
Insights & Ideas for Teaching & Learning

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Teaching & Learning Committee

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Ed Note: Behaviorism seems to focus on the teaching and learning process, so we asked a behaviorist and excellent teacher in the OU Psychology Department to comment on several questions. What does Behaviorism say about classroom teaching, and what do you as a Behaviorist do in the classroom?

My Teaching Behaviors.

By Max Brill
Oakland University

In every course that I teach, there are four categories of things that I attempt to do that I think are effective in ways that many teaching methods are not. It appears to me that there are good "behavioral" rationales behind each of them, though persons working from "cognitive," or other non-behavioral psychological orientations, *might* conceivably also arrive at some of the same techniques. These things can be presented and discussed under the five major headings I. "NOTES," II. "Questions," III. "QUIZZES," IV. "Audio Taping," and V. "Make-Up Tasks.

I. NOTES. The NOTES are the heart of the course, and preparing them is probably my most important teaching behavior. Packets of the NOTES have run to as few as 50 pages, years ago, but they have bulked out, recently, to as many as 200 or

300 pages. They grow in length as the semesters rush by. Xeroxed copies are sold to the students at cost. *The students, if they have any sense at all, have the NOTES open before them whenever they are doing the course work, either at home or in the classroom.* We attempt to work through them, from beginning to end, ending with the semester. They point to all, or nearly all, of what the student will be expected to learn, and to all, or nearly all, of the sources that will help him/her to learn it. The NOTES show the structure of the entire course, in a kind of *Gestalt*, but they also serve as a fairly detailed, *pointilistic*, day by day, guide to its flow. The NOTES serves the function of letting the student know, from moment to moment, exactly where he/she is, where he/she has been, and how far he/she still has before they get to where he/she is going.

First of all, a minor feature of the NOTES, mentioned mainly for completeness, is that they contain the usual statements on the various *Administrative Procedures*. There are statements about my expectations of the students, and what they can expect of me. There are details of my QUIZ system, the manner of grading, what are the "make-up" requirements when the student has missed a class, how the audio tapes are used, etc. There are also the *Schedules* of readings for the course. Not much unique here, except perhaps the amount of detail provided. There were 55 numbered administrative statements, as of the Fall Semester, 1995. Whether or not this feature of the NOTES is particularly "behavioral," it is clearly concerned with what we behaviorists call *rule-governed behavior* "if you do this, such and such will result."

Second, a more important feature of the NOTES, is that they allow me to present my explanations of the textbook without taking a lot of class time, and at the time when the students are most involved with them, while they are reading. I feel free, and perhaps even obliged, to comment on the assigned textbooks chapter by chapter, page by page, paragraph by paragraph, and line by line. I go so far as to define and discuss some of the individual words that the author has used. I attempt to explain, in the NOTES, many things that, almost certainly, the student's life experience has not prepared him/her for, or that are difficult for other reasons, such as poor writing or poor organization of the text. I suspect, and other older faculty doubtless get the same feeling, that it is almost impossible to refer to any person, idea, event, music, book, play, movie, historical happening, or whatever, that was of importance to our culture just a few years back, or that is understood by most educated adults today, that any of our students have ever heard of. I explain whatever I guess needs explaining, in the NOTES. In general, this basic and important feature of the NOTES allows my pedagogical voice to be there when my students are actually reading the textbooks, not sometime later, and not not-at-all, which is the usual case, I suspect. I have no hesitation about expressing support for things the authors have said where I think that they are right, and I criticize freely where I think they are wrong, or when I think there are better ways of looking at the topic.

