

Instructional Skills for Clinical Practice

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This Presentation is Approved for
1.5 CRCE Credit Hours

Learning Objectives

- > Develop effective instruction for students, colleagues, & patients

Introductory Information

Who & What Do RCPs Teach?

- > Patients & families
 - ❖ Disease condition
 - ❖ Procedures
 - ❖ Medications
 - ❖ Equipment
 - ❖ Self-monitoring

See links below for AARC clinical practice guideline on providing patient & caregiver training

Who & What Do RCPs Teach?

- > Colleagues
 - ❖ Orientees
 - ❖ Nurses
 - ❖ Physicians
 - ❖ Other practitioners
- > Subjects
 - ❖ Institutional & 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

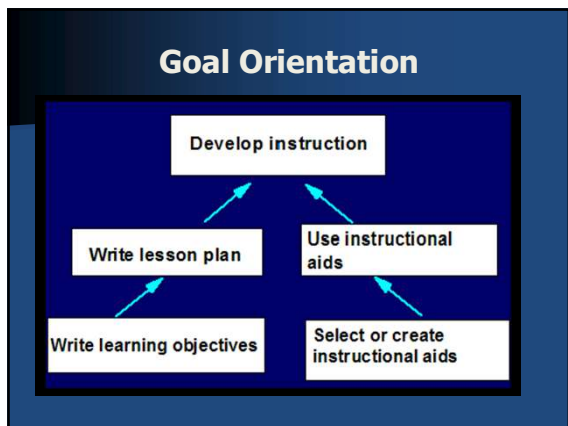
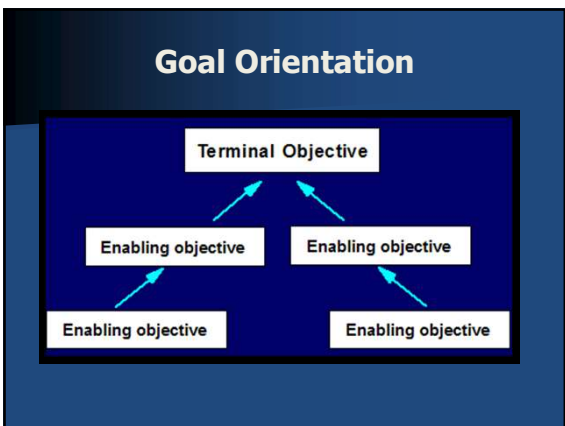
- > Instructional goal: a desired outcome of instruction which may be expressed in broad terms, without specification of criteria or conditions for measurement of attainment

Goal Orientation

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

Goal Orientation

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



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 & 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 & measurable
- **Learning objective = road map for instruction**

Functions of Learning Objectives

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

Domains & 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

Least complex	Knowledge
	Comprehension
	Application
	Analysis
	Synthesis
	Evaluation
Most complex	

Skills: Levels of Complexity

- > Cognitive domain: Bloom's taxonomy
- > Affective Domain: Kratwohl's taxonomy
- > Psychomotor domain: Simpson's taxonomy

See links below for Kratwohl's taxonomy & psychomotor taxonomies

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 & level of performance

Verbs for Cognitive Domain

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

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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

FYI see links below for Mager's tips on learning objectives

Summary & Review

- > Domains & 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 & 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 & 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 & 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 & direct attention
- Stimulate active learning: schemata building
- Stimulate rehearsal of procedures
- Stimulate & 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

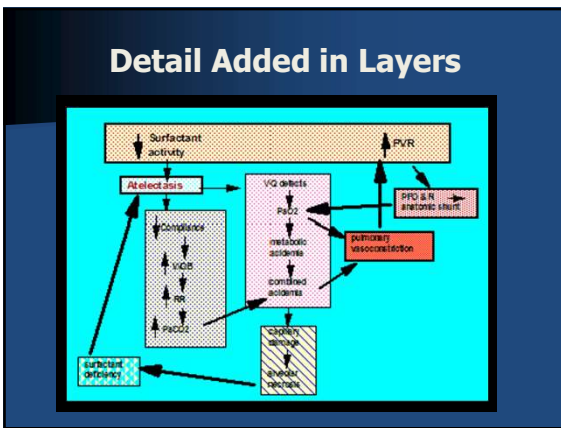
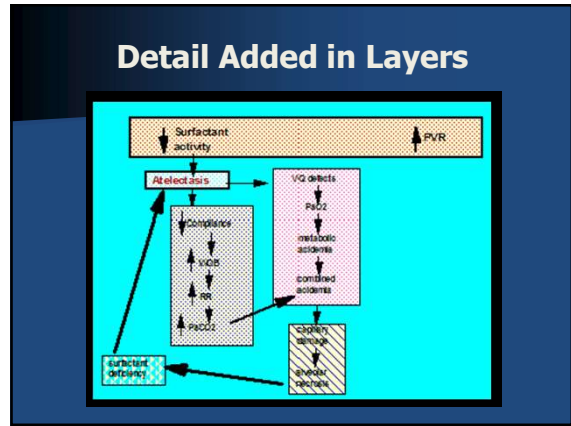
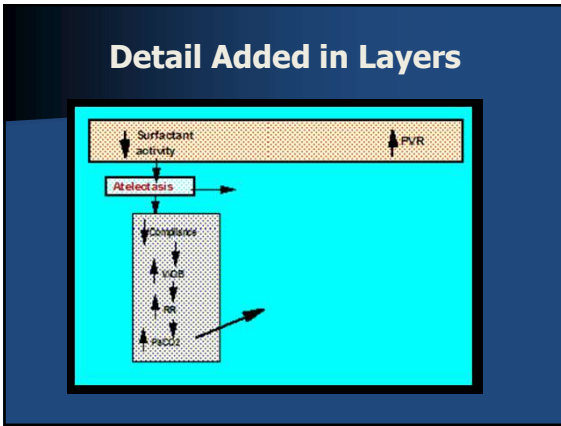
Simulations & Games

- 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 & practice
 - ❖ Printed media
 - ❖ Simulations & games

Instructional Aids



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 & how to use them
 - Check AV equipment before class
 - Preview before class

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- Integrate aids into a lesson plan
 - ❖ Use with a purpose
 - ❖ Decide when & 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, Dry Erase 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 & 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, dry erase boards
 - ❖ Computer-based presentations
 - ❖ CD, DVD
 - ❖ Physical models
 - ❖ Handouts

Lesson Planning

Lesson Planning - Why Bother?

- Ensure that content is appropriate & 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

FYI see links below for Gagne's Nine Events of Instruction

Evaluation of Learning

Evaluation

- > Formal appraisal of quality of educational processes & 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 & 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 procedure-mental 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 & values
- We can evaluate behavior

Professional Behavior Evaluation

- People, e.g. students, can be very knowledgeable & 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 & responsive

Criterion Professional Behaviors

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

Sources of Evaluation Data

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

