

Teaching Technical Topics to Grown-Ups

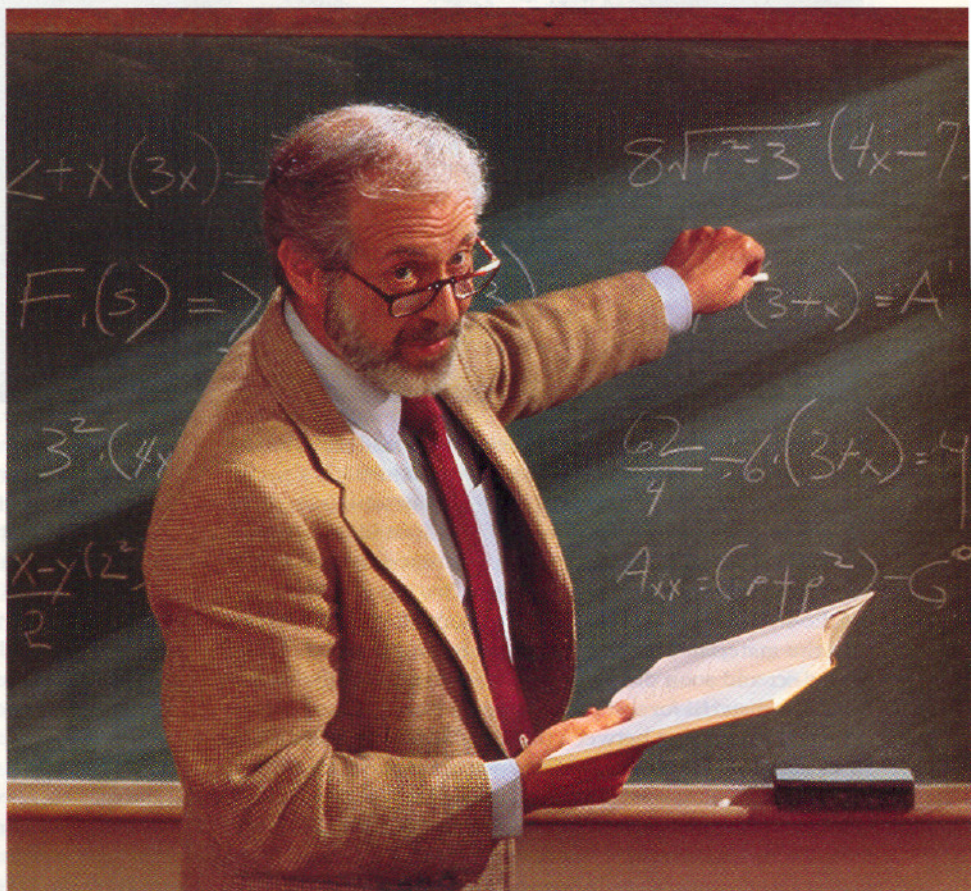
BY DR. RICHARD ROSE

Do you balk at the idea of teaching technical topics to a group of glaring adults? Our author presents the Students' Bill of Rights to help you navigate your training course.

Some networking specialists make the conscious choice to specialize in training. Most of the rest of us have the training role thrust upon us as an inevitable part of a consulting practice. Many discover that training ranks right up there with sex and parenthood as things we are expected to know how to do without ever being taught how to do them. If you look forward to training network users and administrators, you may be a born trainer. If you are among the many networking professionals who would rather clean the bathroom with your tongue than face a solid week with a group of wide-eyed greenhorns, you may need a little help.

