

Multiple Approaches for Meeting Workforce Needs Technical Training in the United States Postal Service*

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TECHNICAL TRAINING IS MOST FREQUENTLY DISCUSSED IN THE CONTEXT OF PRIVATE SECTOR ORGANIZATIONS, AND RELATIVELY LITTLE IS KNOWN ABOUT ITS ROLE IN PUBLIC ORGANIZATIONS. THIS ARTICLE DESCRIBES THE ORGANIZATION AND DETAILS THE IMPLEMENTATION OF TECHNICAL TRAINING IN THE UNITED STATES POSTAL SERVICE (USPS). THE USPS OPERATES A STATE-OF-THE-ART TECHNICAL TRAINING PROGRAM, ONE WHICH INCORPORATES A RANGE OF DELIVERY TECHNIQUES, INCLUDING RESIDENT TRAINING AND DISTANCE LEARNING, TO DELIVER OVER 1,800 COURSE OFFERINGS TO MORE THAN 39,000 EMPLOYEES ANNUALLY.

Public sector organizations are being asked to improve service quality, to be more innovative in providing goods and services, and to reduce operating costs. To achieve these purposes many agencies are implementing structural changes and are adopting new technologies and innovative strategies for delivering goods and services. As a result, most public sector employees, from senior-level executives to street-level or line personnel, are called upon to upgrade their knowledge and skills. Several options are available to public sector employees for acquiring new skills, such as educational institutions' courses, internal training courses, and informal on-site training. Unfortunately, the types of courses and skills required by employees differ very widely, depending in part upon their position within the agency and in part upon their job responsibilities. For example, a senior executive may desire a conceptual understanding of new management techniques in a particular field,

whereas a data-entry clerk may seek to learn more about a new database software package. Most of the academic literature on training and development in the public sector focuses on the needs of management and assesses ways to improve human relations within the organization through training interventions; almost no attention has been directed toward technical training programs, and little work has been done regarding training methods used in public agencies.

In the late 1950s, research on human resource management began to emerge that depicted organizations as "socio-technical systems." For example, Trist and Bamforth (1951), who studied work changes in a coal-mining operation, found that technical changes in work processes had a substantial impact on social relations within the organization, suggesting that social and technical aspects of work are not mutually exclusive. Adopting new technologies or innovative approaches to work may lead to changes in an

individual's job responsibilities and role within the organization. Furthermore, employees may find that they have been displaced from their jobs as computers and machines are used to do tasks that had previously been their responsibility. The triumph of a high performance organization is the result of more than having state-of-the-art technology; it is rather the ability of the organization to integrate technology into its system of personal interactions in such a manner that the technology does not subvert the organization's social subsystem. High performing organizations often use targeted training to integrate new technologies into the workplace.

Several scholars have focused generically on characteristics of technical training in business, and some of these findings do indeed have applications in the public sector.¹ The literature on technical training indicates that, with the passage of time, the nature of technical work has changed greatly in many areas of work and new technologies have been introduced that alter the basic skill requirements and job responsibilities of many technical workers. The workforce is aging and new technological innovations are being introduced; in turn, organizations are continually reevaluating their existing training and development programs and, consequently, are investing more heavily in training and retraining entry-level and current technical employees. Moreover, Carnevale and Goldstein (1990: 28) contend that the emerging ethnically diverse U. S. workforce often is not equipped to handle the new requirements of public sector jobs because "new job-seekers come from populations in which our previous human capital investments have been

woefully inadequate." As a result, both private and public organizations may find it difficult in the near future to locate enough skilled workers to meet their demands.

Not only do public agencies compete with one another and with other private sector organizations to attract skilled craftsmen, they must be concerned about retaining these workers. For example, the Armed Forces trains the largest number of skilled craftsmen in the public sector, and over time many of these trainees have matriculated to the private sector for higher wages. Although some research has examined military training and other public sector apprenticeship training programs for blue-collar public sector employees, very little is known about how other public agencies train and develop skilled craftsmen to work in environments where technological changes are occurring (Ricucci, 1991; Booth and Rohe, 1988). Several public organizations, such as the Federal Aviation Administration (FAA) and the United States Postal Services (USPS) have adopted comprehensive and innovative curricula designed to provide intensive, innovative technical training to thousands of new and permanent employees each year.

