Applications of Psychology to Music Teaching

Laura Johnson & Sarah Williams

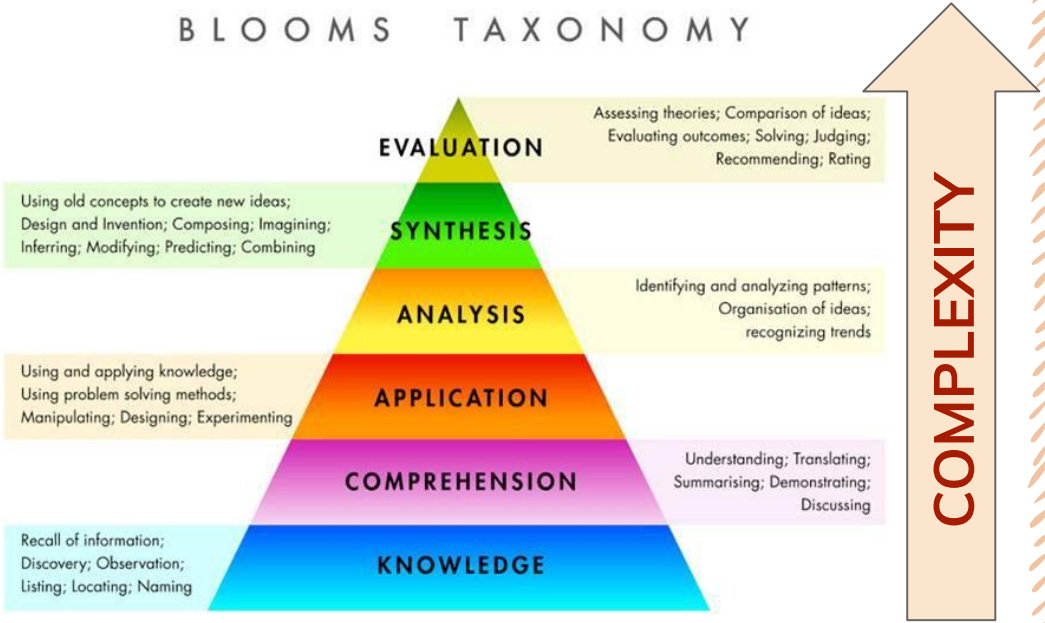
“While it is important to understand the theoretical basis of learning, it is equally important to be able to apply these theories and principles to the teaching and learning of music”

(Abeles, 1994, pg. 233).

Taxonomies of Educational Objectives

The Cognitive Domain: Bloom's Taxonomy

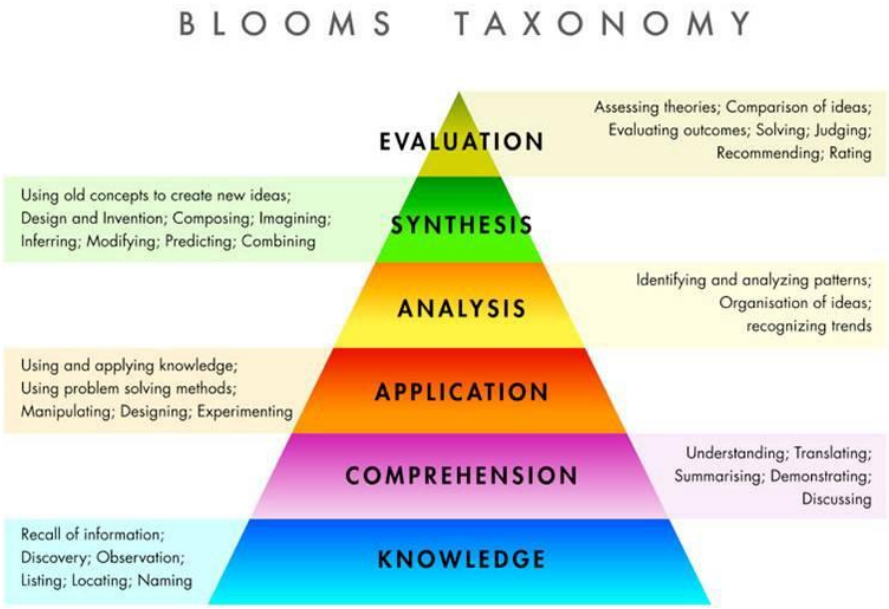
- **Provides a means of examining curriculum, organizing, and assessing instructional objectives.**
- **Hierarchy is organized by complexity where higher levels are more complex than lower levels.**
- **6 categories of Bloom's cognitive domain taxonomy.**
  - Reference table 8.1 on pg. 235 of the Abeles.
- **Teachers are likely to provide a more systematic and effective insurrection from Bloom's taxonomy.**



