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ABSTRACT

Training issues can be examined from at least two perspectives: the structural level (macro-level) and the micro-level. Structural issues in the delivery of training include the following: absent or uneven corporate commitment, inadequate expenditures by businesses, degrees awarded by schools that do not guarantee skill mastery, poaching of trained workers, accounting rules that require training be treated as an expense and not an investment, inadequate government funding for retraining displaced workers, need for closer employer-school ties, and need for help from organized labor. Issues in the design, delivery, and evaluation of training efforts include an emphasis on the techniques and methods of training rather than the content and little emphasis on assessment of training outcomes. Training is critical to the implementation of four competitive strategies that firms use to compete for business in the marketplace and to gain competitive advantage--speed strategy, innovation strategy, quality-enhancement strategy, and cost-reduction strategy. Certain ground rules can enhance the likelihood that organizations and individuals will benefit from training. Before training, needs analysis should be done at multiple levels. During training, the objective is to select a training technique that accurately matches demonstrated training needs and to deliver training in a manner that maximizes learning, retention, and transfer. After training, long-term effects must be evaluated. (Contains 35 endnotes.) (YLB)

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Public Investments in Training: Perspectives on Macro-Level Structural Issues and Micro-Level Delivery Systems

by

Wayne F. Cascio
University of Colorado-Denver

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Public Investments in Training: Perspectives on Macro-Level Structural Issues and Micro-Level Delivery Systems

Any discussion of training should begin by defining the term itself. Traditionally, lower-level employees were "trained," while higher-level employees were "developed." This distinction, focusing on the learning of hands-on skills versus interpersonal and decision-making skills, has become too blurry in practice to be useful. Throughout the remainder of this paper, therefore, the terms *training* and *development* will be used interchangeably.

Training consists of planned programs designed to improve performance at the individual, group, and/or organizational levels. Improved performance, in turn, implies that there have been measurable changes in knowledge, skills, attitudes, and/or social behavior.

When we examine the training enterprise as a whole—in terms of training provided by federal, state, and local governments, educational institutions, and private-sector businesses—it is clear that training issues can be addressed from at least two perspectives. At the structural level, one can examine issues such as the following: the aggregate level of expenditures by the various providers of training; the degree of cooperation among the providers; incentives (or lack of incentives) for providing training; who gets training; and the economic impact of training, among others. These represent macro-level concerns.

At the micro-level, one may choose to examine issues such as: what types of training seem to yield positive outcomes for organizations and trainees (i.e., what "works"); how to identify *whether* training is needed, and, if so, what type of training best fits the needs that have been identified; how to structure the delivery of training programs; and how to evaluate the outcomes of training efforts. These issues are the primary focus of the literature in the field of personnel psychology.

The purpose of this paper is two-fold: (1) to discuss several structural issues at the macro level; and (2) to illustrate how lessons from the literature in personnel psychology might lead to improvements in the design, delivery, and evaluation of training systems. Before we do so, however, let's consider some important training trends.

Training Trends

Both economic and demographic trends suggest radical changes in the composition of the workforce of the 1990s.[1] Other factors that affect the number, types, and requirements of available jobs include automation; continuing worker displacement as a function of mergers, acquisitions, and downsizing; and the shift from manufacturing to service jobs. As of September 1993, for example, 84 percent of U.S. employees worked in service-based industries.[2]

These issues suggest four reasons why the time and money budgeted for training will increase during the next decade:[3]

1. The number of unskilled and undereducated youth who will be needed for entry-level jobs;
2. Increasingly sophisticated technological systems that will impose training and retraining requirements on the existing workforce;
3. The need to train currently underutilized groups of racial and ethnic minorities, women, and older workers; and
4. Training needs stimulated by the internationally competitive environments of many organizations.

Labor Secretary Robert Reich described the challenge clearly: "If we have an adequately educated and trained workforce and a state-of-the-art infrastructure linking them together and with the rest of the world, then global capital will come here to create good jobs. If we don't, the only way global capital will be invested here is if we promise low wages."[4]

Global competition is the single most powerful economic fact of life in the 1990s. In the relatively sheltered era of the 1960s, a mere 6 percent of the U.S. economy was exposed to international competition. In the 1980s, that number zoomed past 70 percent, and it will keep climbing.[5] U.S. exports now generate one in six jobs; as recently as 1986, they created only one in eight.[6]

Although training is expensive, the alternative—not having a competent workforce that will enable firms to compete in world markets—is unthinkable. For American business, this is a "must-win" situation. Our standard of living and our very way of life are at stake.

