



Ronald L. Jacobs

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# STRUCTURED ON-THE-JOB TRAINING

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Unleashing  
Employee Expertise  
in the Workplace

S E C O N D   E D I T I O N

An Excerpt From

***Structured On-the-Job Training:  
Unleashing Employee Expertise in the Workplace  
Second Edition***

by Ronald L. Jacobs

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## Preface

This second edition has a decidedly different emphasis from the first edition. The first edition of this book essentially introduced the point that on-the-job training (OJT) in organizations could be structured, or planned, in nature and that it could result in more reliable and predictable training outcomes. Making such an assertion seemed appropriate at that time, given that relatively few organization managers or human resource development (HRD) professionals had considered OJT in this way. Indeed, experience showed that most people in organizations continued to view OJT as being mostly unstructured. Thus, the first edition of the book, in large part, took on the mission of promoting the use of structured on-the-job training, or S-OJT™, as a training approach.

The goal of the second edition is to expand and extend the initial emphasis, but without losing the fundamental message. Introducing a second edition suggests that it is sufficiently different to make the investment worthwhile to the reader. The second edition has much new information blended into existing chapters and has added four new chapters, indicating that the past several years have been extremely fruitful ones for advancing the theory, research, and practice related to S-OJT. Many more practitioners and scholars have begun to focus their professional energies in this direction. And more resources are now available on the topic than ever before. From a few voices heard on the topic

just a few years ago, a group of like-minded individuals has emerged. Indeed, entering *structured on-the-job training* on any Web search engine brings forward a wide range of links in which the term appears.

Some have asked what more could be said about S-OJT? There is apparently much more to be said, and there seems no end in sight, given our era of rapid change. Of course, all of this interest is good in the long run for improving HRD practice and, by extension, for improving organizations and society in general.

This broader perspective represents the second edition. That is, the book seeks to address how S-OJT can help respond to the ever-changing competence needs of individuals already employed in organizations and those preparing to be employed in the future. In truth, S-OJT practices have moved in directions that could not have been predicted just a few years ago—such as being used with high school youth entering work-based training programs and being part of publicly funded economic development efforts. Indeed, while the first edition made important advances at the time, it looks inadequate in some respects when viewed in today's more global economic context. Thus, the time seemed appropriate to introduce this second edition.

As stated, the fundamental issue being addressed is how people learn to do their work. Almost all employees have experienced some form of OJT in their working life, regardless of job level or type of organization. Few, if any, training programs in a setting away from their work can present all areas of knowledge and skill effectively. In a practical sense, OJT helps employees bridge the gap between learning and making use of what was learned. And OJT offers the potential benefit that some useful work might even be accomplished during the training period.

While some time has passed since publication, the estimates by Carnevale and Gainer (1989) continue to seem appropriate for consideration:

- Eighty to 90 percent of an employee's job and knowledge will probably be learned through OJT.
- Organizations will spend three times more per employee for OJT than for off-the-job training, even if there is no designated budget item for OJT.
- Up to one-third of an employee's first-year salary is devoted to OJT costs.

Unfortunately, most OJT in organizations continues to be unplanned and thus potentially harmful to organizations and individuals. Expediency is often the major reason for using unstructured OJT, and the likely consequences of its use are often not considered. In the eyes of many managers, OJT has few or no costs and can be implemented quickly and easily. The training process is often left to other employees who, while they may know their jobs, are relatively unskilled as trainers. Such an approach is often the major argument made against the use of OJT. As a result, many organizations rely on off-the-job training without considering its suitability for the learning task at hand.

An increasing number of managers and HRD professionals appreciate two basic truths about the training that occurs in their organizations. First:

*Training programs have a strategic role in organizations.*

The global economy, which demands increased flexibility in production and service delivery, use of advanced technologies, and increased responsiveness to customers' needs, continues to emphasize the strategic importance of high levels of employee know-how or expertise. High-performing and successful organizations depend on employees who can effectively solve problems and make decisions. But as tasks have become increasingly complex, they have also been subject to constant change. Second:

*OJT does not have to be ineffective.*

As a result, *structured* on-the-job training has become part of the lexicon of the HRD field. The term *structured* simply means that the training has undergone adequate forethought and planning.

