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Building Motivation and Cognition Research Into Workshops on Lecturing

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This article describes a faculty development workshop in which participants learn to improve their lectures by using motivation and cognition strategies. It offers a concrete, practitioner-oriented presentation of the research base, format, process, materials, outcomes, and follow-up activities for the workshop.

Recent research about the relationships among student motivational states, student cognitive strategies and academic performance (McKeachie, Pintrich, Lin & Smith, 1986; Pintrich, 1989; Pintrich & Garcia, 1991; Pintrich & Schrauben, in press), offers a strong foundation for the study of effective lecturing. Instructional specialists have responded to such research by identifying specific related effective lecturing strategies (Brophy, 1987; Forsyth & McMillan, 1991; Johnson, Eison, Abbott, Meiss, Moran, Gorgan, Pasternack, Zaramba, and McKeachie, 1991; Keller, 1983; Svinicki, 1991; Weinstein & Mayer, 1986). This paper describes a faculty workshop in which participants learn to improve their lectures by using motivation and cognition strategies. The participants examine the connections between student motivation, cognition and effective lecturing strategies, observe selected motivation and cognition strategies in a "live" mini-lecture, and report, discuss, and evaluate their observations.

Connecting Motivation, Cognition & Lecturing

The workshop begins with a brief discussion of the following lecture plan criterion: *Anything included in your lecture plan must be something you are personally convinced will promote either student motivation and/or effective cognition.* The workshop facilitator introduces the concepts of motivation and cognition and presents examples of specific strategies designed to promote student motivation and cognition.

Motivation

It works well to present the motivation concepts and strategies first because it is easier for most participants to understand and identify with them. *Motivation* is defined as a concept used to describe the forces acting on or within an individual to initiate, direct, sustain, intensify, or stop behavior. The facilitator should make it clear to participants that to feel motivated, students must perceive a need-meeting or goal-attainment "value" in a learning experience and must have the "expectation" that they can perform related learning tasks successfully with reasonable effort. What happens in the lecture must provide students with answers to the questions, "Why should they learn this?" and "Can they learn this?"(McKeachie, Pintrich, Lin, Smith, 1986; McMillan & Forsyth, 1991; Vroom, 1964).

The facilitator offers Keller's (1983, 1984) four categories to classify strategies instructors can use to promote student motivation. When first presenting these, the facilitator should provide at least one concrete example for each category:

1. ***Attention strategies*** are used when there is an unexpected or perceptually inconsistent event or a gap between a given and a desired state of knowledge.
   Example: Use novel anecdotes, demonstrations, questions, metaphors, controversies.
2. ***Relevance strategies*** are used when learners perceive that important personal needs and goals are being met in the learning situation.
   Example: Use examples to demonstrate how content will help students in courses and careers.
3. ***Confidence strategies*** are used when students perceive self-efficacy and internal control of causes attributed to performance.
   Example: Provide opportunities for students to figure out examples or solutions on their own to help students connect success to personal effort and ability.

4. ***Satisfaction strategies*** are used when valued intrinsic or extrinsic outcomes or feedback appropriately follow performance.
   Example: Use verbal praise and informative feedback more often than formal evaluation.

Cognition

After the categories of motivation strategies have been presented, the facilitator introduces cognition concepts and strategies. *Cognition* is defined as the activity or process of knowing or learning, including the acquisition, meaningful organization, and remembering of information for future retrieval and utilization. Promoting effective student cognition requires that the lecture provide students with answers to the question, "How can they learn this?" (Weinstein & Underwood, 1985). The facilitator should make it clear to participants that this part of the lecture process is their chance to help students actually learn how to learn. Although faculty members are expert learners who regularly use a wide range of effective and efficient cognitive strategies, they often use these strategies unconsciously with great speed. Thus, students may not readily "see" how to learn until faculty: 1) become more aware of how they themselves learn, and 2) make these cognitive strategies accessible to the students by modeling them, highlighting and encouraging their use, and making their use external and explicit by slowing down and thinking out loud (Whimbey & Lochhead, 1991).

The facilitator presents Weinstein and Mayer's (1986) four categories as the basis for classification and discussion of cognition strategies. When first presenting these, the facilitator should provide at least one concrete example strategy for each category:

1. ***Rehearsal strategies*** are used when learners actively repeat, recite or name presented items.
   Example: Underlining text and verbatim note-taking.
2. ***Elaboration strategies*** are used when learners extend or add to material to make it more memorable, especially by forming associations between new material and existing knowledge.
   Example: Generative Note-taking—adding some reflections to verbatim notes on how new material relates to existing knowledge, familiar situations, or possible future applications.
3. ***Organization strategies*** are used when learners actively construct internal connections among ideas by arranging material according to some logical system for representing relationships.
   Example: Diagramming or flowcharting.

4. ***Metacognition strategies*** are used when students plan, monitor, and regulate their learning and use of cognitive strategies.
   Example: Generating questions to be answered during learning.

