"A college’s purpose is not to transfer knowledge but to create environments and experiences that bring students to discover and construct knowledge for themselves, to make students members of communities of learners that make discoveries and solve problems.”

From Teaching to Learning - A New Paradigm for Undergraduate Education

Robert B. Barr and John Tagg

EDUCATIONAL PARADIGMS

The Instruction Paradigm
- Provide/deliver instruction
- Transfer knowledge from faculty to students
- Improve the quality of instruction
- Covering material
- End-of-course assessment
- Knowledge comes in chunks and is delivered
- Faculty are primarily lecturers

The Learning Paradigm
- Produce learning
- Elicit students’ construction of knowledge
- Improve the quality of learning
- Specified learning results
- Pre/during/post assessments
- Knowledge is constructed, created
- Faculty are primarily designers of learning methods and environments

Aligning Education with Mission

• Mission 1: Preparation/Dispensing
• Mission 2: Pharmaceutical Care

Aligning Education with Mission

• Mission 1: Preparation/Dispensing
  - Stored knowledge Paradigm
• Mission 2: Pharmaceutical Care
  - Constructed knowledge Paradigm
  - Instructor-oriented
• Mission 2: Pharmaceutical Care
  - Constructed knowledge Paradigm
  - Student-oriented
Basic Training for New Clinical Faculty and Preceptors

Aligning Education with Mission

- **Mission 1:** Preparation/Dispensing
  - Stored knowledge paradigm
  - Instructor-oriented
  - Content-centered
- **Mission 2:** Pharmaceutical Care
  - Constructed knowledge paradigm
  - Student-oriented
  - Ability-centered

Four Themes in Higher Education

- Outcome-directed Education
- Active Learning
- Higher-Order Thinking
- Accountability/Assessment

The ACCP Academy Teaching and Learning Certificate Program

- Symposia
  - Planning for Effective Teaching
  - Implementing Teaching and Learning Strategies
  - Assessing Student Learning
- Electives
- Portfolio

Program’s Foundational Teaching/Learning Strategies

- Create clear outcomes for what students will be able to do at the end of instruction
- Structure instruction so that students frequently practice the outcomes
- Create performance criteria so that students recognize what good performance is
- Provide assessment feedback and suggestions on how students can perform better
What We are Doing Today

Objectives

- Describe basic concepts related to current pedagogical theory and practice as they pertain to pharmacy education and practice.
- Develop basic strategies for planning, implementing, and assessing educational experiences structured to achieve clearly defined student outcomes within didactic and clinical settings.
- Clarify one’s own purposes, goals, and philosophy for teaching in order to identify strategies for continued self-learning.

Teaching as a Profession

Thomas D. Zlatic, Ph.D.

Good teaching depends primarily on what is happening inside of us . . . And only secondarily on the methods at our command.

The ultimate source of good teaching lies not in technique but in the identity of the teacher . . .

Good teaching cannot be reduced to technique; good teaching comes from the identity and integrity of the teacher.

Parker Palmer

Teaching is an ability

I.e., an integration of
Knowledge
Skills
Attitudes/values/habits

Teaching is a Profession

What does that mean?

What is the essence of professionalism?
Session Outcomes

- Discuss various strategies to improve teaching and learning
- Describe types and elements of teaching portfolios
- Self-assess strengths and weaknesses as a teacher/preceptor
- Draft a teaching/learning philosophy statement

Clarifying One’s Teaching Goals and Philosophies

Dana Hammer, RPh, Ph.D.

Session Outcomes

- Discuss various strategies to improve teaching and learning
- Describe types and elements of teaching portfolios
- Self-assess strengths and weaknesses as a teacher/preceptor
- Draft a teaching/learning philosophy statement

Why keep a portfolio?

- Personally reflect on development and improvement
- Demonstrate to others your accomplishments
- Engage in Scholarship of Teaching and Learning

What are some strategies to help improve your skills as a teacher/preceptor?

Types of Teaching Portfolios

- Evaluative/Showcase
  - Product-related, summative, used for decisions
  - Communicates teaching to employer (P&T), potential employer, students, colleagues, and community

Types of Teaching Portfolios

- Developmental/Formative
  - Process-related, reflective
  - Records experiences over time
  - Provides themes and evidence for evaluative portfolio
Types of Teaching Portfolios

- Course portfolio
  - Subset of a teaching portfolio
  - Demonstrates the details of an entire course
  - Focuses on student learning

Elements of Developmental/Formative Portfolios

- Teaching/learning philosophy statement
- Examples of your “products” (artifacts)
- Assessment documentation
- Professional Development
- Your reflections on the above

Preparation for your portfolio: Part 1

- SWOT analysis with regard to your teaching/precepting:
  - What are your strengths?
  - What are your weaknesses?
  - How can you improve on your weaknesses? (Opportunities)
  - What might hinder your improvement? (Threats)
- See worksheet
- Take 15 minutes for this exercise

Preparation for your portfolio: Part 2

- Teaching/learning philosophy statement (TPS or TLPS)
  - Articulates your values, ideas about teaching and learning; what you aspire to achieve
  - Is more than a mission/vision statement

A philosophy of teaching statement is a narrative that includes:

- your conception of teaching and learning
- a description of how you teach
- justification for why you teach that way

Ohio State University, Faculty and TA Development, http://ftad.osu.edu/portfolio/philosophy/Philosophy.html

The TPS can:

- demonstrate that you have been reflective and purposeful about your teaching
- communicate your goals as an instructor and your corresponding actions in the classroom
- provide an opportunity to point to and tie together the other sections of your portfolio
Components of the TPS
- Conceptualization of learning
- Conceptualization of teaching
- Goals for students
- Implementation of the philosophy
- Personal growth plan

Characteristics of the TPS
- Demonstrates consistency with contemporary educational theory and practice
- Explains a motivation to enter the teaching profession that is likely to lead to success
- Demonstrates values and attitudes consistent with successful teaching and learning
- Identifies realistic and achievable goals for self and students