These two basic truths have done much to promote the present level of interest in S-OJT as a training approach. While S-OJT has many features in common with other forms of structured training, it is distinct in other respects. For example, it emphasizes one-on-one contact between experienced and novice employees as the primary means of conveying training content. By concentrating on S-OJT, this book addresses an important need in the literature on management and human resource development.

Specifically, this book provides a comprehensive guide to understand, develop, and use S-OJT. Its underlying goal is to improve the training approaches currently used to develop high levels of employee competence, or expertise, in the workplace. Once developed, this expertise can be unleashed or made available to help solve problems for the benefit of individuals, organizations, and societies alike. To achieve this goal, principles have been drawn from sound theory and proven professional practice. Useful theory comes from sound practice, and sound practice produces predictable and consistent results—the same ends that managers in organizations have for their business processes.

A system view of S-OJT remains the cornerstone of the book. A system view ensures that S-OJT is understood in the same way that organizations are understood. Both S-OJT and organizations must be considered as dynamic systems that have their own sets of inputs, processes, and outputs. System designers are often concerned with how systems work together, and the same concern applies to structured OJT. S-OJT as a training system comes into direct contact with another system, the work system. How organizations reconcile training and working when S-OJT is used is an issue of primary importance.



## PLAN OF THE BOOK

The fifteen chapters of the book are grouped into three parts. Part One, “Meeting the Demand for Employee Expertise,” provides a rationale for the use of S-OJT and a framework for understanding it. Chapter 1 introduces the notion of employee expertise and shows that the need for developing such expertise effectively and efficiently has prompted much of the recent interest in S-OJT. Chapter 2 defines the system view of S-OJT, discussing the features that make it different from other training approaches. Chapter 3 discusses S-OJT as a form of formal learning and compares it with informal learning on the job, a topic of growing interest.

Part Two describes the steps involved in developing S-OJT. Chapter 4 examines the ways of using S-OJT and shows how one decides whether to use S-OJT for a given unit of work. Chapter 5 discusses how to conduct a work analysis in the preparation of S-OJT modules. Chapter 6 covers the selection, training, and management of S-OJT trainers. Chapter 7 presents the preparation of S-OJT modules. Chapters 8 and 9 describe the delivery process. And Chapter 10 discusses the evaluation and troubleshooting of S-OJT programs. The chapters include checklists, summary lists, or examples to guide readers through the steps involved.

Part Three, “Using Structured OJT,” addresses the implementation of S-OJT. Chapter 11 presents how S-OJT has been used as part of the organizational change process, especially in addressing the need for increased employee flexibility. Chapter 12 discusses cross-cultural issues and how S-OJT has been used in the global context. Chapter 13 describes how S-OJT is being used as part of workforce development, an area that will likely help define S-OJT in the future. Chapter 14 makes the point that S-OJT should be implemented within a change management process. It also examines the issues involved in its use. Finally, Chapter 15 calls for the development of an organizational culture of

employee expertise based on the use of S-OJT and other training approaches that encourage continuous learning.

Finally, Appendix A presents an excerpted portion of the Training within Industry (TWI) Report (Dooley, 1945) describing the influential lens grinder study. The TWI program during World War II first established S-OJT as a reliable means to improve organizational performance. The appendices also include documents of interest to developing S-OJT programs.

## **ACKNOWLEDGMENTS**

The second edition of this book benefited much from the continuing interest and support of numerous friends and colleagues throughout the globe, in both university and organizational settings. I especially wish to acknowledge Ohio State University for providing me the time to complete the second edition. Finally, I am thankful to Marsha Jenkins, my partner and wife, for her continued love and insight. To them all, I say thanks.



## PART ONE



# MEETING THE DEMAND FOR EMPLOYEE EXPERTISE

Part One argues that developing high levels of employee competence is one of the most challenging issues for organizations. The proved efficiency and effectiveness of structured on-the-job training makes it especially suitable for meeting this challenge. Most other forms of training that occur in the work setting are essentially unstructured in nature.



## **Chapter 1**

# **The Challenge of Developing Employee Expertise**

The primary goal of this book is to provide a practical guide to understanding, developing, and using S-OJT. It seems important first to examine why this training approach has attracted increasing interest among many managers and human resource development (HRD) professionals. Thus, while presenting the rationale for the book as a whole, this first chapter addresses:

- employee expertise and the situations that affect expertise in the global economy,
- how organizations develop employee expertise through training, and
- issues that have prompted the recent interest in S-OJT.