This article provides an overview of a centralized, cutting-edge approach to technical training employed by the United States Postal Service. It begins with a general overview of the role, structure, and organization of technical training in the USPS and identifies various methods used to provide such training. The discussion then moves to a description of the technical training program of the United States Postal Service, emphasizing curriculum development, alternative delivery meth-

ods employed, and the role of technical training in the organization. Given the limited scholarly attention to technical training in the public sector, this article is predominantly descriptive in its focus.

The Nature of Technical Training

In order to perform most types of technical work employees must grasp a theoretical understanding of their job as well as develop the physical and mental skills to accomplish the tasks associated with their jobs. Technical training courses range from high physical activity safety training and heavy equipment operations to sedentary word processing, and impart skills directed at increasing an "understanding of, and proficiency in, a specific kind of activity, particularly one involving methods, processes, procedures, or technique" (Katz, 1955: 34). These activities are often staples of an organization's operation, and frequently are vital in achieving organizational efficiencies (Carnevale, Gainer, and Schulz, 1990; Mitchell, 1992).

Technical Workforce

Three primary groups comprise the technical workforce: *technical professionals*, such as scientists, architects, and engineers; *technicians*, such as medical records technicians and air traffic controllers; and *skilled craft or blue-collar workers*, such as electricians, machinists, and system operators. The primary and secondary mechanisms for providing training and development to these groups can differ widely. For example, technical professionals receive most of their training through formal education supplemented with both formal and informal training in

the field. Typically, technicians have some degree of formal education; however, their field training is of primary importance in skill and knowledge development. Technicians' curricula are job-specific, they tend to focus on the principles of new technologies, typically emphasize new uses for existing technologies, and often entail official professional certification or licensing (see Carnevale, Gainer and Schulz, 1990).

Skilled craft workers are unlikely to have formal educational training in their trade and, therefore, are dependent on the type of formal and informal training on the job that is found in apprenticeship programs. As a result, the training opportunities provided by an organization are critical in the current and future skill development of technically competent blue collar workers.

As mentioned previously, the nature of technical training of blue collar employees has evolved because of changes in the work processes primarily due to computerization or mechanization of jobs. Some agencies, such as the USPS, have adopted some more technologically advanced approaches to ensure that employees will possess the necessary knowledge and skills to be productive organizational members. In addition, training and development curricula have been expanded to include numerous specialized topics such as safety, environmental regulation, employee assistance, and diversity.

Work Content and Organizational Technical Training Structure

The extent to which technical training has the potential to contribute to the strategic mission and operative objectives of an or-

ganization depends in part on how technical training is controlled and where the technical training function is located within the organization (Carnevale, Gainer, and Schulz, 1990). Technical training operations are typically organized using one of the following three structural arrangements: centralized, decentralized, or a combination of both. The following summaries highlight the merits and identify the organizational characteristics most appropriate for each structural arrangement (Carnevale, Gainer, and Schulz, 1990; 26-32):

1. A centralized training structure is one in which training is controlled or coordinated from a single point within the organization. This structural arrangement is advantageous in that it reduces potential duplication of efforts among different departments and units and should lower training costs as staff, material resources, equipment, and facilities are consolidated into a single entity. Moreover, a centralized program should promote uniformity in focus and quality of training, and ensure that all employees have access to the same training opportunities.
2. A decentralized training structure is one in which control over training responsibilities is delegated to lower organizational levels, and the organization lacks a common point of coordination among different training partners and units. Such an approach works well in organizations that produce multiple goods and services using different processing methods or levels of technology. When organizational units have similar products or

processes, a decentralized structure may not be as efficient and may not effectuate a link between training and the overall mission of the organization.

3. Under a combined structural arrangement, certain training responsibilities or programs are controlled or coordinated from a single point within the organization. When appropriate, other phases or types of training, however, are decentralized and implemented by lower levels. This "hybrid arrangement" incorporates an element of central control and influence, and at the same time allows localities to meet their unique training needs.