The workshop facilitator reviews the information connecting motivation, cognition, and effective lecturing and distributes a summary handout to all participants at this time for reference during the later phases of the workshop. At this point, the facilitator also gives each participant two additional handouts—one containing lists of specific motivation strategies for each category, and the other containing lists of specific cognition strategies for each category (see Appendix). Any questions participants have about the meaning of any of the strategies listed are addressed at this point in the workshop.

Preparing for and Conducting the Live Mini-Lecture

In the second part of the workshop, a confederate faculty member presents a 15-20 minute mini-lecture to the participants, who try to identify motivation and/or cognition strategies used by the lecturer.

Role of the Confederate Lecturer

It is highly motivating when the workshop facilitator invites a professor from the same department or college as the workshop participants to serve as the guest lecturer. It is important that the guest lecturer also be an experienced professor and clearly recognized among peers as an excellent instructor. Such lecturers will be more effective if they already use or can easily use many of the specific motivation and cognition strategies identified on the lists.

It may be a challenge to motivate the participation of the confederate professor. From the perspective of intrinsic motivation, the facilitator should seek a professor who meets the above conditions and is also a "kindred spirit" in terms of a desire to work continually to improve the quality of his or her teaching. Such a person is already accustomed to taking risks in order to improve teaching effectiveness. From the extrinsic perspective, an effective motivational technique is for the facilitator to propose to the target confederate that the two of them team up to submit a proposal to repeat the workshop as a tutorial for new assistant professors at the next national or regional meeting of the confederate's professional association.

It is very important that such guest lecturers understand from the

beginning that they are being asked to "bare their souls" in front of their colleagues and that participants will be encouraged to be critical in their observations. It is the responsibility of the workshop facilitator to feel completely satisfied that the guest lecturer will feel comfortable about this process and continue to view the experience as valuable and fun.

The facilitator and the guest lecturer work together well in advance to prepare for the mini-lecture. The facilitator should encourage the lecturer to select a topic that represents common knowledge for most of the participants. In this way, the participants can focus on incorporating motivation and cognition strategies into the presentation and not be distracted by concerns about content.

The facilitator and lecturer should also discuss the ways in which specific motivation and cognition strategies are to be used during the presentation. In this way, the facilitator can be sure that the lecturer: 1) understands how to use the selected strategies; 2) includes at least one or two strategies from each motivation and cognition category; and 3) balances the use of strategies across categories. These conditions provide rich opportunities for participants to make both descriptive and critical observations about what strategies were used as well as what strategies were not used and how they might have been used effectively.

Role of the Workshop Participants

In this second stage of the workshop, participants observe the "live" effort to improve a lecture using the motivational and cognitive strategies introduced in the first segment of the workshop. The facilitator assigns each participant a specific category of either motivation or cognition strategies. Participants use the lists of strategies distributed earlier to guide observation of the lecturer's use of specific strategies in that category. The facilitator asks the participants to make notes concerning specific strategies used (or not used) effectively (or not effectively) by the lecturer. In this way, participants feel encouraged to make not only descriptive but also critical observations about the lecturer's behaviors. Because there are only eight possible categories, there are usually multiple observers of strategies in each category.

Reporting and Discussing Participant Observations and Evaluations

In the third phase of the workshop, participants report their observations. The facilitator records these on a grid projected on a large screen and distributes paper copies of the grid to participants so they can make their own

observations from the reports. The grid has eight boxes for recording observations about strategies used from each of the motivation and cognition categories. With multiple observers in each category of strategies, the accuracy and completeness of each group's observations are available for other groups to record and reflect upon.

During the reporting phase, several very interesting things happen. First, the variety of observations leads to some interesting and insightful evaluative discussions of the effectiveness of the use of specific strategies as well as the ways in which unused strategies might have been effectively employed. Negative feedback, if desired, usually needs to be elicited by the facilitator and, of course, handled with care. Second, participants begin to interview the guest lecturer regarding why certain strategies were used in certain ways and why others were not used. The lecturer's opinions and judgments are important and valued by participants. Third, participants make comparisons between the teaching behaviors of the guest lecturer and the workshop facilitator, expressing further insights into the effective use of motivation and cognition strategies. Fourth, participants begin to make explicit references to their own courses and their own lecturing, thinking about applying what they have observed and asking for advice about what they consider to be their unique situations.

Conclusion

Based on both written and oral feedback, the following seven items represent the features of this workshop that participants report as most useful to them: 1) a new perspective on lecturing based on motivation and cognition concepts; 2) knowledge of four categories of motivation strategies and four categories of cognition strategies; 3) handouts with lists of specific motivation and cognition strategies for each category; 4) a grid on which they have recorded extensive observations of motivation and cognition strategies used to improve a lecture; 5) vivid images of the guest lecturer and the workshop facilitator utilizing motivation and cognition strategies in both lecture and discussion formats with varying degrees of effectiveness; 6) visions of themselves applying motivation and cognition strategies in their own lectures; and 7) new common terminology and experiences for sharing and networking.