### **EXPERTISE IN THE GLOBAL ECONOMY**

Most people have faced the challenge of learning new knowledge and skills as part of their job. Training programs are designed to make this learning easier and less threatening. Yet, training is not meant to benefit individual employees only. The organization expects benefits from employees'

training. In fact, training helps ensure that employees can do what the organization asks of them. Thus, training is ultimately about the issue of developing high levels of employee competence, or expertise.

*Expertise* is what experts know and can do. *Experts* are the individuals who are the most capable in specific areas of human endeavor. History has seen a great variety of experts: nomadic hunters who fashioned hunting tools from pieces of flint; mathematicians who planned the Egyptian pyramids; Renaissance artists who represented three dimensions in their paintings; eighteenth-century craftsmen who manufactured precision machine tools; managers today who devise strategic plans to guide the future of their organizations. Without the expertise of skilled persons, it is unlikely that our civilization could have advanced in the way it has over the millennium.

While expertise has been important for human progress, it is particularly important in contemporary organizations. The global economy demands increased flexibility in production and service delivery, improved use of advanced technologies, and increased responsiveness to the requirements of customers, and these demands have made expertise more prized than ever before (Jacobs & Washington, 2002; Carnevale, 1991). Drawing on the results of a four-year study, Kotter and Heskett (1992) suggest that the competitiveness of many organizations is determined largely by the knowledge, skills, and attitudes of the people in them. Peter Drucker (1993) states that knowledge is the primary resource for organizations in the present postcapitalist society.

Organizations must transform themselves if they are to become more competitive, and the competence of individual employees has become critical for ensuring the success of the transformation process. More than ever before, high-performing and successful organizations depend on employees who can perform complex tasks, such as solving problems and making decisions. But employees can perform

complex tasks only if they possess the necessary knowledge and skills. Thus, when individual employees possess higher levels of competence, the organization as a whole is more able to respond effectively to the challenges it may face.

The reality of contemporary organizations is that most employees are being asked to develop higher levels of competence rapidly and continuously without undue interference in the ongoing work of their organization. All too often, competence requirements shift just as employees have come to feel comfortable with current ways. Customer service representatives—a function that appears, in various forms, in organizations—have been especially prone to such sudden changes in their work requirements. And when a new inventory management system is installed, a large portion of the knowledge and skills associated with the old system is no longer required.

In contrast to an organization's other resources, such as cash and equipment, human competence is not concrete. One cannot see it or reach out and touch it. Nevertheless, managing competence is often more central to an organization than managing its tangible resources. At the same time, the effects of expertise are clearly observable. When employees use their abilities to perform work, their efforts produce a range of outcomes.

People who possess the highest levels of competence are called experts. By definition, experts achieve the most valuable outcomes in organizations. Being an expert is but one level of human competence. Table 1.1 shows human competence categorized into a taxonomy ranging from a novice to that of a master (Jacobs & Washington, 2003). People whose outcomes are less valuable or who produce no outcomes can have lower levels of competence. These individuals are novices, or beginners. Those individuals who can perform specific tasks and achieve a limited range of work outcomes in doing those tasks, can be considered as specialists. When those individuals have some experience with the tasks over

**TABLE 1.1. Levels of Human Competence**

<i>Category</i>	<i>Description</i>
NOVICE	Literally, one who is new to a work situation. There is often some but minimal exposure to the work beforehand. As a result, the individual lacks the knowledge and skills necessary to meet the requirements set to adequately perform the work.
SPECIALIST	One who can reliably perform specific units of work unsupervised. But the range of work is limited to the most routine ones. Often it is necessary to coach individuals at this level to help them use the most appropriate behaviors.
EXPERIENCED SPECIALIST	One who can perform specific units of work and who has performed that work repeatedly. As a result, the individual can perform the work with ease and skill. It is possible to remain at this level for an extended period of time.
EXPERT	One who has the knowledge and experience to meet and often exceed the requirements of performing a particular unit of work. The individual is respected by others and highly regarded by peers because of his or her consummate skills, or expertise. The individual can use this ability to deal with routine and nonroutine cases, with an economy of effort.
MASTER	One who is regarded as “the” expert among experts or the “real” expert among all employees. He or she is among the elite group whose judgments are looked upon to set the standard and ideals for others.

time, they are experienced specialists. These individuals cannot yet be considered as experts by virtue of their experience alone. Chi, Glaser, and Farr (1988) say that in contrast to all other levels, experts possess an organized body of conceptual and procedural knowledge and have much experience over time. Masters are experts of the highest order, and not all experts achieve this level of competence. Jascha Heifetz, generally known as one of the most brilliant violinists of the twentieth century, once remarked when offered a university teaching position, "I hope to be good enough to teach." Such is the high regard and difficulty for experts to move to the next step to attain the master level of competence.