As suggested earlier, the structural arrangement of the training function influences the strategies employed by organizations to adapt to changing technologies and work processes. The type of training structure selected by an organization may depend, at least in part, on the extent to which the work can be standardized. Figure 1 indicates the most appropriate structure based on the work content. With a centralized training function, a single entity is responsible for systematically planning, developing, and delivering a training system. This type of approach is best suited for work that lends itself to standardization. The organization has more control over the development and direction of training and, therefore, should be able to socialize employees to the overall mission and objectives of the organization more easily. Furthermore, a centralized training system should provide continuity and uniformity in training for employees dispersed throughout the organization doing similar jobs. When training

FIGURE 1
Technical Training Structure and Work Content

Structure	Work Content	
	Standardizable	Nonstandardizable
Centralized Training and Development		Not Appropriate
Decentralized Training and Development	Not Appropriate	
Hybrid		

■=Appropriate match of content and structure.

responsibilities are decentralized, tasks are delegated to various organizational units and individuals who are typically in direct contact with line personnel. The primary benefit of this approach is that supervisors and/or training specialists assess the performance of individual employees in specific local contexts to determine training needs. Thus, the deficiencies and needs of smaller units and individual employees may be addressed more directly and expediently when training responsibilities are delegated.

Providers of Technical Training

As a whole, technical training has been described as being highly fragmented since multiple entities are typically used to implement specific training courses. In many cases organizations rely on internal trainers, but just as frequently they refer employees to educational providers and negotiate contracts with external entities to provide training. An organization may depend in part on some or all of the following institutions for its technical training and development requirements:

1. Educational Institutions: elementary and secondary schools, noncollegiate post-secondary vocational schools, two-year community colleges, technical institutes, four-year college and universities
2. Nonschool Training Institutions: apprenticeships, vendors, professional associations, unions, community organizations, private instructors, correspondence schools, informal nonwork-related learning

Organizations are still in the best position to conduct internal technical training needs assessments to identify new skills and knowledge required by workers (Carnevale and Goldstein, 1990). However, whether an organization is the most appropriate institution for delivering the training depends on the structure and size of its training staff, the delivery methods used by its instructors, and its organizational resources.

Training Delivery Methods

Some organizations have adopted innovative teaching approaches that have im-

proved the quality and quantity of technical training and, subsequently, have made them less reliant on outside providers for training. Unlike ten years ago, many organizations now have access to high-tech delivery techniques such as satellite networks, interactive video and computers, and audio networks. These methods have been touted as being more cost-effective and time-efficient than traditional methods of training, and they have expanded many organizations' capacities for conducting in-house training (Carnevale, Gainer, and Schulz 1990). These mechanisms also enable organizations to standardize and to centralize training while delivering courses in a more decentralized set of settings (Carnevale, Gainer, and Schulz 1990).

The most efficient and effective programs are designed and delivered in response to the work content and specific needs of the organization and its employees. The structure of the organization's training system will affect the manner in which both organizational and employee needs are assessed, and influence the strategy adopted by the organization for meeting these needs. Once overall technical training goals and objectives are established, decisions must be made regarding who will provide the training and with respect to the most effective method of delivering courses. These choices are critical as they ultimately shape the quality of training courses. A well-developed training system provides an infrastructure that allows the organization to adapt quickly to changes in work processes and to build employee competence.

The Nature of Technical Training in the United States Postal Service

With the rapid expansion and growing complexity of postal mechanization, the Postal Service established a centralized training center to strengthen the quality and quantity of training received by technicians and skilled craft persons. The National Technical Training Center (TTC) was opened in Norman, Oklahoma in 1969 to provide such training. However, by the early 1980s, the Postal Service judged it needed a cutting-edge, technologically smart central resident facility designed with sufficient flexibility to meet the changing needs of its workforce. The Postal Service opened a new "campus" training facility in September of 1988 that contained over 40 classrooms and 43 labs designed specifically for USPS technical training. The typical classroom and laboratory has removable walls, allowing the space to be quickly modified as equipment and learning programs change. Each classroom seats fourteen students, contains video players, monitors, projection screens, and connects to an internal studio for video broadcasts. The facility contains the latest in learning technology, with complete video tape and audio-visual production studios. A 433,000 square foot, 1,000 room housing complex is located next to the TTC facility which provides students with easy access to the training facility. Because of the size and sophistication of the TTC, the USPS is able to provide technical training to thousands of employees each year.