Characteristics of the TPS
- Identifies previous background/experience in teaching
- Describes teaching practices/strategies and why these are used
- Accurately assesses areas of strengths and weaknesses in one's teaching preparation
- Demonstrates the desire for continuous improvement as a teacher

Tips for writing the TPS
- There is no required content or set format
- It is generally 1-2 pages in length
- Use present tense, in most cases
- Most statements avoid technical terms

Tips for writing the TPS
- Include teaching strategies and methods to help people “see” you in the classroom
- Make it memorable and unique
- “Own” your philosophy
- See examples in handout
- Homework for portfolio

Your Portfolio Homework
- Select and analyze two sample teaching philosophy statements
- Reflect on your teaching philosophy
- Write/upload your TPS draft
- Complete the TPS checklist
- Complete the TPS Assessment
- Ask your mentor to assess your TPS
- Revise the TPS as needed
Basic Training for New Clinical Faculty and Preceptors

References
Ohio State University, University Center for Advancement of Teaching, http://ucat.osu.edu/portfolio/philosophy/Philosophy.html

Teaching Toward Outcomes: Writing Objectives
John M. Burke, Pharm.D., FCCP, BCPS
Zachary Stacy, Pharm.D., BCPS

Objectives
• At the end of this session, you will be able to:
  – Explain the importance of writing learning objectives
  – Differentiate between well-written objectives and poorly-written objectives
  – Write objectives that are clear and measurable

What is an Objective?
• A description of knowledge, skills, or behaviors that you want your audience to exhibit at the end of your lecture
  – Describe...
  – Calculate...
  – Demonstrate empathy...

Why Write Objectives?
• Guide instructors in designing lectures
• Guide instructors in planning learning activities
• Provide students with precise statements of what is expected of them
• Provide guidelines for assessing student progress

Objectives for a Lecture on Diabetes?
• Diabetes diagnosis and management
• Review the following drug classes
  – Sulfonylureas
  – Meglitinide
  – Biguanide
  – Thiazolidinediones
  – Alpha-glucosidase inhibitors
  – Insulin
  – Human amylin analog
  – Incretin mimetic
• Conclusion
Objectives for a Lecture on Diabetes?

1) Explain the mechanism of action of insulin
2) Understand how the mechanisms of sulfonylureas and meglitinides are different
3) Appreciate the difficulty a patient has adhering to multiple daily insulin injections
4) List the medications that are effective in preventing diabetes in a patient with pre-diabetes
5) Classify a patient as having diabetes, impaired fasting glucose or impaired glucose tolerance

Objectives for a Lecture on Diabetes?

6) Compare and contrast metformin vs. thiazolidinediones as first line agents for diabetes
7) Know the risk factors for diabetes
8) Review the newly approved agents used in the treatment of diabetes
9) Interpret the results of laboratory tests used to assess diabetes and the complications of diabetes
10) Identify the goals of therapy for a patient with diabetes
11) Be aware of the symptoms of hypoglycemia

Worksheet Activity 3- Part A

A. State what the learner will be able to do...not what the instructor hopes to accomplish
B. Must be measurable
C. Must be specific and clear (does the statement say what you intend to measure?)
D. Are the intended result of instruction, rather than the process of instruction

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Criteria for Objectives

A. State what the learner will be able to do...not what the instructor hopes to accomplish
B. Must be measurable
C. Must be specific and clear (does the statement say what you intend to measure?)
D. Are the intended result of instruction, rather than the process of instruction
Objectives for a Lecture on Diabetes?

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Worksheet Activity 3-Part B

- For each of poorly-written objectives, re-write the objective to meet all 4 of the criteria

Well-written Objectives

- State what the learner will be able to do...not what the instructor hopes to accomplish
- Must be measurable
- Must be specific and clear - does the statement say what you intend to measure
- Are the intended result of instruction, rather than the process of instruction

Teaching Toward Outcomes: Writing Objectives

Effective teaching depends upon how clearly the students understand what they are supposed to learn and how accurately that learning can be measured.

Teaching Ability Outcomes

“The Big Idea”

OUTCOMES
(clearly defined, measurable abilities)

Determine:
- Content
- Strategies
- Assignments
- Assessments
- Curricular Design

Sheldon Holstad, Pharm.D.
Teaching Ability Outcomes

An ability is an integration of:

- Knowledge
- Skills
- Attitudes/Habits/Values

Objectives - examples

- At the end of this lecture the student will be able to identify three causes of pneumonia.
- At the end of this lecture the student will be able to use a graphing calculator.
- At the end of this course the student will be able to use the semi-colon.

Teaching Ability Outcomes

- Independent lifelong learning
  - Sense of responsibility for learning and the ability and desire to continue learning independently
  - Ability to assess own performance critically and accurately
  - Understanding of how to apply knowledge and abilities in many different contexts
- Abilities are a means to an end

Source: Ability-Based Learning Program, Alverno College 1980.

Teaching Ability Outcomes

- Individual ability outcomes provide a framework
  - Students work within subject matter of courses to develop abilities
  - Must remember abilities often cannot be separated
  - As students gain experience and knowledge they combine them in more complex ways

Source: Ability-Based Learning Program, Alverno College 1980.
Teaching Ability Outcomes

• Abilities-based Education
  – Requires learner to transfer abilities developed in one course/context to new subject matter in other courses/situations
  – Models independent learning

Source: Ability-Based Learning Program, Alverno College 1980.

Step 1: Outcomes

### Ability outcomes

- Practice
- Criteria
- Feedback

Teaching Ability Outcomes

• Step 1: Course Ability Outcomes
  – Identifies clear picture of what the student will be able to do
  – Make them public and work toward widespread and consistent understanding

Teaching Ability Outcomes

• Course Outcomes
  **PP4700 Antimicrobial Pharmacotherapy**
  – Select / recommend appropriate antimicrobial treatment for common infections
  – Monitor for expected therapeutic outcomes and potential adverse effects associated with anti-infective therapy
  – Educate patients and health professionals regarding antibiotic therapy of common infectious diseases
  – Evaluate the appropriateness of patient-specific antimicrobial therapies

Teaching Ability Outcomes

• Course Outcomes
  **Acute Care Clinical Clerkship**
  – Select and recommend a comprehensive drug therapy plan.

