Online Strategies To Improve Workplace Performance

Lessons from the WWW

by Ruth Colvin Clark, EdD

There is little doubt that the "e-revolution" is here. Traditional media from newspapers to television routinely announce the birth of new-dot coms. What lessons can professionals in the training and human performance improvement business learn from the myriad of new commercial websites littering the cyber landscape? We've been hearing a lot about e-learning. But we know that in addition to knowledge and skills, effective performance in the workplace requires workers to have specific job goals, regular and specific feedback on job accomplishments, and incentives aligned to those accomplishments. In addition, workers require appropriate tools, resources, and motivation. Training departments are increasingly expanding their role from training providers to human performance technologists. From this broadened perspective, they see their mission as improving organizational performance by first identifying and then addressing all the major factors that workers need to accomplish goals.

Besides e-learning, what can the World Wide Web (WWW) teach us about ways to support other human performance needs? From decision support and virtual communities to online feedback as well as traditional interventions like job aids and training, today's online resources offer a rich source of human performance support techniques you can adapt to your needs.

Decision Support Sites Offer Help

Do you have workers who need to select the best option from a multitude of choices, either for themselves or for their customers? The WWW offers several versions of decision support that you can adapt to local requirements.

A good example of decision support for consumers is found at Personalogic.com. First you select a purchase, such as a new computer or a cruise. The site then asks you a series of questions in an online survey and displays the best options to match your requirements. Question formats include multiple choice, checklists, and sliding bars for scaled responses. For example, to help me find the perfect cruise, I entered data about my lifestyle preferences, desired travel locations, amount of money I wanted to spend, and—as shown in Figure 1—which cruise ship amenities are essential, nice, or have no impact. Within seconds of completing the survey, I received a list of more than 25 cruises drawn from 400+ options in the database, ranked from best match to poorer match with a "score" attached to each. A link from each cruise in the ranked list brought me right into that cruise line site where I could get more information about the sailing dates, itineraries, and costs.

A second WWW example of decision support is found in the *Digital Daily*, an online newsletter and information resource from the Internal Revenue Service. One effective decision support tool is found in "tax trails." Select your tax question, answer a series of "yes-no" questions, and receive an answer. For example, as illustrated in Figure 2, I wondered whether my home office would qualify as a deduction. After indicating that it is used solely for business and is my main place of business but that I do not see clients in my office and it is not a separate structure, I got my answer, NO DEDUCTION.

Applying Decision Support to Human Performance

Whenever workers have a large array of options to select or information to apply, decision support might be useful. For example, many workers are faced with effective use of new software tools all loaded with diverse sub-tools and options. There is rarely time for effective training on all new tool features. In a recent new software deployment, a government agency decided to provide decision support to new users of a query and information management tool used to gather and store data for writing reports. Users were surveyed on their current and projected reporting requirements. Based on their responses, training profiles were produced that led individuals to training on those tools and options most appropriate to their job needs.

Here's how it worked. A survey was put on an intranet asking analysts questions about specific elements of their typical reporting assignments, such as what kinds of topics they research, whether they create long-term or short-term reports, what kind of information management system they currently use to store data, and how much collaborative reporting they do. For each question, the survey asked the same questions:
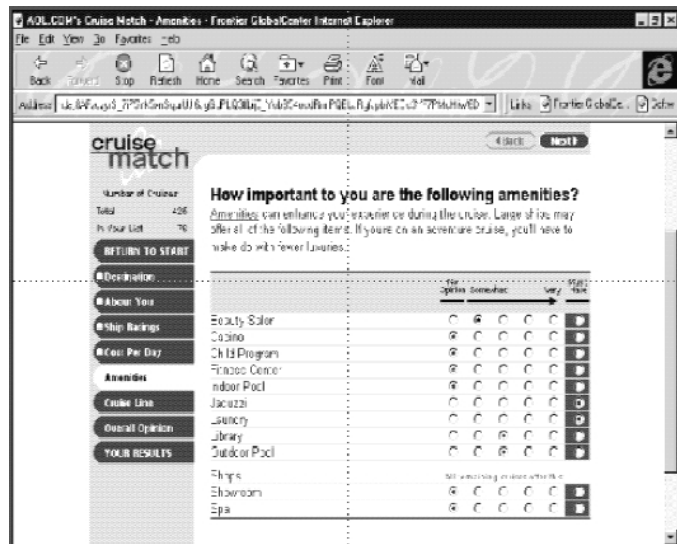• Do you do this now?

