ucimc.netouch.com/intro.htm>

The inventory measures comfort with clinical teaching by comparing perceptions of your "ideal clinical teacher" and your feelings about yourself as a clinical teacher. Studies have suggested that taking the CTPI will help you improve your teaching skills.

The CTPI is a 28-item Q-sort instrument which takes 5-10 minutes. Respondents place each of 28 single-word descriptors/items along a seven-point continuum ranging from "least like" to "most like." When you have finished, you will immediately receive an individual explanation of your scores, with helpful links and resources to help you achieve your goals as a clinical teacher.

Teaching Perspective Inventory

http://teachingperspectives.com/html/tpi_frames.htm

The Teaching Perspectives Inventory measures teachers' orientations to their roles as managers of the learning process. The Inventory yields five alternative points of view (perspectives) on teaching by asking structured questions about teachers' actions in the teaching setting, their intentions how they organize the learning situation, and their beliefs about fundamental principles of teaching and learning.

E. ACTIVE LEARNING (Bonwell and Eison, 1991)

The type of instruction that involves learners during the learning process, i.e. "learning by doing and thinking about what you are doing".

- Requires some guidance and allows for self-guidance.
- Best practice is to provide some basic or initial instruction followed by an interactive activity.
- The teacher is a facilitator.

Why is active learning good practice?

Learners who actively engage with material presented are more likely to retain and recall information and apply to different contexts.

Implementing Active Learning Principles

- Expands the kinds of learning experiences created
- Take advantage of the "Power of Interaction"
- Create a dialectic between experience and dialogue

Two Principles of Active Learning (Fink, 1999)

#1 Doing vs. observing

#2 Dialoguing with self or others

Observing:

This occurs whenever a learner watches or listens to someone else "Doing" something that is related to what they are learning about. The act of observing may be "direct" or "vicarious." A direct observation means the learner is observing the real action, directly; a vicarious observation is observing a simulation of the real action.

Doing:

This refers to any learning activity where the learner actually does something. "Doing" may be direct or vicarious. Case studies, role-playing and simulation activities offer ways of vicariously engaging students in the "Doing" process. A vicarious "Doing" for the same purpose would be a simulation.

Dialogue with Self:

This is what happens when a learner thinks reflectively about a topic, i.e., they ask themselves what they think or should think, what they feel about the topic, etc.

Dialogue with Others:

This can and does come in many forms. A much more dynamic and active form of dialogue occurs when a teacher creates an intense small group discussion on a topic.

Types of Questions (influences level of active learning practices)

<http://www.uwsp.edu/education/lwilson/learning/quest2.htm>

- **Factual:** are still the ones that are easily answered with definitive, and comparatively simple answers.
- **Conceptual:** questions might be ones that are convergent, divergent, or evaluative in construction -- ones that delve deeper and require more sophisticated levels of cognitive processing and thinking.
- **Provocative:** ones are ones that entice and ones that cannot be answered with easy answers. They are questions can be used to motivate and frame content or are essential questions.
- **Broadening:** to introduce additional facts and encourage analysis
- **Justifying:** challenge old ideas and develop new
- **Hypothetical:** to explore unknowns/change course of discussion
- **Alternative:** to make decisions between alternatives/reach agreement

Effective teaching depends on the teacher's communication skills: questioning and giving explanations, which parallels listening and assessing nonverbal cues from learners. (Spencer, 2003)

How to Use Questions?

- Restrict use of close ended questions to assessing factual or baseline knowledge
- Use open/ended or clarifying questions predominately
- Allow time for response i.e. a period of silence
- Follow a poor answer or a question with another question
- Use a statement instead of a question to be less judgmental/confrontational
- A challenging question does not have to be confrontational

How to give explanations/answers?

- Check your understanding of the question
- Give information in small chunks
- Broaden the context when appropriate
- Check and summarize often
- Reiterate take home messages and ask learners to paraphrase what they learned

A Comparison of Low and High Risk Active Learning Strategies (Bonwell and Eison, 1991)

Dimension	Low-Risk Strategies	High Risk Strategies
Time	Short	Long
Structure	More structured	Less Structured
Planning	Meticulous	Spontaneous
Subject Matter	Concrete	Abstract
Controversy	Less	Very
Students' prior knowledge of the subject matter	Informed	Less informed
Students' prior knowledge of the teaching technique	Familiar	Unfamiliar
Instructors' prior experience with the teaching technique	Considerable	Limited
Interactions	Faculty and learners	Among learners

The goal to promote learning is for students to be active and experience a **high level of risk** (e.g. role playing, presentations, and unstructured small group). This can be balanced with students being active and experiencing a **low level of risk** (e.g. structured small group, demonstrations, brainstorming, and field trips).

Activity: Provide examples in training where active learning principles are evident? Provide examples of different types of questions as applied to clinical teaching. Provide follow-up questions and example explanations.

