



# Learning With Education Technology Teaching Project



ClarisWorks

## Self-/Group Evaluation

	YES	NO
1. Has a DB for the class been constructed?	_____	_____
2. Does lesson use a constructivist approach and have students work on an <b>authentic problem</b> ?	_____	_____
3. Have appropriate concept(s)/content areas been identified?	_____	_____
4. Does lesson plan include an instructional objective and is it specific and measurable?	_____	_____
6. Have outside experts been consulted via e-mail?	_____	_____
7. Have WWW resources been located and used appropriately?	_____	_____
8. Have student prerequisite knowledge and skills been identified?	_____	_____
9. Are student prerequisite knowledge and skills appropriate for the lesson?	_____	_____
10. Have materials been identified that are appropriate for lesson's objective and the database?	_____	_____
11. Have logistics of using technology been properly identified?	_____	_____
12. Have teaching methodologies been clearly discussed?	_____	_____
13. Has a database been used for instructional purposes?	_____	_____
14. Have evaluation procedures been clearly described?	_____	_____
15. Is evaluation consistent with the instructional objective?	_____	_____

## Teaching Evaluation Checklist (Use For All Groups)

	YES	NO
1. Was learners' attention gained?	_____	_____
2. Were learners informed of the objective?	_____	_____
3. Were prerequisite skills/information reviewed (if necessary)?	_____	_____
4. Were the DB and appropriate accompanying materials (handouts, etc.) used, i.e., was stimulus material presented?	_____	_____
5. Were learners required to respond to the lesson?	_____	_____
6. Was appropriate feedback provided for learners' responses?	_____	_____
7. Was "learning guidance" (encoding strategies) provided that was appropriate to type of knowledge taught?	_____	_____
8. Were key concepts reviewed at the lesson's conclusion (retention and transfer)?	_____	_____
9. Were students evaluated?	_____	_____
10. Was evaluation consistent with the behavioral objective?	_____	_____
11. Was methodology consistent with lesson objective?	_____	_____
12. Was the database used as an instructional tool?	_____	_____
13. Did the lesson use a constructivist approach?	_____	_____
14. Was the lesson effective?	_____	_____

# Varieties of Learning

## Robert Gagné

- **MOTOR SKILL:** Enables precise, smooth, and accurately timed execution of a performance involving use of muscles. Goes hand-in-hand with other skills.
- **ATTITUDES:** Acquired internal state that influences choice of personal actions, i.e., choices are attitudes.
- **VERBAL INFORMATION:** Able to “state” in propositional form what has been learned. Does NOT mean that a person can apply what has been stated. Does NOT indicate learning takes place. Does NOT mean memorization either (the more meaningful the information, the less memorization needed). What DOES it mean?
- **INTELLECTUAL SKILL:** Able to respond to the environment, in regular patterns, using symbols, i.e., using or demonstrating what one knows in situations **new to the learner**.
- **COGNITIVE STRATEGIES:** Capabilities which guide learner in attending, remembering, thinking, etc. Cognitive strategies are different from the rest because they are more general. We use cognitive strategies to learn the other four categories.
- **Anything** learned will fall primarily into one of these five categories.

### Subtypes of Intellectual Skills

- **DISCRIMINATION LEARNING:** Able to make different responses to different members of a particular class or collection, i.e., can tell the difference between objects, etc. The learner may not know what the things being discriminated are, that is conceptual learning. A **prerequisite** to all forms of higher learning.
- **CONCEPT LEARNING**
  - a. *concrete concepts:* ability to use senses and place into a category, i.e., ability to identify a stimulus as a member of a class having some characteristics in common by observing the objects qualities.
  - b. *defined concepts:* able to explain **why** the object is what it is, i.e., uses language to explain the concept.

Whether concrete or defined, learners demonstrate their knowledge of it by being able to *identify new examples of the concept*.

- **RULES LEARNING:** Able to respond to a class of stimulus situations with a class of performances, i.e., the learner can respond to similar situations in similar ways. If the class of situations do **NOT** fit the rule, the rule cannot be applied and the learner has to *problem solve*.

Being able to state the rule is **NOT** an indication that the rule has been learned. What does this demonstrate?

- **PROBLEM SOLVING:** Highest level of intellectual skill. Ability to combine several rules to form a unique capability. If the learner is taking rules, putting them together, and using them **in a unique way**, then problem solving is occurring. If learner has done task before, then it is rule using.

## Conditions of Learning Robert Gagné

### Internal

### External

#### Intellectual Skills

1. Recall necessary prerequisite skills, verbal information.

1. *Discrimination:* reinforcement of correct responses, highlight differences.
2. *Concrete Concepts:* presentation of examples and non-examples, emphasize attributes.
3. *Defined Concepts:* presentation in some form of the actual definition, examples and non-examples.
4. *Rule Learning:* have learner recall concepts, inform learner of expected performance, verbal statements as cues, guidance as necessary, have students demonstrate rule(s) and provide feedback, verbal statement rule optional, spaced review and practice.
5. *Problem Solving:* cue recall of rules, conditions which favor student-generated solution.



## Verbal Information

1. *Need preexisting set of organized knowledge (SCHEMATA).* This is the best predictor of success for **ANY** learning level.
1. *Provide a meaningful context:* help learner understand the new material by relating it to old, previously learned knowledge. This will help encoding

### *Gagné continued*

#### Internal

2. *Encoding Strategies:* making meaning of information. It is the process of storing and accessing long-term memory (LTM).

#### External

2. *Distinctiveness of cues:* highlight, boldface, etc.
3. *Repetition/Review:* use spaced reviews rather than mass review. Review should NOT be verbatim.

## Cognitive Strategies

1. Verbal information/ cognitive skills needed to solve problem.
1. Have learner problem solve.
2. Provide strategies, information for *mathemagenic behaviors* (those things that give birth to learning, e.g., paying attention, AIME, elaboration, encoding, retrieval strategies, transfer, etc.)

## Attitudes

1. Prerequisite capabilities appropriate to the attitude being expressed.
1. Modeling (actual or imaginative).
2. Feedback of accomplishment, reward, or success.
3. Arrange for independent opportunity (ies) for attitude to be expressed.