Structure, Organization, and Curriculum of the National Technical Training Center

Most phases of the USPS technical training curriculum are centralized. The majority of trainers are located in the TTC where they design, develop, conduct, and evaluate most of the training courses. In 1995, the TTC employed a staff of 249, and of those 107 (42.97 percent) were contract employees. The USPS uses many contract trainers and support staff, who are presently employed through an agreement with the University of Oklahoma. USPS has found that contract staff provide a cost-effective method of supplementing a core of permanent, full-time technical trainers.

The technical training curriculum includes over 120 courses on subjects such as computerized mail processing equipment, building systems, data communications and information systems, postage vending machines, and postal vehicles. The current curriculum includes apprenticeship training, supervisory training, retraining, and new technology training. A curriculum planning and development team is responsible for evaluating the new and changing training needs of the USPS. This team works closely with field customers and USPS specialized training teams to develop new classes and to evaluate existing training courses.

Table 1 presents a list of the training teams in the following areas: delivery, retail and operations; facilities and environmental support; letter mail preparation and sorting systems; and letter mail bar code systems. In addition, for each area the number of courses offered, the number of employees trained, and the num-

ber of training days completed in 1995 is displayed. In total, more than 1,800 course offerings were taught to over 39,000 employees in 1995. As the findings in Table 1 indicate, the facilities and environmental support team taught the most courses (31.59 percent) and trained the most employees (44.77 percent), averaging three days of training per student. However, the more technologically advanced courses are longer on the average providing 8 to 10 days of training per student.

Figure 2 shows that the number of students trained by TTC has been increasing generally since 1988. During 1995, 15,400 students received resident training and 23,706 received training in the field, representing a 33.58 percent increase in resident training and a 81.85 percent increase in field training from 1994. These increases reflect an enhancement in training across the postal curriculum, especially in environmental support courses such as waste reduction, recycling, and hazard communications. The significant growth in numbers of trainees between 1994 and 1995 is due in part to the mixture of delivery methods employed by TTC; that is, more students completed distance learning training courses in 1995 than in previous years.

Training Delivery Approaches

Currently, the TTC combines various delivery methods such as resident training, distance learning, self-study, and on-site field training to administer courses to thousands of postal service employees each year. The following discussion focuses on resident training and distance learning because they are TTC's most fre-

TABLE 1 Technical Training Center Curriculum Teams

Area	Specific Teams	Offerings	Trainees	Training Days	Average Days Per Trainee
Delivery, Retail, and Operations Teams	Diesel Light Delivery Vehicle Fleet Support Automotive Administration Self-Service Vending/Accident Investigation Industrial Electrical Service Maintenance Management Carrier Sequence Bar Code Sorter/ Computer Forwarding System Maintenance and Operations Management Support (MOMS)	466	9,531	33,542	3.5
Facilities and Environmental Support Teams	Building Systems Environmental Support Industrial Electrical Service Maintenance Management	581	17,315	57,381	3.3
Parcels, Flats, and Communications Systems Teams	Bulk Mail Center Flat Sorter Machine Model 881 Flat Sorter Machine Model 1000 Postal Source Data System Small Parcel and Bundle Sorter	207	3,650	35,342	9.7
Letter Mail Preparation and Sorting Systems Teams	Advanced Facer Canceler System ECA/Westinghouse Bar Code Sorter ElectroCom Automation Delivery Bar Code Sorter Mechanization	251	3,880	39,121	10.1

TABLE 1 (continued)

Area	Specific Teams	Offerings	Trainees	Training Days	Average Days Per Trainee
Letter Mail Bar Code Systems Teams	Multiline Optical Character Reader, Model A Multiline Optical Character Reader, Model B Remote Bar Coding System Ink Jet Printers	334	4,730	38,893	8.2
Total		1,839	39,106	204,279	