An important instructional development implication of this workshop is that it provides a productive foundation for follow-up activities. For example, interested participants may wish to form pairs to apply, observe, and discuss experimentation (in their own classes) with strategies learned in this workshop. One natural follow-up to this activity is another workshop/seminar

devoted to sharing and evaluating the experiences of these pairs. Intensive one-on-one consulting with professors based on classroom observations and feedback regarding applications of selected strategies can be most productive. Clearly, a wide range of follow-up activities can be designed to build upon the foundations provided in this initial workshop.

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Appendix

*Motivation Strategies**

ATTENTION

____ 1. Use novel anecdotes, demonstrations, questions, metaphors, or controversies.

____ 2. Inject personal, emotional element into intellectual material.

____ 3. Expand on familiar material with doses of the unfamiliar and unexpected.

____ 4. Pose a problem or issue and ask students for ideas about how to resolve it.

____ 5. Use analogies to make the strange familiar and the familiar strange.

____ 6. Project intensity and enthusiasm.

____ 7. Induce dissonance or cognitive conflict.

RELEVANCE

____ 1. Use examples based on current student interests.

____ 2. Use examples of how content will help students in courses and careers.

____ 3. Explain why course is offered or required.

____ 4. Use personal experiences or case studies to demonstrate relevance.

____ 5. Explain why the content is important to you.

____ 6. Call attention to the instrumental values of academic activities.

CONFIDENCE

____ 1. Sequence content from simple to more complex.

____ 2. Help students connect success to personal effort and ability by providing opportunities for them to figure out examples or solutions on their own.

____ 3. Help students connect success to personal effort and ability using feedback such as, "If you continue practicing this, you can really master it."

____ 4. Use goals and content organizers to help students see the main parts of new material and how they fit together.

____ 5. Check for student understanding and find out what and how they need something clarified before going on.

____ 6. Model and encourage effective use of "how to learn" (cognitive) strategies.

____ 7. Maintain appropriate levels of difficulty and challenge.

____ 8. Allow opportunities for students to make choices and decisions in the learning process

SATISFACTION

____ 1. Use verbal praise and informative feedback more than formal evaluation.

____ 2. Use positive feedback immediately following performance.

____ 3. Use corrective feedback just before the next application.

____ 4. Relate negative feedback clearly to performance and *not* the person.

____ 5. Praise performance *and* effort.

____ 6. Clarify performance expectations for each grade and adhere to them.

____ 7. Teach student goal-setting, self-appraisal and self-reinforcement.

*Cognition Strategies***

[In teaching, we role model these and also encourage students to use them independently]

REHEARSAL

____ 1. Repeating.

____ 2. Reciting.

____ 3. Taking notes verbatim in class.

____ 4. Shadowing - saying material aloud while writing or reading it.

____ 5. Underlining text.

____ 6. Copying notes.

ELABORATION

____ 1. Presenting similarities and differences between new material and existing knowledge (comperative organizer).

____ 2. Summarizing.

____ 3. Paraphrasing.

____ 4. Adding some reflections to verbatim notes on how new material relates to existing knowledge, familiar situations, or possible future applications (generative note-taking).

____ 5. Questioning and explaining.

____ 6. Using analogies and imagery.

____ 7. Using mnemonic key words.

ORGANIZATION

____ 1. Presenting a set of broad concepts to help students organize and relate main parts of forthcoming material (expository organizer).

____ 2. Outlining.

____ 3. Clustering and classifying.

____ 4. Presenting key concepts in ovals and lines connecting the ovals with linking words along lines indicating relationships among concepts (concept mapping).

____ 5. Diagramming or flowcharting.

METACOGNITION

Planning

____ 1. Pre-study skimming to identify main points and general structure of material.

____ 2. Setting learning goals to be achieved.

____ 3. Generating questions to be answered during learning.

Monitoring

____ 4. Monitoring comprehension or self-testing.

____ 5. Monitoring attention during study.

____ 6. Making adaptations during test-taking.

Regulating

____ 7. Reviewing unmastered material and self-correction.

____ 8. Adjusting rate of studying or coverage of material according to difficulty.

____ 9. Using self-reinforcement.

____10. Changing cognitive strategies to maximize meaningful learning.

*Adapted from Brophy, J. (1987). Synthesis of research on strategies for motivating students to learn. *Educational Leadership. 45* (2), 41-48; Cashin, W. (1979). *IDEA Paper No. 1: Motivating students.* Kansas State University: Center for Faculty Evaluation & Development; and Keller, J. M. (1983). Motivational design of instruction. In C.M. Reigeluth (Ed.), *Instructional design theories and models* (pp.383-434). Hillsdale NJ: Lawrence Erlbaum.

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