  The student will:
  - Recommend drug therapy
  - Explain rationale for drug therapy
  - Develop therapeutic goals
  - Recommend non-drug therapy

Teaching Ability Outcomes

• Step 2: Practice Opportunities
  – To develop the ability outcomes, students must practice them frequently
  – Built in student-centered, active, integrated learning and higher order thinking

  - Formal or informal presentation, role-play, case study, simulation, essay, problem-based work, debate, service learning, patient-focused clinical activity, etc.
Teaching Ability Outcomes

- Step 2: Practice Opportunities
  - Course activities (in-class/on rotation or homework) are the practice of the course outcomes
  - The specific outcome dictates the teaching strategy best suited to achieve it
  - Appropriate opportunity for repeat performance and improvement

Task: Create Ability Outcomes

Sample Course Outcomes

- Select/Recommend appropriate antimicrobial treatment for common infections.
- Educate patients on the importance of non-pharmacologic management of diabetes.
- Evaluate the appropriateness of antidepressant therapy.

1. Choose one of the course outcomes provided and transform it into an activity outcome.
2. Record the activity outcome on your BT worksheet.

Worksheet Activity 4: Create Ability Outcomes

Write your own Course Outcome

1. Write an ability outcome for a course you are presently involved with.
2. Record the outcome on your BT worksheet.

Task: Create Ability Outcomes

Sample Program Outcomes

- Communicate effectively with health care professionals, patients, and care-givers.
- Assess patient-specific disease states.
- Monitor for expected therapeutic outcomes and potential adverse effects.

1. Choose one of the program outcomes provided and transform it into a course specific outcome.
2. Record the course outcome on your BT worksheet.

If you wish, you can refer to the handout, “Implementing Ability-based Education.”
Basic Training for New Clinical Faculty and Preceptors

Teaching Ability Outcomes
• Step 3: Performance Criteria
  – Clearly describe the behaviors or actions (knowledge, skills, and attitudes) necessary for demonstrating successful execution of the ability

Teaching Ability Outcomes
• Step 3: Performance Criteria
  – Explicitly detail what the student must do to practice the ability well at this point in the curriculum
  – Provide framework by which students will be assessed
  – Facilitate self assessment and enhanced performance
  – Promote consistency of evaluation and feedback

Teaching Ability Outcomes
• Assignment Outcome
  – Select/Recommend appropriate antimicrobial treatment for acute, gram-negative pyelonephritis
• Performance Criteria
  – Recommendation includes correct dose, route and duration of treatment
  – Justification of dose is based on type of infection, desired serum levels, and both drug- and patient-specific pharmacokinetic considerations
  – Rationale for duration of treatment is based on natural history of pyelonephritis, desired clinical endpoints and/or standards of treatment

Teaching Ability Outcomes
• Assignment Outcome
  – Select/Recommend appropriate antimicrobial treatment for acute, gram-negative pyelonephritis
• Performance Criteria (continued)
  – An endpoint for IV therapy is provided, together with guidelines for switching to oral treatment
  – Drug selection is justified based on spectrum of activity
  – Explanation for ruling out other antimicrobials is provided and includes drug-specific and patient-specific data

Teaching Ability Outcomes
• Acute Care Clerkship Outcome
  – Select and recommend a comprehensive drug therapy plan. The student will:
    • Explain rationale for drug therapy
      • Discuss rationale for recommendations (e.g., mechanism of drug, ADR, Rx, guidelines, pathophysiology)
      • Justify recommendations with supporting evidence (e.g., patient info, guidelines, literature)
      • Incorporate pharmacologic, pharmacokinetic, pathophysiologic, and cost-effective principles
      • Be correct and accurate with rationale
      • Persuasively explain how recommendations will optimize patient’s drug therapy

• Acute Care Clerkship Outcome
  – Select and recommend a comprehensive drug therapy plan. The student will:
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      • Incorporate pharmacologic, pharmacokinetic, pathophysiologic, and cost-effective principles
      • Be correct and accurate with rationale
      • Persuasively explain how recommendations will optimize patient’s drug therapy

Teaching and Learning Certificate Program
Teaching Ability Outcomes

- Acute Care Clerkship Outcome
  - Select and recommend a comprehensive drug therapy plan.
  - The student will:
    - Develop therapeutic goals
    - Identify desired therapeutic endpoints
    - Relate therapeutic goals to measurable patient outcomes
      (disease specific vs. patient specific, long and short term goals)

Teaching Ability Outcomes

- Acute Care Clerkship Outcome
  - Select and recommend a comprehensive drug therapy plan.
  - The student will:
    - Recommend non-drug therapy
      - Determine if non-pharmacologic therapy would be appropriate
      - Stress the importance of nonpharmacologic therapy, (e.g. bowel rest, diet, exercise, smoking cessation, sleep hygiene, GERD, fall prevention, frequent toileting, etc.)

Teaching Ability Outcomes

- Step 4: Feedback
  - As an integral and continuous part of the process students need to receive explicit, concrete descriptions of:
    - What was successful and why
    - What behaviors need to be improved and how

Teaching Ability Outcomes

- Step 4: Feedback
  - Criteria-referenced
  - Evidence-based
  - Student-oriented

Teaching Ability Outcomes

- The 4 Steps – a review
  - Ability Outcomes
  - Practice Opportunities
  - Performance Criteria
  - Assessment Feedback

Raising the Goals:
Critical Thinking/Problem-Solving

Thomas D. Zlatic, Ph.D.
CRITICAL THINKING IN PHARMACY EDUCATION

Of special significance for pharmaceutical education is the question of how critical thinking is taught and evaluated. . . .

