

**Instructional Skills For
Clinical Practice**

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Learning Objective:
^Develop effective instruction for students, colleagues and patients.

Introductory Information

Who & What Do RCPs Teach?
^Patients & families
◆disease condition
◆procedures
◆medications
◆equipment
◆self-monitoring

Who & What Do RCPs Teach?
^Colleagues
◆orientees
◆nurses
◆physicians
◆other practitioners
^Subjects
◆institutional and departmental policy & procedures
◆respiratory care practices
◆respiratory care equipment

Who & What Do RCPs Teach?
^Students
◆institutional & departmental details
◆information pertaining to respiratory care practice
◆respiratory care procedures
◆professional conduct

Goal Orientation

- Critical to effective instruction
- Involves these questions:
 - ◆ Where are we now?
 - ◆ Where are we going?
 - ◆ How do we know when we're there?

Goal Orientation

- Instructional goal- a desired outcome of instruction, which may be expressed in broad terms, without specification of criteria or conditions for measurement of attainment.

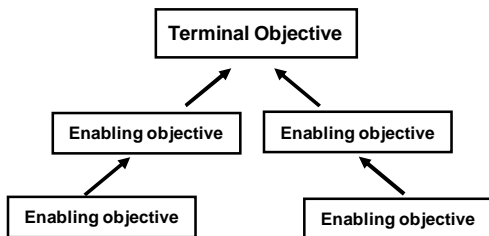
Goal Orientation

- Instructional objective- a desired outcome of instruction, expressed in precise terms, usually specifying criteria and conditions for measurement of attainment.

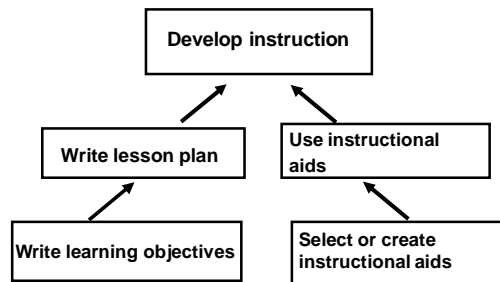
Goal Orientation

- Terminal objective- final objective for the lesson, unit, course
- Enabling objective- intermediate steps to the terminal objective

Goal Orientation



Goal Orientation



Competency-based education

- ^ Competency- set of skills that make a person capable of filling a role or performing a job.
- ^ Competency-based educational program- requires learners to demonstrate competencies to graduate.

Competency Categories

- ^ Information- cognitive domain
- ^ Physical tasks (procedures) - psychomotor domain
- ^ Professional behavior (affective domain)

Competency-Based Curricula

- ^ Competencies for the job are identified
- ^ Students do not advance until the prescribed competencies are mastered
- ^ Theoretically, CBE permits learning time to vary
- ^ Theoretically, CBE is pass-fail

Summary & Review

- ^ Who & what we teach
- ^ Goal orientation and prioritization of objectives
- ^ Competency-based education

Learning Objectives

Definition

- ^ Learning objective- concise description of what the learner should be able to do as a result of instruction.
- ^ DO ==> learner demonstrates a behavior that is observable and measurable
- ^ Learning objective = road map for instruction

Functions of Learning Objectives

- ^ Determine instructional subject matter
- ^ Guide selection of instructional methods and strategies
- ^ Guide construction of evaluation instruments (quizzes, exams, etc.)
- ^ Alert the learner when they have learned the required subject matter

Domains and Levels of Skills

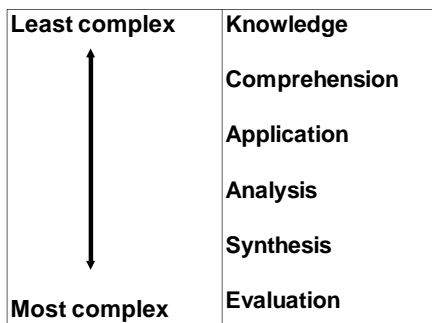
Skill Domains

- Cognitive- intellectual skills
- Psychomotor- physical skills
- Affective- attitudes & values, as demonstrated by professional conduct