Cognitive Domain: Question 1

A musical piece that is organized into rhythmic units of three pulses is said to be in:

(a) Duple meter
(b) Triple meter
(c) Uneven meter
(d) Waltz time



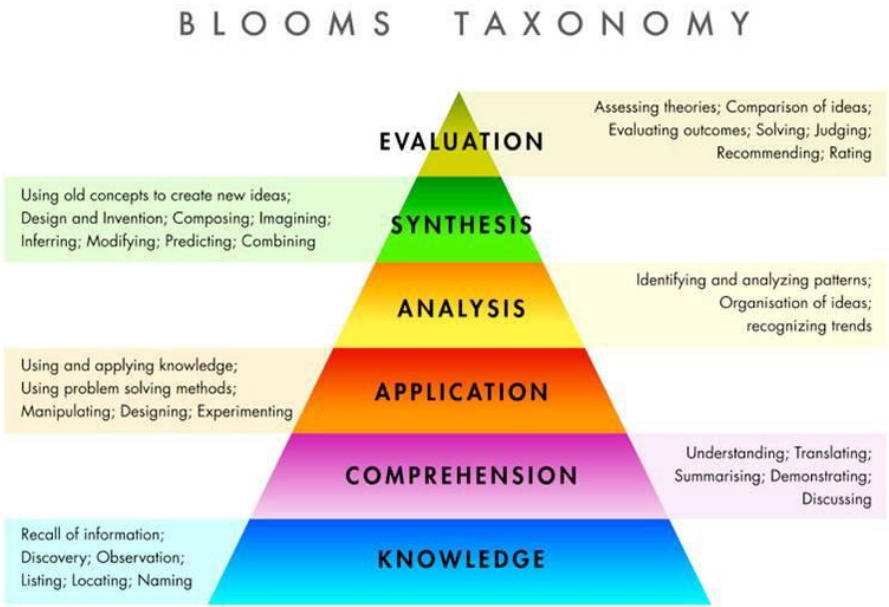
Which level of the taxonomy does this question fit into?

Cognitive Domain: Question 2

Listen to the following short piece. (The instructor plays the first eight measures of "Peter's Theme" from Peter and the Wolf.) The meter of the piece is:

(a) Duple meter
(b) Triple meter
(c) Uneven meter
(d) Waltz time

https://www.youtube.com/watch?v=inkOnea2Qw8



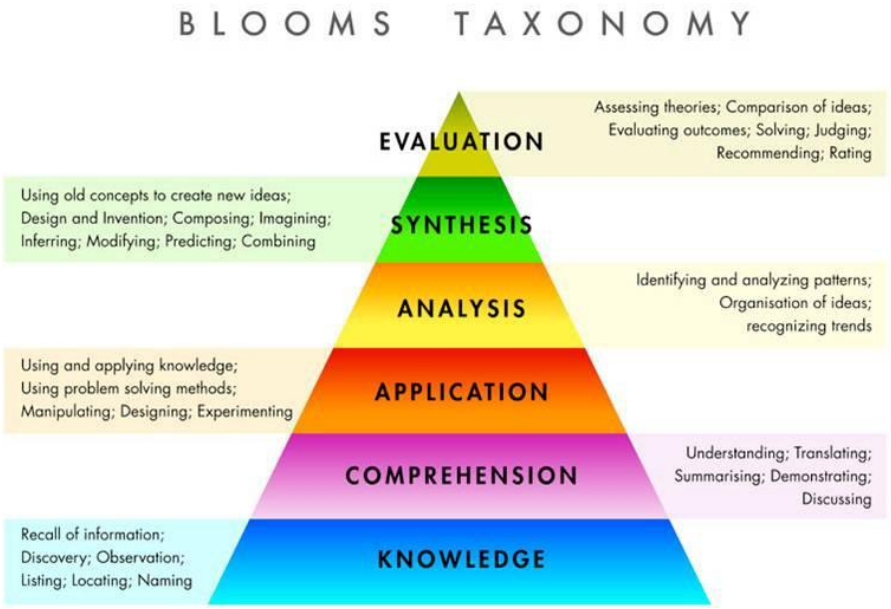
Which level of the taxonomy does this question fit into?