Being an expert means that those persons can use their high levels of competence in practical ways. That is the essential nature of expertise. One does not reach the expert level overnight. Certainly all experts first began as novices, and there were stages of development in between. The training certificates of a skilled professional—say, an auto mechanic or a physician—simply mean that he or she has completed the educational requirements necessary for doing the set of work. For a customer, the certificates signify that the job holder has the potential for providing effective service. The certificates do not guarantee that the mechanic or physician knows how to use the information that he or she has acquired or that he or she can take the appropriate actions in specific instances. From the customers' perspective, determining whether the professional is an expert depends on how the vehicle functions after the repair or how fast the patient recovers after diagnosis and treatment.

Thus, expertise almost always refers to the ability to use knowledge and skills to achieve outcomes that have value to someone else. Yet, being a *master*, *expert*, a *specialist*, or a *novice* are usually relative notions. Gilbert (1978) states that individuals who demonstrate exemplary performance or the historically best levels of performance while incurring the



lowest costs in doing their work always seem to emerge in organizations. Therefore, the outcomes achieved by experts are exemplary, but *exemplary* is a standard that can change over time. This fact is seen most dramatically in organizations that have undergone major change efforts. When experts leave an organization—oftentimes for early retirement—the other employees naturally move up to use what they know and can do, even if they cannot achieve the same outcomes equal to the persons who had just departed.

Employee competence in organizations is subject to continuous change. Seven related situations occur that affect employee competence: new hires, job promotion, job rotation and transfer, continuous improvement efforts, multi-skilling, technology, and change in the nature of work. While these situations have always been with us, they occur today with greater frequency, and their impact on organizational performance is potentially more crucial than it has been in the past.

### **New Hires: Full-time, Part-time, and Temporary Employees**

As entrants into the organization, new hires have always required extra organizational attention to develop the required level of competence. Regardless of academic background or previous work experience, the new hires should be aware of the organization's policies, culture, and mission; understand the goals and requirements of their work area; and use specific areas of knowledge, skills, and attitudes to do their jobs. These are all areas of competence that the employee should develop.

Recently, fewer organizations seem to be hiring large numbers of new hires. It might seem that employee competence would be affected less by this situation. However, recent hiring patterns have only complicated the matter. Instead of relying on permanent new hires, many global or-

ganizations are now bringing in part-time and temporary employees. The Organization for Economic Cooperation and Development (OECD), an independent organization of thirty member countries sharing a commitment to democratic government and the market economy, estimates that nearly 15 percent of the U.S. labor force is employed part-time, nearly 20 percent in Germany, nearly 25 percent in Japan, and over 30 percent in the Netherlands (OECD, 2002).

As the baby-boomer generation reaches retirement age, these percentages will likely increase. Organizations face unique challenges when they employ large numbers of part-time and temporary employees. After all, temporary employees are expected to achieve the same quality and productivity outcomes.

## **Promotion**

Promotion is another common situation that affects the collective competence of organizations. When employees are given new roles or their status is upgraded, they invariably need to acquire new areas of competence. It will take some time before these employees know and can do all the things necessary to perform at high levels in their new assignments. Once the initial elation of the promotion passes, these employees often feel much discomfort and uncertainty.

The effects of promotion on skilled technical employees who are promoted into supervisory positions are particularly evident. In their new role, these employees discover that they must perform work representing totally new areas of knowledge and skills, such as planning the work of others, providing coaching and counseling, and conducting performance feedback sessions with subordinates. These demands often cause some to wonder whether they really want to keep their new positions or return to the relative comfort of their previous positions.

## **Rotations and Transfers**

Rotations and transfers move employees into different roles or functional areas. The new assignment can be either short-term or permanent, depending on the intent of the move. Many organizations use rotation and transfers as a planned part of the career development process. These experiences invariably place new demands on employees' knowledge and skills.

