

## Time, time, time... what has become of ISD?

By Gus Prester, PhD, CPT – President, effectPerformance, Inc.

While the formal practice of instructional systems design (ISD) may seem new to many, the field traces its roots back more than 60 years.

In that span, it has evolved, matured, and even spawned new specialties. In this issue, we'll stroll back through the decades to learn about the origins of our field.

This trip down memory lane was inspired by an article written by Florida State University's Dr. Robert Reiser (2001).

### 1940s: ISD emerges from the primordial ooze

During World War II, the U.S. military faced the monumental task of training hundreds of thousands of volunteers to become effective soldiers and support personnel. The War Department turned to psycholo-

gists and educators for help in finding the most efficient way possible to do this. Among the educational psychologists who

instructional resources, primarily employing behaviorist techniques (e.g., drill & practice, checklists).



participated were Robert Gagné, and Leslie Briggs. Gagné is often referred to as the father of instructional design.

The *founding fathers* used their knowledge of psychometrics to conduct testing for the purpose of screening volunteers and placing them into the jobs that best suited their skills and knowledge. They also developed

### 1950s: The wonder years

After the war, psychologists continued to work with the military to develop more formalized instructional programs. In fact, it is during this post-war period that they began to visualize instructional design as a systematic process. Miller (1953) formalized procedures for a detailed task analysis. Skinner (1954) pro-

posed the use of programmed

*continued on page 2*

#### In this issue:

- Main: A look at the history of instructional systems design
- Doc Talk: Performance-based instructional design
- Design Tips: Goal-based scenarios



## DOC TALK

By Gus Prestera, PhD, CPT

My hope is that the growing influence of HPT on ISD will naturally lead managers to embrace performance-based instructional design (PBID). We need to move away from viewing training as a series of *topics* covered in a curriculum and instead begin seeing training as an opportunity to practice and receive feedback on job-relevant skills in a realistic context.

Skills training has a very low transfer rate unless those skills are developed under realistic conditions. Training should be about doing, about performance, not just listening, reading, and absorbing content.

If you feel the same way, please contact us for a free initial consultation to discuss how we can upgrade your passive content-based training to active performance-based instruction.

instruction, which entailed:

- (1) Sequencing bite-sized amounts of information
- (2) Frequently cueing the learner with questions
- (3) Providing feedback
- (4) Allowing self-pacing

These are still common ISD practices today. Bloom and his colleagues (1956) published their *Taxonomy of Educational Objectives (Bloom's Taxonomy)* and educators began to think of learning as more than just memorization.

### 1960s: ISD gets testy

Until the 1960s, most tests were norm-referenced, so that scores were spread around a normal ("bell") curve. Mager (1962)

formalized procedures for writing behavioral objectives, while Glaser (1963) became the first researcher to coin the term *criterion-referenced testing* (CRT). CRT involves testing learners against a given standard of performance (not against each other). This paved the way for mastery learning.

Scriven (1967) pointed out the importance of formative evaluation (e.g., pilot testing instructional materials before using them). In modern ISD, writing

behavioral ("learning") objectives, using criterion-referenced testing, as well as conducting formative and summative evaluation still take place (if not as often as they should).

### 1970s: The golden age of ISD models

The era of disco saw a variety of ISD models developed to promote a more systematic approach to instructional design. These models include the now famous Dick & Carey Model. By the end of the decade, Andrews and Goodson (1980) counted more than 40 models.

The 70s were a time of expansion for ISD. As its influence

within the military branches grew, ISD took root in academia as well, with the development of graduate degree programs in instructional systems and with

new academic journals dedicated specifically to instructional design issues. ISD gained acceptance within educational and corporate settings as a way to improve the consistency and quality of instruction.

At the same time, ISD began to come under the influence of two distinct movements: adult learning theory (Knowles, 1978) and performance engineering (Gilbert, 1978), both of which have had a profound impact on

---

"... educators began to think of learning as more than just memorization."

---

*continued on page 3*

the field.

### 1980s: Who let the techies into the party

The 1980s marked a downward trend in the influence of instructional design on educational settings. ISD found more favorable conditions in corporate settings and continued to flourish in training departments and consulting firms across the country.

Adult learning theory (Cross, 1981) infused the ISD community with new purpose. Trainers began to consider how to make learning experiences more intrinsically motivating for their adult audiences and so Keller's (1979) ARCS model and Gagne's *Events of Instruction* (1985) became mainstays of ISD.

With the advent of microcomputers, many instructional designers turned their attention

to computer-based instruction (CBI). A variety of media began to converge on CBI: instructional video, graphic design, audio narration, and animations. As computer technology became more powerful and more commonly available, multimedia CBI began to dominate the field.

