How To Integrate Alternative Teaching Modalities for Effective Teaching of Medical Students and Interns

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Alternative Teaching Modalities

By the end of the session, participants should know or be able to:

- **Describe** the flipped classroom approach for teaching medical students and interns in structured group sessions.
- **Describe** the Think/Pair/Share and Inquiry-based teaching strategies.
- **Identify APPS** to implement strategies.
- **Outline an activity** to engage learners interactively during sessions.
Goal: Promote deeper engagement with key concepts

**Flipped Classroom Approach**
What is a Flipped Classroom?

Focuses “teaching activity on what the student actively does” ... “by bringing active student engagement with the material (such as problem-solving, case studies, etc., usually in collaboration with other students) directly into the classroom whilst moving more passive activities (such as reading course notes and textbooks and viewing/listening to lectures) outside of the classroom” (Butt 2014, 34).

Butt A. Student Views On The Use Of A Flipped Classroom Approach: Evidence From Australia, Business Education & Accreditation 6(1); 23014, quoting Baker (2000).
What is a Flipped Classroom?

It’s a 2-phase process that engages learners in...

• **Self-regulated learning** with minimal guidance BEFORE a live session

• **Facilitated learning** through interaction and application of knowledge DURING a live session
Why do they call it “flipped”?

- Students do the work of learning key concepts **before** they come to class....*rather than* during class

- **During class**, students **practice** using the knowledge to reinforce it or as foundation to teach new knowledge or skills based
Why Flip a Classroom?

Rationale

• If learners are prepared for interaction, they will more participate more actively and confidently.

• Active involvement in learning fosters deeper understanding.

• Offers instructors a better sense of students’ abilities and where they might need more assistance or guidance.
How do *you* plan it?

- **Describe learning objectives (LO’s)**
- **Determine Target Cognitive Levels**
- **Select appropriate materials**
- **Design ACTIVITIES to achieve LO’s**
How do you plan it?

Describe learning objectives (LO’s)

Determine Target Cognitive Levels

Select appropriate materials

Design ACTIVITIES to achieve LO’s

Per Bloom’s Taxonomy Revised, ask: What kind of thinking do I want students to do?
- BEFORE the session?
- DURING the session?
How do you plan it?

- Describe learning objectives (LO’s)
- Determine Target Cognitive Levels
- Select appropriate materials
- Design ACTIVITIES to achieve LO’s

- Identify key or complex concepts
- Determine which should be addressed BEFORE & DURING the session
- The session should build on the pre-session experience
How do you plan it?

- Describe learning objectives (LO’s)
- Determine Target Cognitive Levels
- Select appropriate materials
- Design ACTIVITIES to achieve LO’s

- BEFORE session
- DURING session

Flipped Classroom
How do you plan it?

- BDA: Assessment
- DURING: Design interactive experiences

- Describe learning objectives (LO’s)
- Determine Target Cognitive Levels
- Select appropriate materials
- Design ACTIVITIES to achieve LO’s

Flipped Classroom
What does it mean to flip a classroom?

**Knowledge of Cognition**
- Target Thinking
- Recall
- Comprehension

**Regulation of Cognition**
- Target Thinking
- Apply
- Analyze
- Evaluate
- Synthesize
- Create
What does it mean to flip a classroom?

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Lay Foundation
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Approach

Lay Foundation

Reinforce & Build on Learning
Purpose: Lay foundation for deeper learning

• **Introduce** learning objectives and key concepts
  – **Consider Quantity & Time** – How much do I have to cover? How much time do I have?
  – **Consider Complexity** - Select concepts that students can learn on their own with guidance

• **Establish** expectation for active engagement

• **Assess** comprehension of key concepts
Flipping the Classroom

Purpose: Reinforce and build on learning

• **Reinforce** and/or **build on** key concepts
  – Offer opportunities to apply, analyze, evaluate, synthesize and create

• **Involve** interaction or collaboration with peers (& you!)
  • Think/Pair/Share
  • Engage in questioning
  • Create learning guide for the topic

• **Assess** learning and **Clarify** as needed
Bloom’s Taxonomy Revised

01 Remembering
Retrieving, recognizing, and recalling relevant knowledge from long-term memory.

02 Understanding
Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.

03 Applying
Carrying out or using a procedure through executing, implementing.

04 Analyzing
Breaking material into parts to determine how the parts relate to one another and the overall purpose for the material.

