



Environments for Learning

"The Learning Organization is a term currently in vogue. It is, however, less than obvious what it means, except that clearly it is a good thing to strive to be."¹

If dollars spent on corporate training and education are any indication, more businesses than ever are striving to become "learning organizations." In 1991, U.S. business and industry spent \$43.2 billion to provide some 1.2 billion hours of training for 36.8 million individuals.² Annual spending by employers on formal and informal training of employees, which already significantly exceeds U.S. public and private expenditures for elementary and secondary education combined, is expected to grow to \$88 billion by the end of the decade.³

Training doesn't always result in learning, however, and a large development budget does not a learning organization make. By some definitions, achieving learning-organization status has as much to do with corporate mind-set as with providing individual employees with knowledge or skills. "Learning organizations are self-aware, introspective organizations that constantly scan their environments."⁴ They "continually improve by readily creating and refining the capabilities needed for success."⁵ There are training programs for learning how to become a learning organization; a recent American Management Association course schedule offers a three-day seminar that promises to help "make your organization one that continually expands its capacity to create its future. One where collective aspirations flourish and new and broad patterns of thinking are fostered."⁶

In addition to supporting acquisition of knowledge and skills by individuals—"competency learning"—and to acquiring broad organizational strategic learning, the learning organization must also foster types of collective learning: cooperation learning, focused on increasing collaboration within and between workers and work units; improvement learning, which concentrates on improving products and processes relative to customer requirements; and alignment learning to gain agreement on and commitment to a common vision.⁷ According to Peter Senge, teams are becoming the key learning unit in organizations, because almost all important decisions are now made in teams, either directly or through the need for teams to translate individual decisions into action.⁸



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The idea of promoting learning in organizations is not new. Early in this century, Frederick Taylor based his notion of scientific management on the measurement and transfer of knowledge from one employee to another to improve organizational efficiency.⁹ Since then, management practices from human resource development to Total Quality Management (TQM) have emphasized the importance of training and education. Recently, however, some organizations have come to view learning not as a discrete program or department or strategy but as integral and ongoing and vitally important to survival and success. This report looks at some reasons why learning has become so important to the organization, the factors that affect how and whether learning takes place, and ways in which the physical environment can provide a supportive backdrop for organizations where work is learning and learning, work.

Forces for change

The complexity of working and competing in an increasingly technological, knowledge-based economy has created a need for more pervasive and comprehensive educational practices than current education systems provide. The shift from manufacturing society to information society has resulted in a skills gap.¹⁰ “The overall education level of Americans has increased in terms of schooling and even fundamental literacy. But the demands of the workplace simultaneously have vastly increased,” says Deputy Secretary of Education Madeleine Kunin. “We simply are not keeping pace with the kinds of skills required in today’s economy.”¹¹

There are fewer new work force entrants as the baby-bust generation comes of age, and companies report that it is harder to find even basic competence among those who are coming on board. A recent study found that 58 percent of Fortune 500 companies surveyed complained of difficulty in finding employees with basic skills.¹² A Department of Education report found that literacy among 21- to 25-year-olds is dropping.¹³

At the same time, rapid changes in technology make a moving target out of basic competency. Within the next ten years, the knowledge base underlying technology will increase by 100 percent, which means that even today’s qualified graduates will not be qualified five to ten years from now without additional education.¹⁴ The American Society for Training and Development estimates that

by the year 2000, 75 percent of workers currently employed will need retraining.¹⁵ Society spokesperson Fred Voss says that technology is the reason that more employees than ever need to be trained or retrained, citing changing office technology and organizational reorientation (the need to change to remain competitive) as the two main subjects of corporate training in the U.S. today.¹⁶

In contrast to early predictions that technology would reduce the need for skilled labor, computer technology and automation have made work more complex and mentally demanding. Workers in an information society need more interpretive abilities, as opposed to the rote skills once valued on the assembly line.¹⁷ Instead of performing the same task every day, employees have to draw on a variety of skills to adapt to unpredictable changes. “Workforce 2000,” the Hudson Institute study, confirms the growing complexity of today’s jobs. By the year 2000, it reports, below-average skills will be good enough for only 27 percent of jobs created after 1985, compared with 40 percent of jobs existing in the mid-80s. Forty-one percent of new jobs will require average or better skills, up from 24 percent.¹⁸

