The Attack on ISD

The 'systems approach' to instructional design is the training industry's guiding light. Some of the best minds in the business now say it's leading us astray.

BY JACK GORDON AND RON ZEMKE

'Perfection of means and confusion of ends seems to characterize our age.'
—ALBERT EINSTEIN

HOW DO YOU CREATE GOOD TRAINING? For decades, the instructional systems design model—ISD, also known as the "systems approach"—has reigned supreme as the corporate training industry's answer to that question. When people drop the term "instructional technology" into conversations that aren't about computers, they are referring to ISD. Every training designer is schooled in some version of it. Ph.D. programs are based on it. It is the Bible for training departments and corporate universities in *Fortune* 1,000-sized companies around the world. It lies at the heart of any argument that training can be seen as a full-fledged profession (as teaching is considered a profession), with its own body of literature and its own standards of expertise.

And a number of the brightest and most experienced people in the training business have begun to say, publicly, that its day has come and gone.

Stripped to its shorts, ISD is essentially the ADDIE model of instructional design (for Assess, Design, Develop, Instruct, Evaluate—see "What Is ISD?" page 44.) Volumes have been written about the proper ways to carry out each step in that model. Over the years, corporations, government agencies and different branches of the military have adopted fiendishly complex ISD guidelines for designers to follow, complete with forms, checklists and diagrams of staggering complexity. The "ISD system" in a large organization can occupy several hefty binders—and no two systems are exactly alike.

Which, perhaps, is just as well. The current attack on ISD springs in part from a growing conviction that the harder you try to specify exactly what the designer must do in order to

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What Is ISD?

be "doing ISD," the further into the wilderness you wander. That way lies madness.

The ISD approach has drawn flak for years from proponents of rival methods: action learning, accelerated learning, experiential learning, self-directed learning and others. Personal-development gurus have turned up their noses at the narrowness of ISD's ambitions, dedicated as it is to teaching people to do specific jobs instead of expanding their mental horizons or transfiguring their lives. Even among those who favor the basic premises of ISD, many have long harbored reservations about the way it is often used.

But now the model is attracting fire from some highly respected people in the training industry—the kind of people who helped to create and promote ISD in the first place. And they're not just griping about wrong-headed peers who misuse a good tool. In the hallways and the hotel bars at professional conferences, in the discussion threads on Internet training forums, and in increasingly frank conversations among industry insiders, a new critique of ISD is taking shape.

To bring you the story of that critique, we spoke to six experts who are intimately familiar with ISD. We grouped their criticisms into four major charges against the model:

- ISD is too slow and clumsy to meet today's training challenges.
- There's no "there" there.
- Used as directed, it produces bad solutions.
- It clings to the wrong world view.

Taken together, we think these arguments add up to a serious challenge to the prevailing wisdom of the training industry. But you be the judge.

Stripped to basics, the instructional systems design approach is a process that begins when someone in an organization, usually a manager, perceives a performance gap. Some people somewhere aren't doing their jobs correctly—meaning that they aren't achieving the results the manager wants: too few sales, too much waste, too many customers driven to the competition by surly or indifferent service. The manager figures they need training and sends a request to the organization's training unit. What follows looks like this:

Someone from the training department conducts a study known as a needs analysis. The point is to investigate the performance gap that produced the request for training. Performance gaps arise for a thousand reasons, so the first question is: Is this really a training problem? The classic test is, Could they do the job correctly if you held a gun to their heads? If the answer is yes, then they already know how to do it right, which means that training is the wrong answer to the problem. If the answer is no, then training might be the right answer—but is the problem significant enough to justify the time and expense of the training effort required to solve it?

Assume we decide that, yes, this is a training issue, and the performance problem is a significant one. Now the ISD process begins in earnest.