Skills- Levels of Complexity

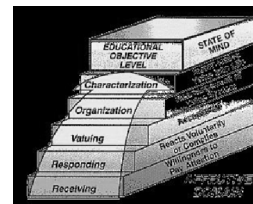
- ^ Cognitive domain- Bloom's taxonomy
 - ◆ Knowledge- knowing that
 - ◆ Comprehension- knowing why
 - ◆ Application- knowing how
 - ◆ Analysis- breaking down to discover structure
 - ◆ Synthesis- creating new knowledge (includes problem-solving)
 - ◆ Evaluation- formulating judgments

Skills- Levels of Complexity



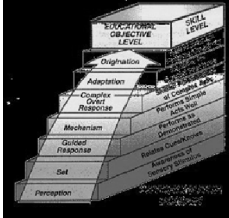
^ **Skills- Levels of Complexity**

- ^ Affective Domain- Kratwohl's taxonomy



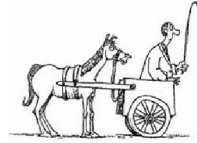
Skills- Levels of Complexity

Psychomotor domain- Simpson's taxonomy



Importance of Levels of Complexity

Less complex skills enable for more complex skills ==> less complex must be mastered first, or it is like....



Writing Learning Objectives

Conditions for Objectives

- Objectives describe behaviors
- skill- action verb pertinent to the behavior and level of performance

Verbs for cognitive domain

Level	Verbs
Knowledge	Cite, recall, locate, list, recognize

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Analysis	Analyze, discriminate, interpret
Synthesis	Compose, design, organize, plan
Evaluation	Criticize, evaluate, judge, recommend

- Conditions for Objectives**
- ▲ Objectives describe behaviors
 - ◆ skill- action verb
 - ◆ performance conditions; e.g.:
 - ▶ written exam
 - ▶ laboratory simulation
 - ▶ clinical setting
 - ◆ criteria for success
 - ▶ at 90% accuracy
 - ▶ without critical error
 - ▶ within 60 seconds

- Examples of Objectives**
- ▲ Learner will be able to:
 - ◆ identify the muscles of the foot
 - ◆ on a diagram
 - ◆ at 95% accuracy

Examples of Objectives

- ^Learner will be able to:
 - ◆demonstrate efficiency
 - ◆in clinical training
 - ◆by completing all clinical assignments

Not Valid Objectives

- ^Learner will KNOW muscles of the foot
- ^Learner will UNDERSTAND function of foot

Can not observe
 Can not measure

Steps In Writing Objectives

- ^Identify target skill
- ^Identify level of performance
- ^Select verb to correlate with performance
- ^Write as 'learner will be able to.....'
- ^Describe conditions for performance
- ^Describe criteria for success

Summary & Review

- ^Domains and levels for skills
 - ◆cognitive
 - ◆psychomotor
 - ◆affective
- ^Components of learning objectives
 - ◆action verb
 - ◆conditions for performance
 - ◆criteria for success

Instructional Platforms

- ^Instructional platform- primary medium used to deliver instruction
- ^Instructional aid- medium used to support a platform

Instructional Platforms

- ^Lecture
- ^Oral questioning (Socratic)
- ^Discussion
- ^Tutorial
- ^Simulations & games
- ^Drill and practice
- ^Printed media

Lecture

- ^Most commonly used platform
- ^Ineffective in pure form - 'talking head'
- ^Applications
 - ◆Cognitive domain- from knowledge to analysis levels
 - ◆Affective domain - information to affect values, attitudes
 - ◆Procedures- introduce and describe them

Discussion

- ^Applications
 - cognitive- higher levels,
 - affective domain, professional behavior, especially interpersonal skills
- ^Context
 - small class
 - round table setting
 - instructor moderates, referees; does not dominate discussion