Although critical thinking is a universally desired educational outcome, professionals particularly need a repertoire of thinking strategies that will enable them to acquire, evaluate and synthesize information and knowledge. . . . Critical thinking fosters a questioning attitude among professionals; and it is a prerequisite skill in making judgments.

AACP Background Paper 8: Commission to Institute Change in Pharmaceutical Education

We say we want students to analyze (a critical thinking objective), but our testing largely asks them to memorize. We say that we want our students to be able to evaluate, but many of us construct our tests out of multiple choice and true/false questions. We say that we want them to be able to articulate positions and dispute arguments, but we require them to write very little . . . and we lecture to them day in and day out when they sit doing what? Analyzing? Articulating? Thinking critically? Not so that you’d notice.

Marshall Gregory

Critical Thinking

- Thinking about thinking in order to improve thinking
- Analyzing and critiquing ideas and situations
- Developing well-reasoned arguments with convincing evidence
- Making clinical decisions
- Solving problems
- Developing a mature world view

Bloom’s Taxonomy

- Evaluation
- Synthesis
- Analysis
- Application
- Comprehension
- Recall

Linda Salamon, 1985 AACP General Meeting

Teaching and Learning Certificate Program
Basic Training for New Clinical Faculty and Preceptors

Herbal Objectives

- **Recognize** the pivotal role natural products have played and will continue to play in the development of new drugs.
- **Be familiar with** the botanical classification into which plants are divided.
- **Understand** the process by which natural products have therapeutic action or therapeutic potential are identified, modified, and marketed as a new drug.
- **Know** the source, active ingredient, and physiological effects for at least one drug derived from each of the structural classes presented.

Herbal Ability Outcomes

I. Find, comprehend, analyze, and evaluate information relating to the top twenty-five natural products.
II. Communicate effectively with patients regarding the use of natural products.
III. Resolve ethical issues relating to the manufacturing, advertising, and use of natural products.

Tests and Bloom’s Taxonomy

- **Recognition**  Match
- **Recall**  Fill in the blank
- **Comprehension**  Identify True/False
- **Analysis**  Explain . . .
- **Synthesis**  Construct . . .
- **Evaluation**  Evaluate . . .

Bloom’s Taxonomy

- **Evaluation**  Evaluate
- **Synthesis**  Design
- **Analysis**  Compare
- **Application**  Apply
- **Comprehension**  List

The verb you start with can be a clue to the level of thinking you are expecting.
Worksheet Activity 5
What Questions Are You Asking?

Strategies to Encourage Critical Thinking

- Socratic questioning
- Debates
- Case studies
- Drug Information Essays
- OSCEs
- Problem-based Learning (PBL)
- In-basket Activities
- Simulations
- Experiential learning

Critical Thinking Pearls: Didactic and Experiential Settings

John M. Burke, Pharm.D., FCCP, BCPS
Zachary Stacy, Pharm.D., BCPS

Critical Thinking

- Student should:
  - Be able to EXPLAIN the rationale for every recommendation or response
    - Know the thought process, not just the facts
  - Be skeptical; have a questioning attitude
  - Be critical when reviewing a patient’s chart, a patient case or an article

Strategies to Encourage Critical Thinking in the Classroom

- Provide practice opportunities, criteria, and feedback
  - Writing a SOAP note
    - Provide criteria (framework)
    - Provide multiple opportunities for assessment and feedback

Strategies to Encourage Critical Thinking in the Classroom

- Provide problem-solving opportunities, criteria, and feedback
  - Pathophysiology cases
    - Categorize/organize
    - Interpret
    - Analyze
    - Integrate
    - Evaluate
Strategies to Encourage Critical Thinking in the Experiential Setting

• Student reviews chart
  – Assesses conditions
  – Evaluates drug therapy
• Student develops therapeutic plan and rationale
  – Analyzes all possible treatments
  – Resolves drug-related problems
  – Integrates clinical, humanistic, and economic data
  – Develops outcomes
  – Develops future plan
• Student sees patient
  – Patient’s wants and needs are incorporated
• Student presents to preceptor
  – Justifies recommendations

Critical Thinking Criteria

– Problem is stated clearly and described comprehensively
– Information is interpreted and evaluated to develop a comprehensive analysis or synthesis. Viewpoints are questioned thoroughly.
– Assumptions are thoroughly analyzed
– Complexities of situation addressed
– Conclusions are logical and reflect informed evaluation

Worksheet Activity 5.1

Socratic Questioning

Simply asking a series of questions to painfully identify knowledge deficits is neither “Socratic” nor “teaching.”

Worksheet Activity 5.2

Socratic Questioning

The use of a series of questions to help the student discern understanding.
Worksheet Activity 5.3

To Conduct Socratic Questioning

- Ask questions to probe assumptions and to foreground the thinking process.
- Ask questions that are well sequenced to logically build upon each other.
- Engage the student in an active dialogue.
- Attempt to build not undermine confidence.
- Ask questions that are appropriate to the level of the student.
  - For beginners, questions may be leading and easily answered.
  - For sophisticated students, the questions can build on already acquired knowledge and understanding.

Active Learning: Holding a Cat by the Tail

Thomas D. Zlatic, Ph.D.

A man who carries a cat by the tail . . . learns something he can learn in no other way.

-- Mark Twain

Step 2: Practice

Abilities

Practice = Active Learning

Criteria

Feedback

Pop Quiz!
Student Active Learning in Pharmacy Education

A major responsibility of pharmacy educators is to shift the burden of learning from the teacher to the student. The transition from a dependent to an independent learner must occur as the student progresses through the pharmacy curriculum.

Teaching must be achieved through educational processes which involve students as active learners. Teachers must view themselves as coaches and facilitators rather than merely as providers and interpreters of information.