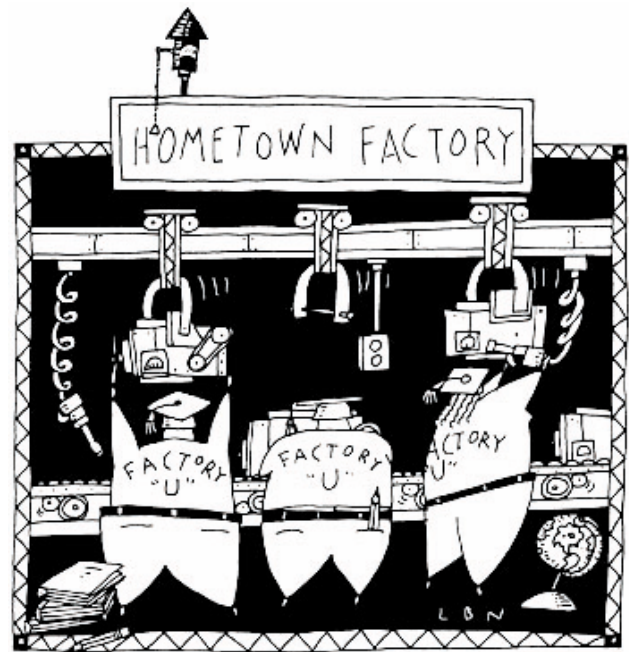
In an economy in which knowledge workers are the primary means by which firms compete, organizations “must select people not for what they know, but for whether they are able to learn.”¹⁹ To compete today, an organization must adapt quickly, requiring its workers to learn, to assimilate new ideas, and to translate them into action faster than the competition.²⁰ Organizations need to become “places where change is an opportunity, where people grow while they work.”²¹

Ultimately, learning opportunities factor into a company’s ability to attract and retain competent workers. As corporate downsizing and the “competitive cohort crunch” reduce promotion possibilities for the baby-boom generation, companies need to find new ways to keep workers motivated.²² A recent national study indicates that offering educational opportunities is one way: 55 percent of workers surveyed said that gaining new skills was a very important reason for their decision to take a job with their current employer, ranking it sixth of 20 reasons—above job security, location, fringe benefits, and even salary/wages (cited by only 35 percent).²³

In addition to educating employees, companies are increasingly called



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on to provide training and education for their customers. IBM, Hewlett-Packard, Digital, and others have customer education strategies that focus on user satisfaction and helping their clients manage change. Educational programs that help customers use a company's products more effectively can have a positive impact on sales and customer satisfaction. They can also provide an additional source of profit: IBM recently formed the New Education Company as a separate business dedicated to serving the training and education needs of its customers.

A learning culture

Researchers note that learning takes place along a continuum from superficial to substantial and that a true learning organization has to go beyond programs like TQM, which initiate change, to make continual learning and change part of the core values and culture of the organization. This requires a fundamental shift from regarding labor as a cost of doing business to viewing it as an investment, a resource that needs to be carefully tended and developed. According to Ed Schroer, vice president of professional services for the American Society for Training and Development, a company focusing on total quality management soon learns that "people have to be flexible and skilled. So they have to make more investment in the work force."²⁴

In a recent New York Times article, U.S. Labor Secretary Robert Reich urged corporate management to rethink downsizing practices. Citing a study that found companies introducing a formal training program had at least a 17 percent larger rise in productivity over companies that didn't, he noted that investing in employees' skills by providing them with training on and off the job can be a viable alternative to downsizing—one that increases the value a worker contributes to the economy.²⁵

Although many companies have benefitted from running leaner, there is increasing interest in the long-term advantages of developing and maintaining an employable work force of individuals who have "basic verbal and numeric literacy, the interpersonal skills to work well in teams, the flexibility to take change in stride, the cognitive skills to analyze and synthesize ideas, the initiative to solve problems, and, above all, the motivation and ability to learn."²⁶ Organizations, finding that they can't just replace workers with new ones with newer skills—

because those skills, too, will soon be obsolete—are opting for employee education programs that go deeper than retraining. "Change today is so rapid that companies want to build a work force that can change several times, not just once," says Schroer.²⁷

Most experts agree that to foster change and learning, the corporate culture has to be open to new thinking, allow risk-taking, and forgive mistakes.²⁸ "Learning organizations want everyone to learn always, and bend over backward to make that obvious," writes Charles Handy. They accomplish this not only by making learning available through formal programs like tuition reimbursement arrangements and corporately sponsored seminars and study groups, but also by creating a climate in which people are rewarded for asking questions and taking initiative.²⁹ Recent thinking about how learning takes place suggests that frequent small failures provide the variety necessary for learning to occur, underlining the importance of providing an atmosphere where people feel free to take "informed risks."³⁰

The opportunity to learn from failure is part of what some experts call "incidental learning," learning that can be built around incidents in everyday life.³¹ The tendency to be "life-centered"³² in their orientation to learning, with a greater interest in practical application and a greater capacity to be critically reflective, generally differentiates adult learning from that of children and adolescents.³³ Research indicates that as people mature they develop individual learning styles that reflect personal needs and goals. Some adult learning styles rely more on concrete experience, while others focus on experimentation or observation or abstract conceptualization.³⁴