Tutorial- individualized instruction

- ^Applications - all domains & levels
- ^Advantages
 - Interactive, active learning
 - Instruction individualized to learner
 - Computer - excellent medium
- ^Disadvantages
 - Few learners- inefficient- expensive for personal instruction
 - Requires one-on-one instructional skills

Drill or Practice

- ^Drill- cognitive
- ^Practice- procedures
- ^Context
 - Assumes information, procedure has been taught
 - Practice- teaching laboratory, clinical practicum
 - Proctor available to guide practice and provide correction

Socratic Method - Oral Questions

- ^Applications
 - Cognitive- highest levels
 - Affective, professional behavior
- ^Context
 - Small class
 - Expert instructor - good questioning technique
 - Motivated students- must want to think

Oral Questioning- Purposes

- ^ Verify prerequisite knowledge
- ^ Activate prerequisite information- preparedness to learn
- ^ Gain and direct attention
- ^ Stimulate active learning- schemata building
- ^ Stimulate rehearsal of procedures
- ^ Stimulate and practice problem-solving
- ^ Stimulate thought about affective material

Oral Questioning- Techniques

- ^ Ask question at appropriate cognitive level
- ^ Ask one question at a time
- ^ Avoid questions with "yes, no" answers
- ^ Avoid ambiguity- requires narrow scope of question
- ^ Permit time to formulate answer
- ^ Cue learner to develop answer
- ^ Give corrective feedback

Printed Material

- ^ Applications
 - > Cognitive- all levels
 - > Affective, professional behavior
- ^ Types
 - > Conventional textbooks
 - > Instructor developed materials
 - > Journal articles
- > Combinations of materials
- > Programmed texts

Printed Material

- ^ Required learner characteristics
 - ◆ Reading skills
 - ◆ Motivation
 - ◆ Metacognition - knowing what you know

Simulations and Games

- ^ Simulation- representation of reality
- ^ Game- simulation with competition
- ^ Applications
 - > Cognitive- all levels
 - > Affective- especially suited
 - > Procedures- especially suited

Summary & Review

- ^ Instructional platform - primary method
 - ◆ Lecture
 - ◆ Oral questioning (Socratic)
 - ◆ Discussion
 - ◆ Tutorial
 - ◆ Drill and practice
 - ◆ Printed media
 - ◆ Simulations & games

Instructional Aids

People Generally Remember

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they see and hear
- 70% of what they say as they talk

So -- instruction via multiple sensory channels, with learner activity is most effective

Visual aids - do not:

- use more than 7 words per line
- use more than 7 lines per screen
- use all capital letters - yelling
- center text - hard to read
- use fancy fonts - hard to read

Visual aids - do not:

- use more than 7 words per line
- use more than 7 lines per screen
- use all capital letters - yelling
- center text - hard to read
- use fancy fonts - hard to read
- use weird colors - eye discomfort
- use colors indiscriminately
- use acrobatic text - distracting
- include misspelled words

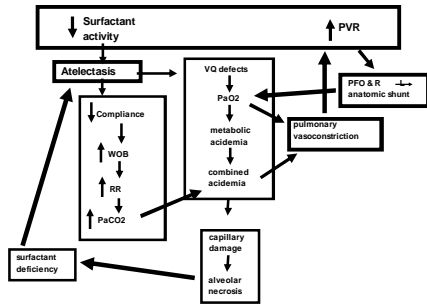
Visual aids - do:

- Select readable fonts
- Use fonts that are readable from back row
- Use color for a purpose- to highlight and differentiate
- Consider effects of visual aids on eye comfort
- Include appropriate detail - add layers of detail

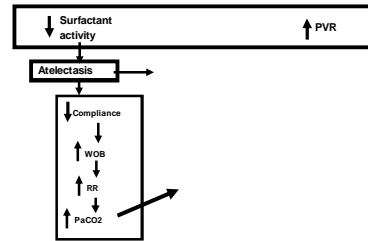
Visual aids - do:

- Cue, highlight important details
 - ◆ Arrows
 - ◆ Color
 - ◆ Boldface
 - ◆ Bullets
 - ◆ Underline
 - ◆ Size variation
- Include appropriate detail - add detail by layers

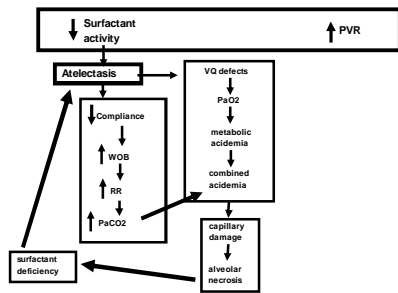
Too much detail



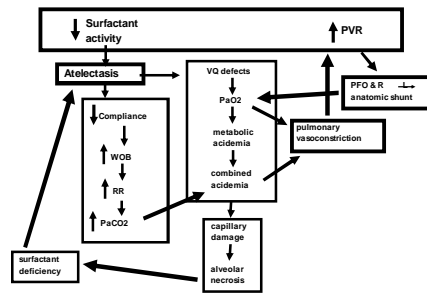
Detail added in layers



Detail added in layers



Detail added in layers



Pediatric Coma Scale

Activity	Infant's best response	Children's, adults best response	Score
Eye opening	Spontaneous	Spontaneous	4
	To speech	To speech	3
	To pain	To pain	2
	None	None	1

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	None	None	1
Verbal	Coo, babble	Oriented	5
	Irritable, cry	Confused	4
	Cries to pain	Inappropriate	3
	Moans to pain	Nonspecific sounds	2
	None	None	1

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	None	None	1
Motor	Normal moves	Follow command	6
	Withdraw-touch	Localize pain	5
	Withdraw-pain	Withdraw-pain	4
	Abnormal flexion	Flexion-pain	3
	Abnormal extension	Extension-pain	2
	None	None	1

Using Instructional Aids

Using instructional aids

- Integrate aids into a lesson plan
 - ◆ Use with a purpose
 - ◆ Decide when and how to use them
- Check AV equipment before class
- Preview before class

Using instructional aids

- Integrate aids into a lesson plan
 - ◆ Use with a purpose
 - ◆ Decide when and how to use them
- Check AV equipment before class
- Preview before class
- Hide charts, models until they are needed
- Cue important details
- Encourage thinking about them - allow time

Specific AV Aids

- ▲ Chalk, Dryerase Boards
 - ◆ Limited by instructor's artistry & legibility
 - ◆ Extensive displays must be done before class
 - ◆ Extensive displays should be hidden until used
 - ◆ Extensive displays for repeated use should be made in durable form
 - ◆ Do not try to talk while writing on a board

Specific AV Aids

- ▲ Computer presentations; e.g., Powerpoint
 - ◆ Easily edited
 - ◆ Easy to use
 - ◆ No wasted materials
 - ◆ Multimedia capabilities - text, audio, video
 - ◆ Internet capabilities
 - ◆ handouts, same as screens

Specific AV Aids

- ^ CD/DVD
 - ◆ multimedia and Internet capabilities
 - ◆ good media for tutorials
- ^ Physical Models
 - ◆ distracting, when left in full view
 - ◆ excellent for 3D features
- ^ Audio recording
 - ◆ needed for sounds
 - ◆ not a stand-alone medium

Specific AV Aids

- ^ Printed handouts - purposes:
 - ◆ follow instruction
 - ◆ provide structure for learners to add their own notes
 - ◆ take away for review
 - ◆ supplement the textbook - do not replace it

Summary & Review

- ^ Guidelines for creating instructional aids; e.g., the 7 x 7 rule, eye comfort
- ^ Guidelines for using instructional aids; integrate into lesson plan
- ^ Specific media:
 - ◆ chalk, dryerase boards
 - ◆ computer-based presentations
 - ◆ CD, DVD
 - ◆ physical models
 - ◆ handouts