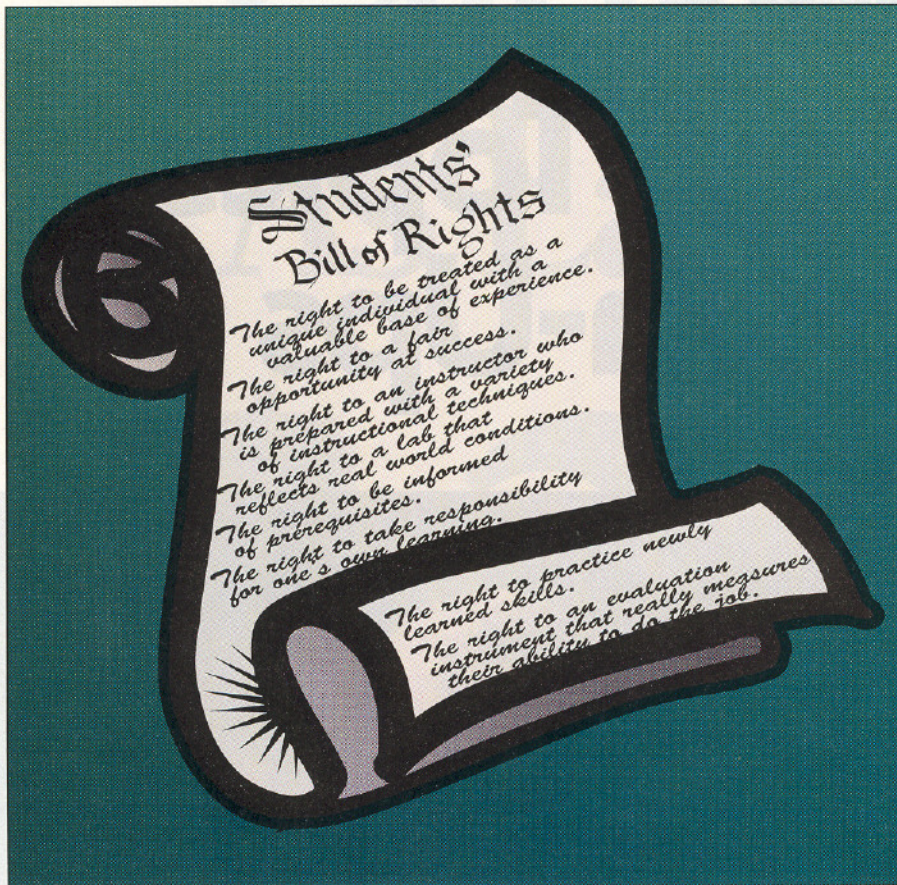
The good news is that there is a great deal of information about how to teach technical topics to adults. Research on adult learning has been in progress for 50 years and some of it is truly relevant to the networking trainer. Just about everyone who has studied the data has come to the same basic conclusions about what goes wrong and how you can make it right. Here is a brief and practical invitation to a way of thinking about adult training that embodies most of what successful trainers already know.

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REMEMBERING THE BAD OLD DAYS

All of us tend to teach the way we were taught as children. Surely you remember. The teachers were assumed to know everything. Teachers took total responsibility for your learning. Teachers made all the decisions about what was important, how much of it you were required to know, how you would be tested, and what system of rewards and punishments would be imposed on you to encourage you to meet the standards they set. The system was built around your fear of failure. Most of the rewards were "extrinsic"—if you struggled through an unpleasant math page, you might get a smile and an "A," or a cookie.



The experienced instructor knows that the traditional model for teaching children doesn't work with adults. (It's pretty limiting for children as well, but that's off our topic.) The core problem is that if we focus the training around an extrinsic reward, busy adults will generally become invested in the reward rather than the learning itself. This is particularly true if the students are going to undergo some formal evaluation on the material. The instructor can fall victim to the same mind-set and soon drop into a pattern of mindlessly "covering" the material for test preparation, rather than establishing the real connection between the topic and the genuine interests of the students. Hopes of test-passing supersede learning, and the training environment can make students sullen, resigned, or even hostile. The only relevant question becomes: "Will it be on the test?"

A BETTER WAY

Adults don't have to be taught as if they were children. A better way can be found in the books of Dr. Malcolm Knowles and his disciples under the technical name of andragogy, which means teaching adults (in contrast to pedagogy, which means teaching children). To extend our discussion in this article beyond Dr. Knowles' original work, we can simply call this teaching method the Adult Education Paradigm (AEP).

In its simplest form, the AEP is an attitude of service toward the customer (your student) and of mutual respect between student and instructor. We can think of the AEP as a Bill of Rights.

THE STUDENTS' BILL OF RIGHTS

The right to be treated as a unique individual with a valuable base of experience. Your students did not just fall off the turnip truck and land in your classroom. Typically, they function successfully in their working environments; otherwise, their bosses wouldn't invest in their further training. They often know a great deal more about their business needs than you do.

Each student will have a separate agenda when he or she begins training. This agenda will derive from the student's personality, job description, previous experience, and the circumstances under which he or she came into training. That is the "macro-environment" that the trainer must be prepared to deal with. The "micro-environment" may be harder to assess, but is just as real. Micro-environment issues include whether a trainee was kept up the night before by a teething baby, fought with his spouse at breakfast, or is worried about the work piling up on her desk while you are "taking" her time for training. Both the macro- and micro- environments matter enormously to your success as a trainer. You must try to learn what each student's

situation is, as early as possible, and be ready to make appropriate adjustments to your content, pace, sequence, schedule, and presentation style based on these immediate realities.

