

Suggestions for Effective University Teaching

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This document presents some techniques that teachers might use to improve their classroom teaching. The techniques are drawn primarily from empirical research on university teaching and are organized around clusters often used in course evaluations.

Although the techniques described apply to many types of university teaching, effective instruction cannot be defined in any absolute way. University teaching involves diverse modes of instruction, including: lectures, seminars, labs, and mentoring (e.g., thesis supervision). Disciplines, courses, and instructors also vary widely in their emphasis on such varied educational objectives as learning new knowledge, stimulating student interest, developing cognitive skills, and leading students to question established tenets. One important distinction in determining effective teaching may be the relative importance of cognitive and affective goals. That is, some qualities of teaching may be more strongly related to such cognitive objectives as developing knowledge and skills, whereas other qualities are more strongly related to such affective objectives as fostering student interest and curiosity.

Although these sources of variation preclude a single model for effective instruction, various teaching qualities nonetheless are associated with the achievement of different cognitive and affective goals and probably contribute to the quality of university teaching across a wide range of conditions. The qualities examined here have been identified by research using student evaluations, trained observers in classrooms, verbal reports by teachers and students, and the training of teachers in specific teaching skills. The qualities are also generally consistent with psychological theories about learning (e.g., the role of prior knowledge, importance of organization) and with common-sense intuitions about the qualities of effective university teachers.

The qualities of effective teaching revealed by research have been incorporated into course evaluation instruments used in North American universities. Numerous such evaluations and hundreds of items were examined by faculty members at UofW to develop our own course evaluation questionnaire in use for many years but now discontinued. The resulting questionnaire sampled a range of teaching activities associated with effective instruction and the achievement of cognitive and affective objectives.

Box 1 presents a taxonomy of the clusters. The classification is rough in that some of the clusters are not very homogeneous (i.e., they include diverse teaching behaviors), some categories overlap (i.e., teaching behaviors are related to multiple objectives), and the taxonomy

Cognitive	Knowledge and Appreciation
	Organization of Individual Lessons
	Clarity of Explanations
	Quality of Presentation
Affective	Stimulation of Interest
	Participation and Openness to Ideas
	Rapport and Concern
	Disclosure and Fairness

Box 1. Overview of Qualities.

may not be exhaustive (i.e., certain aspects of teaching may be inadequately represented). The scheme nonetheless provides a useful, if tentative, taxonomy for thinking about the quality of university teaching. The qualities have been divided into aspects of teaching related to cognitive or affective aspects of instruction.

These qualities are described here in some detail, along with suggestions that faculty might use to strengthen their teaching performance in areas that they deem important. The suggestions are offered for consideration by faculty, recognizing that few of us can exemplify all of these attributes and that skilled teachers adapt their teaching to student interests, the subject matter, the level of course, class size, and other contextual factors that influence the effectiveness of different teaching methods or styles. The clusters and ideas are not meant to be exhaustive and should not prevent alternative methods being used by effective instructors. For example, university teachers may deliberately expose students to apparent disorganization so that students are compelled to discover their own organizational scheme and thereby strengthen higher-level cognitive skills.

KNOWLEDGE AND APPRECIATION

Any list of the major goals of university teaching would include such objectives as changing students' factual knowledge and competence in the course material, strengthening various cognitive capacities (e.g., study skills, reasoning, writing and speaking skills), and fostering intellectual appreciation of the subject matter. Imparting knowledge and skills to students is the major objective of university instruction for many faculty.

Box 2 shows several course evaluation items related to knowledge and appreciation aspects of teaching. These items primarily ask for student

Encourages students to think for themselves and promotes intellectual curiosity.
Expands students' knowledge and appreciation of the subject.
Helps students develop skills related to the course (e.g., critical thinking, writing, ...).

Box 2. Knowledge and Appreciation.

perceptions of the success with which the instructor has achieved various cognitive objectives.

Box 3 identifies some ways that teachers can promote knowledge and appreciation of the subject matter. More than other qualities of instruction, promoting these objectives requires teachers who can communicate their own

Keep up-to-date (e.g., read journals, attend conferences, do research).
 Talk about current developments.
 Present origin and background of material.
 Relate the subject to current events and other fields.
 Present thought-provoking ideas (e.g., paradoxes, inconsistencies between expert and lay beliefs).
 Provide insights or knowledge beyond that in the text.
 Present challenging questions and issues.
 Illustrate unresolved questions and issues.
 Model cognitive processes of experts (e.g., think out loud).