Background Paper II
Commission to Implement Change in Pharmaceutical Education

Aligning Education with Mission Two Paradigms

- **Mission 1: Preparation/Dispensing**
  - Teaching Paradigm
    - Stored Knowledge Model
    - Professional Training
    - Content-centered
    - Instructor-oriented
    - Didactic Teaching

- **Mission 2: Pharmaceutical Care**
  - Learning Paradigm
    - Constructed Knowledge Model
    - Professional Education
    - Ability-centered
    - Student-oriented
    - Active/Experiential Learning

Which students are likely to do better on a test:

A. Students who go to class but don’t review their notes before the test.

B. Students who don’t go to class but review the notes of someone who did attend.

Which procedure is more likely to lead to student mastery of a subject:

A. Teaching pharmacology

B. Teaching Helen

C. Teaching Pharmacology to Helen

Which of the following are NOT representative of lectures:

A. Ability of speaker to communicate enthusiasm

B. Ability to present material in a concise way

C. Ability to organize material in a special way

D. Ability to convey large amounts of information

E. Ability to communicate simultaneously to many people

F. Ability to model how to attack a problem

G. Ability to control a class

H. Little threat to students

I. Student attention remains high for 50 minutes

J. Students receive sufficient feedback

K. Excellent way to encourage higher order thinking skills

L. Excellent way to communicate complex abstract information

The best reason to use active learning is:

A. It provides immediate feedback to students

B. Encourages higher order thinking

C. It enhances understanding of content

D. It increases student motivation
We say that we want them to be able to articulate positions and dispute arguments, but we require them to write very little. ... and we lecture to them day in and day out when they sit doing what? Analyzing? Articulating? Thinking critically? Not so that you'd notice.

Marshall Gregory

The best analogy for education is:

A. Filling a bucket
B. Lighting a fire

Pausing two minutes three times during a lecture can lead to significantly better student performance on free recall quizzes and comprehensive tests—enough for up to two letter grades difference.

A. True
B. False

Strategies for Pauses

Think/Pair/Share
Review notes
Exchange notes
Solve a problem
One-on-one teaching
Paraphrase to different audiences
Microthemes

Strategies for Pauses: Microthemes

Write the three most important points so far.
Write what you are most confused about.
Find an example or application for what was said.
List objections to the points made.
Based on what you heard, solve this problem.
Predict what would happen in this scenario.
Summarize in one sentence what was said so far.
One Sentence Summaries (WDWWWHW)

- **Who?**
- **Does What?**
- **To whom/what?**
- **What?**
- **Where?**
- **How?**
- **Why?**

Design assignments that require students to summarize in one sentence a process, concept, chapter, or article, using these prompt questions.

Angelo & Cross 1993

---

Teachers assess their students' learning regularly during the semester in their own classrooms by using Classroom Assessment Techniques and any other appropriate tools and methods of inquiry so that they can understand and improve teaching effectiveness and quality of student learning.

Angelo & Cross 1993

---

Many people retain only 10% of what they hear and up to 90% of what they say and do.

A. True
B. False

---

Because the average person can hold only 5–7 bits in memory, it is important to do something with information to save it in long-term memory.

A. True
B. False

---

Active learning strategies are not effective in large classes.

A. True
B. False

---

Active learning in large classes

- Microthemes
- Fishbowl
- Team activities
- Directed readings
- Role plays/simulations
- Peer assessments
- Socratic questioning
- Pro-con grids/Defining features grids
- Games
Most students resist active learning strategies.

A. True
B. False

Active learning is more likely than lecture to motivate students and to call attention to attitudes and values.

A. True
B. False

Employment of active learning strategies results in less coverage of content.

A. True
B. False

Directed Reading: Service Learning


* What does Zellmer mean by "soul."
* What does Zellmer think is essential for pharmacy to become a true profession?
* What according to Zellmer is the "corporatization of pharmacy" and what impact does it have on the soul of pharmacy?
* What is the essence of pharmaceutical care that distinguishes it from technical competence?
* Do you agree with Zellmer’s main idea? Explain.

Directed Reading: Urinary Tract Infections

* Identify the three possible routes for acquiring UTIs and indicate the primary route thought responsible for the development of UTIs; provide support for your answer.
* For acute, uncomplicated cystitis in young women, explain whether the use of single dose therapy is appropriate and whether it is as effective as standard therapy.
* In a patient suspected of having acute pyelonephritis related to Enterococcus, explain the rationale for using ampicillin and gentamicin together as empiric therapy.
* Differentiate between “relapse” and “reinfection” with regard to infecting pathogen and length of time to acquisition.

Writing in Pharmacy Education

Most, if not all, courses would require written assignments. Examinations should provide for written analyses of problems. Because written work usually requires several revisions before excellence is achieved, the educational process must reflect this and students should be provided the opportunities to revise their papers based on constructive criticism from faculty and peers.
Writing as Reflection

How do I know what I think until I see what I say.

We do not write to be understood; we write in order to understand.

Writing and rewriting are a constant search for what one is saying.

I hate writing because it makes you think!

When to Use In-Class Writing and Why

* At the beginning of class to probe a subject.
* During class to refocus a lagging discussion.
* During class to ask questions or express confusion.
* At the end of class to sum up a lecture or discussion.

Bean, Engaging Ideas, 1996.

“Collaborative learning” is a name for what used to be called cheating.

A. True
B. False

On average, students after one year forget 75% of the content covered in a course.

A. True
B. False

Active learning requires more preparation by the instructor.

A. True
B. False
Assessment as a Teaching/Learning Tool

Peer Assessment: Argumentation/Persuasion

The writer shows she is/is not knowledgeable when . . .
The writer does/does not demonstrate fairness when . . .
The writer does/does not connect with the audience when . . .
The writer does/does not use calm, unprejudicial language when . . .
The writer acknowledges the readers’ merits when . . .
The writer does/does not admit her own weaknesses when . . .
To what extent does the writer establish trustworthiness?
What reasons does the writer give for her argument?
What evidence does she give for her reasons?

Active Learning and Technology

A perfect place to discuss educational electronic technology is within the context of active learning.

