

Emerging Roles and Competencies for Training in E-Learning Environments

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The problem and the solution. The Internet and Web-based technologies are having a profound impact on the lives of human resource development (HRD) professionals. Trainers who use the Internet for instructional delivery need to assume new roles and develop new competencies while continuing to apply existing ones in order to be successful trainers when using these new technologies. The purpose of this chapter is to examine the changing role of the trainer who uses Web-based learning environments and to identify the new roles and competencies that must be developed to become an effective e-trainer. Critical factors associated with the adoption of new technologies and strategies for effectively training the e-trainer also are explored. Finally, strategies for developing the new skills required of the e-trainer are reviewed.

Recent advances in instructional technologies are having a tremendous impact on education and training. Whereas technological innovations have transformed the role of the student into that of a self-directed and independent learner, the role of the trainer has been equally affected (Wegner, Holloway, & Garton, 1999). At one time, trainers needed only basic skills to develop and use instructional media such as instructional television, slide shows, and computer-assisted instruction (CAI). These skills included storyboarding, graphic design, photography, video production, and basic computer programming. The trainer's world is now vastly different because of the creation of the Internet and the development of multifaceted communication tools that allow geographically dispersed individuals to collaborate in real time. These developments have changed the role of the trainer and introduced a new set of required knowledge, skills, and attitudes for trainers. The purpose of this chapter is to examine the changing role of trainers who use Web-based learning environments for instructional delivery and to

identify the new roles and competencies that must be developed to become an effective e-trainer. Because the introduction of new technologies structurally changes the administration and delivery of training, this chapter also explores the strategies that can be used to enhance trainers' professional development and the barriers that are faced when training the e-trainer.

The Growth of Learning Technologies

Web-based training is a form of distance education that allows learners to participate in an educational opportunity without being physically present in the same location as the instructor (Moore & Kearsley, 1996). A variety of labels are used synonymously to describe this new form of distance education; the most common of which are online learning, Web-based instruction, and e-learning. Whatever terms are used for educational programs delivered over the Internet, they all share common characteristics. Students who participate in online programs are able to learn at their own pace through courses delivered largely or entirely online and are accessible 24 hours a day from anywhere in the world. In other words, learning can occur at anytime, anyplace, and at any pace.

Distance education began as a print-based correspondence study program and evolved as instructional technologies were developed and refined (Moore & Kearsley, 1996; Sherry, 1996). Technologies such as one-way prerecorded video, two-way audio, and interactive television allowed trainers to connect with their students in geographically dispersed settings. Recently, however, various Web-based technologies have begun to replace the traditional forms of interactive media, and the growth in the field is now in the area of Web-based technology (Garrison, 1987). Future projections suggest that the popularity of online or Web-based instruction will continue, and this will significantly alter the role of the trainer in the future. For example, the growth in Web-based instructional programs for adults in the corporate world is expected to reach \$11.4 billion by 2003, up from \$550 million in 1998 (Moe & Blodgett, 2000).

Philosophical Changes in Training

From the statistics presented above, it is clear that as the popularity of online instruction increases, the role of the trainer also must change to fit contemporary instructional approaches. To understand the effect of Web-based technologies on the trainer, it is first necessary to understand how the traditional philosophies of training have changed to better fit these contemporary approaches. In this section, four philosophical changes are described that, according to the literature, influence the landscape of training from how it has traditionally been perceived. It is important to note that although

these paradigms are discussed independently for clarity purposes, all are interwoven and influence the others.

Pedagogical Versus Andragogical Models and Approaches

Probably the most fundamental change in the field of training has been a shift from a pedagogical approach to an andragogical approach (Gibbons & Wentworth, 2001). Under the pedagogical approach, learners are seen to have a dependent personality, relying heavily on an instructor's knowledge. This knowledge is disseminated in a unilateral method from the teacher to the student. Learners, in turn, "are expected to accept the information as disseminated, 'learning' the material and delivering it back to the instructor in the same manner it was presented to them" (Gibbons & Wentworth, 2001, p. 2). From a pedagogical perspective, learning is subject centered and a learner's past experience is to be built upon rather than used as a resource.