Third, and another interesting feature, the NOTES allow me to expand upon the textbook contents, in a number of ways

a. When there are sketchy and inadequate accounts of psychological research in the textbooks, I usually can fill in the missing details. These details are often the most interesting and important parts of the study in the first place, but they were omitted by the author, or cut by editors, in the interest of saving paper and printing cost, and making more money. When the author refers to one or two psychological studies to make a point, I can usually tell the student of others, some of which might *not* support the point.

b. When the textbook mentions something or other that I can make clearer by adding brief *Readings* from the basic literature, I add some of that material. I have mostly copied these readings from primary sources, and sometimes I have edited them somewhat, and frequently I have added my own explanatory comments. Because of my own interest in the history of psychology, some of these readings are

historical, and are not the kinds of things the student ordinarily meets, certainly not in the typical textbook.

c. The NOTES allow me to use and test out good material of my own that I have, still in "draft" form. This is certainly a novel feature. Some sets of NOTES have included parts of old textbook starts from years back. Usually it is material that I no longer have hopes of finishing for a publisher. These unfinished bursts of writing characteristically contain a lot of good stuff, perfectly good material. They usually represent, in clear terms, my own approach to the topics that I want to stress, and again to present it while the student is reading and therefore directly involved with the material. It seems clear to me that my students profit greatly from these additions, even though they are not presented perfectly. The material is not in final form, but it is quite good enough for course use, and often, I admit to thinking, it is the best material available that I know of. If I had had a computer 30 years ago I would have published much of it long since, but I didn't and I didn't. The material was scattered here and there on marked-up copies, in stacks of neglected papers, in file cabinets that are too infrequently opened, etc. But much of the material is now on the Mac, and therefore it is easily available for use in my classes. Nothing particularly behavioral here, but it is as much behavioral as it is anything, and *I myself*, clearly get reinforced, by seeing others reading it, warts and all.

d. It is easy for me to add Xeroxed clippings from journals, magazines, and newspapers, including cartoons, as others sometimes do. Again without spending much class time at it all.

Fourth, and this is a feature that the students particularly like, I point to textbook material that I consider very important for the student to pay particular attention to, to reflect on, and to master. Where I tell them to read it well, I am fairly certain that they do so. I also mention other material to be read only lightly, perhaps just as background. When I tell them to read it lightly, I am reasonably sure that many of them do not ever bother to read it at all, but some of them do. I also clearly indicate some things that the student skip and not bother with at all. Ordinarily, these latter are things that, I assure the student, have little value, or are irrelevant to my views of the topic, or are mostly wrong or flatly so. Where I tell them to skip some pages or paragraphs, I am absolutely certain that they follow my advice to the letter. There are few things that you can tell a class of 60 students where you will get 100% compliance! It gives me a feeling of

control, and it saves student reading time, which allows me to make longer, more meaty assignments. I have never seen this “pointing-to-good-and-bad” feature used before. It goes against some current “cognitive” idea that the student is able himself/herself to read a textbook and to distinguish between what is “good” and meaningful, and what is “bad” and a time-waster. Nonsense, they can’t!

Fifth, and a very important feature of the NOTES, is that they include separate *outlines of my more formal class lectures*.

a. They are clear and to the point, partly because they have evolved over the years. Some of these outlines are skeletal, but others are quite detailed. I follow the lecture outlines fairly closely, but not obsessively, on the few occasions when I do give a formal lecture. Much of whatever note-taking the student might want to do has already been done for them, right there. What I seek is that they confront the material presented, and having the lecture outline, as they hear the lecture, makes that easier. Rather than note-taking, my students can annotate the outline provided. Behaviorally it is good, I think, because the student has a double presentation, visual and auditory, of most of the material. It is also behavioral in that the desired behavior is encouraged and facilitated. I want them to follow the lecture, to interact with the material, and to retain some of the main points that I am trying to make. The outlines given in the NOTES can be studied. Student notes, as I think we all know, are mostly laughable. Some profs believe that the process of note-taking itself is of benefit to the student, but I doubt that there is any good evidence that that is so.

b. Something else that is probably unique having the lecture outlines there in my NOTES has sometimes allowed me to give one of the lectures right on the spot, “spontaneously” as it were, when the class discussions seemed to call for such a presentation. A topic came up, and “bang,” they got the appropriate presentation! My lecture was not given completely for my scheduling reasons, rather, it was given because of student inquiries about the topic, even though I had prompted the inquiry. Other orientations might also arrive at some such giving out of detailed outlines, and many of my colleagues certainly have given out such outlines, but I see it as behavioral.