Cognitive Domain: Question 3

Ms. Johnson is in her first year as a high school band director in Minnesota. The principle has asked her to have the concert band play for the graduation ceremony. She needs to select music for the procession as the students enter the auditorium. Listen to the three following examples. Which of the three would you recommend <u>not</u> be included for the processional?

(a) Ex. 1 (“Stars and Stripes Forever)
(b) Ex. 2 (“Theme from Star Wars”)
(c) Ex. 3 (“Waltz of the Flowers”)
(d) Both Examples 1 and 3

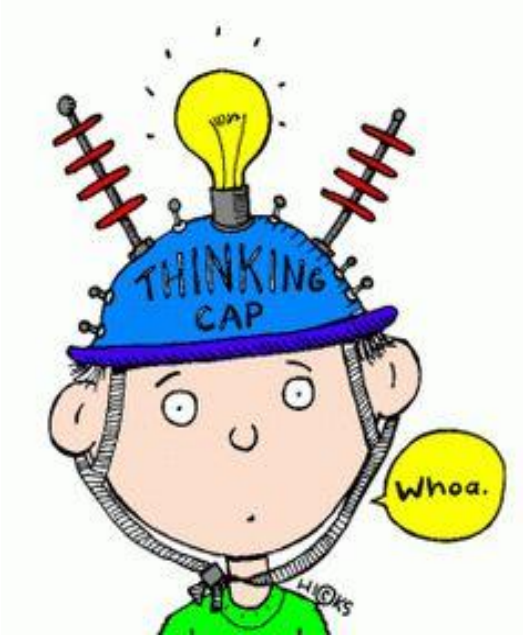
https://youtu.be/2DiL3p98ejE



Which level of the taxonomy does this question fit into?

Critical Thinking in HS Choir

Garrett, M. L. (2013). An examination of critical thinking skills in high school choral rehearsals. *Journal of Research in Music Education*, 61(3), 303–317. doi: 10.1177/0022429413497219



- Music educators consider critical thinking as essential to developing independent musicianship
  - No correlation between years of teaching & the percentage of time developing higher-order thinking skills.
- **Higher-order thinking**: analysis, synthesis, and evaluation of both musical content and performance (from Bloom's taxonomy).
- Strauser (2008): Teacher talk/student nonperformance responses = 47% of rehearsal
  - 15.06% of teacher talk comprised activities with higher-order thinking.
- Music teachers appear to spend little time developing critical thinking skills.

Higher Order Thinking in Rehearsals

Garrett, M. L. (2013). An examination of critical thinking skills in high school choral rehearsals. *Journal of Research in Music Education*, 61(3), 303–317. doi: 10.1177/0022429413497219

- Researched: percentage of time for student performance, lower-order vs. critical thinking skills, and the relationship between level of schooling and time critical thinking

- Recorded teacher technique: lower-order thinking (student feedback), critical thinking (analyzing, evaluating or creating), nonspecific nonperformance activities (silence, off-task, non-instructional interactions)

- Results:
  - Nonperformance activities: 53.89%
    - Lower-order thinking: 45.96%; Critical thinking: 6.36%; Nonspecific nonperformance activities: 1.57% (on task as master teachers)
  - Beginning choirs had larger percentages of lower-order thinking than advanced choirs (identifying keys, breathing technique, teacher modeling)
  - Critical thinking: formal analysis, reflections on style, audiation exercises
  - More performance time with advanced choirs

