

# Introduction to Curriculum Development and Instructional Design

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## Objectives

- Describe key elements in curricular design and implementation
- Utilize one framework of curricular design to begin planning a quality and safety curriculum
- Explain the difference between assessment and evaluation
- Develop an initial evaluation plan utilizing the Kirkpatrick paradigm

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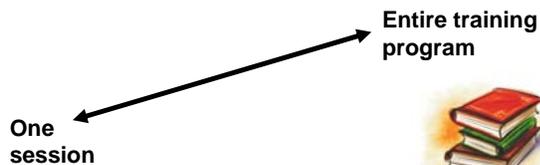
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## What is curriculum?

Any planned educational experience



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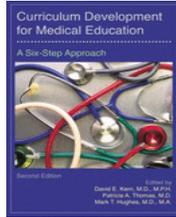
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## Six “Steps” of Curriculum Development

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



Kern, et al

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## Curriculum Template (modified)

- Goals and Resources
- Core Content -> Objectives
- Selecting Teaching Strategies
- Selecting Assessment Tools
- Evaluation
- Implementation

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## Case

- Dr. Taylor has been teaching at an academic medical center for two years and works with the patient safety office.
- Based on their recent CLER visit review, each program has been asked to train their residents on how to report errors.
- The Residency Program Director asks if Dr. Taylor would be willing to design a mini-curriculum on error reporting for her residents.

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### Case (cont.)

- The end of year program survey shows that only half of residents report understanding how and where to report adverse events.
- Dr. Taylor knows from her work in the patient safety office that residents seem uncomfortable participating in RCAs. She believes much of the fear comes from not understanding what happens to the report or how root cause analyses are conducted.
- Culture of safety data suggest that residents do not understand their role in the overall safety process.

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### Case (cont.)

- There are currently 30 residents in the program.
- The program director is willing to give Dr. Taylor two hours from the residents' protected time for curriculum. This time can be used for lectures or workshops.

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### Basic question

- Who
- What
- Why
  
- Role???

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### Curriculum Template (modified)

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### Goals

- Delineate overall purpose of the curriculum
- Short, descriptive
- Focus on the teaching program or experience
- Communication tool

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### Gathering Resources

- People
  - Stakeholders
  - Content experts
  - Teachers
- Time
  - Learner time
- Money
  - Why?
  - Where?

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### Goals and Resources: Key Points

- Understand your goal and the rationale behind it.
- Have a clear sense of your resources up front.



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### Building a Core Content

- Core concepts or skills you want to teach
- Sources
  - Needs assessment
  - Other published curricula
  - Content experts
- Domains
  - Knowledge, Skill, and Attitudes

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### Core Content for Dr. Taylor

- Definitions – adverse events and near misses
- Incident reporting system at the hospital
  - How and where to report
  - What happens to the report and investigation
- How to do a root cause analysis
- Value their role in error reporting

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### Core Content for Dr. Taylor

- Knowledge
  - Definitions – adverse events and near misses
  - Incident reporting system: what happens to the report and investigation
- Skills
  - How to do a root cause analysis
  - Incident reporting system: how to enter a report
- Attitude
  - Value their role in error reporting

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### Objectives

- Specific, measurable, and performance-based learning objectives
- Focus on the learner
- Not descriptive
- Communication tool

“Residents will be able to...”

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### Content → Objective

<u>Knowledge</u>	→	<u>Learning Objective</u>
Adverse Events		Understand what an adverse event is

Is this objective specific, measurable, and performance-based?