Indeed, as the demands of the second industrial revolution spread, companies are coming to regard training expenses as no less a part of their capital costs than plants and equipment. Retraining, too, can pay off. A study by the Work in America Institute found that retraining current workers for new jobs is more cost-effective than firing them and hiring new ones—not to mention the difference that retraining makes on employee morale.[7] Despite the compelling arguments for training, a number of structural issues must be addressed if training systems are to reach their full potential.

Structural Issues in the Delivery of Training

Here are some problems often identified at the macro level:

1. *Corporate commitment is lacking and uneven.* Most companies spend nothing at all on training. Those that do tend to concentrate on managers, technicians, and professionals—not on rank-and-file workers. Fully 89 percent of American workers never receive any formal training from their employers.[8]

2. *Aggregate expenditures by businesses on training are inadequate.* The American Society for Training and Development urges the business community to increase training expenditures to at least $44 billion annually, from $30 billion currently. To provide incentive, some experts recommend that all companies be required to invest 1 percent of their payrolls on training.

3. *Businesses complain that schools award degrees, but that is no guarantee that graduates have mastered skills.* As a result, business must spend large amounts

of money to retrain workers in basic skills. Some examples include the following:

- Motorola spends an average of $1,350 per person per year for six basic skills courses, so that the worker reaches a level at which he or she can be retrained.
- Planters Nuts in Suffolk, Virginia, spent $40,000 to improve the reading and writing skills of 48 employees.
- Unisys in Mission Viejo, California, spent $150,000 to teach 125 workers how to read, write, and speak English.
- Hewlett-Packard spent $22,000 at its Spokane, Washington, plant to teach high school mathematics to 30 production supervisors.

These investments are relatively modest. Polaroid, on the other hand, spent $700,000 at its Cambridge, Massachusetts, operation to teach basic English and mathematics to 1,000 new and veteran employees.[9]

4. *Poaching trained workers is a major problem for U.S. businesses, and provides a strong disincentive for training.* Unlike Germany, where local business groups pressure companies not to steal one another's employees, there is no such system in the United States.[10] To examine this problem from a broader perspective, consider some relative comparisons between the United States and other countries.

According to the Organization for Economic Cooperation and Development (OECD), the U.S. has the second lowest rate of job tenure among 13 European countries and Japan.[11] The contrast in layoffs is even more extreme. Between 1971 and 1984, the rate of layoffs in the United States averaged six times the rate of Sweden and Italy, and 15 times that of Japan.[12]—and that was before the contraction of defense spending and the major wave of downsizings that has swept the U.S. since 1989.[13] This has profound consequences for "selling" senior managers on the value of training in the U.S. As one researcher explained:

> "Because of the high inter-firm mobility of labor, only a small fraction of the economic benefits of a better-trained workforce can be captured by the firm that invests in training."[14]

5. *Despite the rhetoric about viewing training as an investment, current accounting rules require that it be treated as an expense.* Business might spend more on training if accounting rules were revised. Unlike investments in plant and equipment, which show up on the books as an asset, training expenditures are seen as a mere expense to be deducted in the year they are incurred.[15]

6. *Government is not providing enough funds for retraining to help workers who have been displaced as a result of downsizing or the defense spending contraction.* Currently, the administration is earmarking $1.2 billion over four years to help create school-to-work transition programs. In addition, approximately $5.8 billion will be funneled through the Labor Department in 1993 for worker training.

7. *Businesses, with help from the government, need to focus on the 70 percent of non-college graduates who enter the American workforce. At most, 30 percent of the future workforce will need a college degree.* Schools can help, for example, by developing curricula that focus on areas that are—or demonstrably will be—in demand by employers. For example, an associate-level degree in manufacturing technology (something that many firms need) is an example of a curriculum that is presently unavailable in most colleges.[16] States must recognize the economic value of such courses and provide financing and accreditation for them. Students or their employers would pay tuition.

8. *Employers and schools must develop closer ties.* Schools are often seen as not responsive to labor market demands, while business is perceived as not communicating its demands to schools. These incongruities must change. For example, Motorola assigns a director to anticipate what skills workers will need in three or four years in the future.[17] It is important that schools learn of these needs so that they can work *with* local businesses to respond to the needs that have been identified.