Learning Points:

Active Learning

- Observing
- Doing
- Dialogue with Self
- Dialogue with Others

Types of Questions

- **Factual:** are still the ones that are easily answered with definitive and comparatively simple answers.
- **Conceptual:** questions might be ones that are convergent, divergent, or evaluative in construction -- ones that delve deeper and require more sophisticated levels of cognitive processing and thinking.
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- **Broadening:** to introduce additional facts and encourage analysis
- **Justifying:** challenge old ideas and develop new
- **Hypothetical:** to explore unknowns/change course of discussion
- **Alternative:** to make decisions between alternatives/reach agreement

F. INTRODUCTION TO CLINICAL TEACHING

Clinical teaching (Parsell and Bligh, 2001) is part of a clinician's professional life and development. Learning to teach well means questioning the effectiveness of some old teaching methods, exploring new ideas and trying new methods. Collaboration among teachers and learners is key.

➤ *What do I need to know to be an effective clinical teacher?*

Teacher expectations, learner expectations, observation and feedback skills, understand that the context impacts teaching strategy, encourage reflection (both learner and teacher), make it memorable positive and fun

➤ *What role(s) will I need to adopt?*

Physician, Teacher, Supervisor, Supporter, Colleague, Trainer

➤ *What attributes do I need to possess?*

Empathy, professionalism, interest, available, provide direction, friendly, helpful, caring, positive attitude toward career, sense of humor, self-awareness, open to questions, not defensive, enthusiasm

➤ *What teaching strategies do I need to apply, and in what circumstances?*

Orientation to learning, a successful process with planning and preparation, reflection, independent learning, clinical problem solving, staff development

➤ *How do I know my clinical teaching is effective?*

Ask for feedback, consistently and often, from learners

Key Learning Principles (Copeland and Hewson, 2000)

1. Set clear and realistic expectations
2. Teach to learners' needs
3. Observe learners' performances and give specific feedback
4. Encourage independent learning and reflection
5. Vary your teaching methods in different contexts
6. Create a positive learning environment
7. Reflect upon and improve teaching
8. Make learning memorable and fun

What Learners Want From Clinical Teaching (Copeland and Hewson, 2000)

1. Increasing responsibility for patient care
2. Consistent observation and feedback
3. Appropriate probing questions to link existing and new knowledge
4. Opportunity to process technical and problem solving skills
5. Clear and timely answers to problems
6. Seeing patients first
7. Enthusiastic Teachers (interesting, stimulating and enjoyable)
8. Mentors: knowledge, skills and attitudes
9. Opportunity to reflect on clinical experiences
10. Encourage self-directed learning

A Four-Stage Process for both Learners and Teachers/Trainers:

1. Prior planning and preparation
2. Teaching
3. Charting/documentation, feedback, and reflection
4. Independent learning

Checklist for Teaching in Clinical Settings (Hutchinson, 2003)

- Have patients and families given verbal consent for learners to be present?
- Do other professionals know that teaching is planned and understand their roles if any?
- Is their space and time in the clinical setting for one on one teaching?
- What is time frame for teaching in the clinical setting, considering patient load and complexity?
- How can learners feel they are useful contributors in the clinical setting? (brief presentations, relevant articles, patient education)

Challenges of Clinical Teaching

- Time pressures
- Competing demands of faculty: clinical, research, administrative
- Planning can be difficult
- Constant student turnover demands
- Limited resources
- Clinical environment challenges teaching
- Rewards and recognition are poor

Common Problems with Clinical Teaching (Spencer, 2003)

- Lack of clear objectives and expectations
- Focus on facts rather than problem solving and attitudes
- Teaching pitched at wrong level
- Passive observation, rather than active participation
- Inadequate supervision and provision of feedback
- Little opportunity for reflection and discussion
- Lack of congruence and continuity with curriculum in other settings

Activity: *Paraphrase how you as the teacher would help students identify what they already know. Paraphrase how you as a teacher will help students elaborate on and articulate their knowledge.*

Activity: *Plan a clinical teaching session. Include the following: setting, topic, preplanning, experiential activity, reflection activity, opportunity to link theory (didactic) to practice, assessment of the learner, and preparing for the next time, as a learner and teacher (evaluation).*

Teaching Ethics in a Clinical Setting: Finding Teachable Moments

(<http://depts.washington.edu/toolbox/toc.html>,2006)

- Can be difficult and seen as peripheral to the core content and skills
- Ethical issues arise daily in clinical practice and can be connected to patient care issues
- Connect ethical issues to communication skill development for learners; teach learners to:
 - acknowledge uncertainty when appropriate
 - initiate and participate fully in informed decision making/consent with patients
 - deliver bad news to patients and family
 - reflect on and discuss medical errors
 - transition patients and families to end of life care (all stages of the life cycle are relevant)
 - manage family meetings on medical and social issues
 - obtain DNR orders
- Look for teachable moments during patient encounters, case presentations and debriefings occurring as part of a team meeting
- Set aside time for learners to practice necessary skills and receive feedback



Learning Points:

Clinical Teaching: 4 Stage Process

1. Prior planning & preparation
2. Teaching
3. Charting/documentation, feedback, reflection
4. Independent learning opportunities