In contrast, andragogy is based on self-directed learning theory and is seen as the art and science of facilitating learning for adults (Gibbons & Wentworth, 2001). From the andragogical perspective, learning is task or problem centered and is based on need rather than an age level or prescribed curriculum. The andragogical approach is based on an experiential model that is "learner-centered rather than instructor-centered, dialogue-based rather than lecture based" (Gibbons & Wentworth, 2001, p. 2), and sees the learner's past experience as a rich resource from which all involved can learn.

Objectivism Versus Constructivism

Within the field of training and development, two specific major instructional frameworks have emerged that influence design and delivery initiatives: objectivism and constructivism (Gold, 2001). Influenced by the pedagogical perspective, objectivism focuses on the creation of performance objectives and programmed instruction following a series of stages that are intended to guide the instruction and evaluation of participants. Objectivism emphasizes passing knowledge from the trainer to the learner, which promotes passive learning.

In contrast, constructivism focuses on the learners with the goal of helping them construct meaning from experience (Merriam & Caffarella, 1999) through an information-rich and socially meaningful learning environment (Gold, 2001). Influenced by the andragogical approach, the underlying philosophy of this epistemology is that people "assimilate new knowledge by producing cognitive structures that are similar to the experiences they are

engaged in” (Gold, 2001, p. 37). Once these new knowledge structures are developed, participants can use them within their collection of experiences as they interact with the environment.

Fixed Versus Flexible

The introduction and continued development of various technological advances have influenced a third philosophical change in education and training. This shift is one from knowledge being fixed to a certain time and place to knowledge that is accessible anytime, anyplace, and at any pace (Yeung, 2001). As Gold (2001) states, this flexible shift “creates the potential for a change in the way learning is transacted from those who provide information (i.e., teachers or facilitators) to those who receive it (i.e., students)” (p. 35).

Teacher Versus Coach

A rather significant philosophical change during the past decade in the field of training is the shift from the trainer serving as an information provider to that of a coach in which he or she orchestrates the learning process as a leader and guide. Influenced by constructivist and andragogical philosophies, facilitators aid the learners through the creation of authentic tasks and help them to integrate their understanding of multiple perspectives through reflection (Gold, 2001). Under these new philosophies of training, the responsibility for learning is transferred from facilitator to learner. Therefore, facilitators learn to effect this transfer by using experiential learning models.

Traditional Role of the Workplace Trainer

The pedagogical, objectivism, and fixed philosophies have had great influence on shaping what has become viewed as the traditional role of a workplace trainer. As Gold (2001) reports, under an objective perspective, the trainer’s role is to “teach the [participants] a well-circumscribed body of information within a well-defined learning environment” (p. 36). Yeung (2001) nicely summarizes the ways in which traditional training and education have historically been viewed in contrast to Web-based views (see Table 1).

Although there are too many studies to report that have examined the required competencies of trainers, Rossett and Sheldon (2001) provide a current profile of the conventional roles and skills of training professionals (see Table 2). In an earlier study conducted by Dare and Leach (1998), the trainer competen-

TABLE 1: Traditional and Web-Based Views of Learning

	Traditional Learning	Web-Based Learning
Main source of information	Teacher and textbook	Various resources on Internet
Format of information	Text	Multimedia
Presentation format	Linear	Hypermedia
Interaction type	Synchronous	Asynchronous/synchronous
Interaction space	Time/space-bound classroom	Time/space-free networked world
Instructional emphasis	Acquiring knowledge	Building knowledge
Objectives	Specific, predefined	General, negotiable

Source: Yeung (2001, p. 7).

cies originally proposed in McLagan's (1989) *Models for HRD Practice* were found to provide an important basis for the preparation of HRD professionals. These 25 competencies can be arranged into the following four broad categories:

- Technical competencies: adult learning understanding, career development theories and techniques understanding, competency identification skill, computer competence, electronic-systems skill, evaluation skill, media selection skill, objectives preparation skill, training and development theories and techniques
- Business competencies: budget and resource management skill, business understanding, organization behavior understanding, organization development theories and techniques
- Interpersonal competencies: coaching skill, feedback skill, group-process skill, negotiation skill, presentation skill, questioning skill, relationship-building skill, writing skill
- Intellectual competencies: data-reduction skill, information-search skill, visioning skill

The researchers found that three competencies were perceived as significantly more important than they were 6 years earlier. These included the technical competencies of research skill and electronic-systems skill and the intellectual competency of visioning skill (Dare & Leach, 1998). In addition, two other competencies were perceived as significantly less important than they were 6 years earlier. These were the technical competencies of competency identification skill and objectives preparation skill (Dare & Leach, 1998).