An example of one such partnership is found at Stihl, Inc.'s Virginia Beach, Virginia, plant, where the German-owned maker of chain saws found a shortage of skilled crafts workers in its local and even regional labor markets. It decided to develop these skills among its current workers by means of an apprenticeship program. Working with Tidewater Community College, it developed a 28-credit curriculum ranging from blueprint reading to industrial mathematics. Initially the school's curriculum wasn't what Stihl needed, but the college did try to accommodate the company's needs. Blueprint reading, for example, would be taught partly in metric, the European standard. Models are drawn in the three-image German rotation of right-front-top, rather than the U.S. top-front-left.

Begun in the late 1970s, 36 apprentices have completed the four-year program as of 1993. Stihl has lost five of them, including one of the only two African-American apprentices. The program costs the company $50,000 per year per trainee. Most companies would wince at spending that amount, but look at what Stihl has reaped in return. It has tripled productivity and has become Virginia Beach's biggest manufacturer, employing 498 workers as compared to 40 in 1974. Since 1980, Stihl's U.S. revenue has more than doubled to $200 million, and the average number of power tools produced per employee has jumped to 2,100 from 800. What's the bottom line? All of the company's machines are designed, built, and kept running by its apprenticeship graduates.[18]

9. *Organized labor can help.* Unions have developed first-rate apprenticeship programs in a number of crafts. Unions are not opposed to training new apprentices, but they want assurances that the new crafts workers will have jobs at the end of their apprenticeships. As a result, in 1991 the Atlanta Labor Council offered to recruit unemployed youth for construction apprenticeships *if* city employers would agree to hire union labor for the 1996 Olympics.[19]

Beyond these structural concerns lie issues that are critical to the design, development, and evaluation of training efforts. The literature in personnel psychology tends to focus on issues at this level, and in the remainder of the paper we will consider the public policy implications of findings in this field.

Issues in the Design, Delivery, and Evaluation of Training Efforts

Even a cursory review of the massive literature on training and development shows that far too much emphasis is often placed on the *techniques and methods* of training to be used, and not enough on first defining *what the employee should learn* in relation to desired job behaviors. Furthermore, training techniques are intensely "faddish":

> "The fads center around the introduction of new techniques and follow a characteristic pattern. A new technique appears on the horizon and develops a large stable of advocates who first describe its "successful" use in a number of situations. A second wave of advocates busy themselves trying out numerous modifications of the basic technique. A few empirical studies may be carried out to demon-

strate that the method "works." Then the inevitable backlash sets in and a few vocal opponents begin to criticize the usefulness of the technique, most often in the absence of data. Such criticism typically has very little effect. What does have an effect is the appearance of another new technique and a repetition of the same cycle."[20]

Beyond techniques, it is clear that very few organizations place much emphasis on assessing the outcomes of training activities. That is, they overlook the need to determine whether the training met the initial objectives of the program. Despite these problems, on-the-job training has always been important for creating and maintaining a skilled workforce. According to a Brookings Institution report, between 1929 and 1982 on-the-job learning is estimated to have been responsible for 55 percent of the improvements in labor productivity, compared to only 26 percent for pre-employment schooling.[21] Unfortunately, as we have noted, most of the $30 billion that U.S. companies spend on training each year comes from less than 10 percent of all companies, according to the American Society for Training and Development.

This situation must change. As a result of the rapid pace of the introduction of new technology, combined with new approaches to organization design and production management, workers have to learn three kinds of new skills: (1) the ability to *use* the new technology; (2) the ability to *maintain* it; and (3) the ability to *diagnose* system problems.[22] In an increasingly competitive marketplace, the ability to implement rapid changes in products and technologies is often essential for economic viability. Analyses by the independent Congressional Research Service indicate that a skilled labor force can be the decisive factor.[23] Yet, compelling as the idea of training may seem, its expense—high-labor turnover (and the associated problem of poaching) and lack of economic incentives (for example, no tax deductions for providing training)—argue *against* such expenditures.

Is there a counter-argument to present to skeptical employers? At the very least, employers should be able to evaluate data on the costs and benefits of their training efforts. To encourage such assessments, it is reasonable to require that employers do two things in order to receive public funds for training: (1) make program evaluation an integral component of any training effort; and (2) make utility (cost/benefit) analyses of skill development programs a routine part of program evaluation activities.