These differences have implications for how educational activities and environments should be structured for adults. The prevalence of experiential learning styles among adults suggests, for example, that formal classrooms are not the only environments to be considered by organizations concerned with enhancing learning opportunities and experiences. In fact, one recent study of adult learners intimates that the climate of the local high school or residential college for young students is not likely to be congenial to the learning needs of adult workers.³⁵

Learning environments

Although the physical setting is only one aspect of organizational climate that affects work and learning, it is perhaps the most concrete expression of corporate values and priorities. Organizational development specialist Fritz Steele notes that the physical setting can be an important component of a climate that “stimulates people to develop new skills, abilities, knowledge, and understanding so that they grow in competence.”³⁶ A learning organization provides physical environments that reflect the importance of learning to the organization and that encourage and support learning wherever it takes place: in the classroom, on the shop floor, in the individual workstation.

The design of settings for learning can have a direct impact on motivation, concentration, and performance by affecting comfort, control, attention, access, and enjoyment.³⁷ Learning is supported by physical settings where the temperature is right, the seats are comfortable, people feel at ease and in control and are protected from distractions.

A facilities strategy for learning environments should consider location as well as design,³⁸ aligning facility and learning strategies. Learning facilities may be at the work site or away, centralized in one building or decentralized among a company’s organizational units or regional locations.

While some large companies (including GE, Motorola, and Xerox) have set up corporate “universities” to develop and run corporate training programs, more corporate education is taking place outside the classroom as experiential learning methods supplant more traditional training techniques. New methods range from action learning, in which teams of executives are given real business problems to solve, to Outward Bound-type programs where group members build team skills by white-water rafting together.

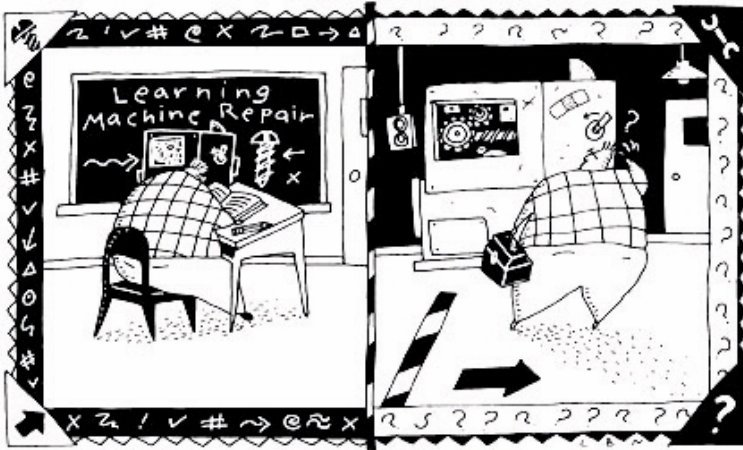
Advances in computer and telecommunications technology have helped to expand opportunities for remote learning. Voice and electronic mail, electronic copyboards, videoconferencing equipment, and other technological tools combine in “groupware” packages that allow learning to take place in a variety of time/location combinations,³⁹ each with its own implications for design of the physical setting.

Same time/same place

Despite growing options, the traditional conference room or classroom, where people meet to engage in the same activities at the same time, still provides the locale for much corporate training and education. There is evidence that some of the classroom education that used to take place in learning institutions is shifting to corporate settings. For example, many companies that used to send their management- and professional-level people out to prominent business schools for continuing education now import those programs in-house or design their own in an attempt to maximize the nearly \$15 billion they spend each year on formal training programs for managers and professionals.⁴⁰

But even corporate classrooms are being transformed by advanced technology, introduced in attempts to increase returns from educational budgets. Technology itself is the subject of much of that education, as employees must be trained in everything from the latest word processing software to how to use their telephones for voice mail and conference calls. Today’s state-of-the-art corporate classroom probably includes one or more computers and some kind of projection system for both computer and video signals. It may also include a VCR, an LCD panel, an audience response system, a multimedia workstation, and networked personal computers.

Consultants in training room design emphasize technology accommodation, classroom location, and flexibility. Many recommend raised floors to maximize space and flexibility for wiring and plenty of built-in storage space for equipment not currently in use.⁴¹ Classroom location can serve to communicate the importance of continuing development (with a visible and accessible central location) or to provide freedom from everyday processes and the scrutiny of others (with remote locations that create a cultural island). Designers advocate classrooms and furniture that can create different-sized spaces and a variety of seating arrangements to accommodate changing instruction methods and audiovisual aids and equipment. Tables used for computer-related training and education should have their own electrical outlets or some kind of wire management capability and, along with classroom seating, be ergonomically designed and adjustable to meet the requirements of different-sized users.⁴² In addition, work settings can support the use of skills and knowledge gained in the classroom by providing ways of using and developing skills in current work activities. Studies show that often



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there is only minimal transfer of learning from classroom to job setting.⁴³ Work environments should be designed to support the learning process as well as the work process.