TABLE 2: Expanding Roles of Training Professionals

Conventional Roles and Skills	Future Roles and Skills
Design and develop	Develop and purchase
Develop individual brainpower	Manage organizational brainpower
Develop content knowledge	Develop individual learning power; establish associations, find relevant materials, and make meaning
Deliver or coordinate classes	Focus on organizational readiness and management of knowledge resources
Develop and produce events and products	Create and nurture place-bound and online environments that continuously support and develop people
Coordinate short-term events and interactions	Broker systems to be used before and after classes
Deliver from content inventory	Perform analysis to customize and tailor content
Share skills and knowledge	Manage knowledge resources
Focus on employees as learners	Develop programs for managers and students as learners
Measure "butts in seats" and Web hits	Measure contribution to strategic goals
Reactive problem solving	Proactive problem solving

Source: Rossett and Sheldon (2001).

E-Trainer Roles

With the shift to andragogy, constructivism, and flexible training paradigms as well as the continued development and implementation of technological advances, the landscape of training has changed. The ability to decide on and use an emerging array of learning technologies in a variety of roles is rapidly becoming a required competency for HRD professionals. What are the roles needed to implement and manage distance education programs? Various researchers have asked this question in recent years.

Rossett and Sheldon (2001) provide a general overview of how the Web will change what training professionals do. The traditional training function, roles, and skills will be expanded as shown in Table 2. Williams (2000) identified 13 roles that should be considered when decisions are made about staffing and training related to distance education. These include administrative manager, instructor/facilitator, instructional designer, technology expert, site facilitator/proctor, support staff, librarian, technician, evaluation specialist, graphic design, trainer, media publisher/editor, and leader/change agent. Typically, many of these roles would be assumed by one person, depending on the skill and ability of that person.

The importance of these roles certainly depends on the institutional environment, needs, and model of delivery. Although most of these roles for distance education appear very common, the new roles that have emerged specifically as a result of educational technology include technology expert, site facilitator/proctor, technician, graphic designer, and media publisher/editor. Williams (2000) has identified the following specific competencies for each of these roles, with the exception of site facilitator/proctor:

- Technology expert: computer hardware skills, technology operation/repair skills, skill with Internet tools for instruction
- Technician: technology operation/repair skills, computer hardware skills, computer networking skills
- Graphic designer: graphic design skills, text layout skills, media attributes knowledge, skill with Internet tools for instruction
- Media publisher/editor: skills with Internet tools for instruction, graphic design skills, media attributes knowledge

In their study titled *ASTD Models for Learning Technologies: Roles, Competencies, and Outputs*, Piskurich and Sanders (1998) identified eight roles needed for learning technologies. These roles and their descriptions are provided in Table 3. What gives each of these roles a “new” look lies in the nature of how the work is now performed given the emergence of e-training. The culmination of these eight roles helps to ensure that tasks ranging from advising on technology systems acquisition to designing and using specific technology applications and providing logistical support can be performed by organizations involved with distance learning (Piskurich & Sanders, 1998). The training team must play a role in all of these activities, as well as in the design, development, and delivery of training using whatever technology mix is appropriate.

The role of the trainer is shifting from being primarily a content expert to a combination of content expert, learning process design expert, and process implementation manager. Trainers will need to become “motivators and mentors, interpreters (especially of non-codified knowledge) and . . . ‘expert learners’—people who lead the learning process by breaking the trail and setting the right personal example” (Yeung, 2001, p. 10).