Source: United States Postal Service, Technical Training Center, 1995b

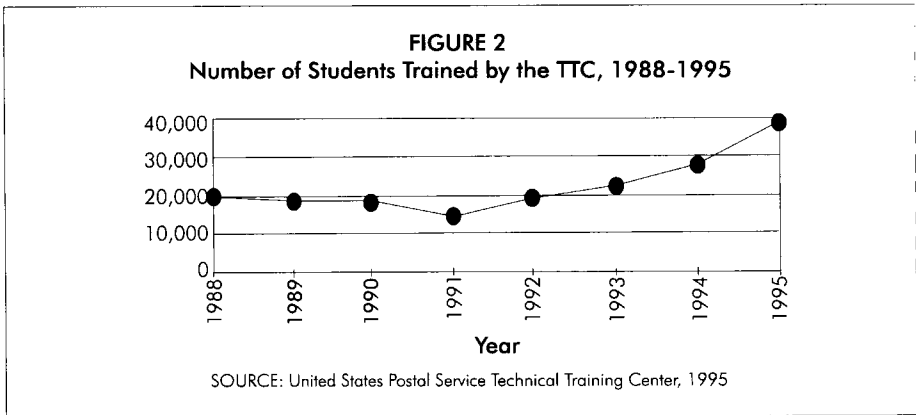
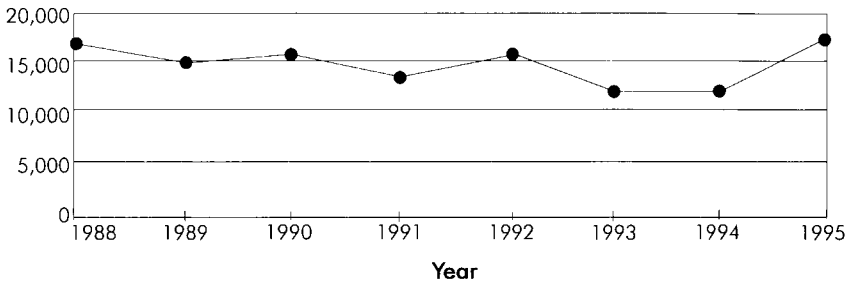


FIGURE 3
Number of Students Enrolled in Resident Training, 1988-1995



SOURCE: United States Postal Service Technical Training Center, 1995

quently employed methods.

Resident Training. Resident training is provided at the TTC to employees from across the United States. The TTC often operates resident training sessions up to 20 hours a day. The underlying assumption of resident training is that courses should bridge theoretical concepts and practical application. During a typical course, students spend part of their time attending class lectures and participating in class discussions, and the other part of their training is spent in an adjacent training laboratory practicing the concepts that are learned in the classroom. As Figure 3 demonstrates, the average number of students receiving resident training has fluctuated since 1988, due largely to budget constraints and advances in alternative delivery methods.

Distance Learning. The TTC first incorporated distance learning as a delivery technique in the late 1980s to meet the escalating training needs of their employees due to the adoption of new technologies. The TTC operates one of the most

versatile distance-learning delivery systems in the nation, incorporating audio, graphics, and live satellite training. Postal-owned networks are used for distance learning, including the Postal Satellite Training Network (PSTN), Postal Audio Training Network (PATN), and audiographics systems that are being upgraded to multimedia capability. The Postal Service has been recognized as an innovative leader in distance learning and teletraining by the U.S. Distance Learning Association (United States Postal Service Technical Training Center, 1995). The use of distance learning enabled the TTC to train nearly twice as many employees in 1995 as it did in 1992 when its faculty was downsized in the reorganization of the USPS. In 1995, 17,595 students (45 percent) of the U.S. Postal Service Technical Training Center's students took courses in the five major curriculum areas identified in Table 2 via the TTC's distance learning networks.

The Postal Satellite Training Network uplinks live satellite broadcasts to over

310 sites through the United States. The video is one-way, with two-way telephone interaction between instructors and students. During 1995, over 11,700 students participated in 18 different substantive training courses offered at different times on the PSTN. For example, using the satellite broadcasting network, the TTC trained over 2,400 employees in one year on the Vending PBM 624 machine, a task which would have taken over 3.5 years to complete using the resident training approach.

In 1995, over 5,800 students received training in nine courses over the Postal Audio and Audiographics training networks. Over 460 postal facilities are equipped to receive both teletraining and audiographic courses via the PATN. The audio teletraining uses a telephone bridge to link instructors from the Training Center to postal students in their home offices. The network of audiographics adds interactive computer graphics to teletraining lectures. Instructors are responsible for developing and designing computer graphics training materials that are installed on computers located in participating field offices. The instructor leads the course from his or her computer in the TTC and controls the students' progression through the training course. The trainees and instructor are able to interact both verbally and with the computer by using the keyboard and screen. For example, the trainee or trainer can "write" on their computer screen pad and the data is transferred to the computer screens of all participants.

