LEARNING OUTCOMES

AN EVIDENCE-BASED WORKSHOP

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PARTICIPATION INSTRUCTIONS

TEXT "RVANECK881" TO 37607

OR NAVIGATE TO
WWW.POLLEV.COM/RVANECK881

WHAT ARE SOME THINGS YOU WANT YOUR STUDENTS TO DO?

- Three minutes to write as many as you can using Post-Its

- One idea per Post-It

Type the ideas you wrote on Post-Its into this poll:

PUT A DASH BETWEEN EACH WORD IN A PHRASE

HIT "SEND" BETWEEN EACH ENTRY

OUTCOMES

- These are your learning OUTCOMES
- Not the same thing as objectives
    - But they ARE the first step!
- Outcomes→Objectives→Assessment
- Outcomes are not complete until we *classify* them
- Why?

WHY CLASSIFY OUTCOMES?

Health Outcomes

Want learners to be healthy

Healthy in what <u>way</u>?
- Physical health?
- Mental health?
- Emotional health?
- Disease treatment?
- Disease prevention?

Each requires a different approach
- Exercise
- Counseling
- Support
- Surgery/Rx/Therapy
- Diet/Lifestyle/Rx

Learning Outcomes

Want learners to be competent

Competent in what <u>way</u>?
- Solve problems?
- Act professionally?
- Be self-directed learners?
- Perform physical actions?
- Memorize facts?

Each requires a different approach
- Case-based learning
- Role modeling
- Metacognitive training
- Putting through/guided practice
- Drill and practice

CONDITIONS OF LEARNING

GAGNE VS. BLOOM SMACKDOWN

Gagne	Bloom
5 Varieties of Learning • Attitudes • Cognitive Strategies • Motor Skills • Verbal Information • Intellectual Skills	6 Categories of Learning • Remember • Understand • Apply • Analyze • Evaluate • Create

5 Additional Subcategories Under:
• Intellectual Skills
    • Problem Solving
    • Rules
    • Defined Concepts
    • Concrete Concepts
    • Discriminations
	19 Additional Subcategories Under Each Category:
	• Remember (2); Understand (7); Apply (2); Analyze (3); Evaluate (2); Create (3) AND
	
	15 ADDITIONAL Subcategories of Knowledge That Underly ALL of the Above:
	• <u>Factual Knowledge</u> (Verbal Information)
	    • Knowledge of terminology
	    • Knowledge of specific details and elements
	• <u>Conceptual Knowledge</u> (Defined Concepts)
	    • Knowledge of classifications and categories
	    • Knowledge of principles and generalizations
	    • Knowledge of theories, models, and structures
	• <u>Procedural Knowledge</u> (Rules)
	    • Knowledge of subject-specific skills and algorithms
	    • Knowledge of subject-specific techniques and methods
	    • Knowledge of criteria for determining when to use appropriate procedures
	• <u>Metacognitive Knowledge</u> (Cognitive Strategies)
	    • Strategic Knowledge
	    • Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge
	    • Self-knowledge

• 10 Total • Covers Everything in Bloom • Clear Hierarchy	• 40 Total • Ignores Concrete Concepts, Discriminations, Motor Skills (mostly) and Attitudes • No Clear Hierarchy of Subcategories or Knowledge

WHAT'S WRONG WITH THIS PICTURE?

- Teaching students how to perform an abdominal ultrasound by:

  – Giving them a mnemonic for the steps involved

  – Having them practice classifying examples of good and bad ultrasounds

  – Having them practice reciting the steps involved in an abdominal ultrasound

  – Giving them examples of how ultrasounds can detect life-threatening diseases

- These are RELATED outcomes, but they are not the TARGET behavior

LET'S TRY ANOTHER

- Are you most confident that a learner will act professionally upon graduation if they:
    - Can explain what professionalism means
    - Can classify examples of professional and unprofessional behavior
    - Can recite the Hippocratic oath
    - Have chosen to act professionally in and outside the context of their curricular experiences

IN SUMMARY

- (Classified) Outcomes→Objectives→Assessment
- Get it right and you get:
    - You'll get the right way to TEACH them
    - The right way to TEST them

GAGNE'S VARIETIES OF LEARNING (VoL)

ATTITUDES

COGNITIVE STRATEGIES

MOTOR SKILLS

VERBAL INFORMATION

INTELLECTUAL SKILLS

ATTITUDES

- Definition
  - Beliefs or feelings about objects, people, circumstances
- Teaching strategies
  - Modeling, role models, roleplaying, experiential learning
- Assessment
  - Actual choices made when exposed to object/people/circumstance
  - Proxy measures such as validated instrument or simulated experiences

COGNITIVE STRATEGIES

- Definition
  - Techniques for monitoring comprehension and learning
    - Mnemonics, rehearsal, repetition, self-testing, predicting, summarizing
- Teaching strategies
  - Guided practice in application to new material
- Assessment
  - Use and documentation of strategy in context

MOTOR SKILLS

- Definition
  - Physical movements
- Teaching strategies
  - Putting-through, demonstration, partial skill practice with feedback, repetition
- Assessment
  - Physical demonstration of skill
  - Rubrics, behavioral task list
- Special note
  - Executive function (script) involves other VoLs
  - Physical movement is second component of motor skill

VERBAL INFORMATION

- Definition
  - Terms, labels, propositions
- Teaching strategies
  - Repetition, drill-and-practice
- Assessment
  - When prompted, provides the label, term, or proposition in written or spoken form
  - Often mistakenly used for assessment of rules and definitions (two intellectual skills)

"Name the Capital of Minnesota"

Attitude

Cognitive
Strategy

Motor Skill

Verbal
Information

WHAT VARIETY OF LEARNING IS THIS?