E-Trainer Competencies

In addition to the identifying the new roles of the e-trainer, it is important to clarify the various competencies that are required to carry out these roles. A competency is a knowledge or skill area that is essential for producing key outputs. The International Board of Standards for Training, Performance, and Instruction (IBSTPI, 1988) developed one of the earliest sets of competencies for e-trainers. These standards were modified by a task force in 1993 and are currently being

TABLE 3: Roles for Learning Technologies

Role	Description of the Role
Human resource development manager	Determines which learning technology, or combination of technologies, an organization should use to meet the comprehensive needs of the company; decides when these technologies should be used; and monitors the progress of all the other roles in the delivery process
Analyst	Identifies performance gaps and recommends performance objectives that address the gaps; determines if training is the proper intervention
Designer	Determines what content, instructional methods, presentation methods, and distribution methods will achieve the desired objectives and will suit the needs of the trainee population; also creates the design document that will integrate all of these elements
Developer	Uses the design document to create materials that are delivered via various presentation methods
Implementer	Works with technical staff to set up and provide logistical support for technology devices; also works with suppliers to produce and distribute electronic training materials
Instructor	Facilitates learning in either a live broadcast or in an advanced technology classroom
Evaluator	Measures the success of the course objectives and the effectiveness of the technology
Organizational change agent	Helps the organization adapt to the new technology and see its values and benefits

Source: Piskurich and Sanders (1998, p. 27).

examined and revised. The current standards include the following 14 core competencies for trainers:

1. Analyze course materials and learner information
2. Assure preparation of the instructional site
3. Establish and maintain instructor credibility
4. Manage the learning environment
5. Demonstrate effective communication skills
6. Demonstrate effective presentation skills
7. Demonstrate effective questioning skills and techniques
8. Respond appropriately to learners' needs for clarification or feedback
9. Provide positive reinforcement and motivational techniques
10. Use instructional methods appropriately
11. Use media effectively
12. Evaluate learner progress
13. Evaluate delivery of instruction
14. Report evaluation information

Piskurich and Sanders (1998) have conducted the most comprehensive analysis of e-trainer competencies. Thirty-one competencies emerged from their study that asked, "What knowledge and skills will enable people to select, manage, and use learning technologies for HRD work?" These competencies are divided into the following four broad categories:

- General competencies: adult learning, instructional design, performance gap analysis, change management, leadership, industry awareness, buy-in/advocacy, interpersonal relationship building/collaboration, consulting, business knowledge, systems thinking, contracting, project management, awareness of learning technology industry, communication, program evaluation, design and development, implementation and support
- Management competencies: management of learning technology selection; management of learning technology design and development; management of learning technology implementation, support, and evaluation
- Distribution method competencies: cost analysis/return on investment (ROI) of the distribution methods, limitations and benefits of the distribution methods, integration of distribution methods, remote site coordination, technology evaluation
- Presentation method competencies: cost analysis/ROI of the presentation methods, limitations and benefits of the presentation method, effect of presentation method on learners, integration of presentation methods

Whereas the two models previously discussed in this section focus on before, during, and after competencies, Choden's (2000) competency model focuses on the skills needed during delivery of the instruction. Choden categorizes the competencies for e-trainers into the following four areas:

- Instructional: questioning, supporting, leading and pacing, providing explanation and additional resources, induction programs, the establishment and maintenance of learning communities, group tutorials, and individual feedback
- Managerial: keeping to the task, agenda, timetable, procedural rules, decision-making norms tracking student participation
- Social: creating a friendly social environment in which a climate for learning is promoted
- Technical: creating comfort for participants with the system and the software in use

There are similarities and differences across the various competency models. Whereas the IBSTPI (1988) and Piskurich and Sanders (1998) models take a

broad view of the e-trainer's role (i.e., analysis, design, development, delivery, and evaluation), Choden's (2000) model emphasizes delivery of training. Many of the competencies that have been identified are not new as a result of the e-training environment. Others, however, appear to be a direct result of the technological movement in training and education. The competencies related to technology management and distribution are worth highlighting because they appear to be unique to e-training (see Table 4).

Barriers and Strategies for Developing a Skilled E-Trainer

As with any innovation, multiple barriers will be faced when trying to develop the skills of a new e-trainer. These barriers need to be attacked directly by assessing the readiness of the trainer for Web-based instruction and carefully addressing the personal concerns that may interfere with acceptance and adoption. In essence, the adoption of a complex technology into an existing culture where face-to-face training is practiced and valued will require a combination of individual readiness, top-down leadership, and group consensus among the training staff (Rogers, 1995).