For example, one issue that often vexes employers is whether to spend money on reskilling programs for older workers with shorter payback periods. Another is whether to invest in training for the hard-core unemployed or for workers who lack basic literacy skills. In both cases, business sees lower payback probabilities. Utility analyses can play an important role in dispelling myths about the costs of training, relative to its benefits. The technology is available now to do such analyses,[24] and a number of them already have been reported in the personnel psychology literature.[25]

One important lesson for researchers who conduct such studies is that it is important to focus not only on utility for the organization, but also on utility for the individual as well. Training can provide benefits to individuals beyond *job* security; it can provide *employment* security, because when individuals learn skills and knowledge that needs assessment shows to be fully consistent with the competitive strategy of an organization, those same skills and knowledge are likely to be in demand in the external labor market. As a result of downsizing, for example, trained individuals may lose

their current jobs, but not their ability to compete for new ones.

Characteristics of Effective Training Practice

One survey of corporate training and development practices found that four characteristics seemed to distinguish companies with the most effective training practices:[26]

- Top management is committed to training and development; i.e., training is part of the corporate culture. The Xerox Corporation invests about $300 million annually, or about 2.5 percent of its revenue, on training. This translates to about $2500 per year per employee. It is an ongoing process for all employees, including the chief executive officer.[27] Hewlett-Packard spends about 5 percent of its revenues, or $250 million, to train its 87,000 workers. Marriott Corporation simply says, "Training is part of our culture."[28]
- Training is tied to business strategy and objectives and is linked to bottom-line results. (This topic will be expanded in another section.)
- A comprehensive and systematic approach to training exists; training and retraining are done at all levels on a continuous, ongoing basis.
- There is a commitment to invest the necessary resources, to provide sufficient time and money for training.

The literature on training evaluation shows that while the potential returns from well-conducted training programs can be substantial, there is often considerable variability in the effectiveness with which any given training method or content area is implemented.[29] Considerable planning (through needs analysis) and follow-up program evaluation efforts are necessary in order to realize these returns. To be sure, training is an important component of business strategy for many organizations. To appreciate this more fully, it is necessary to examine some alternative competitive strategies.

Where Does Training Fit in the Competitive Strategies of American Businesses?

The means that firms use to compete for business in the marketplace and to gain competitive advantage are known as *competitive strategies*.[30] Competitive strategies may differ in a number of ways, including the extent to which firms emphasize speed (time-based competition), innovation, quality enhancement, or cost reduction. Moreover, there is growing recognition that the different types of strategies require different types of human resources (HR) practices.[31] Training, a key HR practice, is critical to the implementation of several competitive strategies. The important lesson is that *human resources represent a competitive advantage that can increase profits when managed wisely.*

Speed strategy focuses on time-based competition—in every function from product design, development, production, and reaction to customer feedback. *Innovation strategy* is used to develop products or services that differ from those of competitors. Its primary objective is to offer something new and different. Enhancing product or service quality is the primary objective of the *quality-enhancement strategy*. Finally, the objective of a *cost-reduction strategy* is to gain competitive advantage by being the lowest cost producer of goods or provider of services.[32]

Speed strategy emphasizes managing people so that they work *faster*; innovation strategy emphasizes managing people so that they work *differently*; quality-enhancement strategy emphasizes managing people so that they work *smarter*; and cost-reduction strategy emphasizes managing people so that they work *harder*. While it is convenient to think of these four competitive strategies as unmodified types applied to entire organizations, business units, or even functional specialties, in reality they are more complex. In practice, most

firms and subunits of firms, emphasize a combination of these competitive strategies. Training is critical to the implementation of each of them—with the exception of cost-reduction, because it emphasizes tight fiscal and management controls, minimization of overhead, and pursuit of economies of scale. This implies minimal use of training and development.

Training and Public Policy

Even when a review of studies on training evaluation was limited to studies that appeared in journals with rigorous publication standards, the review revealed that training content, methods, and the extent of transfer on the job vary considerably from situation to situation.[33] That is, there are no generally accepted methods or content that "work" in every instance. For too long, much training has been faddish in nature or done because of a hunch that certain kinds of knowledge, skills, abilities, and other characteristics (KSAOs) might be in demand in the labor market. In addition, training is often an expensive undertaking, particularly when considering the lost productivity while training is being conducted, the wages and benefits of trainers and trainees, the cost of facilities (on or off site), and the cost of materials and equipment.

When public money is spent to support training efforts by employers or schools, there are certain well-established ground rules in the field of personnel psychology that, if followed, can enhance the likelihood that organizations as well as individuals will benefit. We might characterize these as things to do before, during, and after delivering training.