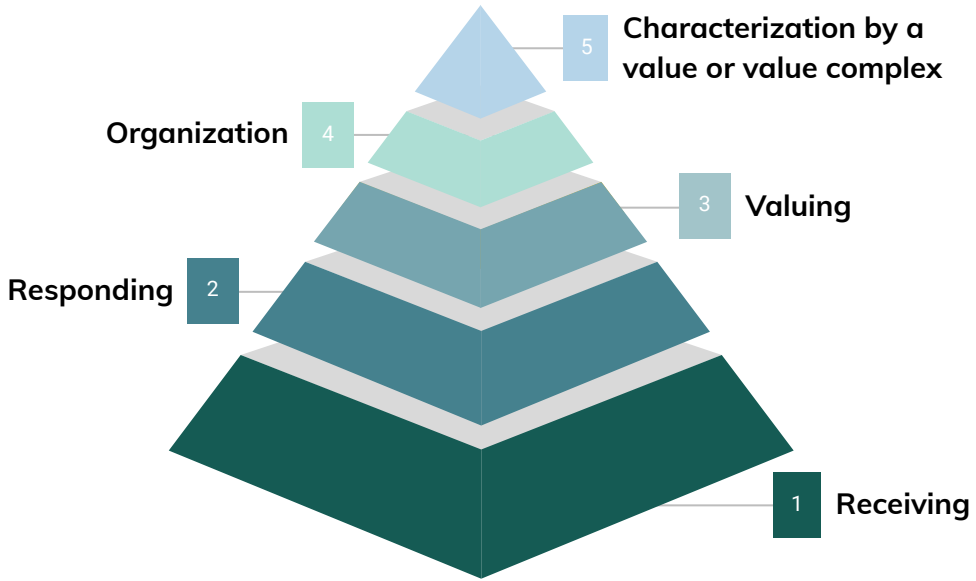
Activity: Ratio of Performance Time - On the Line

The Affective Domain: Krathwohl's Taxonomy

"Objectives include the interests, appreciations, attitudes, and values of the student" (Abeles, 1994, p. 237).

- Priority in education given to cognitive outcomes
  - Music teachers cite affective goals in support of music education
- Important to develop aesthetic sensitivity to music
  - Requires teachers to effectively assess affective outcomes
- Krathwohl's taxonomy provides behavioral terminology to direct the assessment of affective outcomes (Reference Abeles, pg. 238)
- Lower levels: weak commitments that may be changed/last a short time
- Middle levels: more resistant to change
- Top level: difficult/impossible to alter