Lesson Planning**Lesson Planning- Why Bother?**

- ^ Ensure that content is appropriate and comprehensive
- ^ Ensure that content is organized
- ^ Ensure that instruction includes appropriate strategies
- ^ Guide instructor through the lesson delivery
- ^ Permit evaluation of lesson & course content

Developing a Lesson

- ^ Specify learning objectives
- ^ Sequence learning objectives
- ^ Develop criterion test

Developing a Lesson

- ^ Specify learning objectives
- ^ Sequence learning objectives
- ^ Develop criterion test
- ^ Analyze instructional context
- ^ Specify instructional platform
- ^ Specify strategies & aids
- ^ Outline the lesson plan
- ^ Rehearse the presentation

Lesson Plan Stages

- I. Preparation (of learner)
- II. Presentation or demonstration
- III. Application
- IV. Verification
- V. Summary & review

Preparation (of learner)

- ^ Gain attention
- ^ Establish relevance - motivation
- ^ Activate prior knowledge - readiness to encode additional objectives
- ^ State the objective(s) - alert learner to expectations

Presentation (procedure)

- ^ Demonstrate at real speed, without explanation
- ^ Demonstrate at slow speed, with explanation
- ^ Stress key steps
- ^ Learner follows with procedure checklist

Presentation (information)

- ^ Maintain learners' attention
- ^ Present distinct stimuli
- ^ Address multiple senses
- ^ Guide learning
- ^ Encourage active information processing (thinking)
- ^ Monitor learners' comprehension

Application

- ^ Rehearsal of information
 - ◆ drill
 - ◆ oral questions
- ^ Guided practice of procedure

Verification

- ^ Criterion exam for information
- ^ Criterion evaluation for procedure

Summary & Review

- ^ Summarize material-- So what?
- ^ Review key points
- ^ Suggest further study

Evaluation of Learning

Evaluation

- ^ formal appraisal of quality of educational processes and outcomes.
- ^ purpose- to guide decisions about:
 - ◆ instructional programs- processes
 - ◆ student achievement- outcomes

Evaluation - types

- ^ Formative- guide modifications in students or programs under development
- ^ Summative- guide final decisions about students or programs

Evaluating Cognitive Skills

Recall vs. recognition

- Recall- student finds answer in memory
- Recognition- student selects correct answer from list (easier)

Evaluation methods- cognitive skills

- Conversation- evaluate informally, without perceived threat
- Oral questioning
- Student presentations - communications skills
- Criterion-referenced, objective tests
RCP, RRT

Written Examinations**Item types**

- Essay - hard to score
- Short answer
- Completion (fill-in)
- Matching
- True-false - 50% chance for guess
- Multiple-choice

Multiple-choice items

- Subject matter- all types
- Levels of cognition- all
- Strengths
 - ◆ Variety of subject matter
 - ◆ Objectivity
 - ◆ Levels of cognition
 - ◆ Easy to score and assign points
- Weakness- difficult to construct

Constructing multiple-choice items

- Select objective to test
- Determine desired skill
- Determine cognitive level
- Construct stem
- Write correct answer
- Write distracters
 - ◆ all should be plausible
 - ◆ 'none of the above' should not be used
 - ◆ 'all of the above' should be limited

Constructing tests

- Identify objectives to test
- Determine cognitive level for items
- Determine item type
- Write items- 1-2 for each objective
- Determine scoring
- Develop test key
- Pilot-test the test
- Revise as needed

Evaluating Procedure Skills**Evaluating procedure skills**

- Oral questioning
 - ◆ Verify learner's readiness for evaluation of hands-on
 - ◆ Provide drill on recall of procedural practice
 - ◆ Verify learner's theoretical knowledge

Evaluating procedure skills

- Criterion-referenced performance evaluation form (PEF)
 - ◆ Developed from task analysis
 - ◆ Each critical step is a criterion for evaluation

Evaluating procedure skills

- Functions of checklists:
 - ◆ Guide lesson planning for instructors
 - ◆ Provide study guide for learners
 - ◆ Provide criteria for evaluations
- Functions of checklists:
 - ◆ Reduce subjectivity in evaluation-increase inter-rater reliability
 - ◆ Provide documentation of evaluations