### 1990s: A time for change

The lean years of the early 90s had an interesting effect on the training industry. For one thing, CBI reached its high

water mark, as organizations began to question the expense, development time, and effectiveness of multimedia. The message from managers

---

**"The message from managers was clear: find a way to develop training cheaper, faster, and more effec-**

---

ers was clear: find a way to develop training cheaper, faster, and more effectively. With the advent of web-based training (WBT) and electronic performance support systems

*continued on page 4*



### Strategy: Goal-based Scenarios

Goal-based scenarios (GBS) are computer-based simulations in which the learner is embedded in a realistic *scenario*, given a *goal* and resources with which to accomplish it. The power of this approach comes from the learners' ability to see the consequences of their choices. This approach is great if your learning goals involve highly complex tasks and fluid situations, such as design, decision-making, and problem-solving.

Example: One GBS teaches doctors how to diagnose patient illnesses by placing them in a virtual hospital and allowing learners to order diagnostic tests, view results, ask the patient questions, provide treatment, and evaluate the prognosis.

Contact us to learn more about GBS and other strategies. You can also check out the effectPerformance *Toolkit* for links and other resources ([www.effectperformance.com](http://www.effectperformance.com))

#### Reply Card

- Please contact me to arrange a free initial consultation
- Please send me more information about effectPerformance
- Please add my name to your mailing list, so I can receive future issues of *Live and Learn*
- Please remove me from your mailing list

Name and Title \_\_\_\_\_  
Organization \_\_\_\_\_  
Address \_\_\_\_\_  
City/State/Zip \_\_\_\_\_  
Phone \_\_\_\_\_ eMail \_\_\_\_\_

(EPSS), we were able to deliver training where and when it was needed the most. We also gained some efficiencies and are now able to develop WBTs much more quickly and cost effectively than in past years.

By the end of the decade, WBT and EPSS became important components of knowledge management.

A “learning organization” outgrowth of management information systems, knowledge management represents an attempt to capture and leverage intellectual capital. What does that mean? Frankly, we are all still wrestling with that question.

The 90s were a time of growth for the new field of human performance technology (HPT). HPT was born in the 80s of a marriage between organizational development and ISD. HPT practitioners use a variety of analytical tools to diagnose performance gaps within an organization, and then apply an arsenal of management solutions to resolve those gaps. Training is one of those solutions, but it is used only when a skill gap is a root cause.

Today, many ISD practitioners reluctantly accept that most performance problems cannot be solved through training alone. My, how far we’ve come... we’re

beginning to think like good managers.

**References:**

Andrews, D.H., & Goodson, L.A. (1980). A comparative analysis of models of instructional design. *Journal of Instructional Development*, 3(4), 2-16.

Bloom, B.S., Engelhart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook 1: Cognitive Domain*. New York, NY: David McKay.

Gagne, R.M. (1985). *Conditions of Learning* (4<sup>th</sup> ed.). New York: Holt, Rhinehart, and Winston.

Gilbert, T.F. (1978). *Human Competence*. New York: McGraw-Hill.

Glaser, R. (1963). Instructional technology and the measurement of learning outcomes: Some questions. *American Psychologist*, 18, 519-521.

Keller, J. (1979). Motivation and instructional design: A theoretical perspective. *Journal of Instructional Development*, 2(4), 26-34.

Knowles, M. (1978). *The Adult Learner*. Houston, TX: Gulf Publishing.

Mager, R.F. (1962). *Preparing Objectives for Programmed Instruction*. Belmont, CA: Fearon.

Miller, R.B. (1953). A method for man-machine task analysis (Tech. Rep. No. 53-137). Wright-Patterson Air Force Base, Ohio:

---

“... most performance problems cannot be solved through training alone.”

---

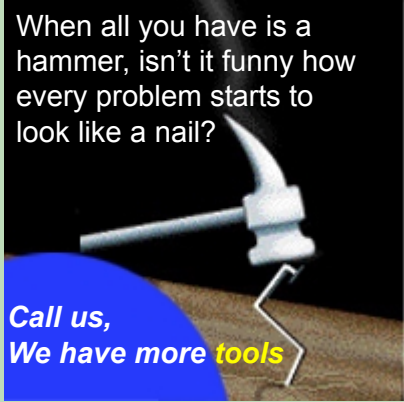
Wright Air Development Center.

Reiser, R.A. (2001). A history of instructional design and technology: Part II: A history of instructional design. *Educational Technology Research & Development*, 49(2), 57-67.

Scriven, M. (1967). The methodology of evaluation. In *Perspectives of Curriculum Evaluation* (American Educational Research Association Monograph Series on Curriculum Evaluation, No. 1). Chicago, IL: Rand McNally.

Skinner (1954). The science of learning and the art of teaching. *Harvard Educational Review*, 24, 86-97


**PARTING SHOT**



When all you have is a hammer, isn't it funny how every problem starts to look like a nail?

**Call us, We have more tools**

**Please contact:**  
 effectPerformance, Inc.  
 e-Mail: [info@effectperformance.com](mailto:info@effectperformance.com)  
 Phone: 610-449-2060  
 Fax: 610-449-2061  
 Address 1513 Fairview Avenue  
 Havertown, PA 19083-4235  
 Visit: [www.effectperformance.com](http://www.effectperformance.com)



**effectPerformance**

1513 Fairview Avenue  
 Havertown, PA 19083-4235

Place stamp here