Sixth, and perhaps the most important and novel feature of the NOTES, is that they swarm with “*Questions*.” These are scattered throughout, on almost every page of the NOTES. *If the NOTES are*

the heart of the my courses, the Questions are the blood that flows through it.

II. Questions. The first Questions are about the *Administrative Procedures*, that are covered during the first class period. The students told to be able to answer them by the end of that period, or by the second class period. This little touch helps establish the method to be used throughout the course to learn from me and the NOTES, and the textbooks, to answer Questions. It emphasizes the importance of the Questions. It also assures that even such dull matters as the administrative procedures are presented for a reason, and that the student sees that that is so, and that he/she should get some at least some points from the presentation.

Much more importantly, however, in the NOTES *there are also Questions about the material in the Textbooks, and in the Readings, in the formal Lectures, in the informal class discussions, and about anything else relevant to the course.* I believe that, *if it can be taught, clear questions can be asked about it.*

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This flows from a behavioral orientation. And I believe that this is as true about trying to teach a student to do something relatively abstract, such as “*Compare the brush techniques of Manet with those of those of Dufy, and of Rembrandt,*” or perhaps to “*State five ways in which ‘X-theory’ is considered by both me and the textbook author to be inferior to ‘Y-theory,’*” as it would be about teaching a student to describe something fairly concrete, such as “*Detail the steps you would take to teach a monkey to care for some of the*

eating needs of a paraplegic patient,” or “Tell exactly how you would stop a baby from habitually tantruming in any restaurant he/she is taken into.” The later is one of the easier Questions that I have asked. What I am betting on is that those who can answer such questions correctly, will handle their own child, or any other for that matter, better than those who can not answer it, and consequently will have come to “understand” behavior better than those who can not answer it. It would be better to try to demonstrate that one could do it *in vivo*, but it is also of some value to be able to detail what one would do.

There is a good behavioral rationale for using Questions as an approach to any topic to be taught. It goes back to our wanting the student to “learn and understand” the course material. When we want the student to “learn and understand,” what we really want, behaviorally speaking, is that they come to

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be able to discuss the material as we think they should, that when we ask them something about the material, they will respond with intelligent and cogent answers, and that they will sometimes come up with new imaginative formulations, relevant to the material. The more Questions that the students are asked to answer, the more the course has to teach. The more relevant Questions that the student can answer, the better he/she knows and understands, by definition. To the extent that the student comes to be able to answer the Questions asked, they have learned and come to understand much of what I think they should know of the course material. The things they do not know are those things that have not been asked of them. These things reside in some Platonic never-never land, where there are mounds of still unasked Questions lying about, wanting to be put to work.

There is another behavioral point to be made here. It makes sense, experimentally demonstrated, for one to practice those things that one will be asked to perform later on. What we want our students to learn to do is to answer Questions about the material we are teaching, either with their verbal output, or with their actions. I really force them to practice the answers. The goal is clear. The method of reaching it is clear. The reinforcement is in the easy good grades they can get on the QUIZZES.

III. **QUIZZES.** There is another time honored principle of behavioral teaching. It is based on everyday observation, but it is a very robust finding, and those of non-behavioral orientations have almost certainly made the same observation. *If students are not quizzed on the assignment, they will not read it!* There is a corollary *If students are to be quizzed on the material, they will read it as late as they can before the quiz.* So QUIZZES are given every class period.

The QUIZ Questions that I write are essentially the ones for the *final examination* of the course, which starts during the first class period, and continues, day by day, and every day, of the semester. There is no “final exam” restricted to the last class meeting. At the end of the first class period, after completing the part of the NOTES that includes the Lecture that I call “Introduction and Orientation,” and after covering the “Administrative Procedures,” the students get their first QUIZ, covering the material I have just talked about. While we are going through the material in the NOTES, the students have seen some of the Questions, and they have been advised that they should prepare right then and there to start learning answers. Not cramming a month from now, but right now. This first QUIZ is a sample, though the students do not know that until afterwards. Behaviorally, throughout the course the student is guided into “distributed learning,” learning bit by bit, step by step, gradually rather than in a long night or two of cramming. Who can doubt that this is better for learning in the long run?