1. Determine what the job looks like when it's done right. The job analysis (or task analysis) usually involves questioning or studying some master performers (or subject-matter experts) to see how they do it. How do they behave? What steps do they follow? What do they have to know in order to follow those steps? Out of this study comes a set of specific learning objectives: Here are the things a skilled performer must know and be able to do, and here are the criteria by which we'll be able to tell if trainees have mastered those skills.
2. Analyze the audience—the intended trainees—to see just how far from mastery they are and how best to approach the training challenge. What

The Critics

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teaching methods might work? Can they read English? Do they have access to computers? Can they be taken off the job for extended periods of training? Will differences in learning styles be a significant factor?

3. Design a training course. In light of who these people are and what we need to teach them, what's the best way to teach it? In a classroom, with role plays? In an online course? With a CD-ROM simulation? With some combination of those approaches and many more? We start to design a training course that will bring these people up to speed most efficiently and effectively. Specialists in various media and methods develop instructor guides, write scripts, produce videos, design computer-based courseware, create mastery tests, etc.

4. Develop and fine-tune the course. Pilot test it and revise as necessary.

5. Deliver the course to its intended audience.

6. Monitor and evaluate the course—and its results—on an ongoing basis. "Results" means that trainees not only master the material but that they use the skills and knowledge we taught them when they return to the job. The program is judged a success if the original performance gap is closed (or reduced) and the final cost of fixing the problem turns out to be significantly less than the cost of doing nothing.

That, in a nutshell, is the ISD approach. In the textbooks, that's how training gets done: neat, clean, orderly, precise, scientific.

In theory, the process starts and ends with a specific business problem— a performance gap that matters deeply to the organization. In theory, the relentless concentration on using instruction as a means to solve concrete, real-world problems is the great difference between training and education.

In practice, critics charge, ISD encourages a blind preoccupation with means over ends. Too often, they say, the first thing lost in the ISD process is the only thing that really matters to anyone in the organization except the trainers: the business problem that was supposed to launch this whole creaking apparatus in the first place. **—J.G. AND R.Z.**

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CHARGE 1:

It's Slow and Clumsy

THE MOST OBVIOUS AND OFT-VOICED COMplaint with ISD is a utilitarian one: The textbook ISD approach is simply too slow and cumbersome for the times. It may have been a viable model for developing formulaic training programs that several thousand minimally skilled instructors could use to teach a million draftees how to disassemble, clean and reassemble an M-16 rifle. It may have been fine for teaching hundreds of thousands of factory workers to perform relatively simple tasks on assembly lines that produced the same car batteries or rotary-dial telephones year after year. But those kinds of training needs are largely behind us. The dri-

ving forces of the New Economy can be summed up in two words: change and speed.

The truth is, the glacial pace of the ISD process has been out of step with an awful lot of business needs for far longer than we care to admit. In 1975, Fred Nickols got word that AT&T was looking in vain for consulting help with a daunting project. The company had a force of 30 "customer system support specialists"—people who sold and serviced a complex line of integrated voice and data systems. AT&T needed to triple the size of that force in 90 days. "These systems were selling like hotcakes," Nickols explains, "and some sales were worth millions of dollars each. But there

weren't enough people who could provide after-sale support." Customers were threatening to cancel, and AT&T "didn't want to pull those [installed] systems back out again."

Three big consulting firms had turned down the $250,000 contract, Nickols says. "The AT&T guy couldn't give the money away. The consultants wanted to approach it with the ISD process. And following ISD, the time frame was too short even to complete a decent task analysis."

Nickols suggested that AT&T view the situation mainly as a hiring problem instead of a training problem: Look for 60 people with engineering backgrounds who had most of the necessary skills already. Pair up

That was 25 years ago. In today's world, where companies are struggling to run on Internet time, 90 days might as well be 90 years. "One of my grad students was talking to a client recently, pitching the classic ISD approach to teaching people something about some software," says Sivasailam "Thiagi" Thiagarajan: "'The needs analysis will take a month and a half, the audience analysis will take a month and half,' and so on. The client said, 'By that time, we'll be on two later versions of the software package.'"