Nearly every student will come into your training program with something of value to contribute to the collective knowledge pool, even if it is only the story of a bad experience. They are not "blank slates" in the way that young children are. Their contributions are critically important to the richness and positive atmosphere of your training interaction. Encourage them to share, brag, complain, support, and challenge (as long as they stay reasonably close to the topic). Two-way, mutually respectful communication among students and trainer is the ticket to a pleasant and fully engaged class.

The right to a fair opportunity at success. People don't like to compete if they don't think they have a decent chance at winning. If your students do not succeed in training, they are not going to think much of you as a trainer. Even more important, they will not feel confident in their ability to use the technology on the job. Successful troubleshooting in particular is bound up with an individual's confidence. If someone thinks he can, he is right. If he thinks he can't, he is also right. Your job as a trainer is to leave all of your students thinking they can. Your goal should be 100 percent success. This is easier said than done, particularly when you have the occasional students who, technologically speaking, couldn't pour water out of a boot if the instructions were written on the heel. But they, too, are your students and deserve a shot at something they can call success.

Three techniques work wonders in ensuring the success of all of your students. First, know what knowledge base they are starting from and adjust your presentation to what you can expect them to achieve in the amount of time you have. It is better to learn to do less, but do it well and with confidence, than to half-learn how to do more.

Second, individualize your instruction. If you have six students that represent three distinct levels of ability, teach them as three groups within the class. It requires skillful classroom management to keep this "three-ring circus" on track, but it's a whole lot better than burning out your less-capable students with instruction that is too challenging, and rusting out your more-capable students with instruction that is not challenging enough. In adult technical education, one size almost never fits all.

Third, prepare your class with great care. If your instruction includes lab sessions, your lab notes should contain all the information the students need to complete the tasks successfully. The notes should also

anticipate and warn them of the most common mistakes that they are likely to make. Make triple-sure that the exercises work. Labs where the students do the right thing and get the wrong result are inexcusable. Like a skillful lead in a dancing couple, your exercise should make it close to impossible for your partner (the student) to make a fatal mistake.

The right to an instructor who is prepared with a variety of instructional techniques. If you are using packaged training materials, learning them is the beginning and not the end of your preparation to train. Networking trainers have an incredible wealth of resources that they can include in their training. Some students need to hear about the material. Some work better with computer-based training. Some gain a great deal by working with simulations or vendors' demo disks. Some just need a guided lab activity. Some learn best by being silent partners in a training task group. Others need to be "the one at the keyboard" in such a group. Still others never really learn anything thoroughly until they are placed in the position of teaching it to others.

The research calls all this "alternative learning modalities." We can just think of it as "different strokes for different folks." If you have taken the time to learn about who your students are and you have the materials on hand to accommodate the many different ways that they might learn best, you will be ready to employ the Absolutely Infallible Two-Step Approach to Training Customer Satisfaction:

1. Find out what they want.
2. Give it to them.

In contrast to the fully prepared instructor is the unfortunate one who defines teaching as the successive display of a sequence of overhead foils with a little off-the-cuff commentary. We've all had to teach this way at least once, so we know it is a near-death experience.

Use audio/visual aids for a specific purpose if you use them

at all. Nothing is more distracting than an instructor who is "falling behind" and flying through a set of overheads at break-neck pace simply because of a perceived obligation to show each one. The time to show an overhead is when you intend to work with it by comparing and contrasting its parts, annotating it in real time to prove a point, and so on.

Varying your instructional techniques based on the needs of your students and using audio/visual aids skillfully are two critical steps in creating a training atmosphere where adult students really want to be there because it is helpful, supportive, and entertaining in its own right—not just for some anticipated payoff.

The right to a lab that reflects real world conditions. Students are interested in learning to do things the way that they will need to do things on the job. This is different from the way things used to be done, or the way things will need to be done in the future. So, it is possible to err on both sides of the lab equipment issue. If the hardware and software in your lab represent a generation of

technology that has already been mothballed from its day-to-day working environment, the relevance of your instruction will suffer. If you doubt this, just try teaching DOS-based products to those people who must work in a Windows-based office. If your lab is way beyond what your students have available on their own desktops, it is equally irrelevant. If you doubt this, try teaching Windows applications to owners of 286 boxes. You will likely find them wondering out loud why the boss didn't save the dollars they are paying you for training and put them into buying them some decent hardware.

The point to remember is that every individual is the center of his or her own universe (with the possible exception of a few Fully Realized Beings, who are unlikely to be interested in learning about multiprotocol routing anyway). To your adult students, the real world is *their* real world. Find out about their own working conditions well in advance, and tune your lab accordingly.

