Applying Robert Gagné's Conditions of Learning in Your Online Course

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There's a case to be made for rigor in teaching, which is a practice grounded in both art and science. Rigor in instructional design is particularly necessary for online instruction. The more we learn about the cognition of learning, most notably from the neurosciences, the more we appreciate that our ways of teaching must align with the ways of learning.

While we may like to believe that learning is natural and intuitive (and it is to a certain extent) two insights from the neurosciences are that (1) learning is not easy (it takes a lot of energy and attention), and (2) learning follows certain pathways—from the cellular level to metacognition, or from organic brain processes to the awareness of mind.

Rigor in instruction calls for following specific schemas to aid the learning process. Educational psychologist Robert Gagné pioneered the science of instruction. His schema for the "conditions of learning" demonstrates that different instructional methods should be used according to the demands of varied learning challenges ("A blinding flash of the obvious," you say. Maybe, but he said it first!). He categorized distinct "varieties of learned capabilities" or categories of learning. These represent the purposes for which teachers provide instruction:

1. To impart basic intellectual skills ("procedural knowledge")
2. To extend verbal information ("declarative knowledge")
3. To facilitate development of cognitive strategies (metacognition)
4. To develop attitudes (values, affections, attitudes)
5. To enhance physical motor skills (competencies)

Different internal and external conditions apply for each type of learning. For example, with cognitive strategies students must have a chance to practice developing new solutions to problems; to learn attitudes, the learner must be exposed to a credible role model or persuasive arguments.

Therefore, it is necessary to know *what kind of learning* we are seeking to bring about. In addition, Gagné's theory outlines a schema of nine instructional events and corresponding cognitive processes in the teaching-learning process:

1. Gaining attention (focus and reception)
2. Informing learners of the objective (expectancy and motivation)
3. Stimulating recall of prior learning (retrieval and connections)
4. Presenting the content ("stimulus") (selective perception)
5. Providing learning guidance (semantic encoding)
6. Eliciting performance (responding and acting on the new knowledge)
7. Providing feedback (reinforcement)
8. Assessing performance (retrieval)
9. Enhancing retention and transfer (generalization and application)

These steps provide the necessary conditions for learning and serve as the basis for designing instruction and selecting appropriate media, methods, and learning and assessment activities.

Gagné suggests that learning tasks for intellectual skills can be organized in a hierarchy according to complexity: stimulus recognition, response generation, procedure following, use of terminology, discriminations, concept formation, rule application, and problem solving. The primary significance of the hierarchy is to identify prerequisites that should be completed to facilitate learning at each level. This learning hierarchies provide a way to organize the learning experience in online course design.

Example

The following example illustrates a teaching sequence corresponding to the nine instructional events for the objective. In this example students are guided in a sequence to learn the concept of triangulation in relationships.

1. Gain attention: show a variety of examples of triangulation (case study, cartoon, film, dialogue script).
2. Identify objective. pose questions: "What function does triangulation serve?" "What are the causes of triangulation?" "How may triangulation hinder a leader's effectiveness?"
3. Recall prior learning: review definitions of triangles. Ask students to share examples of triangulation from personal experience.
4. Present stimulus: present refined definition of triangulation.
5. Guide learning: present examples of how triangulation is caused and motivated; how to identify it; its effect on functioning in relationships and situations.
6. Elicit performance: direct students to create different examples of triangulation in work,

ministry, or family situations. Or direct students to find and share triangulated scenarios in films, stories, news features, etc.

7. Provide feedback: review student examples as correct or incorrect (or to what extent they are correct or not).
8. Assess performance: provide feedback in the form of scores/grades and remediation.
9. Enhance retention/transfer: review examples and non-examples of triangulation and ask students to identify qualities for identifying whether or not the example fits criteria for triangulation.

Summary

- Effective online instruction requires rigorous application of pedagogical principles in course design. Gagné's schema of "instructional events" is an effective model for organizing online course design.
- Different instruction is required for different learning domains and their outcomes (intellectual concepts; attitudes, values, and affections; skills and competencies).
- Experiences of learning operate on the learner in ways that constitute the conditions of learning.
- The specific operations that constitute instructional events are different for each different type of learning outcome.
- Learning hierarchies define what domains are to be learned and the sequence of instruction necessary to bring about their outcomes.

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