G. TEACHING AND LEARNING TECHNIQUES (Baker, 2007)

STRATEGIES	CHARACTERISTICS	ADDITIONAL CHARACTERISTICS
Learner discussion (in person or online)	Focus on a question or controversial topic	
Small group discussion (6-8 students is ideal)	Learner-centered, with all learners joining in free discussion of a topic; develops critical thinking and retention; can use an ice breaker to start and it is important to have group ground rules	<p>Beginning: Introduction, set expectations, start on time, create a safe but challenging environment</p> <p>Middle: ask questions effectively; think about types of questions, maximize group participation of ALL learners</p> <p>Closing: summarize what happened and identify remaining questions of the learners and next steps</p>
Cases	<p>The goal is to apply theories and concepts to descriptions of real-life situations.</p> <p>The content of the case reflects clinical situations that health care providers would encounter in practice.</p> <p>The case is structured around a problem situation in a narrative style and occurs in a realistic sequence that proceeds in a chronological order of events. Lab values should be realistic. Treatment, medicines, etc. should be current.</p> <p>A variety of levels of questions can be used in a case but questions eliciting higher levels of thinking will create more discussion among learners.</p>	
Debate	A dialogue about a controversial idea that can be supported by arguments (ethical issues)	
Posing questions during a lecture/small group	Suggested to stop every 15-20 minutes and ask a question to the group of learners; think about types of *questions to focus discussion	
Think-pair-share	Learners ponder a thought or question, discuss with one or to two peers, and then share with larger group	
Short written exercises (reflection) i.e. one minute paper, muddiest point	<p>Summarize a discussion</p> <p>Identify outstanding questions</p> <p>Identify unclear concepts</p>	

TEACHING AND LEARNING TECHNIQUES (Baker, 2007) - continued

STRATEGIES	CHARACTERISTICS	ADDITIONAL CHARACTERISTICS
Polling a group of learners	Take a vote on consensus or not form a group; using this response to influence future discussion	
Role-playing (pairs or triads)	Good for skill building or applying knowledge; best for the learners to assume as a realistic role as possible; teacher can be in the role play if helpful; with triad have an observer to provide feedback	
Video-clips/Movies	Use as a short clip as a trigger for a discussion or an entire film for deeper reflection or writing; providing questions before or after is preferable to provoke focused thoughtful thinking Learners relate to digital clips and sound bites; bring learner into a situation;	
One Minute Preceptor (Neher et al., 1992)	Diagnoses learner knowledge and reasoning followed by tailored instruction. Five microskills of One Minute Preceptor Model are: 1) Get a commitment, 2) Probe for supporting evidence, 3) Teach a general rule, 4) Reinforce, 5) Correct errors ONE-MINUTE REFLECTION ON TEACHING	What do you think is going on? Why do you think this i.e. specific example? Tell them what they did right. Tell them what they did not do right. Tell them how to improve for next time. Ask: "What did I learn about this learner?" "What did I learn about my teaching?" "How would I perform differently in the future?"

http://www.med.fsu.edu/education/FacultyDevelopment/case_writing_resources.asp

Activity: Design a teaching and learning session, as it applies to clinical skills or training, using one or more educational strategies.



Learning Points:

Teaching and Learning Techniques (Baker 2007)

- Learner discussion (in person or online)
- Small group discussion (6-8 students is ideal)
- Cases
- Debate
- Posing questions during a lecture/small group
- Think-pair-share
- Short written exercises (reflection) i.e. one minute paper, muddiest point
- Polling a group of learners
- Role-playing (pairs or triads)
- Video-clips/Movies
- One Minute Preceptor (Neher et al., 1992)

H. TEACHING METHODS

(<http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/teachtip.htm,2007>)

1. Lecture
2. Demonstration
3. Discussion
4. Small Group

The purpose of a **lecture** is to clarify information to a large group in a short period of time. It is not to convey information! Lectures require a great deal of preparation time and need to be supported by various audio-visuals. The lecture is a great opportunity for instructors to feed their egos! It is instructor-centered. Handouts, programmed instruction, information handouts, modules, student presentations, guest speakers, films, film strips, and reading assignments are adaptations of lectures.

The following questions should assist you in determining the **appropriateness of a lecture**.

1. What knowledge, skill, or attitude needs to be learned or clarified?
2. How many learners need the content?
3. Do all or most of the learners need the content now?
4. How much preparation time is available?
5. Are you in command of your nonverbal cues?
6. Can you develop interest in the lecture?
7. Are there appropriate audio-visual support systems?
8. Would a handout work just as well?
9. Can you devise means to ensure that more than one sense is used by students?
10. Are there natural divisions that equate to 20 minutes or less?
11. Would a videotape work just as well?
12. Do your impromptu lectures last 5 minutes or less?
13. Could you provide an outline of important parts of the lecture?
14. What portion of your teaching time do you spend lecturing?
15. Would a text assignment work just as well?
16. Do you summarize regularly in the lecture?
17. Do you pose questions in your lectures?
18. Have you ever listened to or watched one of your lectures?