Activity: Sorting Statements



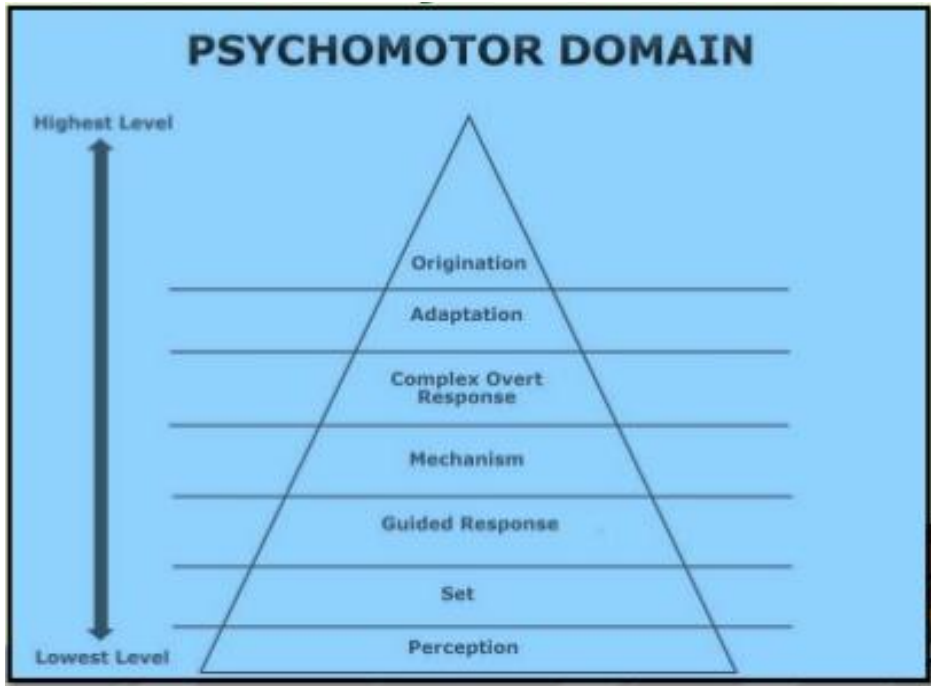
The Psychomotor Domain

(Abeles, pg. 240)

- Known as the area of skill development.
- Lower priority than cognitive and affective domain.
- Plays an important role in music education.
- ★ Organized by complexity
- ★ Represents a hierarchy

https://youtu.be/Ja1ucnGURXo

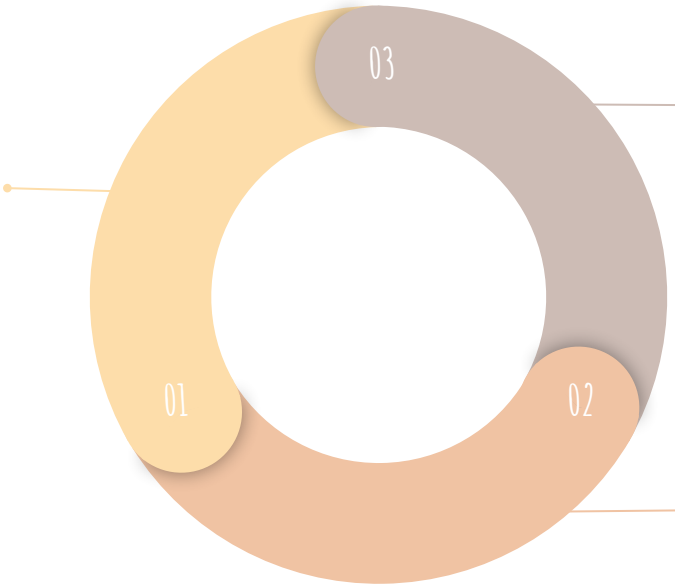
Elizabeth Simpson's Taxonomy of the Psychomotor Domain



Overlap of Taxonomies

The Cognitive Domain

-Knowledge of results
-Ability to process feedback
-Cognitive objectives in general music



The Affective Domain

-Anxiety or tension
-Attitudes

"People's thoughts and actions are seldom, that compartmentalized" (Abeles, 1994, pg. 242).

The Psychomotor Domain

-Performance of motor skills
-Improvement of performance through practice

https://www.youtube.com/watch?v=vig2v39uZxU

Discussion: Think of an impactful piece of music you've performed. Did your performance of that piece utilize one, two, or all three of these domains?

Stating Music Objectives Behaviorally

“The clear articulation of the outcomes of instruction through the use of well-defined behavioral objectives” (Abeles, 1994, pg. 243).