Box 3. Knowledge and Appreciation.

knowledge and appreciation of the subject matter to students. In essence, students should feel that they have learned something valuable, and that the course has contributed to their knowledge, awareness, and intellectual curiosity. Students should also be intellectually challenged and stimulated to think for themselves, and have opportunities to develop competencies characteristic of the discipline. The higher-level objectives of developing knowledge and appreciation are also related to numerous teaching behaviors in other clusters.

ORGANIZATION OF INDIVIDUAL LESSONS

The organization cluster reflects the extent to which individual lectures and discussions are carefully planned and organized in a coherent manner. Well-organized instructors also demonstrate how ideas in specific lessons fit into the course as a whole and relate class material to other parts of the course (e.g., text, readings, labs).

Box 4 shows possible evaluation items related to lesson organization. Two items ask for student perceptions of the extent to which individual lessons and the overall course are well organized.

Offers well-prepared and organized classes.
 Gives useful indicators for following lessons (e.g., outlines, states objectives, reviews main points, ...).
 Course elements (e.g., lectures, texts, readings, labs, ...) are integrated to help students appreciate and learn the course material.

Box 4. Organization.

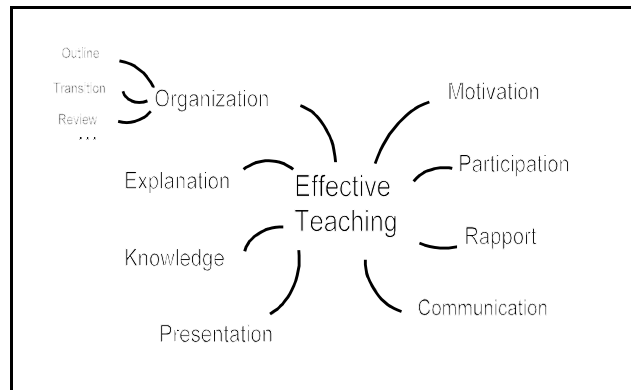
A third item asks about representative techniques that instructors can use to convey the organization of lessons. Effective organization can help students to learn the material, to take effective notes, to understand their weaknesses, and to apprehend the structure of the subject. Teacher organizational schemes also provide students with models of expertise and of effective learning strategies.

Effective lesson organization depends on considerable planning in advance of the class, as well as the use of organization-related techniques during class. Box 5 shows some tips for preparing organized lessons. Perhaps the most important condition for well-organized lessons is a clear and sound understanding of the subject matter at a level appropriate to the students. Such understanding can take much experience to develop, especially if the knowledge is tacit or implicit (e.g., problem-solving).

- Identify a theme and objectives.
- Develop a plan for lesson (e.g., time, cause-effect, hierarchy, logical).
- Organize lesson as a list of points or series of questions.
- Outline the structure in point-form.
- Include outlines, headings, and other techniques to communicate structure.

Box 5. Planning Organized Lessons.

One way to develop an organized lesson is to create a semantic network. Start by placing the over-arching theme for that class as the central concept in the network. Lines can be used to connect the theme to sub-topics, which are in turn connected to more specific ideas. Box 6 shows a partial network for the present material on effective teaching. Ideas can be added, embellished, and re-arranged until a sound structure emerges.



Box 6. Semantic Network for Effective Teaching Ideas.

Students who do well in courses have semantic networks similar to their instructor's. Some instructors also use networks to provide students with an effective overview of the lesson material.

Those who find the network approach too "messy" may prefer the use of headings and sub-headings. Box 7 shows the outline of Box 6 cast in this alternative format. One possible benefit of the semantic network is that it might make the hierarchical nature of the material more apparent. A second benefit is that it may better reflect and demonstrate the kinds of cognitive activities involved in organizing knowledge in your discipline.

- Effective Teaching
1. Cognitive
 - 1.1 Knowledge
 - 1.2 Organization
 - a. Outline
 - b. Transition
 - ...
 - 1.3 Explanations
 - 1.4 Presentation
 2. Affective
 - 2.1 Motivation
 - 2.2 Participation
 - ...

Box 7. Partial Outline for Effective Teaching Ideas.

Planning is one important step in effective organization. It is also important to communicate the organization during the lesson. Box 8 shows some techniques to use during lessons to communicate organization and structure to students. A lesson can be divided into three parts: a beginning, a middle, and an end. The bulk of the classtime is generally spent in the middle, but the beginning and end are very important to demonstrate the organization of the lesson.