The challenge for organizations is to help these employees achieve their individual goals by giving them access to new career opportunities whenever possible, while at the same time making certain that the movement of employees does not unduly disrupt the organization's ability to achieve its goals.

## **Continuous Improvement Efforts**

Changes in employee competence also occur as a result of continuous improvement efforts. Whenever teams of employees get together to improve how the work is done, they often result in recommendations for change. These recommendations can involve the simplification of work, use of a new tool, eliminate redundant steps in work process, or some combination of them all. When these recommendations are enacted, changes in employee competence can be expected.

## **Multiskilling**

When the continuous improvement process suggests ways of making work more efficient, it often means that employees' responsibilities must broaden or that they must become more multiskilled (Jones & Jacobs, 1994). Many managers find that developing multiskilled employees enables them to reduce costs, improve productivity, and enrich employees' jobs. Corporate redesign has also increased the need for employees to become more multiskilled.

Multiskilling makes it possible for employees to share work or to take over for each other when work conditions permit this to be done. Multiskilling can be an effective way of increasing efficiency and productivity, but many areas of knowledge and skill are required in order for them to perform the additional tasks expected of them. How to acquire the ability to perform the new work, without lessening the individual's ability to perform their present work, remains a challenge.

## **Technology**

Possibly the single most pervasive force affecting the competence of organizations is technology. Technology takes many forms: using a laptop computer to calculate insurance needs, managing an automated inventory control system, or operating an industrial robot on a production line. Nearly every employee has already faced or in the future will face changes in his or her work caused by the introduction of technology. The U.S. Bureau of Labor Statistics estimates that employment in information technology jobs more than doubled from 1988 to 1996. But the pool of workers with the appropriate skills has not kept pace with this demand, placing greater emphasis on organization-based training.

In fact, many organizations are now entering their second or third generation of technological change, which means that employees must make a continuous effort to develop new areas of knowledge and skills.

In one sense, today's technology is only a new generation of work tools, no different in many respects from the tools that man used in the past. But, because recent advances in technology have already caused such dramatic changes in the way work is done, many employees now expect their present levels of competence to have a relatively short life span and that they need to acquire new areas of competence on a continuous basis.

## **Change in the Nature of Work**

Increasingly, employees are not assigned to a job with distinct sets of tasks. Instead, more and more individuals are moved from project to project, especially with those employees involved in knowledge work. Often the project team brings a variety of experiences and skills to a certain project. This rich mixture of backgrounds allows the team to tackle simple and complex projects.

When an employee joins a project team, there are some units of work that team members must perform for the first time. Simply put, they must acquire the new areas of competence in a relatively short period of time. Failure to do so will likely have an adverse impact on the entire project and the performance of the other team members. Individuals must develop new competencies as they are assigned to the projects.

To summarize, the seven situations just reviewed affect the relative level of employee competence within organizations. When employees' knowledge and skills are affected in a detrimental way, it often takes considerable time to recover. And while areas of employee competence have always been subject to change, change is more common than ever before, and the need for new areas of competence has thus increased. All these factors mean that developing the appropriate levels of human competence in the most effective and efficient ways possible is one of today's major challenges.

## **DEVELOPING EMPLOYEE COMPETENCE THROUGH TRAINING**

Training is the primary means that organizations use to develop employee competence to the appropriate levels required. In this sense, training and employee competence

go hand in hand. Whether employees need to be experts or specialists to meet work expectations, training is the means to communicate that information to others. Of course, training alone cannot instantly make an employee a high performer. Training can only help an employee achieve the specialist level of competence first of all, and the employee must make an effort over a period of time to achieve a higher status. However, achieving mastery at the specialist level is prerequisite for becoming an expert later on. And the best way of achieving mastery is through some form of structured training.

In this book, training in organizations can be distinguished by the two basic locations in which it is conducted: off the job and on the job.

### **Off-the-Job Training**

In general, off-the-job training programs provide group-based learning opportunities on a variety of topics at a site other than where the work is actually done. Off-the-job training can be conducted in an off-site training classroom near the job setting, in an adjoining facility dedicated exclusively to training, or in a corporate or private facility located far away from the work setting. In many instances, off-the-job training requires extensive travel. Training classrooms, vestibule training setups, and specially constructed training laboratories are some examples of off-the-job training sites.