The purpose of the **demonstration** is to transmit the big picture to a relatively small group of students in a short period of time. Demonstrations usually require a lot of preparation time and must be supported with various audio-visuals. Demonstrations are particularly useful in teaching skills and are more teacher-centered than student-centered. There are several variations of demonstrations. Projects, peer tutoring, research papers, practice, field trips, on-the-job training, simulated experiences, and videotapes are adaptations of demonstrations. **The following questions should assist you in determining the appropriateness of a demonstration:**

1. Does the learner need to see the process?
2. How many learners need the content?
3. How many learners need the content now?
4. How much preparation time is available?
5. Can you tell and show the content?
6. Can you appeal to other senses?
7. Do you want the learners to imitate you?
8. Is there a-v support available?
9. Will the demonstration last more than 20 minutes?
10. Could you use a videotape just as well?
11. Can you ask questions during the demonstration?
12. Can the learners take notes?
13. Will there be practice time for the learners?
14. Can the learner easily identify the steps?
15. Will you permit the students to ask questions?
16. Is there only one right way?
17. Will you support the demonstration with handouts?
18. Have you ever listened to or watched one of your demonstrations?
19. Do you summarize regularly in the lecture?
20. Do you pose questions in your lectures?
21. Have you ever listened to or watched one of your lectures?

The purpose of a **discussion** is to solicit and involve the student in content transmittal. Discussions are limited to small groups and require considerable time. The discussion method does not require much audio-visual support. This method is particularly useful in an affective area. It promotes understanding and clarification of concepts, ideas, and feelings. There are numerous variations, and the discussion method can vary from teacher-centered to student-centered. Role playing, debate, panel discussion, reviews, supervised study, brainstorming, buzz groups, idea incubation, tests, show-and-tell, worksheets, conferences, and interviews are examples. **The following questions should assist you in determining the appropriateness of a discussion:**

1. Do you need active involvement from the learner?
2. How many students need to be involved?
3. Must you hear everything being said?
4. How much time is available?
5. Is divergent thinking a desirable end?
6. Could you just as well tell them?
7. Can there be more than one right answer?
8. Is there time to clarify differences?
9. How much control do you need in the learning environment?
10. Can you accept the learners' views?
11. Can interest be aroused and maintained?
12. Is there time to draw conclusions?
13. Is there time to follow up?
14. What needs to be formally tested?
15. Is two-way communication necessary?
16. Are checks and balances available to prevent certain learners from dominating?
17. Are there means to keep on the topic?
18. Have you ever listened to or watched yourself in a discussion?
19. Is there only one right way?
20. Will you support the demonstration with handouts?
21. Have you ever listened to or watched one of your demonstrations?
22. Do you summarize regularly in the lecture?
23. Do you pose questions in your lectures?
24. Have you ever listened to or watched one of your lectures?

In a **small group** there are 3 key components: opening, middle and closing.

1. The *opening*

- must engage learners
- model desired attitudes and behavior
- assess learner expectations and goals
- help learners formulate reasonable goals for the session
- establish relevance of session topic

Behaviors:

- introductions
- framing the session in learner-centered terms
- monitor eye contact, questioning and self-direction among learners
- questions should be open-ended, elicit learner response, preserve moments of silence
- make sure learners feel safe, and monitor learners talking to each other
- ask learners directly their goals and expectations and assess if aligned with session goals and if realistic for time frame
- assess learner assumptions about what is being taught
- assess learners' values and beliefs regarding teaching
- address why the material is presented is relevant to their practice and skill set

2. The *middle*

- overcome barriers to learning; address affective domain
- Set agenda with learners on activities
- Involve learners in practice
- Provide feedback
- Monitor and manage group process
- Calibrate challenges and time for exploration
- Link learning to pertinent literature

Behaviors:

- Discuss pros/cons of role plays to seek learner buy-in
- Identify specific tasks and skills being addressed
- Model feedback
- Encourage group and individual feedback that is balanced
- Use learners names
- Attend to group nonverbal reactions/gestures
- Encourage and monitor learner engagement
- Have learners self-assess their challenges, successes

- Specifically address affective issues occurring
- Refer to additional resources
- Balance information giving and interactive learning

3. The *closing*

- Summarize what was observed or practiced
- Build future learning agendas
- Identify unanswered questions
- Acknowledge learner effort and engagement

Behavior:

- Identify with learner skills and insights were learned
- Identify future learning and a specific learner-generated learning objective
- Commit learners to trying something new-i.e. when *I teach next I will...*

Activity: *When do you use each of these styles/methods? When can you use one or more methods to enhance learning?*

Learning Points:

Teaching Methods

- Lecture
- Demonstration
- Discussion
- Small Group

3 Components:

- Opening
- Middle
- Closing

IV. ASSESSMENT

*A process in which rich usable feedback, from the act of teaching and learning, is reflected on by the learners and then acted upon by the teachers.
(Huba and Freed. 2000)*