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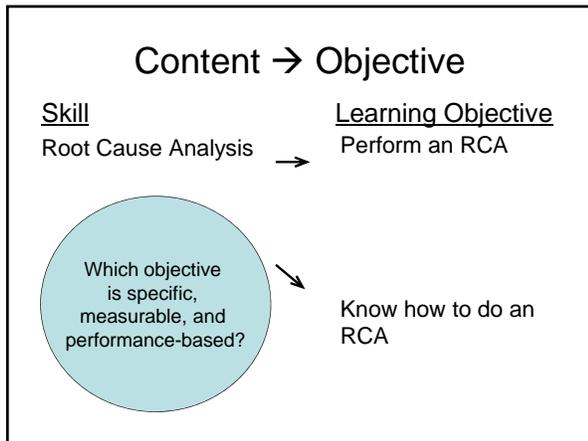
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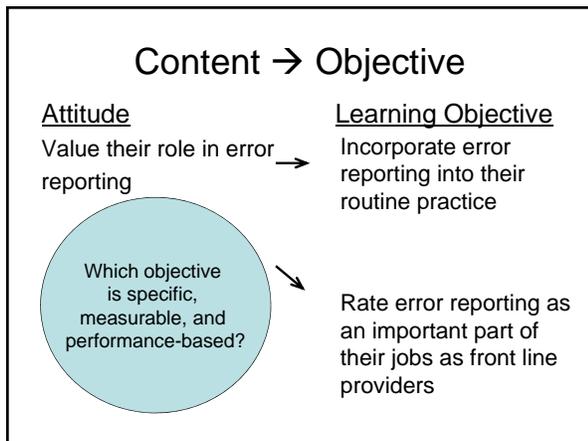
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### Active verbs

Words that are less specific	Words that are more definitive	
Know Understand	List Recite Sort Distinguish Define Repeat Identify	Describe Give example of Write Solve Compare Contrast Name
Know how Internalize	Demonstrate Incorporate into behavior Practice Illustrate Perform	
Appreciate Believe Learn Teach Enjoy	Rate as valuable or significant Rank Identify or rate as belief	

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## Bloom's Taxonomy

- Knowledge: rote memorization, recognition, or recall of facts
- Comprehension: understanding what the facts mean
- Application: correct use of the facts, rules, or ideas
- Analysis: breaking down information into component parts
- Synthesis: combination of facts, ideas, or information to make a new whole
- Evaluation: judging or forming an opinion about the information or situation

<http://teaching.uncc.edu/learning-resources/articles-books/best-practice/goals-objectives/writing-objectives>

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## Bloom's Verbs

Bloom's Levels of Cognition	Verbs
Knowledge	list, recite, define, name, match, quote, recall, identify, label
Application	calculate, predict, apply, solve, illustrate, use, demonstrate
Comprehension	describe, explain, paraphrase, restate, summarize, interpret, discuss
Analysis	classify, outline, break down, categorize, analyze, diagram, illustrate
Synthesis	design, formulate, build, invent, create, compose, generate, derive, modify, develop
Evaluation:	determine, defend, judge, grade, compare, contrast, argue, justify, support, convince, select, evaluate

<http://teaching.uncc.edu/learning-resources/articles-books/best-practice/goals-objectives/writing-objectives>

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## Writing Objectives - FAQs

- How do I know whether a content area goes in knowledge and skill?
- How specific do we need to get?

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## Content → Objective: Key Point

- Don't let the perfect become the enemy of the good.  
(Less is sometimes more)
- Writing clear objectives is much harder than it looks but is the most important step.



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## Key Point



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## Selecting Teaching Strategies

- Match strategy to content domains to create teaching plan.
- Multiple settings for different types of learners

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## Selecting Teaching Strategies

- Knowledge
  - Readings
  - Audiovisual aids
  - Case with discussion
  - Lectures
- Skills
  - Simulated
    - Standardized patient
    - Models
    - Role play
  - Clinical experience with feedback
- Attitudes
  - Exposure
  - Openness
  - Role modeling
  - Discussion

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## Table top exercise

Writing objectives  
Selecting teaching strategies

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## Objective → Teaching Strategy

Knowledge

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Objective → Teaching Strategy

Skills

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Objective → Teaching Strategy

Attitude

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Teaching Strategies: Key Point

- Revisit your resources before you move onto assessment.
- Combine teaching strategies to preserve resources.