Within the past thirty years or so, the use of formal off-the-job training programs has risen dramatically. Carnevale and Gainer (1989) estimated that more than \$30 billion is spent for off-the-job training programs every year. It seems difficult today to estimate with any confidence the total amount of money spent on training in organizations. However, surveys of benchmarking companies conducted by the American Society for Training and Development estimated

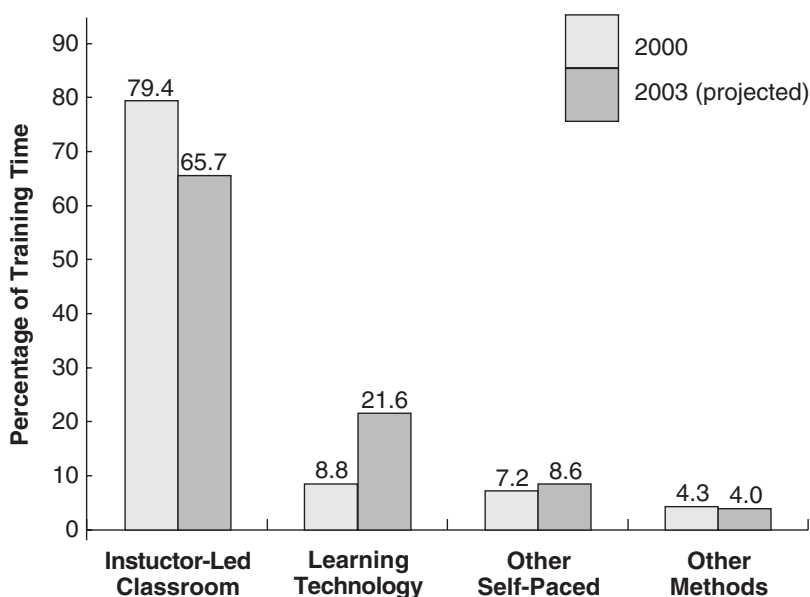
that total training expenditures continue to increase, whether measured on a per-employee basis or as a percentage of annual payroll, upward of 37 percent between 2000 and 2001 (Van Buren & Erskine, 2001).

Although these amounts are impressive, it may still not reflect the total cost of off-the-job training. Many organizations have made sizeable investments in the construction of specialized training centers and campuslike facilities in which their training programs are conducted. Nor does the figure just cited include the costs of the human resource development staff to design, deliver, and manage the training programs conducted in these facilities. These expenses would undoubtedly increase the cost of off-the-job training programs.

Further evidence for the prevalence of off-the-job training programs comes from the American Society for Training and Development (ASTD), which publishes an annual report of the state of the human resource development industry (Van Buren & Erskine, 2001). Figure 1.1 shows that among benchmark companies, instructor-led courses in a classroom were reportedly used for the highest amount of training time. This same result has been reported in the previous five annual reports, though it is doubtful if the estimates actually represent the true picture of how learning occurs in these benchmark organizations.

### **On-the-Job Training (OJT)**

Not all training occurs off-site. In fact, most learning occurs as a result of training that is conducted in the work setting itself, not in a training classroom (Jacobs & Osman-Gani, 1999; Wexley & Latham, 1991). In general, OJT is the process in which one person, most often the supervisor or lead person of a work area, passes job knowledge and skills to another person (Broadwell, 1986). OJT occurs at the location in which the work is done or at least closely simulating the



**FIGURE 1.1.** Use of Training Delivery Methods. *Used with permission (Van Buren & Erskine, 2001).*

work location as much as possible, and it is often thought of as involving both learning and doing at the same time.

Historically, OJT has always figured prominently in the acquisition of employee competence (Miller, 1987). After all, before there were off-site corporate training classrooms, the only way in which a person could reasonably expect to learn a profession or a trade was by working at the side of an experienced employee. For example, during the Middle Ages, apprentices worked with master craftsmen, who exercised considerable control over their work and socialization experiences, for long periods of time. During the latter part of the nineteenth century and early part of the twentieth century, OJT might be characterized by having supervisors and foremen use OJT to show new industrial workers how to operate production machinery. Today's version of OJT might be characterized by having an individual sit alongside a colleague to



learn how to use a computer program or to learn how to troubleshoot a specific computer error.