Figure 1. Decision Support: Matching Individual Requirements to Multiple Options from www.PersonaLogic.com.

• Would you like to do more of this? Or would you like a more efficient method for doing this?

If an analyst selects a task he or she would like to do more, or do more efficiently, the survey matches that need to the training that teaches the specific software tool or tool option to accomplish the goal.

The survey must be constructed based on tool capabilities and potential job/task applications. This requires an analysis of the job dimensions, for example, long-term versus short-term reports or individual or collaborative reporting, that best match specific tool capabilities. These matches can best be derived by studying a heterogeneous group of beta users who are using various tool options productively.

Figure 2. Decision Support: Answering your Tax Questions— Advice from the IRS in the Digital Daily.

Other instances that could lend themselves to decision support include helping in the following situations:

- Newly hired employees need to choose the best organizational benefit package
- Technicians need to determine the best networking (or other technical) options for given specifications
- Sales professionals must select the best product mix for a given client
- Help-desk personnel need to narrow down the problems underlying trouble calls

Providing Timely, Specific Feedback: PlanetFeedback.com

According to Tosti and Jackson (1999), "In many situations where training is the primary intervention, much of the time that is invested in training would be better used in developing fluency of performance through feedback and practice." Giving workers feedback on their performance that is immediate and specific and that focuses on behaviors is one of the more powerful strategies for improving human performance in the workplace. But giving such feedback is time consuming and typically happens only at the annual performance appraisal. Companies could consider using their intranets as resources to provide automated performance feedback from the customers of a group's products and services. Effective design of the feedback questionnaire can ensure the specificity a team needs to improve outputs. Additionally, a quick and easy online mechanism for customer feedback is likely to improve response rates and timeliness of feedback.

Planetfeedback.com allows consumers to give feedback, as well as make suggestions. Here's how it works. You select a category such as travel services. You further narrow to a specific category such as hotels, airlines, or rental cars. From there, you select a specific company such as Avis Rental Cars® and indicate whether you wish to send a compliment or lodge a complaint, as well as the nature of the compli-
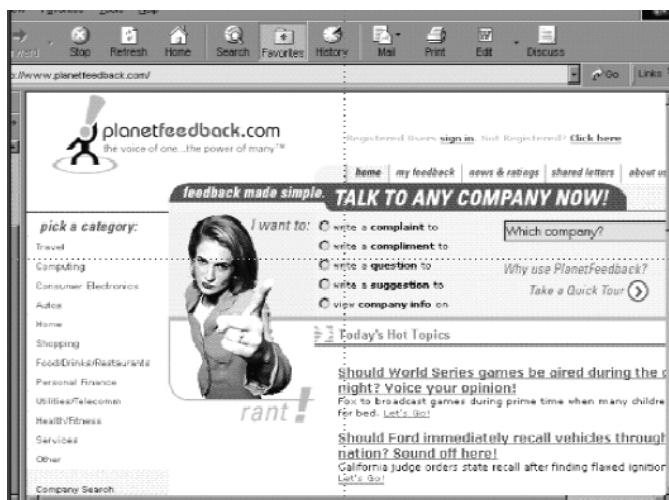

Figure 3. Feedback: Fast, Easy and Specific—Planetfeedback.com.

Figure 4. Connecting With Virtual Communities of Practice—Baby.com.

ment or complaint. The site then prompts you to answer a few scaled questions and to prepare a "structured" letter, already addressed to the CEO of the company. Some of the responses in the letter are constrained by a pull-down menu. In addition, a box is provided in the body of the letter along with advice from the site on writing a short and specific description of your compliment or complaint. You can look at other letters about your issue and you also can broadcast your feedback by using the Influence feature, through which your letter can be e-mailed to others and sent to local governmental officials (see Figure 3).