05 Evaluating
Making judgments based on criteria and standards through checking and critiquing.

06 Creating
Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing.

REVISED BLOOM’S TAXONOMY

It is the mark of an educated mind to be able to entertain a thought without accepting it.

Aristotle
Bloom’s Taxonomy Revised

**Remembering**
- choose
- describe
- define
- identify
- label
- list
- locate
- match
- memorize
- name
- omit
- recite
- recognize
- select
- state

**Understanding**
- apply
- choose
- dramatize
- explain
- generalize
- judge
- organize
- paint
- prepare
- produce
- select
- show
- sketch
- solve
- use

**Applying**
- analyze
- categorize
- classify
- compare
- differentiate
- distinguish
- identify
- infer
- point
- out
- select
- subdivide
- survey

**Analyzing**
- appraise
- judge
- criticize
- defend
- compare

**Creating**
- combine
- compose
- construct
- create
- design
- develop
- do
- formulate
- hypothesize
- invent
- make
- make up
- originate
- organize
- plan
- produce
- role
- play
- tell
Revised Bloom’s Taxonomy

Mouse-over the colored blocks to see examples of learning objectives that generally match each of the various combinations of the cognitive process and knowledge dimensions.

NOTE: These are learning objectives—not learning activities. It may be useful to think of preceding each objective with something like, "students will be able to..."
Select materials that provoke the kind of thinking you want the students to do.

**Example**: You want students to learn how to engage patients/families in conversations that invite shared decision making.
Effective communication skills are essential to obtaining accurate and complete information from a patient/family interview.

Growing emphasis on patient-centered communication and shared decision-making.
YouTube Videos

- **Patient communication**: Making the Dr Visit Fun
- **Medical Interpretation** – Relating to patient experience
- **Translation etiquette for healthcare workers**
- **How to do a knee examination** (Boston Children’s Hospital)
Technology for Teaching

- Presentation software
  - Haiku Deck
  - PowerPoint/PDF
  - Panopto
- Audience response software
  - Socrative
  - Poll Everywhere
- Survey software
  - Qualtrics
- Low fidelity
  - Paper, pencil/pen
  - Discussion and sharing
  - Demonstration
  - Flipping the classroom the old-fashioned way (Video #9)
Goal: Active Learning & Listening, Reflective Engagement

INQUIRY-BASED TEACHING
Formulate Effective Questions

- **Identify**
  - PURPOSE

- **Determine**
  - COGNITIVE DIMENSION
    - Knowledge
    - Comprehension

- **Select**
  - QUESTION TYPE
    - Convergent Questions (Simple Recall)
    - Divergent Questions
    - Compound Questions

- **Lay Foundation**
  - Deep Dive

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Determine Target Cognitive Dimension

- **Recall** (define, label)
- **Comprehend** (explain, discuss)
- **Apply** (Illustrate, demonstrate)
- **Analyze** (compare, examine)
- **Synthesize** (compose, integrate)
- **Evaluate** (prioritize, assess, judge)