The right to be informed of prerequisites. Having made the case that the students, rather than the teacher (or even worse, the materials), should be the center of the teaching and learning process, we must still acknowledge that we can't teach everything to everyone and all at the same time. Courses have titles, and rightfully so. By putting a number of students together who all have approximately the same interests and the same level of prior knowledge and experience, they can efficiently learn from the instructor and from each other. This is common sense.

Unfortunately, economic and social realities can sometimes overrule efficient learning in the training business. It is no surprise that if a student approaches a training provider with an open checkbook, he will almost always end up with a seat in any course he wishes to attend, regardless of whether he is ready to profit by it. He may want that course because he mistakenly thinks he is ready for it. His motivation might also be

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irrelevant to learning, such as wanting to visit the city where the training is taking place because the Superbowl is in town.

Experienced instructors who begin a class by asking students why they decided to attend are used to getting responses like "The boss was mad at the guy who was supposed to be here," or "The boss was mad at me" (a great ego-booster for an instructor). While the problem of the mismatched student will not go away, it can be managed. Students who clearly don't meet the prerequisites should be steered toward other courses that will give them the preparation they need. If they insist on attending the tougher course anyway, it should be made clear at registration time that the instructor is not responsible for filling in all of their known deficiencies during an advanced class to the detriment of all the students who are prepared. Some instructors have even considered asking under-prepared students to sign a statement at registration time acknowledging that they do not meet the prerequisites and that they accept personal

responsibility for making up the difference either before the class starts or by extra evening study during the class.

The right to take responsibility for one's own learning. The question of prerequisites is part of the larger question of taking responsibility for one's own learning. Adults need to be active participants in structuring their learning experience. In a fifth-grade math class, the book really runs the show. The teacher is largely obligated to follow the book or she will hear it from the principal. She is not expected to adapt the book much to individual students, who are assumed to be more or less equally ignorant of long division and equally disinterested in it.

In a technical training class for adults, the *students* should run the show. They know what they came for. They didn't need your class to fill up their time. They were plenty busy already. As adults, they made the decision to spend their time and/or their money on your class, hopefully because there is something they want to learn how to do or do better. Your job as an instructor is to help them get where *they* want to go, not to send them where you think they ought to go.

Although it's important, the less significant factor in the adult learning equation is the set of materials, which ideally is just a reference and a tool that you will use to help get your students to their destination. The title of the training describes the baseline of what the class will be about. Student interest takes it from there.

With this right to self-directed learning comes responsibility. Students cannot make wise choices about how to use class time if they are completely ignorant of the subject. One way to get ready for a course is through advanced reading. When possible, students should be given the course materials at the time of registration or sign-up. They should be thoroughly familiar with those materials before the class starts. They can then "hit the ground running" with a clear sense of where they want the training to go, as well as have ready a personal group of questions about the subject matter.

Many instructors believe that students will never read materials in advance. They are dead wrong. The majority of adult students want quality self-directed learning and will pay any reasonable price to get it, including their time. Set the bar high and they will jump (usually with a smile).

The right to practice newly learned skills. In adult learning, as in much else, you use it or you lose it. The opportunity to practice what was learned in class over time is critical to retention. There must also be an available source of continuing support. Adult students invariably report that they didn't really start learning a given topic until they had to do it on their own. Some commercial learning centers are now bundling

additional lab time with their courses to meet this need. This is a great idea.

The right to an evaluation instrument that really measures their ability to do the job. The ideal evaluation of computer skills would be to lock the student in a room with a task, the hardware and software tools to achieve

that task, and a reasonable amount of time. No phone! If they complete the task successfully, they pass. If they don't complete the task successfully, they need more help. (Of course, reliability would suffer if all the test administrators could not agree on what "complete successfully meant!")

If this simple model is available to you, use it. If it is not feasible because of large numbers of students, lack of equipment, or other logistical considerations, you may be forced to use some variation of a paper and pencil test. Try to construct this test around the solution steps to real-world problems, rather than asking for the simple regurgitation of memorized facts. This type of "job-task-centered" testing will provide a more accurate estimate of the students' readiness to do the tasks you have trained them to do.

SUMMARY: LEGALIZING ADULTHOOD

How does this all work in practice? One ace instructor knows how to get it done. He starts each class with a team meeting. At this meeting, he presents the class with appropriate alternatives about how they might wish to use the day, based on what they accomplished yesterday, and what topics remain to be discussed. Together, they build the day's schedule.

As the day progresses, this instructor and his students share the responsibility for keeping teaching and learning on track. The majority of the students have spent time with the text material the night before, which enhances their ability to steer the course and avoid wasted time. If they do get a little "side-tracked" on an issue of interest to the class that might not have been considered in that morning's team planning, it is considered a shared responsibility. They may vote to shorten *their* lunch hour so they can get back on *their* schedule. =

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