Additionally, trainers integrate alternative delivery methods when appropriate. For example, in 1995 the TTC offered eight weeks of training for 670 employ-

ees on the Remote Bar Coding System. Seven of those eight weeks required that students reside at the TTC and participate in a lab-intensive course. One week, however, was taught using audiographics and resulted in an approximate savings of \$800 per student in avoided travel, food, and housing costs (United States Postal Service, 1995).

The TTC has used distance learning programs to achieve some of the same goals as resident training, but only reach larger audiences in shorter periods of time. For example, a typical resident course requires two instructors for 14 students for lecture and lab while a typical distance learning course uses one centralized instructor to teach up to 56 students at 14 sites. With the necessary equipment installed throughout field offices, the USPS will be able to continue to increase employees' access to technical training courses by adapting existing courses and developing new courses to be taught via the postal training networks.

Changing Work Processes in the USPS

Since 1987, the Postal Service has invested over \$2.6 billion for capital equipment to automate mail processing and delivery point sequencing operations. In the past four years, the Postal Service installed over 4,000 optical character readers, delivery bar code sorters, and other pieces of equipment at postal facilities throughout the country. By the end of 1997, about 12,000 pieces of automated sorting equipment will be in place (United States Postal Service, 1994a). Postal automation plans for the 1990s call for additional and dramatic expansion in the use of high-tech-

nology equipment to process the nation's mail. This expansion is expected to highlight critical requirements for more advanced technical training. With foresight, the Postal Service created a training infrastructure that will permit them to adopt to technological advances and to address the changing workforce needs of their employees.

The Postal Service has designed a delivery system that has not increased in constant dollar cost during the last 15 years. Figure 4 displays the average training cost per training workday in real and constant dollars. The 1995 average training cost in 1980 dollars per training day is about five percent lower than it was in 1980. Thus, when adjusting for inflation, the TTC is providing technical training at a slightly more efficient rate than in 1980. This trend no doubt reflects the incorporation of alternative and innovative training delivery mechanisms.

USPS' Technical Training Delivery Methods and Knowledge Acquisition

USPS's technical training design provides it opportunities to implement cutting-edge training practices. Several of these approaches can be linked to contemporary theories of knowledge acquisition that extend the scientific paradigm and enhance technical rationality.² The following discussion will focus on two aspects of the USPS training system that have direct implications for knowledge acquisition: (1) "hands-on" training; and, (2) distance learning.

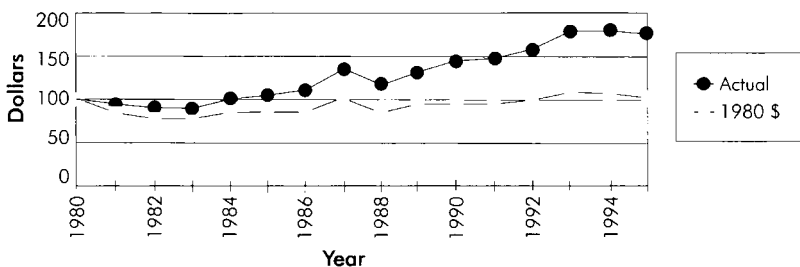
The resident technical training courses are designed so that employees learn and acquire skills by using "hands-on learn-

ing" laboratories to supplement traditional classroom instruction. This approach lends itself to resolving learning problems exposed by the epistemological investigations of Schoen (1983), Schmidt (1993), and Zuboff (1988).

Schoen specifically argues that an individual knows differently while at work than before or after work. He draws a distinction between "knowing-in-action" or knowledge from work and "knowledge-in-action" or knowledge extracted from work that is theoretically developed and, subsequently, applied to specific work situations. Moreover, Schoen demonstrates that individuals learn *while* they are engaged in *work*, an idea which he illustrates to be different from viewing work externally. The primary implication of his research for training is that knowledge obtained outside of the context of work must then be translated into a sense for the work *while* working. According to Schoen (1983: 49), "it seems right to say that our knowing is *in* our action." As mentioned previously, the TTC structures most classes to incorporate both traditional classroom lectures and exercises and "hands-on" lab sessions. Trainees are typically introduced to new diagnostic principles and theories in the classroom that they later apply in a "hands-on" lab setting. This approach enables employees to compare, contrast, and synthesize what they learned in both settings.