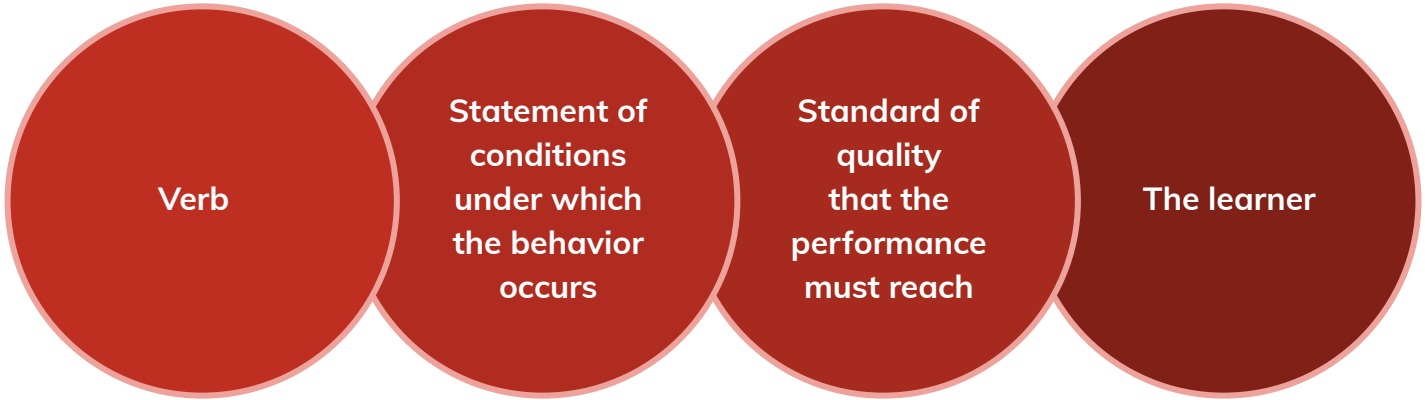
An Instructional System

1: State objectives	2: Develop material	3: Assess students	4: Revisit materials
Clear description of what the student should be expected to do.	Must have purpose from objectives to assist student success. Important to the effectiveness of the instructional process.	Provides teachers with information on individual student progress. Demonstrates effectiveness of materials and methods.	System should be dynamic, teachers should be willing to revise the process in order for it to be an effective behavioral instructional system.

Discussion: How have you revised your curriculum or a particular lesson after revisiting the materials/assessments?

Behavioral Objective Statements

(Abeles, pg. 246)



Behavioral Objective Statements

(Abeles, pg. 245)

Statement of conditions

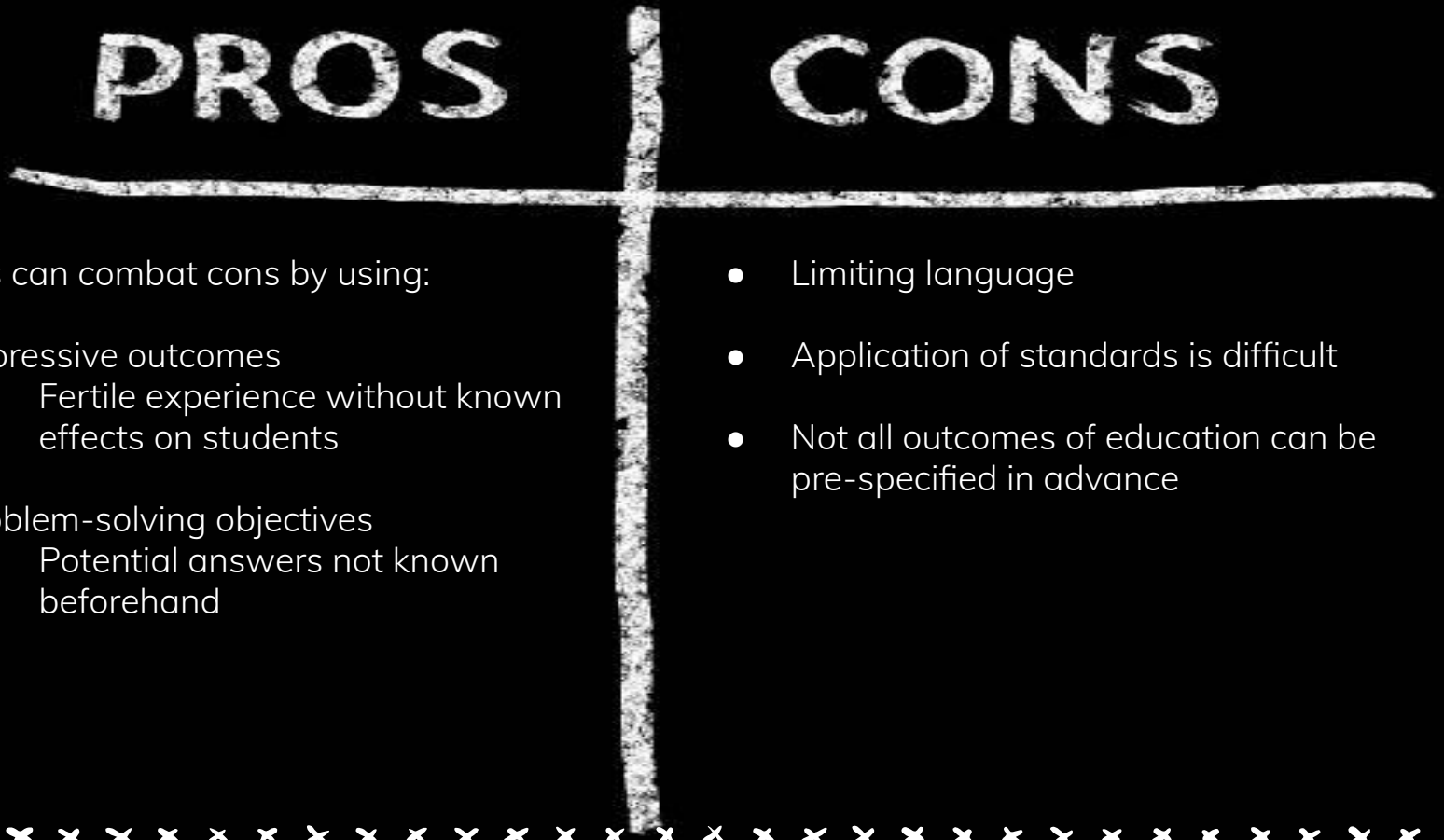
"Given two aural examples, one with a steady beat and one without,