In the NOTES, there are a few Questions where the answers do not appear in Readings or the textbooks. The answers are in materials that I have not yet presented. These Questions are asked in order to prompt the students to inquire about them, when I ask, as I always do, whether they have any questions for me. It works. It gives me a chance to lecture a bit about something that they have at least wondered about, having been puzzled by a Question that wasn't

answered in their material. Technically these little mini-presentations are responses to their inquiries. I sometimes put such a Question in the QUIZ. If the students have asked about it, and have listened to my answer, they are always able to get a good grade on it. If they don't, they don't. They absolutely learn to ask questions of me, and to attend to my answers. These "prompting Questions" are, I believe, another neat feature.

Quizzes are given at the start of every class period, and occasionally at the end of a class. They are almost entirely of the "short essay" type, so that the students get a chance to perform part of what I am hoping they become able to perform through having taken my course. Essay questions, of course, minimize cheating. They are certainly more demanding and they require more in the way of a behavioral response than does merely putting a check mark down, or filling in some kind of multiple choice sheet.

Each QUIZ consists of from 2 or 3 to 6 Questions, or "circles" depending upon how many times per week the course meets. Each Question is graded on a "0.0" ("X") to "4.0" basis. The individual Question grades for the semester are averaged to give the student's approximate grade for the semester. The student always knows just about where he/she stands, assuming that they care, and that they are able to do the simple arithmetic involved.

There are four reasons why I use this Question and QUIZ system, and the class usually gets questioned about these four reasons on the first or second class period QUIZ.

a. I use it in order to *get the students to do the assigned readings, and to do them on time*. I will bet that a greater percent of my students do all of the textbook reading on time, and more seriously, and with a purpose (answer those Questions !) than in any course, in any university, where some similar system is not used. But I could be wrong. What about those who do not do the reading, or who do not keep up with the NOTES, or even try the Questions ? They either straighten out quickly, or they drop out fairly soon, when they see their low grades piling up.

b. It would be possible to teach a course almost entirely by competence examinations, by tapes and videos, etc. Behaviorally, there is much to be said in favor of that method, but that is not the way it is done now. Therefore, attendance is mandatory in my classes. I quiz in order to *enforce student attendance*.

To encourage students to stay till the end of my 3 1/4 hour night courses, they are given a few one or two-question QUIZZES, at the end of class periods. I am there, and there is where the course is. I gathered some encouraging data last semester, when I taught two night classes. I checked both classes for absences after the

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sixth week of the semester. In *Emotion*, with 49 students, 37 had been there all of the class time, while 12 of the students had missed at least once. In the other course, *Behavior Analysis*, with 47 students, again 37 had been there all of the time, and 10 had missed at least once. Out of approximately 580 "student-class-cut-opportunities," there had been a total of only 22 misses. Six of these were on the first class night, when the contingencies (the rules according to which reinforcements and punishments are given) were not yet known to the students. There actually had been more misses during those first weeks of the semester, misses that I could not count because those were by students who dropped out, and whose records I no longer had. I try to get the students into the "attending-prepared" habit, but when I do not succeed, I urge them to cut their losses and try something else where they can perhaps get by without being religious about reading and attending. Is my approach behavioral ? Yes, I think that it is very much so.

c. I use the QUIZ system because *I must give a final grade to each student*, or the State of Michigan will not pay me. This is an efficient and open way for me to do it. Few arguments ever. All above board. The students, almost without exception, say that they like the QUIZ system better than any other method they have encountered. They say that mine is the "only course they are up on." For those of my colleagues whose students are *not* up on things (probably more than you will admit to), you might try the method.

d. The QUIZ system provides me with prompt feedback about my own teaching performance, and where there are difficulties. I do not have to wait until after a "mid-term" to know whether I am getting across. The students, of course, are getting feedback too.