How prepared are trainers for online teaching? According to O'Donoghue, Jentz, Singh, and Molyneux (2000), most instructors are unprepared to teach effectively in a learning environment that is dominated by technology. Although they may lack the knowledge and skills they need, the most important obstacle to address is the personal barrier.

Personal Barriers to Adoption

An individual's particular concern about a given technology is an influencing factor in the degree of acceptance of an innovation (Hall & Loucks, 1978). Mantyla (2000), in a discussion of selection strategies for identifying trainers who might be willing to become e-trainers, highlights four reasons why e-trainers may be unwilling to accept this new responsibility. First, she argues that trainers will be skeptical about the effectiveness of distance learning in comparison to traditional approaches. Second, because experienced trainers are comfortable with their current level of skills and techniques, they may be afraid of using new technologies that make them look less than proficient. Third, there is a concern that their peer trainers will be able to more closely observe their training in the very public distance learning environment. Fourth, because distance learning programs often are developed and supported through a team effort, some trainers may fear a lack of control over what they teach and how it is taught. Fifth, some trainers may possess a fear of losing their jobs as a result of the growing capabilities

TABLE 4: American Society for Training and Development's Management and Distribution Competencies for Learning Technologies

Competency	Description of the Competency
Management of learning technology selection	Supervising the selection of learning technologies and assuring that these selections meet organizational needs; determining when, how, and where learning technologies should be used; and monitoring the progress of all the other roles in the delivery process
Management of learning technology design and development	Supervising and ensuring the effective integration of performance objectives, course materials, and learning technologies into a design document that fulfills the organization's goals
Management of learning technology implementation, support, and evaluation	Supervising the installation and maintenance of learning technologies and ensuring that all systems continuously meet company specifications
Cost analysis/ROI of distribution methods	Understanding the relative costs of each distribution method, or combination of methods, and ensuring that the organization is receiving a good value for the dollars spent on these technologies
Limitations and benefits of the distribution methods	Knowing the true capabilities of each distribution method, or combination of methods, and tying these capabilities in with the needs of the organization
Effect of distribution methods on learners	Assessing how various distribution methods, or combination of methods, will cater to individual learning styles; balancing learner needs against organizational needs
Integration of distribution methods	Mixing distribution methods in an effective and efficient manner to facilitate learning
Remote site coordination	Coordinating the installation and maintenance of distribution technologies at a remote site and ensuring that all systems continuously meet design specifications
Technology evaluation	Ensuring that all component technologies continuously meet technical design and performance specifications

Note: ROI = return on investment.

of distance technologies. Although each of these concerns may surface as an organization becomes more involved in distance learning, it is important to ensure that each is addressed in some form, either through training or through an administrative action.

Hall and Loucks (1978) stress that individuals have different concerns about innovations and proceed through various stages before they fully

accept the change. These stages range from the individual having little knowledge to the individual being in an advanced stage of working together with others to implement and improve the innovation. Although there is disagreement on the actual number of concern stages (Bailey & Palsha, 1992; Hall & Loucks, 1978), it is clear that these stages have a direct effect on the degree of individual acceptance of the innovation. At the lowest stages of concern, the individual has little knowledge of the innovation and therefore has few concerns. As the individual becomes more aware of the innovation and its capabilities, the individual enters the personal stage of concern. In this stage, the individual is most concerned about the personal impact of an innovation, such as increased workload, changes in work roles, and potential for job loss or salary reductions. This is a critical stage that must be explicitly addressed before providing training on the use of the innovation. Once the personal concerns of a trainer are resolved, it is then possible for them to move to the more advanced stages of concern. At these stages, the individual becomes concerned with ways to implement the innovation, how the innovation will affect learners, and how the innovation might be adapted to increase its effectiveness.