CREATE!
Select Question Type

<table>
<thead>
<tr>
<th>Identify Purpose</th>
<th>Determine Target Knowledge Dimension</th>
<th>Select Question Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frame the question for the student:</strong></td>
<td>The <strong>Target Knowledge Dimension</strong> refers to the kind of thinking in which you want the student to engage. Once you know that, you can choose how to phrase your questions. Ask yourself, do you want the student to demonstrate:</td>
<td>▪ <strong>Convergent</strong> – Asks student to choose from among finite possibilities, such as single correct/best answer, yes/no.</td>
</tr>
<tr>
<td>▪ Situate the question in the relevant context. For example, indicate the setting, situation, or other relevant facts.</td>
<td>▪ Knowledge/Recall</td>
<td></td>
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<td><strong>Educator Frame:</strong></td>
<td>▪ Comprehension</td>
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<tr>
<td>▪ Lay foundation. The purpose is to establish student’s:</td>
<td>▪ Application of Knowledge</td>
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<td>▪ Knowledge base - <em>What can student do without assistance?</em></td>
<td>▪ Conceptual Knowledge</td>
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<td>▪ Appropriate level of challenge - <em>What student can do with strategic guidance?</em></td>
<td>▪ Metacognition or reflection</td>
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<td>▪ Deep-dive. The purpose is to ask student to engage in higher-order thinking (e.g., in-depth analysis.)</td>
<td>▪ Analysis</td>
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<td>▪ Synthesis</td>
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<td>▪ Evaluation</td>
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<td></td>
<td>▪ Conditional Knowledge (knowledge that depends on circumstances)</td>
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<td>▪ Creative/Innovative thinking</td>
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<td>▪ <strong>Divergent (Open-ended)</strong> – Narrative response; requires application of knowledge, analysis or other higher order thinking.</td>
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<td>▪ <strong>Complex/Compound [Question Circles]</strong> – Answer depends upon critical analysis of multiple factors and relationship among these</td>
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<td>▪ <strong>Conceptual</strong> – Questions that ask students to explain concepts or articulate reasoning (Analysis, Synthesis, Evaluation)</td>
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<td>▪ <strong>Procedural</strong> – Questions that ask students to explain how something functions, or to describe causal connections.</td>
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<td>▪ <strong>Conditional</strong> – Ask the student to predict what might happen under various conditions or circumstances (What if questions).</td>
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<td>▪ <strong>Reflective/Metacognitive</strong> – questions that promote reflection past, present or future action, process or self</td>
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<td></td>
<td>▪ <strong>Question Posing</strong> – Ask students to formulate questions or to lead the inquiry</td>
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Select Question Type

- Choose the question type that is likely to promote the target cognitive level
- If you want the student to explain their reasoning, a WHAT question might eventually get you there but will not accomplish your objective directly.

<table>
<thead>
<tr>
<th>What do you think is going on?</th>
<th>Tell me what you think and how you arrived at your conclusion.</th>
<th>Why did you include X on your differential but not Z?</th>
</tr>
</thead>
</table>
| Will get the list but not the reasons | Tone: Conversational  
   Target Levels: Recall, Application | Tone: Direct  
   Target Levels: Application, Comparative Analysis, Synthesis |
| Target Levels: Recall, Comprehension | | |
Try a Line of Questioning

What do you think is going on?
• X, Y

How did you arrive at those possibilities?
• I think X because...
• I think Y because...

I’m thinking Z is possible. Why might make me think that?
• Metacognitive engagement requires higher order thinking

Tell me why did you included X and Y, but not Z.
• If patient had Z, I would expect to see A, B and C. I’m only seeing A & B and both of these are consistent with X and Y.
Formulate Effective Questions

Formulate effective questions

Describe how you would use inquiry

Explain why
Strategy: Engage Students & Promote Interaction

THINK/PAIR/ SHARE/COMPARE
What is Think/Pair/Share?

**THINK**
- Introduce key concepts
- Provide time to consider

**PAIR**
- Collaborate with others to apply key concepts

**SHARE**
- Pairs share their ideas for applying key concepts with the larger group
- Discuss issues or challenges that emerged
- Ask questions

**COMPARE**
- Instructor facilitates comparison of approaches and applications of key concepts
- Encourages learners to provide feedback
Our Example

POSSIBILITIES
Effective communication skills are essential to obtaining accurate and complete information from a patient/family interview.