The learner — the student indicates — Verb

which example has the steady beat."

Standard of conditions: this is not a "performance" objective, so there is no "quality of performance". However, it is expected that the student will perform this task ***accurately***.

Behavioral Objectives



Teachers can combat cons by using:

- Expressive outcomes
  - Fertile experience without known effects on students
- Problem-solving objectives
  - Potential answers not known beforehand

- Limiting language
- Application of standards is difficult
- Not all outcomes of education can be pre-specified in advance

Accountability

- Schools responsible for student learning = clearly stated outcomes of instruction
  - School systems, individual schools, and curriculum areas charged by school boards

- Demands for accountability strongest when public loses confidence in schools
  - Early 1990s: educational reform based on development of standards
    - Strongly suggested principles of behaviorism

- Examples of accountability:
    - School boards → public, efficiency of the system
    - School administrators → management of the system
    - Teachers → learning of their students

- Assessments for accountability typically compare student results to expectations, not other students

"If music is not to become peripheral to public education, we must develop accountable programs that will receive adequate resources and support" (Laubta, 1974, pg. 8).

Individualized Music Instruction

Individualized Music Instruction

- **4 factors in prompting individualized instruction:**
  - Sophistication of educational psychology
  - Increasing knowledge of child development
  - Increasing ethic and recital pluralism in the school population
  - Increasing awareness of ineffectiveness of mass instruction

- **Poses a unique challenge amongst music educators**

- **Individualized music instruction programs focused on the general music class.**

Individualized Music Instruction

Branches of Individualized Instruction

- ★ Programmed instruction (PI)
- ★ Computer-based instruction (CBI)

Responsibility for learning is placed on the student

- ★ Personalized systematic instruction (PSI)- “Kellar Plan”

Teacher is responsible for the student attaining the stated goals

7 components to PSI model
(Reference pg. 253 of the Abeles)

Music Technology

Music Instruction with Computers

- Tutorial
  - Learning basic music knowledge (factual) - successful responses rewarded with positive feedback
  - Keeps track of student responses
- Drill and practice
  - Not new material - opportunity to reinforce/practice/refine previously learned skills
- Computer games
  - Students need to be relatively fluent in order to succeed, usually utilizes competition
  - Can be distracting when not implemented/monitored well
- Computer simulations
  - Not many options for music education (popular option in medicine, aviation)
- Tool programs
  - Composing/arranging softwares, user-friendly
  - Tool for “real-world” of music making, can design own Sequence, appropriate at many instructional levels (guided)

Discussion: How you do use (or how have you seen used) technology used effectively in the classroom?