Clay (1999) offers a similar developmental stage model that describes the various concerns trainers experience as they develop their competencies in e-training. This four-stage model includes awareness, consideration, implementation, and innovation. In the first stage, awareness, trainers begin to ask questions about distance education and learning. They likely have heard that other trainers are offering all or part of their workshops through distance media but are unsure how and why this is accomplished. Clay (1999) recommends providing general information through workshops or printed material that will offer clear information about distance learning.

Clay (1999) identifies the second stage as consideration. During this stage, trainers determine whether distance teaching is for them. Benefits and quality of distance teaching are questioned, and they assess whether the benefits outweigh the efforts. Critical at this stage is the opportunity to consult and dialogue with instructors who have taught via distance. Equally important is detailed information about support available to them should they decide to move forward.

The third stage of Clay's (1999) model is implementation. The majority of training and support should occur at this stage, as those trainers who decide to pursue distance instruction may find themselves overwhelmed with the demands of preparing and training for delivery. "If assistance in this stage is lacking, many [trainers] will fail . . . and will declare that distance teaching is not for them" (Clay, 1999, p. 2). The length of time a trainer stays at Stage 3 varies among instructors and may last several years.

The last stage of the Clay (1999) model is innovation. Innovation occurs after a trainer has gained experience teaching at a distance. These individu-

als develop new ways of teaching that others replicate. They also may be involved with the training and development of other trainers.

Because the greatest concern of trainers who are venturing into the distance learning arena is likely to be at the personal stage, it is important that those concerns be addressed early in the adoption cycle. For example, the greatest concern of future e-trainers is the amount of time it will take to develop their skills to teach online, develop courses, and interact with students (Sherron, 1998; Wilson, 1998). Other concerns include technical and administrative support, technical training, and students' access to appropriate technology (Wilson, 1998). As Hall and Loucks (1978) point out, if the individual concerns of those who are asked to adopt the technology are not addressed, the chances of successful adoption and implementation are very slim.

Developing E-Trainer Skills

The development of a competent e-trainer needs to be approached in a slightly different way than how most trainers are prepared. Schauer, Rockwell, Fritz, and Marx (1998) asked faculty to identify the type of education, assistance, and support they needed to develop educational materials for distance delivery. The top needs included the areas of developing interaction; developing instructional materials; applying selected technologies; curriculum content, design, and evaluation; assistant help; technologies; logistics related to student services; logistics related to overall policies; peer support; and workload composition. Clay (1999) offers eight areas that, at a minimum, should be included in any professional development initiative for beginning distance trainers. These include the following areas:

- An opportunity for addressing concerns;
- Distance learning technology and its affect on learners;
- Availability of administrative and support services;
- Fundamentals of and assistance with course development and adaptation;
- Techniques for encouraging interaction;
- Development of backup and contingency plans;
- How distance instruction ties in with the institutional mission; and
- Copyright and other policy issues.

In addition, Clay highlights the fact that many trainers will need, in addition to practice in the use of distance technologies, training in basic computer use, Web page production, and development of instructional materials. These lists and suggestions closely match the competencies identified previously for e-trainer success. Consequently, these are the components that should be consid-

ered when determining appropriate and applicable content for e-trainer development programs.

The actual delivery of professional development programs for e-trainers can be offered in many forms, ranging from traditional campus-based HRD academic programs to online. As just one example, Kovacs Consulting (Kovacs, 2000) offers an Internet trainer certification program via the Internet (for a description of this certification program, see <http://www.kovacs.com>). According to the Kovacs Consulting Web site, the program is designed to “guarantee to a client that an individual has basic qualifications for providing Internet training.” The competencies in which trainers are certified include those discussed previously in the competency model section of the chapter.

Conclusion

The purpose of this chapter was to examine the emerging roles and competencies needed to prepare trainers for working in Web-based learning environments. As has been discussed, many of the roles and competencies needed to be successful in this type of environment are not significantly different from those needed in traditional environments. Although new roles and competencies are needed, the focus should be on how a trainer’s existing competency set can be enhanced in order to be effective in the e-learning environment. The ways in which e-trainers develop their competencies looks very similar to the ways in which they are prepared for a traditional environment. Hence, the emphasis of professional development, as discussed in different sections of this chapter, should build on the existing knowledge and skill base, while maintaining a focus on transferability.

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