Beginning and ending well may

be particularly important when, as is often the case in universities, the material will be covered over several sessions.

Faculty will need to decide how appropriate the ideas presented here are for their subject matter and for their teaching objectives. In particular, some balance may need to be struck between providing organizational details for students and giving students opportunities to discover and develop for themselves the relations among concepts. Even when independent organization is the final goal, however, students who have difficulty grasping the organization of material may need initial models of the underlying cognitive structures, as well as demonstrations by the teacher of how such structures can be discovered or developed.

CLARITY OF EXPLANATIONS

The next quality related to cognitive aspects of effective teaching involves techniques that are used to explain concepts and principles clearly. Box 9 shows course evaluation items related to

clarity of explanations. Clear explanations are important for university teaching to help students connect difficult material to concepts, examples, and language that they already understand, and to provide concrete foundations for abstract ideas.

BEGINNING THE LESSON

Review topics covered in previous lectures.

State major objectives.

Give preliminary overview at start of class.

DURING THE LESSON

Outline lecture on blackboard or overhead.

Distinguish topics and signal transitions.

Indicate end of sections and start of new topics, perhaps in concert with outline.

Use explaining links (because, since, therefore) and other organizational cues.

Avoid excessive digressions from major topics, unless educational value warrants.

Emphasize major points in plan (e.g., pause, raise your voice, repeat, speak slowly).

Periodically summarize previous points.

ENDING THE LESSON

Plan to close lecture effectively.

Review main topics.

Preview topics to be covered in future classes.

Box 8. Organized Lessons.

Provides clear explanations for concepts and principles, with concrete examples where appropriate.

Emphasizes major or difficult points (e.g., asks if students understand, repeats complex ideas, pauses, ...).

Box 9. Clear Explanations.

Box 10 lists some techniques that instructors can use to communicate the meaning of difficult concepts. Anticipating what material students will have difficulty with and developing appropriate explanations generally requires firsthand teaching experience; it is often surprising how teaching a subject reveals gaps in our own understanding of the material. Experienced teachers gradually develop a repertoire of paraphrases, metaphors, and other techniques that promote the

- Use concrete, real-life, and relevant examples.
- Present practical applications and experiences.
- Use illustrations, graphs, and diagrams where appropriate.
- Use relevant audiovisual aids (films, tapes, maps, slides, etc.).
- Develop effective metaphors or analogies for difficult concepts.
- Suggest mnemonic aids for memorizing complicated ideas.
- Paraphrase technical explanations in understandable language.
- Define unfamiliar terms.
- Write key terms on the blackboard or overhead.
- Repeat difficult ideas in diverse ways.
- Speak more slowly for difficult or particularly important ideas.
- Ask if students understand before proceeding.

Box 10. Giving Clear Explanations.

learning of difficult concepts. As with organization, the skill of giving clear explanations requires considerable effort on the part of teachers. There is often a large gap between our own sophisticated knowledge about our subjects and the less rich knowledge that students bring to the classroom. Such techniques as those described above can help to bridge the gulf between expert faculty and novice students.

QUALITY OF PRESENTATION

A final factor that contributes to the achievement of learning concerns voice and other characteristics associated with the quality of presentation by a teacher.

- Speaks in a clear, well-paced, and expressive manner.
- Uses appropriate teaching aids effectively (e.g., blackboard, overhead projector, handouts, ...).

Box 11. Effective Presentation.

Box 11 shows the items related to effective presentation. Good presentations further teaching because being articulate

helps communication, attention is essential for learning, and teacher enthusiasm promotes student interest and effort.

- Speak at suitable rate, not too fast for understanding and note-taking.
- Speak loudly enough for the room.
- Pronounce words distinctly.
- Modulate voice; speak expressively rather than in a monotone.
- Speak fluently, without excessive pauses or "ums" and "ahs."
- Speak naturally without over reliance on verbatim reading (outlines can help).

Box 12 lists some aspects of speaking clearly.

Box 12. Effective Presentations - Speaking.

Some ideas in Boxes 4-12 and 4-13 may suggest that teaching is just "acting," which is not the case. Effective speaking is important because content will not be understood unless students attend to and perceive correctly what the teacher is saying.