The "slow and clumsy" argument doesn't really indict ISD as a learning system but rather as an administrative system. If the model is too sluggish for a speed-maddened world, it isn't necessarily because of anything ISD has to say about how learning works or how to teach someone to perform a task. But a great deal of the classic ISD process has more to do with project management than with learning, per se. It's that ultra-careful, bureaucratic, by-the-book project-management system that has to go.

'ISD takes too long, it costs too much, and by the time you're through, the opportunity you were trying to exploit through training has passed you by.'

—FRED NICKOLS

the first group of 30 with the 30 veterans already on the job for a month of apprenticeship-style training. Then pair the next 30 new hires with the first group for another month. Rely on the system manufacturer's packaged training programs to fill in the gaps, with the new hires themselves figuring out what they needed to learn. The solution wasn't elegant, but it worked well enough.

And "well enough" goes a long way, Nickols suggests, when you're offering a solution that addresses the problem instead of yammering about a "process" that doesn't. "The problem was, 'We need 60 capable new reps in 90 days.' The ISD approach simply would take too long. And by insisting on it, you'd have looked like an absolute, blithering idiot to the marketing people. They'd have concluded, rightly, that you didn't understand the problem."

Geary Rummler elaborates: "You see these massive ISD systems, with panels and committees and boards who have to sign off on everything. It ends up being a big political mess. Just the time it takes to get objectives written and approved is horrendous. In the end, 90 percent of your time is spent managing a bunch of bozos who are fighting over dollars. You spend very little time doing any real training."

That isn't just frustrating, he adds, it's ultimately dangerous to the training unit's credibility. "When ISD turns into this elaborate, cumbersome, administrative thing that companies like Motorola and AT&T have installed, you eventually end up with people rejecting training altogether."

"These systems are dinosaurs," Rummler concludes. "That approach was cumbersome and out of step even in the industrial days. It barely worked back then."

CHARGE 2:

There's No 'There' There

THE ISD MODEL IS THE FRUIT OF A LONG and valiant effort to turn training from an art into a science. The ultimate goal was to devise a "technology" of instruction—a process which, used as directed, would produce predictable, reliable results in learning.

The thinkers and practitioners who developed and elaborated on the ISD approach wanted a science of training that would work as surely as the science involved in building a bridge. In true positive-thinking fashion, they began to talk as if their vision were already achieved, referring to the principles surrounding ISD as "instructional technology."

But here we are in the 21st century, and that term still reflects only wishful thinking. If you ignore the technology of bridge building, your bridge falls down. If you ignore ISD's instructions for producing learning, people learn anyway. Indeed, humans are vacuum cleaners for learning. And though they won't necessarily learn the things you think they should, they sometimes learn faster to produce the results you actually want (better quality, more sales) if you ignore the prescriptions of ISD.

As John Murphy puts it, "If you don't follow the instructions and people still learn, that raises the question of whether there's a 'technology' there in the first place."

Some experts believe it's a mistake to treat *anything* ISD has to say as a prescription instead of merely a suggestion. Pretending that the model represents a real technology can lead you into trouble because training actually is not—and was never meant to be—a lock-step, engineering-like endeavor.

In fact, some say, all ISD really does is look at a free-flowing, highly variable process by which a lot of excellent trainers approach their work, then simplify and chop up that process into artificial steps. The steps are useful for describing some of the things those excellent trainers do, but not very useful for *doing* those things.