Growing emphasis on patient-centered communication and shared decision-making.

Example: Importance of Interview Style

Motivational Interview Model

Collaborate for Management

Build Relationship

Assess & Understand
Students will be able to

1. **Identify** behaviors that affect the success of the interview process

2. **Describe** the components of the model

3. **Explain** the rationale for the model and its connection to shared decision-making

4. **Apply** the model to a patient case

5. **Evaluate** the application of the model
Determine Target Cognitive Levels

Which are appropriate and feasible to target BEFORE & DURING the Session?

- Recall (define, label)
- Comprehend (explain, discuss)
- Apply (Illustrate, demonstrate)
- Analyze (compare, examine)
- Synthesize (compose, integrate)
- Evaluate (prioritize, assess, judge)

Lower Order Thinking

- Recall
- Comprehension

Higher Order Thinking

- Apply
- Evaluate
Design Experience & Select Materials

**BEFORE Session**

- **RECALL**
  - Read Article describing model

- **COMPREHENSION**
  - View video showing example of how to do an effective motivational interview

- **Assess Knowledge**

**DURING Session**

- **APPLY & ANALYZE**
  - Video Sample of INEFFECTIVE interview
  - Apply model Patient Scenario

- **EVALUATE**
  - Explain how it applies
  - What was done well or poorly

- **Assess**
  - Application
  - Evaluation
  - Find out what’s still confusing
  - Offer feedback
Pediatrician interview style and mothers’ disclosure of psychosocial issues.
Wissow LS¹, Roter DL, Wilson ME.

Abstract

OBJECTIVE: Primary care pediatricians play an important role in the detection, diagnosis, treatment, and referral of children with mental health problems. Some parents, however, are reluctant to discuss behavioral and emotional symptoms with their child’s pediatrician. Studies of patient-physician communication suggest that specific aspects of pediatrician interview style (asking questions about psychosocial issues, making supportive statements, and listening attentively) increase disclosure of sensitive information. We hypothesized that disclosures of parent and child psychosocial problems would be more likely to occur during visits when pediatricians used these techniques.

DESIGN: Cross-sectional analysis of a systematic sample of pediatric primary care visits.

POPULATION: Two hundred thirty-four children ages 6 months to 14 years and their mothers or female guardians attending an inner-city hospital-based pediatric primary care clinic; 52 physicians in their second or third year of pediatric residency training.

METHODS: Visits audiotaped and dialogue coded using the Roter Interactional Analysis System. Independent variables included counts of pediatrician utterances in the following categories: (a) questions about psychosocial issues, (b) statements of support and reassurance, and (c) statements indicating sympathetic and attentive listening. Dependent variables were the disclosure of information about: (a) parental medical or emotional impairment, (b) family disruption, (c) use of physical punishment, and (d) aggressive or overactive child behavior.

RESULTS: Use of psychosocially oriented interviewing techniques was associated with a greater likelihood of disclosure for all four of the topic areas studied. Odds ratios for disclosure, adjusted for parental concerns and child age, ranged from 1.09 to 1.22 depending on the interview technique and outcome involved. Positive associations were observed both for topics raised primarily in response to pediatrician questions (family and parent problems) and for topics raised primarily by mothers (behavior and punishment).

CONCLUSIONS: Three simple communication skills were associated with disclosure of specific concerns relevant to child mental health. Training pediatricians to use these skills would help to better detect and diagnose children’s mental health problems.

PMID: 8121743 [PubMed - Indexed for MEDLINE]
• Butt A. Student Views On The Use Of A Flipped Classroom Approach: Evidence From Australia, *Business Education & Accreditation* 6(1); 23014.


• Tofade T, Elsner J & Haines ST. Best Practice Strategies for Effective Use of Questions as a Teaching Tool. *Am. J. Pharm Educ* 77(7):155; [2013].