Applying Online Feedback to Your Organization

There are many ways to adapt the Planetfeedback concept. It would be especially useful for your customers (internal or external) who receive products or services at their work location and have online access. If a product such as a report or graphic design layout or a service such as help desk, trouble service response, or a medical examination is provided, asking for specific structured feedback at the time of delivery or within a short period thereafter could provide useful information for improvement. Structuring the feedback form with a checklist or rating scale as well as prompted free-form feedback would help get the specificity you need to improve products and services.

Collaborative Work Groups: Virtual Communities of Practice

Studies of outstanding accomplishments in science and medicine clearly point to the team collaboration of a diverse set of professionals rather than to any solo effort. Because the design and problemsolving requirements of today's business and industrial environments are so complex, increasingly interdisciplinary teams must work together to meet organizational objectives. Knowledge management strategies have suggested the need to combine both "live" and

virtual strategies to locate and coordinate interdisciplinary efforts based on diverse expertise (Dixon, 2000).

The Internet has provided fast channels of communication among individuals with common interests without regard to geography or time zone. Baby.com provides an analogy. If you were a newly expectant mother, what other way would there be to link up with hundreds of other moms who are at exactly your stage of pregnancy or who have been there and can offer personal advice (see Figure 4)?

Virtual Communities in Organizations

Corporations have already taken advantage of linking workers who have common needs and challenges. For example, new supervisors can get advice and support from other new supervisors or experienced supervisor mentors as they face new management situations. Through frequently asked questions, bulletin boards, and chats they can find guidance from diverse sources including the legal department, human resources (HR), or supervisor mentors. Recent research in the instructional psychology community has focused on the power of the apprenticeship relationship to accelerate learning. An intranet can now provide an environment for apprentice-master relationships that does not rely on temporal or geographic proximity for virtual mentoring and coaching.

Locating Expertise in the Organization: Guru.com

The need for interdisciplinary teams that pool expertise to solve complex design or problemsolving challenges in such diverse realms as patient care, software development, expensive off-shore drilling decisions, or new product design have prompted many organizations to establish knowledge management programs. Furthermore, as work requirements become more unpredictable and short lived, such teams are transitory in nature. A WWW model for linking the expertise giver with the seeker can be found in Guru.com.

Designed as a matchmaker for external consultants and organizations needing contract expertise, Guru.com offers a place for consultants to "find a gig" and for organizations to post an advertisement for temporary contract help. The consultant can select a category that corresponds to their area of expertise, such as programming or training, and access a list of "help-wanted" postings that indicate the nature of the project as well as the location, timeframe, and compensation offered.

As knowledge work increasingly provides the foundation on which the economy rests, organizations realize that expertise provides a competitive edge. And they are getting savvier about ways to find and pool expertise to achieve workplace solutions. Guru.com and similar sites such as Monster.com that offer a cyber employment board can be
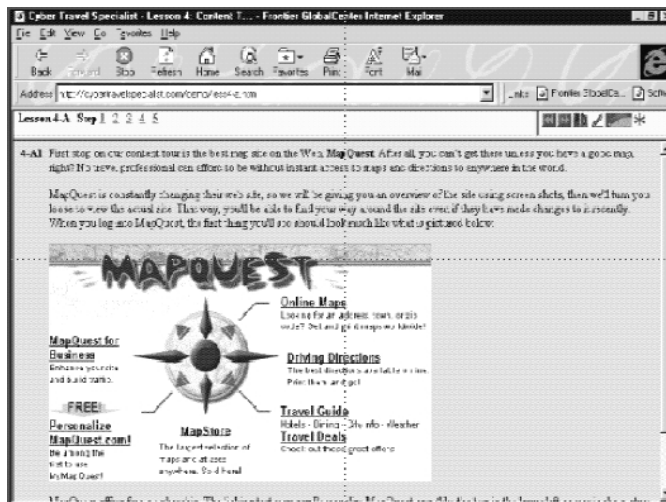

Figure 5. Job-Specific CyberTours—CyberTravel Specialist at http://cybertravelspecialist.com.

adapted to internal organizational requirements for location and deployment of expertise.