For instance, some ISD systems would have you spend months designing and developing a training course before you pilot test it. A far more effective approach, says Geary Rummler, is to put together "a SWAT team of experienced designers who are quick to see the real problem, who have a repertoire of imaginative solutions, and who can come up with a basic design in three days, not three months. Get a prototype as fast as possible and show it to people. Say, 'Is this what you need?' Then get on with it."
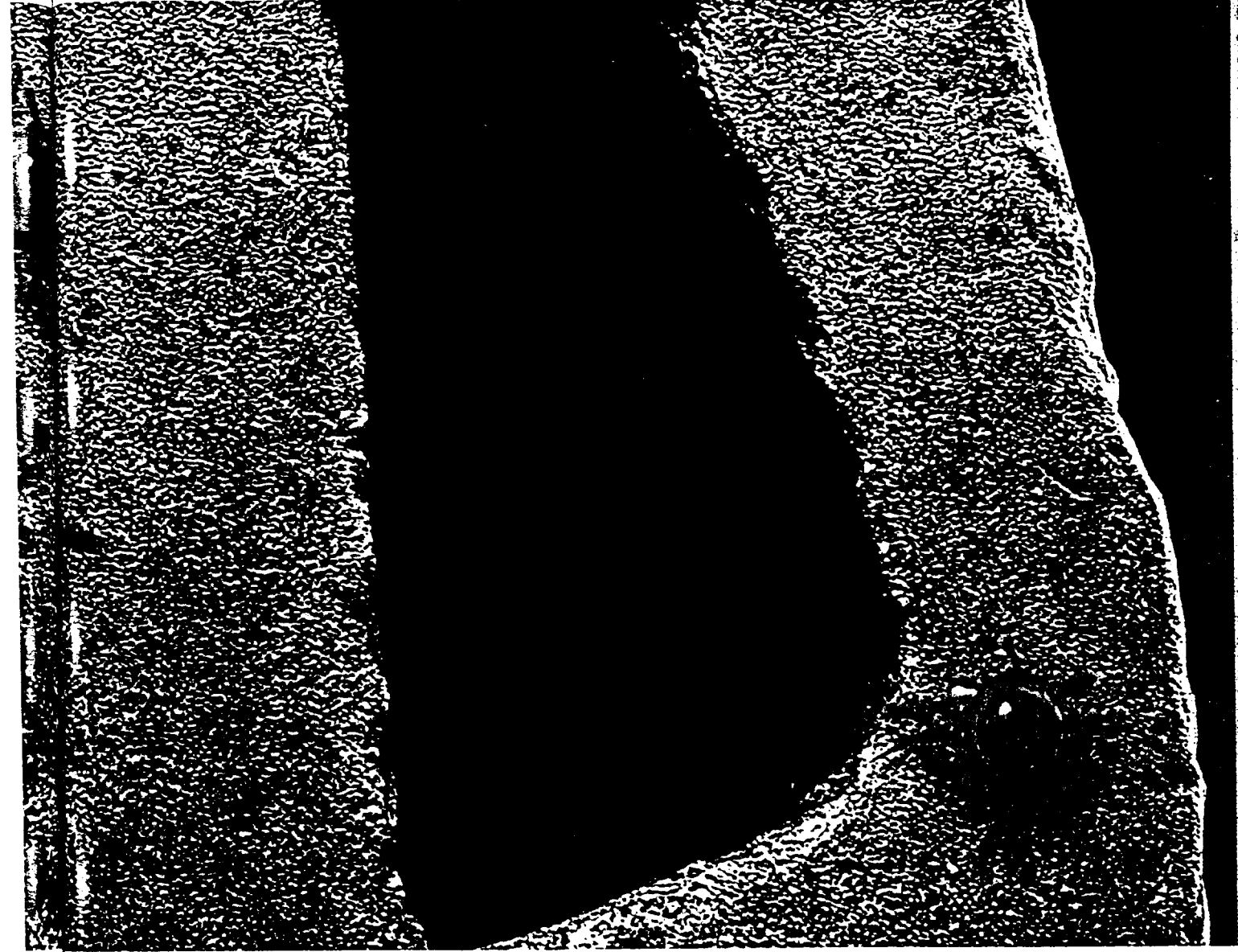
Diane Gayeski argues that the ISD model should never have been conceived as "something carved in stone, an algorithm of set steps. It was something that simplified what we were doing, strictly for teaching purposes. But along the way it became an attempt to legitimize the training profession by coming up with a process that sounded 'scientific.' We were working with engineers, and we wanted to look and sound like engineers. That was a mistake."

Donald Tosti adds that the lock-step mentality is a by-product of the same kind of thinking that leads wayward engineers to propose constructing the Brooklyn Bridge over a no-account creek in Oklahoma. Blind observance

'The beginning of the end Ph.D.s in ISD. The whole

of ISD, he says, is a characteristic of designers who lose sight of the real problem and focus on coming up with the perfect instructional program instead of the right business result.