Evaluating procedures

- Learner must have opportunity to practice, with corrective feedback before undergoing final (summative) evaluation.
- Each step must be done correctly- e.g.,
 - ◆ determine patient ID ==> check arm band
 - ◆ position patient ==> correct technique, position

Evaluating Professional Behaviors (Affect)

Professional behavior evaluation

- We cannot objectively evaluate affect; that is, attitudes and values.
- We can evaluate behavior.

Professional behavior evaluation

- People; e.g., students, can be very knowledgeable and clinically skilled; but, unprofessional conduct or poor work habits renders these meaningless.
 - ◆ What good is a very smart RT who cannot relate to patients?
 - ◆ What good is a very smart RT who is consistently absent or late?

Criterion professional behaviors

- Efficiency- gets things done with minimal waste
- Productivity- gets quantity of work done
- Accuracy- measures, adjusts, documents correctly
- Attentiveness- alert and responsive

Criterion professional behaviors

- Efficiency- gets things done with minimal waste
- Productivity- gets quantity of work done
- Accuracy- measures, adjusts, documents parameters correctly
- Attentiveness- alert and responsive
- Diligence- opposite of laziness
- Communication- sends, receives correct, goal-oriented messages
- Empathy- physical and nonphysical handling of patients, families

Sources of evaluation data

- Observation and normal conversation- provides insight to learner
- Clinical conferring- good for simulating scenes to teach and evaluate behavior
- Learner presentations- also helps learners discover feelings and construct behavior

Evaluation instruments

- Anecdotal reports- noteworthy information to be considered during evaluations
- Critical episode reports- information denoting outstanding or seriously deficient competency
- Behavior rating scales- formative vs. summative
- Clinical instructors must provide timely, concise, accurate data- write it down

Summary & Review

- ^ Evaluation - formative & summative
- ^ Written tests, types of items
- ^ Procedure evaluation - checklists to structure evaluations
- ^ Behavior evaluations - episode reports, rating scales

Clinical Instruction**Preceptor Roles**

- Practitioner
- Teacher
- Liaison
- Evaluator
- Role model
- Mentor
- Resource
- Facilitator
- Coworker

Topics for Clinical Instruction

- Patient care
- Equipment
- Personnel
- Institutional policies & procedures
- Institutional geography
- Communications
- Job responsibilities
- Organizational skills
- Coping skills

Progression With Procedures

- Student observes
- Student describes how
- Performs with supervision
- Criterion evaluation
- Independence (loose supervision)

Clinical Lesson Plan

- Preparation- preclinical conference
 - ◆ Determine entry skills
 - ◆ Establish goals
 - ◆ Describe likely events

Clinical Lesson Plan

- Presentation
 - ◆ Discuss patients, etc.
 - ◆ Demonstrate new procedures
 - ◆ Role model desired behaviors
 - ◆ Clinical conferences as situation indicates

Clinical Lesson Plan

- Application
 - ◆ Observe, correct skills
 - ◆ Simulations
 - ◆ Role-playing
 - ◆ Student presentations

Clinical Lesson Plan

- Verification
 - ◆ Evaluate cognitive skills
 - ◆ Evaluate procedures (when appropriate)
 - ◆ Evaluate professional behavior

Clinical Lesson Plan

- Summary, review- post-clinical conference
 - ◆ Provide feedback
 - ◆ Discuss events, patients

Common Preceptor Errors

- Failure to develop learners' cognitive skills
- Failure to use evaluation forms
- Premature procedure evaluation
- Easy grading
- Poor professional role modeling
- Clinical shortcuts - 'this is how we do it in the real world.'

Summary & Review

- ^ Clinical instruction
 - ◆ roles of preceptor
 - ◆ topics for instruction
- ^ Clinical lesson plan
- ^ Common errors in clinical instruction

END