Instructors with effective presentation styles also communicate well nonverbally. Box 13 lists some nonverbal techniques that instructors might use to strengthen their presentations. Again, experience and familiarity with teaching will help you develop an appropriate teaching "style" and the identification of methods that work

- Use facial expressions (e.g., smiling, laughter), bodily gestures, and movement.
- Avoid distracting mannerisms (e.g., playing with chalk, rocking).
- Make eye contact with students.
- Move about the classroom, do not fix on a desk or lectern.
- Display a relaxed manner.
- Include humour.
- Use blackboards, other audiovisual aids, and a variety of methods.
- Be enthusiastic and dynamic.

Box 13. Effective Presentations - Nonverbal.

for you. Although categorized in the cognitive group because of its importance for comprehension and attention, the effective use of verbal and nonverbal techniques also stimulates student interest, a decidedly affective goal.

STIMULATION OF INTEREST

One affective goal of university teaching is to stimulate student interest. Box 14 shows two items related to stimulation of interest. The items ask for student perceptions of whether the teacher is interested in the subject matter and stimulated student interest. Student interest is important for teaching because it increases student attention to lectures and class discussions, little learning occurs without such attention, and interest motivates students to think about the course material and to work harder.

- Shows enthusiasm and interest in the course.
- Stimulates and maintains student interest.

Box 14. Interest.

Box 15 lists some ways that instructors can generate student interest and maintain attention

- Describe relevant personal experiences.
- State your point of view on issues.
- Demonstrate interest in the subject matter and in teaching.
- Present challenging and thought-provoking ideas.
- Examine controversial issues.
- Introduce topics in novel and interesting ways (e.g., a mystery or paradox).
- Point out practical applications and interesting examples.
- Relate subject matter to current events and student interests or activities.
- Encourage new ideas from students.
- Use varied activities, media, and formats (e.g., guest lecture, panel discussions).

Box 15. Student Interest.

during classes. Student attention and motivation are promoted by instructor enthusiasm and interest, as well as by capitalizing on interesting aspects of the subject matter. Some of the suggestions in Box 15 occur in other clusters. As noted previously, quality of presentation also contributes to student attention and interest (e.g., energetic and dynamic class presentations, some spontaneity in lecturing, use of humour).

PARTICIPATION AND OPENNESS TO IDEAS

Many effective teachers try to foster active involvement, participation, and interaction of students in classes, and to communicate their openness to and

Encourages student participation (e.g., asks questions, responds well to student questions or comments, ...).
Respects alternative and challenging viewpoints.

Box 16. Participation and Openness to Ideas.

respect for alternative and challenging points of view. Box 16 shows evaluation items related to this cluster. Student participation is desirable because it actively involves students in their learning, provides instructors with feedback about the progress and difficulties of students, and provides opportunities for instructors to model for students problem-solving behaviours and applications of course material to novel examples. Openness to ideas is desirable because students should be encouraged to think for themselves in a flexible and creative manner, and because commitment to one view should generally follow critical evaluation of alternative perspectives.

Box 17 lists some ways that instructors can take the initiative in promoting student participation. The most important methods probably center around classroom questioning of individual students and of the class as a whole. How you respond to student questions will also affect

Provide opportunities for and solicit student comments and questions.
Ask if students understand before proceeding.
Encourage quiet students (e.g., direct questions, pre-arrange questions).
Offer challenging and thought-provoking ideas.
Plan interactive activities (e.g., small-group discussions, student presentations, solving problems in groups).
Expect students to answer questions (e.g., wait for answer, rephrase question, provide hints).
Show approval for student ideas (e.g., positive comments).
Answer questions in a meaningful way.
Incorporate student ideas into lessons.
Do not criticize student ideas unreasonably.

Box 17. Participation.

the frequency with which such questions are asked in the future. You can increase the frequency of question-asking by providing useful responses and by showing approval, either implicitly by incorporating student ideas into the lesson or explicitly by verbal and other forms of praise.

Closely related to student participation is how open and receptive instructors are to other points of view, including those offered by students. Box 18 lists some ways to show openness to alternative ideas. Student participation and the expression of different points of view in a

Be open to different opinions and points of view.
 Let students feel free to question you, to think independently, and to express dissenting views.
 Present and explore points of view other than your own.
 Be flexible in your thinking.
 Contrast the implications of different theories.
 Let students be creative (e.g., generate alternative explanations).
 Demonstrate and encourage original and independent thought.

Box 18. Openness to Other Ideas.

classroom seldom emerge spontaneously. Early in the term, instructors want to plan ideas and activities that will promote these important objectives.