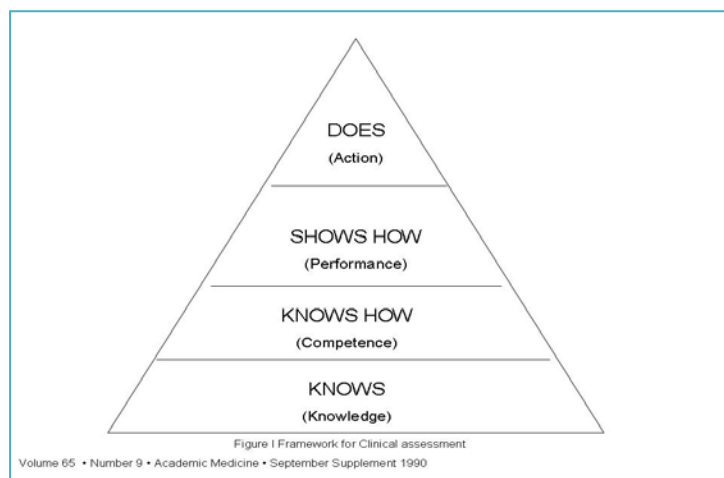
- The goal is to get smarter and better at what we do
- It is driven by reflection, judgment and improvement

Reliability and Validity

- **Reliability:** the degree to which an assessment consistently measures what it is supposed to measure; similar results will be obtained on each administration
- **Validity:** the degree to which the assessment measures what it is supposed to measure; document the link between the content of the assessment and the curriculum objectives and use content experts to review/develop assessment

A. Miller's Pyramid (Miller, 1990): a measure of what learners know (knowledge), do (skill) or believe/value (attitude)

- No single assessment method can provide all the data required for judgment of delivery of professional services
- Base of assessment is ***knowledge (knows)***; assess through tests; this alone is incomplete assessment
- The second level ***knows how*** to use the knowledge; be able to acquire information from a variety of sources, analyze and interpret data, and translate data into a plan. This is a measure of competence i.e. having sufficient knowledge, judgment or skill
- The ability to ***show how*** one is able to do something i.e. perform is the next level.
- The final level is measuring during the ***act of doing***



(Miller, 1990)

B. Dreyfus Model: <http://www.acgme.org/outcome/project/glossary2.asp#9>

The research of Hubert and Stuart Dreyfus demonstrated what has become a widely-accepted model of how individuals progress through various levels in their acquisition of skill. The Dreyfus brothers labeled individuals in these progressive stages as novice, advanced beginner, competent, proficient, and expert. These stages should be reflected in curriculum planning when considering at which appropriate levels residents should be introduced to particular skills.

Dreyfus and Dreyfus (Atherton, 2003) (Dreyfus and Dreyfus, 1986), developed a useful five-stage typology of developing expertise, with the characteristics of each stage:

- 1 **Novice**
 - Rigid adherence to taught rules or plans
 - Little situational perception
 - No discretionary judgment

- 2 **Advanced Beginner**
 - Guidelines for action based on attributes or aspects.
 - Situational perception still limited
 - All attributes and aspects are treated separately and given equal importance

- 3 **Competent**
 - Now sees actions at least partly in terms of longer-term goals
 - Conscious deliberate planning
 - Standardized and routinized procedures

- 4 **Proficient**
 - Sees situations holistically rather than in terms of aspects
 - Sees what is most important in a situation
 - Perceives deviations from the normal pattern
 - Decision-making less labored
 - Uses maxims for guidance, whose meaning varies according to the situation

- 5 **Expert**
 - No longer relies on rules, guidelines or maxims
 - Intuitive grasp of situations based on deep tacit understanding
 - Analytic approaches used only in novel situations or when problems occur
 - Vision of what is possible

C. Work Based Assessment in the Clinical Setting (Norcini, 2003)

- Action focuses on what happens in practice rather than the artificial settings. This is a much better reflection of routine performance.
- Patient outcomes are the best measure of quality of action of a professional.
- Patient outcomes must be attributed to a doctor's actions. This can be difficult for care provided within a system, especially when there is a team approach.
- Differences in complexity directly influence outcomes. When comparing outcomes a sizable number of outcomes are needed and this limits assessment accuracy to more frequently occurring conditions.
- Processes of care, as a measurement of assessment, is more in the control of the learner and less influenced by the complexity of the patient; simply doing the right thing does not guarantee a positive outcome
- The volume i.e. number of times a procedure has been done as an assessment of quality; quality of care is associated with larger procedure volumes
- The clinical practice record is the best place to look for outcomes, processes and volume. This can be time consuming but is much more realistic with the electronic health record. A limitation is only recorded data can be judged.
- Databases for clinical audits (registries) can provide information useful to clinical practice.
- Logs can provide information on patient care processes, especial procedures.
- 360 degree ratings by peers, supervisors, staff and patients to assess knowledge, skills and professionalism.

D. Skill Based Assessment in the Clinical Setting (Smee, 2003)

- **Objective Structured Clinical Exam/Exercise (OSCEs):**
This type of assessment can be used for all skills but is especially valuable with communication skills.
 - Interact with a standardized patient to demonstrate specified skills
 - Scoring is accomplished using a task specific checklist, which is completed by the standardized patient
 - The content assessed is related to the curriculum
- **OSCE Limitations:**
 - Learner performs isolated aspects of the clinical encounter, which deconstructs the doctor-patient encounter
 - Checklists are task specific, focused on thoroughness, and with increased experience this is less relevant
- **Objective Structured Video Exam/Exercise (OSVE)**
An OSCE that is videotaped/digitalized and used as a teaching and learning tool
 - Learners can view the videotape and answer a set of questions posed by the teacher; these digital recordings are reusable and facilitate recall of knowledge applicable to identifying performance of a skill (behaviors)
- **Oral Exam**
Learners summarize the patient problem and respond to examiner questions about anything relevant to the patient.