In contrast to classrooms designed to enhance communication between instructor and participants, rooms used for small-group or team learning should be designed to support collaborative learning. Informal, rearrangeable groupings of lounge seating in smaller, more intimate rooms can help to maximize interaction among group members.⁴⁴

Finally, Fritz Steele suggests that training/learning facilities ought to be a learning experience in themselves. Ongoing evaluation to determine how well the setting is working “ supports a spirit of inquiry and curiosity in the participants—vital if people are to continue to learn through their careers.”⁴⁵

Different time/different place

E-mail and forms of interactive computer conferencing enable cooperative learning and teaching among people in different locations at different times. Computer software is increasingly used for certain types of training, such as voice mail tutorials on how to use voice mail. One company set up an E-mail system that allows employees to tap experts anywhere in the company to lead a class from their respective locations.⁴⁶ Self-study, using print materials, audio or video tape, or CD-ROM multimedia programs, is another method of different time/different place education.

People may pursue self-paced individual learning in their own workstations if they have the right equipment, enough privacy to concentrate, and a layout that supports learning as well as work. Otherwise, separate learning rooms or areas equipped with study carrels, computer hookups, and good lighting may be in order. The need for special facilities for designing and producing training materials and programs may also grow in companies that focus on these methods.

Same time/different place

The cost of real-time training via two-way, interactive video has fallen in recent years by a factor of ten—to the point where systems can often pay for themselves in travel savings alone. Ten thousand of America’s two million conference rooms are currently wired for interactive video meetings, and analysts predict that sales of

videoconferencing equipment—\$400 million in 1992—will be as much as \$8 billion by 1997.⁴⁷

Videoconference rooms can range from dedicated spaces with sophisticated systems that pick up questions and comments from participants anywhere in the classroom to multipurpose rooms where cameras, microphones, monitors, and computer equipment are wheeled in and out as needed. In any case, they require special attention to acoustics, lighting, layouts that provide good viewing angles, and accommodating the electrical and storage needs of equipment.

Real-time computer conferencing is another form of same time/different place learning. Some experts expect that video images will eventually be integral to personal computer networks, bringing videoconferencing capabilities into individual workstations.⁴⁸ This will place increased demands on individual workstations to provide good acoustics and lighting and support flexible use of equipment.

Different time/same place

Learning that is accomplished by different people at different times in a shared location can take place in specialized self-study facilities, such as language labs or team spaces or war rooms where the room itself becomes a “virtual laboratory for group learning.”⁴⁹

Steele suggests a central information room for executives, with graphic displays of current operating data, television, and “other hookups to other locations and the outside world. . . . Using the same place for gathering information, making it visible, and talking about it increases the likelihood that the executives will spot trends and emerging problems as a team,” an approach that allows people to “quickly build upon, challenge, or influence one another’s ideas.”⁵⁰

One research group posits an ideal project or team room that is completely flexible, like a theater set. They recommend flexible furniture, including small, modular tables that can be arranged in many configurations; smooth, tackable walls that make it easy to create interactive visual displays; flexible lighting, including even wall lighting, some natural light to reduce eyestrain, and dimming features for overhead projection; visual aids, including white boards, flip-chart stands, and copyboards; storage for shared supplies and possibly lockers for individual storage; and flexible electrical outlets and LANs since “computers might end up in any part of the room.”⁵¹

Anytime/anyplace

Ultimately, the goal of the learning environment must be to support learning anytime and anywhere it happens. Studies conducted by the Institute for Research on Learning (IRL) indicate that people learn more quickly when they belong to “overlapping communities of practice,” or groups with different specialties.⁵² According to IRL researcher Etienne Wenger: While “we have decreed that learning is not part of everyday life, that it requires special settings,” in fact “the social world is where work gets done, where meaning is constructed, where learning takes place every day, where innovation originates and where identities are formed.” Instead of “throwing information at” people, he says, we ought to “support their learning by opening possibilities for participation and membership.”⁵³

Fritz Steele writes that the entire work setting can be an educational tool, stimulating growth and learning by offering “opportunities for people to make changes, try things out, and learn about the effects of what they did.” He notes that location is a key factor in exploiting facilities’ potential for promoting learning. A location that allows people to “see a lot of the events of the system and come in contact with a variety of types of people [will be] a greater contributor to developing members’ maturity and awareness of differences.” He also suggests that the workplace can stimulate growth for an entire group “if they are charged with the responsibility of shaping it and managing it as one of their tools for getting results.” Designing their own work areas provides teams with “a challenge to doing things better and learning how better to work with each other, resolve conflicts, and set mutual goals that benefit all members.”⁵⁴

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