"There are a thousand solutions to any one problem. Which one you select is simply a business decision," Tosti says. "Start with outcomes. What are you trying to accomplish? What value are you trying to create? Then work backwards. If you keep working back down that value chain, you are more likely to come up with a variety of approaches to creating the change you need."

...was when universities developed curricula to produce ...thing became process-driven rather than results-driven.'

—Geary Rummler

Since the classic ISD process, from needs analysis through evaluation, starts and ends with a business problem you're trying to solve (i.e., "a value you're trying to create"), you'd think that losing sight of that problem would be difficult. Far from it, say these critics. Among the most elaborate ISD systems ever created was AT&T's Training Development Standards (TDS), adopted in the 1970s. "In three huge volumes of material," says Fred Nickols, "TDS didn't have a single criterion for what constituted good training. It just had criteria for how you ought to go about developing good training .... The real purpose of what you're doing is to make something happen *out there*. So what is that something?"

In its eagerness to lay out formulas for proper instruction, ISD winds up taking the "something out there" for granted, Nickols says. That's a fatal flaw because it produces the wrong answer to the question, How do you know when you've developed good training? "If your only answer is, 'It's good training because it was developed using the following process,' what you'll produce is crap."

CHARGE 3:

Used as Directed, It Produces

Bad Solutions

EVEN IF ISD DOESN'T QUALIFY AS A technology (see previous section), we certainly could embrace it as an acceptable discipline if following its rules created better outcomes than not following them. But some experts have come to believe that the opposite is true.

"ISD's strength is that it provides discipline, of a sort, in a field where there is no discipline," says John Murphy. "Its weakness is that it's the wrong discipline."

Part of the problem, as we've seen, is that inward focus that concentrates the designer's attention on building the "right" kind of training program instead of addressing a real business issue. Last year, Murphy went to an East Coast chapter meeting of the International Society for Performance Improvement, long a bastion of ISD. The guest speakers, two "university people," were explaining how they teach the ISD process to college students via video-conferencing.

"I was aghast at their basic premises about ISD," says Murphy. "There was no consideration of beginning with some business purpose in mind, some kind of impact or result that would occur because you delivered a training course. There was no mention of any expectations that some customer might have. They just drew a line around an area that they called ISD. Inside the line everything was about rules of classroom effectiveness, and four kinds of people with four different learning styles, and so on."

Indeed, he observes, "The idea of learning styles seems to consume an enormous amount of time and concern in what the ISD people claim is their 'technology.' But if you're not looking at outputs, just at inputs, that's the kind of thing you gravitate to: 'Let's design this for people with six different personality types.'"

Some critics go further. Even if you disregard the performance outcome that a training program is supposed to produce and look at it strictly as a learning experience, they say, ISD produces a lot of bad training. Thiagi, for one, argues that the process tends to create boring, cookie-cutter programs geared to the slowest and most ignorant learners in the audience.

Donald Tosti agrees that ISD can squeeze the blood right out of a training intervention. "The model is designed for communicating to people who are sophisticated in training design. There are a lot of checks in it that can get

'Nine times out of 10, if you see a great training program you'll find it wasn't created by someone schooled in ISD and following that process.'

—SIVASAILAM 'THIAGI' THIAGARAJAN

in the way if followed too literally. I once worked on a project where the client had a second consulting group come in and check that our objectives all fit into Bob Mager's prototype [for phrasing learning objectives]. All that rigidity and checking and justifying prevents you from being very creative."

Because ISD is deeply rooted in behavioral psychology it demands that a training designer address only demonstrable skills and knowledge. But that "doesn't help you look at emotional or attitudinal or experiential elements that are legitimate to address," notes Tosti.