- Observing the learner with the patient is an option and it is best to observe 5 to 6 cases to increase reliability
- Assessment is based on the learner performance with the patients observed by the faculty
- Patients can also be teachers

Activity: *Select an assessment method to apply in the clinical setting when working with trainees. State how it is realistic for the setting and will provide the data you need as a teacher to assess learning. Does the assessment selected stand alone or needs a complementary tool? For one criteria of the assessment develop a rubric with anchors.*

E. RUBRIC BASICS (http://www.rubrics.com/rubric_basics.html,2005)

"Rubrics are a critical and vital link between assessment and instruction. They operationalize quality in our minds so we can more effectively teach and lead."

What is a rubric?

For most educators, a rubric is a printed set of scoring guidelines (criteria) for evaluating work (a performance or a product) and for giving feedback.

1. By what criteria will the work be judged?
2. What is the difference between good work and weaker work?
3. How can we make sure our judgments (or scores) are valid and reliable?
4. How can both performers and judges focus their preparation on excellence?

Why are rubrics used?

The rubric and criteria design process must be more centered on teaching and learning than scoring. Beyond scoring, we believe that there are six reasons for using rubrics:

1. Focus instruction---intentionally.
2. Guide feedback---descriptively.
3. Characterize desired results---objectively.
4. Operationalize performance standards---purposefully.
5. Develop self-assessment competence---constantly and consistently.
6. Involve learners---thoughtful and applicable to self-assessment.

What are the critical components of a rubric?

1. Performance Element: the major, critical attributes which focus upon best practice.
2. Scale: the possible points to be assigned (high to low).
3. Criteria: the conditions of a performance that must be met for it to be considered successful.
4. Standard: a description of how well the criteria must be met for the performance to be considered "good".
5. Descriptors: statements that describe each level of the performance.
6. Indicators: specific, concrete examples or telltale signs of what to look for at each level of the performance.

F. FEEDBACK

Feedback, as defined in the American Heritage Dictionary, “the return of a portion of the output of the process or system to the input, especially when used to maintain performance or to control a system or process.”

“Information that a system uses to make adjustments in reaching a goal. Feedback occurs when a learner is offered insight into what he or she actually did, as well as the consequences of his or her actions.”(Ende, 1983)

- Teacher and learner can contract in advance and align with common goals
- Faculty may help learner interpret and analyze the data on specific performances
primary task of the teacher is to provide high-quality feedback to the learner to stimulate his/her self-evaluation
- The learner’s task is to evaluate the meaning of the data as it relates to his/her specific development and behaviors
- Well timed and expected
- Non-judgmental language; label subjective data
- Support decision and actions

Presenter presents information, non- judgmental approach

- Presentations are core to a formative feedback process that are necessary, valuable and with practice and planning can be done well
- Goal of feedback is to improve clinical skills

Feedback is required to stimulate a self-evaluation process but it is not sufficient (Bell, 2007).

Need a triad:

F: Feedback

E: Encouragement

D: Direction

Note: Need all three to be active between the learner and teacher to achieve the desired educational pursuit.

- Feedback requires objective data-this is usually available from summative evaluations
- Direction-intention of the teaching; anchor data to competencies and this can then allow the learner to integrate self-evaluation to their own competency
- Encouragement –“give heart,” therefore sharing data (feedback) with learners without interpretation and in a supportive manner is encouraging
- Creates an environment where the teacher is on the side of the learner and is instrumental to their efforts and success
- Providing feedback within a competency-based model should inspire learners to self-evaluate and disclose the essence of their learning
- Encouragement supports a relationship between willingness and ability
 - Ideally willingness is slightly in excess of ability, and this supports motivation to learn
 - Encouragement should foster partnership between teacher and learner

FEEDBACK-preempts assessments and provides objective data to inform future assessment; planned and practiced feedback makes the process easier for the teacher

WHY DO? Reinforces effective behavior and facilitates change

WHY IS IT DIFFICULT? Tied to emotional responses for both the teacher and the learner; objective data may be weak or inadequate and we lean on subjective data; it s hard to present subjective data without an emotional overlay

HOW? Ongoing-continuous to help both learner and teacher

WHEN? Always-consistent/continuous with all educational activities

FRAMEWORK? Need clear goals and objectives; gather objective data; soon after

PROCESS of Providing Feedback?

- **Opening**-self-assessment by learner, “*How do you think it went?*”
- **Dialogue**-Start with positive behaviors, be specific, criticize 2 points maximum, use less-judgmental language, label subjective feedback as that, acknowledge and address emotions
- **Plan**-problem solve together-“*How else could you have done that?*”; assess learner understanding
- **Closing**-summarize and end positively; plan a future feedback opportunity

The One Minute Preceptor Model (Neher et al., 1992)

In a busy clinical setting this enables clinicians to assess learners, instruct and provide feedback efficiently.