IV. Audio Taping. In addition to what I have mentioned so far, I make an effort to *tape record* all of my class periods. The tapes are made available to my students in the Performing Arts Library, in Varner Hall. The Librarian there has been most cooperative over the years, keeping track of the tapes and lending them to students, for which I thank her. I also strongly and repeatedly urge the students to audio tape the class periods themselves. I urge them to listen while in the shower, or while eating alone, or while driving along, if they can both drive safely and listen at the same time, and if they can get off their car phone. I tell them the truth, which is that their final grade will certainly be higher, and they will surely learn and remember much more, if they have taped and listened than if they had not. I do not find students who are both using the tapes and doing badly in the course. It can hardly happen. A considerable part of what I quiz them on is material that has been discussed or hinted at in my presentations. The student has to be very dense indeed not to get clues about the relative importance of items, from my class presentations, and, if they did not pick it up on the first hearing, they almost certainly will when they listen to the replay. I purposely prepare at least one question or two, for each QUIZ, by browsing through my own prior class tape. Many students do the taping, but, to my disappointment, most do not, despite my urging. If a student is doing poorly on the QUIZZES, and if he/she is not taping the class lectures, I have real sympathy for them, but not very much of it.

V. Make-Up Tasks. When students miss a class, there are clear "Make-up Tasks" to do. These involve outlining the taped lecture for the class period that was missed, giving me written answers to the Questions that they were to be quizzed on during the period that they missed, etc. They do not get positive grading on these tasks, but when the tasks are done well, some or all of the zeros that they had been given, for the QUIZ missed, are removed. The point is not to "punish" them in some way for missing, though behaviorally that might be its effect. It is intended to insure, in some small way, that they come into contact with at least some of the material that they missed. I don't know how important this aspect of my behavioral teaching is, but it seems to me to be better than doing

nothing at all, and better than looking at some irrelevant "Doctor's note," or giving a "make-up quiz", which wastes my time, and costs me effort to little effect.

Downside. There are negatives about this Question and QUIZ system. Preparing the NOTES, along with the collection of Readings, and the Questions, represents a great deal of work for me, work that is not specified in the contract. Grading the QUIZZES is, however, the main downside factor of my behavioral teaching system. It is the major thing wrong with this nice job, as I perform it. Anyone who can think would certainly loath the grading task.

Also, I get tired of carrying the taping material back and forth, forgetting blank tapes, losing them, having batteries go dead, having to get the tapes to the library, etc. Somehow it would be nice if the University could come up with a way of providing taping services, perhaps even video taping, though that would not really be of much additional benefit to my own classes, where they do not have to look at blackboards for important material.

But the "downside" is not the only side.

Upside. Mostly I feel that it is worth it. The results are gratifying. If I prepare the NOTES well, and have enough good, comprehensive, and unambiguous Questions, the whole course is a piece of cake for me, and the students "learn and understand," much more than they ever dreamed they might when they so naively signed up.

I mitigate the pain of QUIZ grading by combining it with other wasted time, such as that spent watching old movies, "the News," "Biography," Civil War and World War II things, "Specials," etc. Usually little is lost by the doubling up, either in terms of grading efficiency, or in terms of lost plot and dialogue lines. I stay in touch.

That's it. The system has been developed and refined over a number of years. Key aspects of it have derived from what behavioral psychologists know about learning processes. Again, some of what I do in teaching might be arrived at by others who are not behaviorally oriented, but I have not seen that much of it has been.

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Ed Note: We are happy to announce that each issue of this newsletter will offer an update report from the University Assessment Committee.

Assessment Committee Report

Thomas Angelo, Director of the Assessment Forum at the American Association for Higher Education, recently published a very comprehensive definition of assessment.

"Assessment is an on going process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. When it is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education."

The on going process of assessment at Oakland has entered a new phase. Last year all academic departments and programs implemented their assessment plans. During its review of the departments first annual reports, the Assessment Committee has been both pleased and impressed with the sincere effort most academic units invested in assessment last year. There are many examples of the benefits of assessment apparent in the annual reports. Following is just one example.