Diane Gayeski worries that in today's workplace, ISD-style programs can create a kind of collateral damage. "The executives I work with are more concerned with developing a creative and resilient work force than with having employees memorize and play out some predetermined set of steps," she says. "We inadvertently may be creating 'disabled' learners when we spoon-feed them instruction in an effort to achieve homogenous outcomes: You know, 'Upon completion of course, everyone will have learned to behave in exactly the same way.'"

CHARGE 4:

It Clings to the Wrong

IMPLICIT IN ISD'S APPROACH TO TRAINING IS the assumption that almost everything about the working world is too complicated for the average Joe to figure out without the intervention of a much wiser instructional designer.

"The whole ISD model is based on the assumption of stupid learners and superior experts," says Thiagi. "In my life, most of the ISD packages I've run into were designed by people who are stupider than me. They're trying to drag me down to the lowest common denominator.

"For example," he says, warming to this topic, "I just went through an online course on accounting fundamentals. It was extremely patronizing. It used stupid examples. Somewhere in their analysis, [the designers] came across someone who had no previous knowledge of anything to do with accounting, and they decided this person represented the whole world. So they left no way for me to skip ahead when I figured something out faster than they thought I would."

In a world brimming with doctors, lawyers and software engineers, the picture of the hapless learner and the brilliant instructional designer is not just arrogant, it's silly. More

ISD-style training programs, it's "flexible and easy to change."

Diane Gayeski raises another concern. "The ISD model takes a 'let's clone the best practice and then rigidly follow it' path that makes questioning a practice very difficult," she says. "It rewards compliance rather than creativity."

Gayeski acknowledges that there are times when you want strict compliance with certain policies or procedures. (Anybody think those guys in the missile silos should get "creative" with the nukes?) But the need for people who just follow set procedures is limited in today's average work environment. "Knowledge resides all over the place, and you've got to create mechanisms for conversations—for mutual teaching and learning—rather than for better top-down information feeding," she says.

This is especially true if, say,

'We probably don't really know the right prescription, and we

than that, it flies in the face of what is actually known about adult learners' ability and motivation to manage their own learning.

Since the late '70s, Canadian educational researcher Allen Tough has studied the ways in which adults who want to pick up new skills and knowledge go about acquiring them on their own. His most recent findings suggest that the average adult conducts eight self-directed learning projects a year and invests more than 100 hours in each. Tough also has found that adults prefer learning that is self-paced, matches their own preferences, and is flexible and easy to change if the results don't look like they are going to be in line with expectations.

If there's one phrase that does not describe

you're trying to reinvent your business before some gang of dot-com operators uses the Internet to take it away from you—and you're not sure how to go about it. The ISD model assumes that a job is a known quantity. It assumes the presence of a master performer who knows how to do the job in the best possible way. It assumes we can derive a set of best-practice procedures from that master performer and then teach them to everybody else. But in the reinvention sweepstakes, jobs and procedures are up in the air. There often are no master performers and no best practices.

Fred Nickols characterizes all this as a shift from prefigured work (the job is clearly laid out for you to do) to configured work (you

World View

e probably can't get them to follow it even if we think we do.'

—John Murphy

have to make it up as you go along). In the New Economy, more and more jobs are con-figured, he says. That changes the very nature of the problems or "performance gaps" that training once sought to close.

According to the ISD world view, a perfor-mance gap is a deficit in the expected results produced by people doing well-defined jobs. With configured work, Nickols says, "you en-counter a problem whenever you have to fig-ure out what to do next. The core skill be-comes problem-solving."

If we're all figuring it out as we go, suggests Gayeski, our preferred teaching strategies should include things like coaching, open classrooms (instead of rigorously structured

ones), and Web-based forums as opposed to pre-programmed Web-based instruction. In such forums, she says, "you start out with some information, but then you invite the learners to contribute their own ideas."

Of course, it doesn't take great foresight to predict that a learning model based on the idea that we'll all just figure things out together may come up short in as many ways as ISD does. The alternatives to the systems ap-proach, at this point, are not as well fleshed out as the critique. Considering the kinds of training challenges likely to prevail in the years ahead, however, we'd best get used to thinking more flexibly about instructional de-sign than we have in the past. ∎