Microskills of Clinical Teaching Model (also applicable to providing feedback)

1. Get a commitment- “*What do you think is going on?*”
2. Probe for supporting evidence-*Why do you think this?*
3. Teach general rules
4. Reinforce what was right-*tell them what they did right the effect it had*
5. Correct mistakes-*tell them what they did not do right; confirm with learner their understanding and if they agree; brainstorm them how to improve the next time*

Note: You can apply this one-minute model to your own personal reflection on your teaching interactions.

Activity: In a triad, using role plays, practice the One Minute Preceptor Model for Teaching and Feedback with a clinical scenario.

In a triad, using role plays, apply the FED model to the training of novice learners; intermediate learners and/or experienced learners; observer will review the FED principles with “learner and instructor” after each scenario.

Learning Points:

Questions:

- What do you think is going on?
- Why do you this?
- How do you think it went?
- How else could you have done that?

V. EVALUATION

Definition

Evaluation: A sequence of ways to evaluate programs, in which each level is important and impacts the next level. Each level of evaluation is more time consuming but the outcome generated is more valuable. Evaluation is planned based on the desired results. To achieve these results programs must evaluate the other three levels prior to the result level (Kirkpatrick and Kirkpatrick. 2006).

In **formative evaluation**, data are accumulated from a variety of relevant assessments designed for use either in program or learner evaluation. In medical training evaluation, the formative evaluation is intended to provide constructive feedback to individual learners during their training. In program evaluation, formative evaluation is intended to improve program quality. In either situation, formative evaluation is not intended to make a go/no-go decision, but can help predict outcomes.

In **summative evaluation**, findings and recommendations are designed to accumulate all relevant assessments for a go/no-go decision. In learner evaluation, the summative evaluation is used to decide whether the learner qualifies to continue to the next training level, should be dropped from the program, or at the completion of the training, should be recommended for competency/certification. In program evaluation, summative evaluation is used to judge whether the program meets the accepted standards for the purpose of continuing, restructuring, or discontinuing the program.

<http://www.acgme.org/outcome/project/glossary2.asp#9>

Evaluation (Morrison, 2003)

- An essential part of the educational process that is continuous
- Focus is on quality improvement and equates with a clinical audit related to physician practices and patient outcomes.
- Evidence for student learning of specified objectives
- Evidence for quality of teaching standards
- Checks if a curriculum is evolving in the desired way
- Contributes to academic rigor of an educational experience

Purpose of evaluation

- To ensure teaching is meeting learners' learning needs
- To identify areas where teaching/training can be improved
- To inform the allocation of faculty resources
- To provide feedback and encouragement for teachers/trainers
- To support applications for promotion by teachers
- To identify and articulate what is valued by medical schools
- To facilitate development of the curriculum

Process Evaluation- covers the process and/or outcome of any educational activity, including delivery (organization, teacher aptitude) and content (level, relevance to objectives and integration into previous learning)

Outcome Evaluation-impact of the curriculum on the knowledge, skills and attitudes and behaviors' of learners (refer to Kirkpatrick's' four levels of focus)

KIRKPATRICK'S FOUR LEVELS ON WHICH TO FOCUS EVALUATION

(Kirkpatrick and Kirkpatrick, 2006)

Level 1—Learner's reactions

Level 2a—Modification of attitudes and perceptions

Level 2b—Acquisition of knowledge and skills (learning)

Level 3—Change in behavior

Level 4a—Change in organizational systems, practice

Level 4b—Benefits to patients or clients

Reactions – Level 1

- How those who participate in the program react
- “Satisfaction” data

Learning – Level 2A, B

- Participants change attitudes, improve knowledge, and/or increase skill
- Based on objectives
- Leads to behavior change

Behavior – Level 3

- Need to measure reaction and learning to effectively measure behavior change
- Dependent on
 - Desire to change
 - Know what to do and how
 - Climate must be right (dependent on the supervisor: preventing, discouraging, neutral, encouraging, requiring)
 - There is a reward for change (intrinsic or extrinsic)

Results – Level 4A, B

- Final results of participation
- Based on defined outcomes/expectations
 - Outcomes determined by those involved in planning the program

Areas for learners to evaluate teaching and curriculum (Morrison, 2003):

1. Design: whether the curriculum enables students to reach their learning objectives; whether it fits well with other parts of the curriculum; does it prepare learners for practice?

2. Delivery: attributes of teacher and methods used; administrative arrangements

Questions to ask when planning an evaluation (Morrison, 2003)

1. What are the goals/objectives of the evaluation?
2. From whom and in what form will data be collected?
3. Who will collect and analyze data collected?
4. What type of analysis, interpretation, and decision rules will be used? and by whom?
5. Who will see the results of the evaluation?