RAPPORT AND CONCERN

Many effective instructors try to promote agreeable and friendly relations with students, and to convey concern and respect. Box 19 shows relevant evaluation items. Rapport creates a congenial and non-hostile atmosphere in which students having difficulty seek help and in which students feel welcome to offer alternative ideas in class and to get feedback

Treats students with respect in and out of class.
 Is available for consultation outside of class time.
 Is sensitive to whether students understand course material.

Box 19. Rapport and Concern.

on those ideas. Unless students feel reasonably non-threatened, they are unlikely to come forward with concerns, questions, or comments.

Box 20 lists some ways to foster positive relationships with students. As with participation, the trick is to both

Be reasonably available for consultation.
 Talk with students before, after, and outside class.
 Learn students's names (e.g., use class cards).
 Show interest in how students are doing.
 Show interest in students and their ideas.
 Be sensitive to student progress and motivation (e.g., know when students are having difficulty or are bored).
 Show concern that students understand and learn the subject matter.
 Take action when students lose interest or have excessive difficulty (e.g., use more examples, modify requirements?).
 Make students feel welcome (e.g., announce availability for help, be approachable).
 When students seek help, be understanding, patient, helpful, and not overly critical.
 Be tolerant of other points of view.
 Provide opportunities in class for questions.
 Engage in give and take with students.
 Show approval for student ideas (e.g., positive comments, praise, smile, nod head).
 Respect thoughts, opinions, and rights of students and others.

Box 20. Rapport and Concern.

arrange occasions when informal interactions can occur and to respond during such interactions in a manner that will encourage such behavior in the future. The objective here is not to become "friends" with students, although that might naturally occur. The real objective is to learn how students are doing and who needs help as quickly as possible.

COMMUNICATION AND FAIRNESS

The final cluster of qualities associated with effective university teaching concerns disclosure of pertinent information about the course (i.e., communication), especially with respect to student evaluation. Box 21

Provides helpful feedback (e.g., useful comments on student work, takes up tests in class, ...).
Evaluates students fairly (e.g., tests important material; gives reasonable work load; assigns appropriate percentages for termwork, tests, and exams; ...).
Marks and returns work in a reasonable time.
Course objectives, assignments, and grading criteria are clear.

Box 21. Communication and Fairness.

shows the items related to disclosure and fairness. Open and effective communication about evaluations and other aspects of the course contribute to student learning and performance by avoiding unnecessary or undesirable uncertainty associated with overly vague assignments, by permitting students to identify relevant activities and skills, and by providing students with constructive feedback about their performance in the course so that they can learn from their mistakes.

Box 22 shows some ways that instructors can communicate effectively with students and obtain appropriate evaluation of student performance. As with other aspects of instruction, there may be occasions when these suggestions should be ignored. To develop higher-order planning skills, for example, the instructor may give students a task that is deliberately

Prepare clear objectives for the course.
Communicate objectives, course requirements, and grading criteria.
Reduce barriers incidental to student learning (e.g., undesired ambiguity).
Give students sufficient information to prepare for evaluations.
Provide detailed instructions and sample questions for evaluations where appropriate or necessary.
Perhaps remind students of dates and identify important topics for evaluations.
Use clear and reasonable evaluations. (e.g., tests that reflect course materials).
Grade assignments fairly and consistently across students.
Considering class size, grade work promptly and provide helpful feedback.
Provide answers as feedback for objective assignments.
Use enough evaluations for adequate feedback and a fair measure of student learning.

Box 22. Communication and Fairness.

ambiguous or poorly defined. Even in such situations, however, the instructor might be explicit

about the objectives of the assignment (e.g., develop problem-solving or critical-thinking skills) and the nature of the evaluation.

CONCLUSION

There is no formula or cookbook for effective university teaching. We can all probably remember quite distinct teachers who have influenced us in positive ways: the dynamic and inspiring teacher who taught about stimulating topics (albeit perhaps topics of minor importance to the current discipline or examined by the teacher in outmoded ways), and the rather dull and plodding teacher who nonetheless taught about exciting contemporary ideas and modern methods of scholarship. Many of our former university teachers and many of us are probably some combination of these two extremes, striving to explain contemporary subject matter in a clear and organized manner while stimulating student interest and curiosity. Although the ideas presented here might help you to better achieve the diverse and sometimes conflicting goals of effective university teaching, ultimately the quality of your future instruction will depend on your ability to benefit from experiences in the classroom, discussions with colleagues, and reading about teaching.