This approach also corresponds with the strategy used by Schmidt, a student of Schoen's, to explain discrepancies in analyses of major disasters (using the 1975 failure of the Teton Dam in Idaho as an example). Schmidt (1993: 525) demonstrates that technical-rational and organizational explanations alone are insuffi-

FIGURE 4
Technical Training Cost Per Training Workday, 1980-1995



SOURCE: United States Postal Service Technical Training Center, 1995

cient, and that attention must be directed toward the testimony of those who have developed a “feel” for the work to capture the subtleties of the situation.

The second aspect of the technical training system of the USPS that will be highlighted in terms of knowledge acquisition is distance learning. The TTC’s use of distance learning to deliver lectures fits with Zuboff’s work on the impact of computers on the workplace. In a pathbreaking study, Zuboff focuses on the way the computer interrupts the direct linkage between judgment and sensory observation of physical work:

As the medium of knowing was transformed by computerization, the placid unit of experience and knowledge was disturbed. Accomplishing work depended upon the ability to manipulate symbolic, electronically presented data. Instead of using their bodies as instruments of *acting-on* equipment and materials, the task relationship became mediated by the information system (Zuboff, 1988: 62).

Because courses taught via the distance learning networks also incorporate “hands-on” segments, the USPS increases

the diagnostic capabilities of technicians being trained in increasingly computer-mediated systems. The Technical Training Center’s combination of symbolic instruction and applied learning offers considerable opportunity for future study and evaluation similar to the approaches used by Schoen (1983), Schmidt (1993), and Zuboff (1988) .

Conclusion

The USPS has a state-of-the-art resident technical training facility and faculty that have the capability of training over 39,000 technical workers a year. Training among the various types of technical jobs is closely coordinated because USPS has a centralized technical training center. Furthermore, using advances in delivery techniques, the TTC has significantly increased student access to training and improved the overall cost-effectiveness of technical training. The technical training infrastructure of the USPS serves as a model to other public agencies. Most significantly, this training system directly supports the agency’s strategic goals by

ensuring that all employees are provided with the best technical training available in either the public or private sector.

This article should stimulate more consideration and discussion among practitioners and academicians about the future role of technical training in the public service, the organizational and delivery options available to agencies, and the impact of these decisions on employees' knowledge acquisition. Moreover, it offers an example of an existing program that may be used as a prototype for updating and improving other public sector technical training systems. Future research should be directed toward understanding the process of developing technical training curricula, the potential uses of technical training in the public sector, and the advantages and disadvantages of different structural arrangements of training systems, alternative training providers, and innovative delivery methods. Finally, this article has sought to promote the argument that the attention of public personnel administration academics and professionals should be directed toward understanding the impact of technical training on the social and interpersonal aspects of public organizations.

Acknowledgements

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Notes

¹Given the limited attention to technical training in the public sector, this article draws extensively from the research of Carnevale, Gainer, and Meltzer (1990), Carnevale, Gainer, and Schulz (1990), and Carnevale and Goldstein (1990) to develop a framework for

understanding technical training in public organizations. The primary purpose of this article is to highlight the fact that although public agencies, like private firms, devote resources to technical training, little is known specifically about how public agencies structure and deliver technical training.

²For a thorough discussion of the problem of knowledge acquisition in public administration, see Adams and White, 1994.

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Call for Papers

Benefits in the Public Sector: A Symposium Dennis M. Daley, Editor

The *Review of Public Personnel Administration* has commissioned a symposium that will examine the issue of benefits in the public sector. The symposium will be blind refereed and will appear in Spring 1998.

Manuscripts are requested that examine all aspects of employee benefits. The symposium will include papers that examine the methods organizations use for choosing and administering benefits programs. Substantive benefit issues will also be examined related to the provision of health care as well as retirement and pension systems. Papers addressing how benefit options are communicated to employees are especially encouraged.

Proposals for 20- to 25-page papers are welcome. Individuals are invited to submit a one-page proposal with a tentative outline of their papers to:

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Proposals must be received no later than June 1, 1997.
Completed manuscripts are due by January 30, 1998.