Characteristics of an ideal evaluation (Morrison, 2003)

1. Reliability
2. Validity
3. Acceptability—to evaluator and to person being evaluated
4. Easy to administer and use readily available information
5. Inexpensiveness

Key Points (Morrison, 2003)**Program/Teaching Evaluation should:**

- enable strategic development of a curriculum/training
- be a positive process that contributes to the academic development of a medical school/training program
- designed at the start of developing a curriculum, not added as an afterthought

The goals of an evaluation should:

- be clearly articulated
- be linked to the outcomes of the teaching

When carrying out an evaluation:

- more than one source and type of information should be sought
- results should be fed back to participants and details of the resulting action given

Learners need to:

- be involved in developing an evaluation tool/process
- feel their time is respected
- know their opinions are valued and acted on

Evaluators must:

- act on the results of the evaluation to correct deficiencies, improve methods, and update content
- repeat the process

E. Examples of Program/Teaching Evaluation Methods

	Subjective	Objective
Qualitative	Focus Groups Interviews	OSCE OSVE
Quantitative	*Surveys (closed and open-ended)	Exam Scores

*Most common evaluation tool

Activity: Select an evaluation method and design an evaluation tool. Is it formative or summative or both? Does it measure process or outcomes or both?



Learning Points:

Evaluations:

- Process (Educational Activity)
- Design
- Delivery
- Outcome (learners)
- Knowledge
- Skills
- Attitudes

REFERENCES

- Angelo, T., and P. Cross, 1993, *Classroom Assessment Techniques: San Francisco, Jossey-Bass.*
- Atherton, J. S., 2003, *Doceo: Competence, proficiency and beyond.*
- Baker, D., 2007, *Resources and Information for Residents Who Teach, Florida State University/College of Medicine.*
- Bell, H., 2007, *Encouragement: giving "heart" to our learners in a competency-based education model.: Fam Med, v. 39, p. 13-5.*
- Bloom, B., 1956, *Taxonomy of Educational Objectives: Boston, Allyn and Bacon.*
- Bonwell, C., and J. Eison, 1991, *Active learning: Creating Excitement in the Classroom: Higher Education Reports: Washington, DC, Jossey-Bass.*
- Chickering, A., Gamson, Zelda, 1991, *Applying the Seven Principles of Good Practice in Undergraduate Education: New Directions for Teaching and Learning, v. 47.*
- Copeland, H., and M. Hewson, 2000, *Developing and testing an instrument to measure the effectiveness of clinical teaching in an academic medical center.: Acad Med, v. 75, p. 161-6.*
- Dreyfus, H. L., and S. E. Dreyfus, 1986, *Mind over Machine: the power of human intuition and expertise in the era of the computer: Oxford, Basil Blackwell.*
- Ende, J., 1983, *Feedback in Clinical Medical Education: JAMA, v. 250, p. 777-781.*
- Fink, D., 1999, *Active Learning.*
- Fink, D., 2003, *Creating Significant Learning Experiences, Jossey-Bass.*
- Fleming, N., 2006, *VARK: A guide to Learning Styles.*
- Fornari, A., 2001, *The Development of an Ethics Curriculum for Dietetic Students Using Learner Centered Pedagogy: EdD thesis, Teachers College, Columbia University, New York, 365 p.*
- <http://depts.washington.edu/toolbox/toc.html>, 2006, *Tough Talk: Helping Doctors Approach Difficult Conversations.*
- <http://en.wikipedia.org/wiki/Learning>, 2007, *Wikipedia.*
- <http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/teachtip.htm>, 2007, *Faculty Development: Teaching Tips Index, Honolulu Community College.*
- http://www.rubrics.com/rubric_basics.html, 2005, *Rubrics.com.*
- Huba, M., and J. Freed, 2000, *Learner-Centered Assessment on College Campuses: Boston, Allyn and Bacon.*
- Hutchinson, L., 2003, *Educational environment.: BMJ, v. 326, p. 810-2.*
- Kaufman, D. M., 2003, *Applying educational theory in practice: BMJ, v. 326, p. 213-6.*
- Kern, D., p. Thomas, D. Howard, and E. Bass, 1998, *Curriculum Development for Medical Education: A Six-Step Approach: Baltimore, The Johns Hopkins University Press.*
- Kirkpatrick, D., and J. Kirkpatrick, 2006, *Evaluating Training Programs: San Francisco, Berrett Koehler.*
- Knowles, M., 1980, *The Modern Practice of Adult Education: Androgoy vs. Pedagogy: New York, Cambridge Books.*
- Kolb, D., 1984, *Experiential Learning: Englewood Cliffs, Prentice Hall.*

- Kolb, D., and A. Kolb, 2000, Experienced Based Learning Systems.*
- Miller, G., 1990, The Assessment of Clinical Skills/Competence/Performance: Academic Medicine, v. 65, p. 563-567.*
- Morrison, J., 2003, ABC of learning and teaching in medicine: Evaluation.: BMJ, v. 326, p. 385-7.*
- Neher, J., K. Gordon, B. Meyer, and N. Stevens, 1992, A five-step "microskills" model of clinical teaching: J Am Board Fam Pract, v. 5, p. 419-24.*
- Norcini, J., 2003, Work based assessment.: BMJ, v. 326, p. 753-5.*
- Parsell, G., and J. Bligh, 2001, Recent perspectives on clinical teaching.: Med Educ, v. 35, p. 409-14.*
- Smee, S., 2003, Skill based assessment.: BMJ, v. 326, p. 703-6.*
- Spencer, J., 2003, Learning and teaching in the clinical environment: BMJ, v. 326, p. 591-4.*