Active Learning and Electronic Technology

A Natural Relationship for
A New Generation

Active Learning can occur in many places.

In-class
Homework
Experiential sites

And can take many forms

Enhanced lecture strategies (One-minute writes)
20-30 min exercises (Pro-con grids).
Simulations, debates that take up an entire class
Problem-based learning—for an entire course
Frequent practice of an ability outcome

Growing Up Digital?

+ Technological environments promote not deductive, abstract reasoning but “bricolage” and bias toward action
+ Learning is in situ; as much social as cognitive; concrete rather than abstract
+ Knowledge has explicit and tacit dimensions: “knows what” and “knows how”. Tacit lives in action.
+ Learning to learn is situated in community; Enculturation is at the heart of knowing.

Growing Up Digital?


Electronic Technology within the Classroom: Beyond Power Point

"The use of the PowerPoint presentation has been a disaster . . . It should be ditched . . . It is effective to speak to a diagram, because it presents information in a different form. But it is not effective to speak the same words that are written, because it is putting too much load on the mind and decreases your ability to understand what is being presented."

John Sweller

Blended Classes

Get feedback through response polling
Assess pre-recorded video simulations
Self-assess role plays recorded with Flip Video
Structure electronic collaborations
Encourage problem solving through Web page search and evaluation

Evaluation of Evidence-Based Practices in Online Learning
A Meta-Analysis and Review of Online Learning Studies

Students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction.

Instruction combining online and face-to-face elements had a larger advantage relative to purely face-to-face instruction than did purely online instruction.

Online and face-to-face conditions generally differed on multiple dimensions, including the amount of time that learners spent on task. The advantages observed for online learning conditions therefore may be the product of aspects of those treatment conditions other than the instructional delivery medium per se.

US Department of Education

Blur the Line between Class Work and Homework

Build Active Learning into Assignments using Electronic Tools

Bulletin Boards Discussion Forums
Wikis Blogs
Databases Online articles
Flip Videos Skype
Course management systems Podcasts
Chats/instant messaging Mobile phones
Google Docs Delicious (Web sharing)
Diigo (Web sharing) Web site demonstrations
Basic Training for New Clinical Faculty and Preceptors

Your ideas?

Use one or more of the technologies below to create learning strategies to help students develop the ability to “Educate Health Care Professionals.”

- Bulletin Boards
- Wiki
- Databases
- Flip Videos
- Course management systems
- Chats/instant messaging
- Google Docs
- Diigo (Web sharing)
- Discussion Forums
- Blogs
- Online articles
- Skype
- Podcasts
- Mobile phones
- Delicious (Web sharing)
- Web site demonstrations

The person that had took a bull by the tail once had learnt sixty or seventy times as much as a person that hadn’t . . .

Mark Twain

There are two kinds of teachers: the kind that fill you with so much quail shot that you can’t move, and the kind that just gives you a little prod behind and you jump to the skies. -- Robert Frost

Active Learning Pearls: Didactic and Experiential Settings

John M. Burke, Pharm.D., FCCP, BCPS
Zachary Stacy, Pharm.D., BCPS

Requirements for Active Learning

- Outcomes/goals for the activity
- Guidelines/criteria by which student can determine good performance
- Student involvement (not only observation)
- Feedback from the instructor about what went right, what should be improved, and how to improve it
Examples of Active Learning with a Large Class

- Therapeutics Presentation
  - Think, pair, share
- Conducting a Patient Education
  - Simulation
  - Role-playing
  - Standardized patient

Examples of Active Learning with a Small Class

- Discussion of therapeutic controversy
  - Debate
- Case presentations and drug topic reviews
  - Small group assignments, presentations
  - Student-driven lecture schedule

POP QUIZ

- Are advanced practice experiences (APEs) inherently active learning?
  - **NO!**
  - It may be passive learning
  - It may not even be learning, even though the student is active.

Active Learning?

- Student observes preceptor seeing patients and making recommendations to the physician

- Student on rounds in the hospital with the medical team, copying labs out of the computer, answering drug information questions from the team (e.g., what is the dose of this antibiotic in CKD?)
Active Learning?

- Student goes in room alone and sees a patient and does a medication history, then presents it to the preceptor, who develops the plan and makes the recommendation to the team/physician.

**Active, but not very effective**

- Active learning of patient communications skills
  - If preceptor was in the room to give feedback, then learning would be taking place; otherwise student might continue making mistakes.

Examples of Active Learning in the Experiential Setting

- Student reviews chart, evaluates conditions and meds, develops plan
- Student presents patient to preceptor
- Preceptor “quizzes” student, revises plan and provides feedback
- Student sees patient for med review; preceptor observes
- Student presents revised plan to preceptor; preceptor provides feedback/changes are made
- Student presents patient and plan to prescriber; preceptor observes
- Preceptor provides feedback to student regarding patient interview and recommendations to provider.

Worksheet Activity 8

Practice Opportunities

Describe learning activities that you think were memorable and effective.

Session Outcomes

- Explain the concept of assessment-as-learning
- Discuss how to design an assessment with accompanying criteria to measure an ability outcome
- Provide detailed, constructive feedback on performance

Assessing Student Performance

Thomas D. Zlatic, Ph.D.
Sheldon Holstad, Pharm.D.
Steps 3 & 4: Assessment-as-Learning

The Four Steps
- Outcomes
- Practice
- Criteria
- Assessment Feedback

Assessment-as-Learning

• Why Assess?
  - Summative
    • Evaluation, accountability
    • End of the learning process
  - Formative
    • Improvement in learning
    • Part of the learning process

Assessment-as-Learning

One of the striking things about the responses to our survey was how much attention was given to assessment of learning outcomes and how little to teaching students how to achieve them.

Alverno College, “Student Learning Outcomes”

E = MC²

- Albert Einstein

C+ Very good, Albert, but next time show your work!