Before Training

It is essential that a *needs analysis* be done at multiple levels. The most basic question is this: "Is there a demonstrated need for training, given labor market conditions, the strategic objectives and resources of a given organization, and the kinds of behaviors that employees must be able to demonstrate in order to perform their jobs effectively?"

While needs analysis might appear straightforward for a production job, what about service jobs that the majority of Americans hold? Service-industry jobs, such as those in banking, financial services, tourism, and retailing, imply much interaction with customers. Employees need to be able to "read" their customers—to understand them, to anticipate and monitor their needs and expectations, and to respond sensitively and appropriately to those needs and expectations. In the service game, therefore, "customer literacy" is an essential skill, and it can be imparted if the training is targeted to the kinds of behaviors that needs analysis shows to be related to success on the job.

A variety of types of evidence can be marshaled in the course of doing a needs analysis: macro-economic statistics on labor market demand for certain types of skills; interviews with senior managers regarding the future direction of a business and the kinds of KSAOs needed; questionnaires completed by employees that document current and anticipated changes in the nature of their jobs that will require new kinds of KSAOs; and even market research with potential customers to identify customer needs, wants, and preferences. In this approach, *what is to be learned* is identified early in the game and prior to the selection of a particular technique. When it comes to the design of training programs, we know that the chicken comes first, and then the egg follows.

Recommendation: Needs analysis should be a prerequisite to the expenditure of any public funds on training.

During Training

Selection of technique. If the body of needs analysis evidence indicates that training is justified, then there should be a systematic search for appropriate ways to deliver the training. Techniques are judged to be adequate based on the conditions they provide for effective learning to take place. At minimum, a technique should:

- Motivate the trainee to improve his or her performance;
- Clearly illustrate desired skills;
- Provide for active participation by the learner;
- Provide an opportunity to practice;
- Provide feedback on performance while the trainee learns;
- Provide some means for the trainee to be reinforced while learning;
- Be structured from simple to complex tasks;
- Be adaptable to specific problems; and
- Enable the trainee to transfer what is learned in training to other situations.[34]

Delivery of Training: Principles of Learning. To promote efficient learning, long-term retention, and application of the skills or factual information learned in training back to the job situation, training programs should incorporate principles of learning developed over the past century. Which principles should be considered? It depends on whether the trainees are learning skills (e.g., drafting) or factual material (e.g., principles of life insurance).[35]

To be most effective, *skill learning* should include four essential ingredients: (1) goal setting; (2) behavior modeling; (3) practice; and (4) feedback. However, when the focus is on *learning facts*, the sequence should change only slightly: (1) goal setting; (2) meaningfulness of material; (3) practice; and (4) feedback.

Recommendation: Such a checklist should be applied to all proposed training techniques and delivery systems. The objective is to select a training technique that accurately matches demonstrated training needs, and then to deliver training in a manner that will maximize learning, retention, and transfer.

After Training

The primary reason for measuring the outcomes of training is to assess the value of the training effort. To do so, the problem may be cast into a four-part framework:

1. Did change occur?
2. Is the change due to training?
3. Is the change related positively to the achievement of organizational goals?
4. Will similar changes occur with new participants in the same training program?

Unfortunately, as we have noted, training is often presented without any evaluation of its long-term effects. "Millions for training, but not one cent for evaluation," is an exaggerated, but not altogether untrue, characterization of current training practice.

Recommendation: Any proposed legislation that might require firms to spend some percentage of their annual payroll on training should include an evaluation component.

For example, legislation passed in Australia in 1990 required firms to spend 1 percent of their annual payrolls on training in 1990, 1.5 percent in 1991, and 2 percent thereafter. While the objectives of the legislation are understandable (to promote a well-trained Australian workforce), there is no incentive for firms to

improve their training efforts. At least if firms are confronted by their own data that indicate whether or not the training they are offering is effective, they are more likely to take action to improve their efforts.

As we noted earlier, this is a "must-win" situation for America. There are important parts to play by government (through providing funds and incentives to business to offer training), schools (through offering courses and curricula that address short- and long-term labor market demands), and business (by providing training systems that offer the opportunity to develop long-term skills and lifelong learning). This is a long journey and a complex undertaking, but as the Chinese are fond of saying, "Even the longest journey begins with the first step."

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National Center on
the Educational Quality
of the Workforce

University of Pennsylvania
4200 Pine Street, 5A
Philadelphia, PA 19104-4090