The department of Decision and Information Sciences began by deciding to reformulate its approach to assessment. The faculty focused on two major questions, Are we teaching the right things? and Are we teaching them well? The faculty began by defining an IS major and identifying, for assessment purposes, the customer of O. U.s program. They decided that for a terminal professional program it was appropriate to focus their attention on the requirements of employers.

The faculty felt that there was plenty of general information available about the skills required in the IS

profession. However, in order to make decisions about curricular design, they needed to gather richer information by talking with people in industry. Comerica was approached and faculty spoke to Comerica staff about the requirements for new employees, what changes they anticipate in those requirements, and their perception of recent O.U. graduates. They were also asked about their IS training programs. In the course of these discussions, a frequently expressed concept was that New graduates need not have the same skills as current IS professionals.

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The department then assessed the strengths and weaknesses of O.U. graduates and determined that they had the functional and other general skills required. However, two areas covered in Comerica's training program, client/server computing and graphical user interfaces (GUI) technology, were thought to be areas where something could be done to improve the curriculum. We would be able to exceed Comerica's expectations if we could produce students already possessing client/server and GUI skills.

As a result of what they learned, the department plans to change the IS program in two ways. First, faculty will be encouraged to use GUI-based tools in their classes and are being offered training in appropriate technologies. The second change is to introduce a specialized GUI design class that will also cover client/server technology. The department and the school have shown that they are willing to make the necessary investment in faculty time as well as money to make these changes a reality.

As this example demonstrates, assessment can be a very positive change agent. The Assessment

Committee will continue to review the annual reports and should have more "assessment success stories" for the next Teaching and Learning Newsletter. If you would like further information on assessment or help with your assessment plan please contact Brian Goslin, Assessment Committee Chair, or Laura Schartman, director of the Office of Institutional Research and Assessment.

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Ed Note: The deadline for T&L Faculty Development Grant proposals is getting nearer, and we offer this interview with one of our grant winners from last year.

Getting to Know You

Joel W. Russell: 1994-1995 Teaching & Learning Grant Recipient.

Department: Professor of Chemistry, College of Arts and Sciences.

Number of years at O.U.: 29.

Current research interest: Developing multi-media tools to improve visualization of chemical phenomenon.

Most recent project: Creating a database consisting of all the transparencies (several thousand) that have been developed by various publishers of tools for teaching chemistry. Originally I developed it for use on a Macintosh, but to increase accessibility it is now on CD ROM.

Publication of research: *Journal of Chemical Education*, August, 1994.

Why did you apply for a Teaching & Learning Grant? After receiving an NSF grant for the research, I realized that I had not budgeted for some critical (and expensive) multimedia authoring software. The amount typically awarded in T&L grants would be about right to cover this expense. I also think T&L grants would be great for getting an idea "off the ground" in anticipation of applying for NSF funds.

Have you applied for other T&L grants? Yes, a few years ago I was able to purchase a video camera to record students using instructional software. Now the

camera is being used to make live demonstrations of experiments more visible to students in the classroom.

Is it easy to get a T&L grant? The T&L grant committee requires only a short proposal that meets their deadline for applications. They are looking to sponsor interests that will advance the cause of teaching and learning at Oakland University. If you satisfy those requirements, its pretty easy.

Joel Russell was one of eight faculty receiving grants awarded by the Teaching & Learning Committee last year:

Mary Lou Wesley/Catherine Vincent --
Nursing
Mohamed A. Zohdy -- Engineering
Darlene F. Schott-Baer -- Nursing
Gaddis J. Dillon -- Business
Administration
Robert A. Wiggins/Eric J. Follo -- SEHS

Deadline to apply for T&L grants this year is:
Friday, March 1, 1996

Criteria for making awards based on projects whose primary purpose involves one or more of the following:

1. Development and/or use of new teaching techniques.
2. Developing a new instructional approach.
3. Faculty development related to curricular responsibilities.
4. Investigation of a teaching /learning problem.
5. Evaluation of a method of teaching.

The committee will not fund preparation for accreditation or program reviews, nor will it fund student or faculty salaries or travel costs.

Editorial Information:

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--Sherman Folland, Editor