Formative Assessment Feedback

- Criteria-referenced
- Evidence-based
- Student-oriented

Modes of Assessment Feedback

- Self Assessment
- Peer Assessment
- Expert Assessment
Basic Training for New Clinical Faculty and Preceptors

The Four Steps
Outcomes
Practice
Criteria
Assessment Feedback

Criteria
– Break down the module outcome into units that are
  • Meaningful
  • Specific
  • Observable/measurable
– Cumulatively describe the knowledge, skills, and values/attitudes expressed in the outcome

Assessment–as–Learning

Criteria Checklist
• Do the criteria describe the knowledge, skills and attitudes that I want demonstrated?
• Can I assess the student based on these criteria?
• Could another instructor (or self or peer) judge the student’s performance with these criteria?
• Run a pilot assessment/feedback

Acute Care Clerkship Outcome
• Select and recommend a comprehensive drug therapy plan. The student will:
  • **Recommend drug therapy**
    • Develop a comprehensive, logical, complete, and practical drug therapy plan
    • Make recommendations that apply to specific patients
    • Select optimal drug, dose, regimen
    • Apply practice guidelines, as appropriate
    • Identify methods to facilitate compliance
    • Identify and weigh therapeutic options for best therapeutic outcome
    • Consider pharmacokinetic parameters/principles
    • Recommend preventative and health maintenance medications/vaccinations, as appropriate
    • Incorporate the significance of potential drug interactions and adverse effects in your recommendations

Task: Criteria
Improve the sample criteria statements
1. Apply clinical practice guidelines, as appropriate.
2. Analyze the importance of study results.
3. Justification of dose is based on type of infection, desired serum levels, and both drug- and patient-specific pharmacokinetic considerations.

Assessment Feedback

- Coming to a judgment or conclusion about student performance is not the end of assessment
- If we want the student to learn as a result of the assessment, he/she must be told
  - what went right
  - what went wrong
  - how to get better

Feedback Components

- Criteria-referenced, evidence-based feedback includes
  - Rationale for value judgment/rating tied to stated performance criteria
    - right or wrong
    - good or poor
    - met, did not meet, or exceeded expectation
  - Specific examples of performance that led to that judgment

Student-Oriented Feedback

- Sandwich method
  - Strengths
  - Areas to improve
  - Strengths, motivating comments to improve
- Multiple perspectives
  - Should include student’s self assessment
  - Could also include peer assessment

Assignment Assessment Example

ESP – Assignment Feedback

SOAP Note - Faculty Assessment – Draft 2

Evaluate

1. Discuss the appropriateness of patient specific drug:
2. Discuss the appropriateness of patient specific drug:
3. Discuss the appropriateness of patient specific drug:

Select and Recommend

ESP – Assignment Feedback

SOAP Note - Faculty Assessment – Draft 2

Evaluate

1. Discuss the appropriateness of patient specific drug:
2. Discuss the appropriateness of patient specific drug:
3. Discuss the appropriateness of patient specific drug:
Basic Training for New Clinical Faculty and Preceptors
Basic Training for New Clinical Faculty and Preceptors

Clerkship Performance

**Expert-Assessment**
Formative & Summative

**Self-Assessment**
Formative and Summative

ESP – Clerkship Assessment
Ability Performance – Faculty – Mid-rotation

Assess patient-specific disease states. The student will:

1. Reformulate patient data
   - history
   - physical exam
   - laboratory results
   - diagnostic studies
   - treatment
   - symptoms
   - previous history
   - allergies

2. Reformulate patient data
   - laboratory results
   - diagnostic studies
   - treatment

ESP – Clerkship Assessment
Ability Performance – Self – Mid-rotation

Assess patient-specific disease states. The student will:

1. Reformulate patient data
   - history
   - physical exam
   - laboratory results
   - diagnostic studies
   - treatment
   - symptoms
   - previous history
   - allergies

2. Reformulate patient data
   - laboratory results
   - diagnostic studies
   - treatment

Task: Assignment Feedback
SOAP Note - Faculty Assessment – Draft 2

**Monitor**

4. Monitor for expected therapeutic outcomes and potential adverse effects with selected drug therapy
   - assess drug therapy
   - assess drug therapy
   - assess drug therapy
   - assess drug therapy
   - assess drug therapy
   - assess drug therapy

G = good
SC = lacking student-centeredness, EB = lacking evidence-based feedback, CR = lacking criteria referenced feedback
Basic Training for New Clinical Faculty and Preceptors

Task: Clerkship Assessment
Ability Performance – Faculty – Mid-rotation

G = good
SC = lacking student-centeredness, EB = lacking evidence-based feedback,
CR = lacking criteria referenced feedback

G = good
SC = lacking student-centeredness, EB = lacking evidence-based feedback,
CR = lacking criteria referenced feedback

Task: Clerkship Assessment
Ability Performance – Faculty – Mid-rotation

Putting it All Together

Dana P. Hammer, RPh, MS, Ph.D.
John M. Burke, Pharm.D., FCCP, BCPS

Learning Objectives
By the end of this presentation, you should be able to:
• Using the 4-step ability-based education process, create or revise your own educational materials to include:
  – Instruction/practice that will facilitate students’ achievement of outcomes
  – Clear, measurable criteria against which students will be measured
  – Valid formative and summative assessment processes
  – Opportunities for instructive, individual feedback

Teaching Ability Outcomes
• The 4 Steps involved in an abilities-based course/rotation
  – Ability Outcomes
  – Practice Opportunities
  – Performance Criteria
  – Assessment Feedback
**Didactic example: Hammer**

**Example UW program outcome:**

- **General Ability**
  - **Communication:** The UW SOP pharmacist can appropriately inform, educate, and motivate using a variety of methods and media with clarity, sensitivity, and accuracy. Our pharmacist is able to read and listen effectively using appropriate communication practices to identify and manage problems and conflicts and to foster collaborative decision-making and quality health care.