Let's Bring This Up to Speed...

Dorfman, J. (2016). Music teachers' experiences in one-to-one computing environments. *Journal of Research in Music Education*, 64(2), 159–178. doi: 10.1177/0022429416649947

- **One-to-One Technology**:
  - Students are provided with personal computing device
  - Devices can access wireless networks
  - Focus to help complete assignments/tests/presentations in all disciplines
- Positive influences:
  - Breaks communication barriers between schools and families; increase of time on task (when used extensively), productivity, achievement, engagement, and research skills; language and reading achievement; greater teacher confidence with technology/willingness to implement
- Negative influences:
  - Detrimental when not thoughtfully planned; security; improper usage

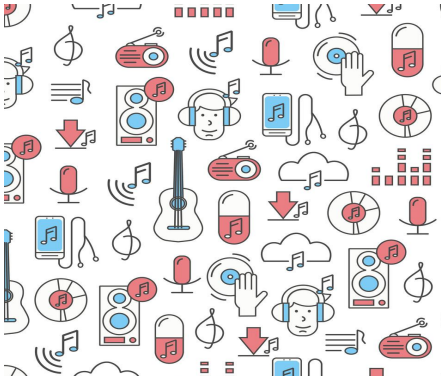
- Interviewed four music teachers in the U.S.
  - **Support of Goals**
  - **Implementation Concerns**
  - **Teaching Concerns**
  - **Integration Concerns**
  - **Benefits**
  - **Changes Necessary**

- Technology should *enhance* lessons, never become hindrances/distractions

Discussion: How many of you have experienced one-to-one technology? What are your experiences?

Let's Bring This Up to Speed...

Kahoot!



Flying Instruments

Classics for Kids: Games

SFS Kids: Music Lab

List of Music Games

Stating Music Objectives Behaviorally

Behavioral Approach

Developed from behaviorist psychology called "operant psychology"

Techniques used:

- **Contingencies**
- **Positive reinforcer**
- **Positive punishment**
- **Modeling**

Sequence for applying behavioral modification

(Reference Abeles, pg. 261)

"Behavior modification methodology provides a way for teachers to diagnose, promote more effective strategies, and insure specification of behaviors that can be manipulated and tested in order to expedite students' learning" (Madsen, 1975, pg. 23).

Managing Student Behavior in an Elementary School Music Classroom: A Study of Class-Wide Function-Related Intervention Teams

- Classroom management is a common concern for teachers.
- Study investigated the effectiveness of CW-FIT (class-wide function-related intervention teams) in a sixth-grade music classroom.
- A single-subject, reversal (ABAB) design was chosen.
- After baseline, phase changes occurred when a stable trend in classroom behavior change was evident
  - During the CW-FIT intervention, the class average increased to 83.07% on task
  - Results also showed that 90.00% of the class reported liking CW-FIT
- CW-FIT can improve music classroom management, since praise can lead to better teacher–student relationships and increased student engagement (Gable et al., 2009).
- Music teachers can be trained to teach social skills, implement a group contingency, award points, and increase praise— all of which in turn lead to increased student on-task behavior.

Gordon's Learning Theory

(Abeles, pg. 264)

- Edwin Gordon (1927-2015)
  - Music learning = sequencing
    - Music skills & music content
  - Three important characteristics of Gordon's proposals:
    - Teaching opposing classifications of the same dimensions at the same time (staccato/legato)
    - Providing sequences of tonal and rhythm patterns (easy → difficult)
    - Teaching different dimensions of music (melody and harmony) isolated from others
- Described as a "part" of the learning process, with emphasis on specific musical elements

Summary of Topics

- Taxonomies of Educational Objectives
  - Cognitive Domain
  - Affective Domain
  - Psychomotor Domain
- Behavioral Objectives
  - Instructional Systems
  - Creating Behavioral Objectives
- Accountability
- Individualized Music Instruction
- Music Technology
- Behavioral Approaches
- Gordon's Learning Theory