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## Curriculum Template (modified)

- Goals and Resources
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## Assessment and Evaluation

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## Teaching and Learning: Definitions

“The goal of education, if we are to survive,  
is the facilitation of change and learning”

-Carl Rogers, 1969

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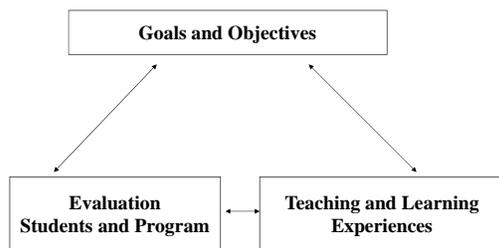
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## Education Program Design and Lesson Planning



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## Basic questions to answer

- What difference have we made?
- What is the effect upon learners?
- Did our program work, and why (or why not)?
- Was the “juice worth the squeeze”—did the benefit and change exceed the “costs” of the activity?

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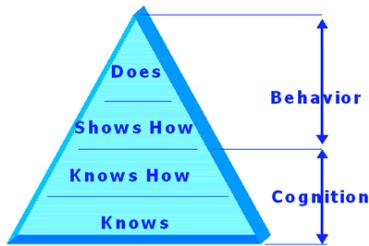
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## Learner Assessment

Miller's Pyramid



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## Assessment of Learner Performance

- Knows: MCQs, essay, short answer, oral exam
- Knows how: oral exam, demonstrates
- Shows how: OSCEs, simulation, standardized settings
- Does: How learners function in real world



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## Milestones

- Use these to help plan assessments
- Give you a behavior-based tool to reach towards
- Be consistent to the level of learner



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## Exercise

- Spend 10 minutes at your tables designing measurement tools for the curriculum you designed
  - At least 2 levels of the triangle
  - Do you have current tools you can share with tablemates?

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## Where Miller's Model Stops

- Learner satisfaction and perceptions
- Effect upon patients and outcomes
- Cost versus quality (ROI)
  - Value-based education?



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## Program evaluation

- Remember WHY you are evaluating
  - Improve
  - Document
  - Study
- Did the overall program work?
  - What were its effects?
- Kirkpatrick's is a useful paradigm



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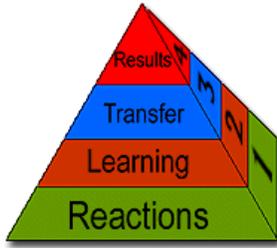
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### Kirkpatrick's Model of Training Evaluation



• Kirkpatrick, D. L. (1994). *Evaluating Training Programs*. San Francisco: Berrett-Koehler Publishers, Inc.

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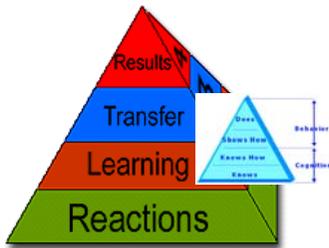
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### Reactions

- “Likes”
- Most commonly measured aspect of program evaluation
  - Survey post-education

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## Learning

- See Miller' s
- Knowledge, Skills, Attitudes
- How do you measure in QI?
  - QIKAT
  - Examples of other validated tools here?

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## Transfer

- Do they take this to the workplace?
  - Dr. Taylor' s curriculum: do the resident now engage in RCAs properly? Use the incident reporting system?
- Methods to measure:
  - Self-report
  - Observations

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## Results

- Where the rubber hits the road
- Outcomes, outcomes, outcomes
  - Include balancing measures to assure no harm
- Consider ROI (Value)

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## Exercise

- Which levels (beyond learning) should you evaluate for this new curriculum?
- How will you do this?
- 15 minutes at your tables

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## Implementation

- Pilot as you go!
  - Teaching strategies
  - Evaluation tools
- Leave time for faculty development
- Leave time for evaluation in the session itself

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## Pearls and Pitfalls

- Including educational and institutional leadership in the planning will help in design, implementation and maintenance of your program.
- Choosing multiple venues will allow you to capture different learning styles.
- Remember that strategies that are most effective at teaching skills are often the most resource intensive – choose wisely.
- Even large group, didactic-type conferences can be ideal venues for role modeling and changing attitudes!
- Housestaff are the most valuable teachers.

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## Pearls and Pitfalls

- Don't save assessment and evaluation for the night before
- Use already-developed tools whenever possible
- Starting small and evaluating a pilot program can bring rich results and satisfy many core objectives.

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Thank you!

Questions?

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