**Didactic example: Hammer**

**Example UW program outcome:**

- **Professional Ability**
  - **Patient Care**
    - III. Communicate and collaborate with patients, caregivers, health care providers, and others to improve patient care.
      - A. Communicate clearly, accurately, and knowledgeably with patients, caregivers, other health care professionals, and the public using appropriate verbal, nonverbal, and written communication skills.

**Pharm 504 Introduction to Pharmacy Practice**

**Practice Opportunities**

- Week 2: new Rx (week 3 graded)
- Week 5: refill Rx (practice, then graded)
- Week 6 & 7: multiple Rxs (week 8 graded)
- Week 9: practice all activities for OSCE lab final week 10

**Pharm 504 Introduction to Pharmacy Practice**

**Performance criteria for new Rx:**

- See handout
- Assessment instrument with “key” provided during instruction (week 2)
- Practice and feedback sessions:
  - Student groups of 3 – 5; each performs scenario
  - Using instrument, discuss performance: self, peer, “expert”
  - Students keep completed instruments

**Clinical example**
PP 6165: General Medicine APPE Rotation

- Course Ability Outcomes
  - Thinking and Decision-Making
    - Assess patient-specific disease states
    - Evaluate patient-specific drug therapy
    - Select / Recommend a drug therapy plan
    - Monitor drug therapy
    - Educate patients & health-care professionals
  - Communication
  - Social Interaction
  - Valuing & Ethical Decision Making
  - Self-Learning

PP 6165: General Medicine APPE Rotation

- Course Ability Outcome— Evaluate patient-specific drug therapy
  - Assess appropriateness of current therapy
  - Assess adherence
  - Identify and assess actual and potential adverse drug reactions (ADRs)
  - Identify and assess actual and potential drug interactions
- Practice Opportunity
  - Review patients’ drug regimen for appropriateness

PP 6165: General Medicine APPE Rotation

- Performance Criteria— Evaluate patient-specific drug therapy
  - Critically analyze indication(s) for each medication
  - Critically evaluate the appropriateness of drug therapy regimens
  - Identify contraindications for therapy
  - Determine efficacy of current agents
  - Apply current practice guidelines
  - Apply pharmacokinetic principles
  - Persuasively explain how patient data support evaluation of therapy

PP 6165: General Medicine APPE Rotation

- Assessment/Feedback— Evaluate patient-specific drug therapy
  - Daily verbal feedback (formative)
  - Mid-module written evaluation (formative)
  - End-of-module written evaluation (summative)

PP 6165: General Medicine APPE Rotation

- Course Ability Outcome—Social Interaction
  - The student will collaborate with patients, care givers and health professionals
  - The student will interact professionally with patients and members of the health care team to effectively provide patient care
- Practice Opportunity
  - Daily rounds

PP 6165: General Medicine APPE Rotation

- Performance Criteria—Social Interaction
  - Establish rapport with other health care professionals
  - Be well-prepared for rounds
  - Arrive on time for rounds and patient-care related meetings
  - Intervene appropriately to optimize drug therapy plan
  - Works well with others to implement complete drug therapy plan
  - Works well with others to complete the tasks for the day
PP 6165: General Medicine APPE Rotation

- Assessment/Feedback—Social Interaction
  - Mid-module written evaluation (formative)
  - End-of-module written evaluation (summative)

Your turn

- Form a team of 2-3 people
- Write course/activity outcomes
- Design a practice opportunity
- Create criteria for the practice opportunity
- Design an assessment method
- Present your work to a “Curriculum Committee”
### Basic Training for New Clinical Faculty and Preceptors

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic Teaching</td>
<td>Focus on teaching fundamentals</td>
</tr>
<tr>
<td>2. Teaching Innovation</td>
<td>Emphasize innovative teaching methods</td>
</tr>
<tr>
<td>3. Teaching Assessment</td>
<td>Highlight assessment techniques</td>
</tr>
</tbody>
</table>

#### Teaching and Learning Certificate Program

- **Certificate Criteria:**
  - Complete the Certificate Program requirements.
  - Submit a portfolio of teaching materials.

- **Portfolio Requirements:**
  - Include materials that demonstrate your teaching effectiveness.
  - Submit a minimum of 10 teaching artifacts.

**Portfolio Template**

<table>
<thead>
<tr>
<th>Title</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS Analysis</td>
<td>1. Select and analyze test of the sample base using statistical methods</td>
</tr>
<tr>
<td>TPS Evaluation</td>
<td>2. Evaluate the teaching effectiveness of the sample base</td>
</tr>
<tr>
<td>TPS Training</td>
<td>3. Train the sample base to ensure optimal performance</td>
</tr>
<tr>
<td>TPS Coaching</td>
<td>4. Coach the sample base to achieve desired outcomes</td>
</tr>
</tbody>
</table>

**TIPS Activities**

1. **TPS Analysis**
   - Activity 1: Select and analyze test of the sample base using statistical methods.
   - Activity 2: Evaluate the teaching effectiveness of the sample base.
   - Activity 3: Train the sample base to ensure optimal performance.
   - Activity 4: Coach the sample base to achieve desired outcomes.

2. **TPS Evaluation**
   - Activity 5: Select and analyze test of the sample base using statistical methods.
   - Activity 6: Evaluate the teaching effectiveness of the sample base.
   - Activity 7: Train the sample base to ensure optimal performance.
   - Activity 8: Coach the sample base to achieve desired outcomes.

3. **TPS Training**
   - Activity 9: Select and analyze test of the sample base using statistical methods.
   - Activity 10: Evaluate the teaching effectiveness of the sample base.
   - Activity 11: Train the sample base to ensure optimal performance.
   - Activity 12: Coach the sample base to achieve desired outcomes.

4. **TPS Coaching**
   - Activity 13: Select and analyze test of the sample base using statistical methods.
   - Activity 14: Evaluate the teaching effectiveness of the sample base.
   - Activity 15: Train the sample base to ensure optimal performance.
   - Activity 16: Coach the sample base to achieve desired outcomes.
Basic Training for New Clinical Faculty and Preceptors

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