Finding the Most Useful Websites—Cyber Tours

As the number and complexity of sites grow, it is a challenge to keep track of all that could be useful. Cyber classes in the form of web tours that walk users through sites especially applicable to their job tasks can increase productive use of the Internet. For example, CyberTravelspecialist.com provides lessons that are Internet tours to sites of interest to travel agents. Note in Figure 5 the top frame takes the learner through a variety of sites such as Map Quest in this example. After an explanation of the site, the user can experiment live in that site using a popup window that overlays but does not cover up the lesson site, which helps the learner stay oriented and return to the lesson.

Applying Cyber Tours to Human Performance Improvement

As corporate intranets expand in size and complexity, task-specific tours to help workers find information relevant to their work ensure better use of the resources available. For example, new hires can be guided through an employee orientation via existing sites created by the HR department as well as various line organizations. One of the sites might include the employee benefit decision support described above. For maximum payoff, web tours will require job analysis that defines the information needs of specific job classes or categories of workers, such as new employees, retirement-eligible employees, marketing professionals, and so on.

Online Reference and Job Aids: LiveManuals.com and Learn2.com

Organizations with rapidly changing product lines or policies and procedures and a geographically dispersed work-

force face the challenge of fast replacement of paper documentation. High-tech organizations in particular must cope with rapid changes in product lines to remain competitive. Sales staff and technical support staff need immediate access to the most recent specifications on new and updated products. Dissemination of reference and job aids over your intranet offers one solution. LiveManuals.com and Learn2.com provide models.

Ever need help setting up your VCR or cell phone? You could call the tech support line, try to locate and understand the user's manual, or go to LiveManuals.com. Select a product and enter your question free form. You can get the most recent procedures to solve your problem. And you can try them out in a guided simulation right on line. As shown in Figure 6, you can set up a personalized library where the most recent documentation applicable to your appliances is available to you.

Applying Online Reference to the Job

Automated job aids that clearly show operation of equipment or computer tools in your organization could be a big boon to employee productivity. This would be especially true for high turnover situations—turnover either of the workers or of

Figure 6. Online Reference Resources—LiveManuals.com.

the product lines themselves. And job aids need not be limited to equipment. Check out Learn2.com to see a diverse selection of job aids for everything from how to be a best man to how to repair a tear in your nylons (see Figure 7).

Some potential uses of intranet job aids include how to fill out an expense reimbursement online form, how to sign up

Figure 7. Job Aids Online—www. Learn2.com.

for training, how to change your benefits package, or how to replace the toner in the copy machine. Ideally, these job aids would be embedded as electronic support into the online form or equipment where the procedure would be performed. Such short job aids addressing these basic procedures that are not performed daily would save a lot of time used currently by individual workers polling their cube mates until they find someone who can answer their question.

E-Learning

Technology-delivered instruction is not new. More than 50 years of research indicate that what causes learning is *not* the technological delivery device but the instructional methods that facilitate human cognitive learning processes (Clark, 1994). Yet each new technology offers capabilities that, when exploited, provide opportunities for new combinations of instructional methods. As a delivery medium the Internet provides the following new features:

- Ubiquitous access to on-demand learning environments
- Fast updates and dissemination as information changes
- Tailoring of lessons at a granular level to match instruction to individual learning needs and styles, regarding both content and instructional methods
- Collaborative learning through email, listservs, and chat sessions so that the best of technological and human elements can be packaged in a given instructional event
- Recycling of knowledge repositories as information and instructional methods are stored in searchable corporate databases for repurposing for multiple audiences and instructional needs

To exploit these new potentials profitably, e-learning needs to support human cognitive learning requirements, including management of cognitive load, encoding of new knowledge into long-term memory, and support of transfer of learning after the instructional event. For example, more

than 25 years of research has shown that collaborative learning environments produce better learning—probably due to enhanced encoding of new information into long-term memory. Comparisons of learning of individuals working alone versus individuals working in a group consistently favor the group format. For the most part, traditional computer-based training has provided solitary instructional environments. E-learning changes that. Various forms of collaboration, including chats and discussion boards, can be readily accommodated in web-based training. Some e-learning providers such as the Digital Think sample illustrated in Figure 8 embed these interactive opportunities in their screen design. Note the options for accessing other learners or the instructor in the left-hand screen frame.