"Chooses to Behave Empathetically Toward Client"

Attitude

Cognitive Strategy

Motor Skill

Verbal Information

WHAT VARIETY OF LEARNING IS THIS?

"Executes Placement of Ultrasound Wand with Appropriate Pressure"

Attitude

Cognitive
Strategy

Motor Skill

Verbal
Information

WHAT VARIETY OF LEARNING IS THIS?

"Adopts LOCATES Acronym to Recall Steps in Patient History-Taking"

Attitude **A**

Cognitive Strategy **B**

Motor Skill **C**

Verbal Information **D**

WHAT VARIETY OF LEARNING IS THIS?

YOUR TURN

- Remember those Post-Its?

- Each group has a different color Post-It tablet

- Sort them by Variety of Learning as a GROUP and place them on the back of corresponding raised monitor

- 5 minutes, one point for each CORRECTLY classified VoL

CONGRATULATIONS!

- This isn't so hard after all, right?
- But wait—wasn't there one more variety of learning?

INTELLECTUAL SKILLS

Most complicated

Most common

Most commonly misclassified VoL

SOUNDS LIKE FUN—LET'S GO!

Problem Solving

Rules

Definitions

Concrete Concepts

Discriminations

INTELLECTUAL SKILLS

PREREQUISITE HIERARCHY

INTELLECTUAL SKILLS: PROBLEM SOLVING

- Definition
  - Being able to GENERATE a solution to a unique problem
    - Not DESCRIBE the solution
- Example
  - Generate a physical therapy treatment plan
- Assessment
  - When presented with a simulated or real client/case, generates a solution using multiple require rules or concepts

INTELLECTUAL SKILLS: RULES

- Definition
  - Statements of the relationship among concepts (both concrete and defined)
- Example
  - "Use 2D venous ultrasound to detect clots; use doppler venous ultrasound to measure blood flow past the clot"
    - STATING is not DEMONSTRATING
- Assessment
  - When provided with context where rule is relevant, applies rule correctly

INTELLECTUAL SKILLS: DEFINED CONCEPTS

- Definition
  - Things that belong to the same class because of non-observable characteristics AND/OR characteristics that match a definition
- Example
  - Classifies examples of breathing difficulty symptoms that are consistent with the need for application of an EpiPen
- Assessment
  - Give multiple examples and non-examples of the concept and ask learner to sort, match, classify, etc.
  - Sort all the following examples of hurricane according to whether they meet the definition of Category 1, 2, 3, 4, or 5
  - Remember that it is not the ability to STATE the definition itself that measures a Defined Concept but the APPLICATION of that definition

INTELLECTUAL SKILLS: CONCRETE CONCEPTS

- Definition
    - Same as Defined Concept, but classifiable by observable characteristics rather than by application of a definition
- Example
    - Colors, such as red, blue, green
- Assessment
    - Point, circle, or underline all the red things you see here

INTELLECTUAL SKILLS: DISCRIMINATIONS

- Definition
  - Being able to discriminate whether one thing is the SAME or DIFFERENT than another
- Example
  - Sommelier training on flavor profiles of berry vs. plum
    - First step = discrimination, THEN defined concept)
- Assessment
  - Are these two things the same or different?
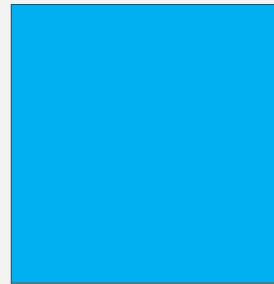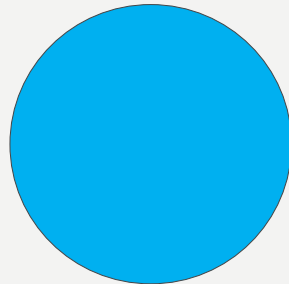
"CREATE AN ANNUAL BUDGET FOR THE HOSPITAL"

1. Problem Solving
2. Rule
3. Defined Concept
4. Concrete Concept
5. Discrimination

"TELL THE DIFFERENCE BETWEEN NORMAL AND JAUNDICED SKIN TONE"

1. Problem Solving
2. Rule
3. Defined Concept
4. Concrete Concept
5. Discrimination

"ENTERING PATIENT VITALS ON APPROPRIATE FORM"

1. Problem Solving
2. Rule
3. Defined Concept
4. Concrete Concept
5. Discrimination

"DETERMINE IF A PATIENT TEMPERATURE IS ABOVE NORMAL"

1. Problem Solving
2. Rule
3. Defined Concept
4. Concrete Concept
5. Discrimination

YOUR TURN (AGAIN)

- Each group has to come up with as many Intellectual Skills as possible

- Can use the "None of the Above" leftovers or write your own

- Place them as a GROUP on the back of corresponding raised monitor

- 5 minutes, one point for each CORRECTLY classified VoL

FINAL THOUGHTS

- Handout
    - VoLs, suggested teaching strategies, and learned capability verbs
        - These are the first part of your objective writing—classify your outcomes and bring them to the next workshop on October 22 to see how!

- Multiple choice testing
    - TENDS to turn all the other VoLs into Verbal Information
        - But not necessarily—come to the workshop in early 2020!

- Get the outcome right first and you have removed 30% of the "noise" in curriculum design

THANK YOU!

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