Harnessing the Internet for Performance Improvement

Based on this short tour of WWW sites, even a conservative crystal ball can predict a large payoff for effective use of intranet resources in the workplace. While the WWW versions we have reviewed here must be actively accessed in a "pull" mode, a greater use of "push" technology is likely in the future where e-support can be offered based on system-monitored performance or user-specified interests and needs. For example, when you indicate to Amazon what topics are of interest to you, you will receive automatic e-mail alerts when new titles that might interest you are about to be published.

It is also likely that many of these individual performance support options will be integrated. For example, a decision support application can lead to a job aid with a demonstration to help you complete the task recommended by the support package. Or feedback on group and individual performance pushed to the worker on a regular basis can link to virtual communities or e-learning interventions designed to address performance gaps or disseminate best practices.
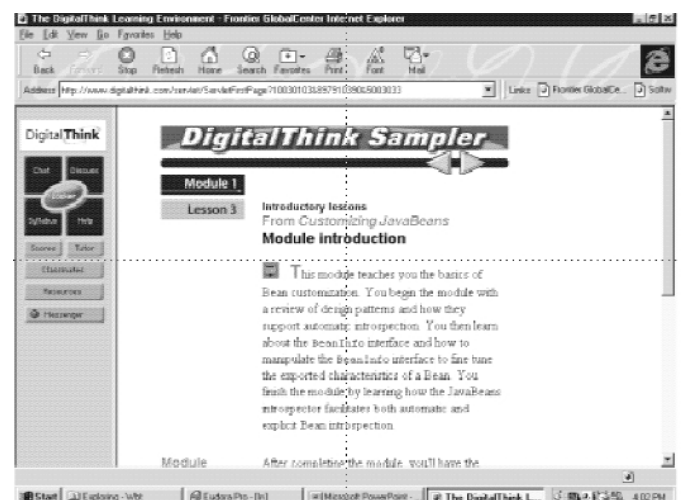

Figure 8. Online Learning With Collaboration—Digitalthink.com.

There are many other dot-coms of relevance to organizational performance improvement, and new ones appear regularly. As you see new sites promoted on television or in other media, try them out. These are typically free and easy to access. And as you try them out, ask yourself how you can adapt the idea to improve performance in your organization.

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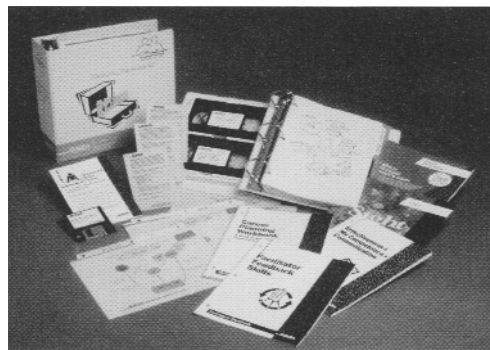Clark, R.E. (1994). Media will never influence learning. *Educational Technology Research and Development 42* (2), 21.

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Ruth has authored two best-selling books: *Developing Technical Training* and *Building Expertise.* Her most recent book, *E-Learning and the Science of Instruction,* will be published by Jossey-Bass in 2002. In 2000, *Building Expertise* was honored with the Communications Award of Excellence from the International Society of Performance Improvement (ISPI). Ruth is a past president of ISPI and a member of the American Educational Research Association. She recently served on the American Society for Training and Development commission to develop e-learning certification standards. Ruth is currently a dual resident of the Four Corners area of Colorado and Phoenix, Arizona, and divides her time among consulting, teaching, and enjoying the Southwest environment. She may be reached at Ruthclark@Sisna.com. For more information, consult her website at www.clarktraining.com.