Most discussions of OJT refer to the influential role that it played during the two world wars of the twentieth century. Interestingly, these two periods of immense national threat brought about the most important advances in the use of OJT. During World War I, Charles R. “Skipper” Allen drew upon his experiences as a vocational educator to devise a four-step method of delivering OJT. Supervisors used the four steps to train civilian shipbuilders, who had never before worked in an industrial environment (McCord, 1987).

While Allen’s efforts were highly successful, they received little attention after the war. In fact, it wasn’t until the start of World War II did a wide audience appreciate the contributions of Allen’s four-step delivery process.

OJT received its greatest emphasis as a result of the Training within Industry (TWI) Service, an agency of the War Manpower Commission’s Bureau of Training, which was created in 1940 and was discontinued in 1945 (Dooley, 1945). The TWI Service was directed by Channing Rice Dooley and codirected by his friend Walter Dietz. These two men possessed a unique vision on how to implement OJT in organizations involved in war production. C. R. Dooley (1882–1956) in particular believed people needed to learn by doing, but the learning should be done with a trainer highly involved in the trainee’s learning process. He was famous for showing people how to tie the underwriter’s knot used by electricians by placing his hand on the person’s hand and guiding the person through each step of the knot-tying procedure. Dooley’s eighty-two-year-old son David recently recalled his father’s philosophy on training and learning: “Until you take the man’s hands and say take this [end] right through there, and then they’d get it. It’s really wonderful to see the man’s eyes light up, and they’d realize they’d been trained” (Jacobs, 2001).

Such high involvement might not be possible in all industrial training situations, but it represented Dooley’s

strong beliefs about the learning process. Dooley was inducted in the Academy of Human Resource Development's Scholar Hall of Fame for his profound contributions to the HRD field.

The TWI Service's important contributions began within the first week of its existence, as a study was commissioned to try out a new way of training lens grinders. One of the most serious expertise shortages at the time was in skilled lens grinders and polishers of precision instruments, such as the optical instruments used on bombsights. During the study, a comprehensive job analysis was conducted, and a seven-step training process based on Allen's four steps was devised. These seven steps were the following:

1. Show him how to do it.
2. Explain the key points.
3. Let him watch you do it again.
4. Let him do the simple parts of the job.
5. Help him do the whole job.
6. Let him do the whole job—but watch him.
7. Put him on his own.

The lens grinder study was highly successful: Training time was reduced from the original estimate of five years to six months. Later, the amount of time to train lens grinders was further reduced. Because of the specific importance of the lens grinder study, Appendix A presents the study as it was summarized in the TWI Service final report written by Dooley in 1945.

As the TWI Service was established, the seven steps from the lens grinder study were found to be too cumbersome. Allen's original four steps were adopted as the standard for delivering OJT. Building on the success of lens grinder study, the TWI established the Job Instruction Training (JIT) program, which focused primarily on the delivery of technical skills. Possibly the most prominent aspect of JIT

continues to be the Job Instruction card—a card that presents two sets of information:

1. How to Get Ready to Instruct

*Have a timetable.* How much skill you expect him to have, by what date

*Break down the job.* List the important steps. Pick out the key points. Safety is always a key point.

*Have everything ready.* Do you have the right equipment? The right materials? The right supplies?

*Arrange the workplace properly.* Is the workplace just as the trainee will be expected to keep it?

2. How to Instruct

*Prepare the worker.* Put the trainee at ease. State the job and find out what the trainee knows about the job. Get the trainee interested in learning about the job. Place the trainee in the correct position.

*Present the operation.* Tell, show, and illustrate each step at a time carefully and patiently. Stress each key point. Instruct clearly and completely. Include only one point at a time, but no more than the trainee can master at the time.

*Try out performance.* Have the trainee perform the job, and correct errors. Have the trainee explain each key point while performing the job. Make sure that the trainee understands by asking questions and correcting errors. Continue until you are sure that the trainee has learned.

*Follow up.* Put the trainee in the performance setting on his own. Assign people to be helpers along the way. Check the trainee frequently, but taper off coaching as time goes by. Praise good work and coach to correct poor work.

The job card concluded with this admonition: *If the worker hasn't learned, then the trainer hasn't taught.* The TWI Service followed up the JIT program with other programs, including Job Methods Training (JMT), Job Relations Training (JRT), Union Relations Training (URT), and Program Development. All of these programs emphasized the work setting as the primary location for delivering the training content.

Although the TWI Service was discontinued in 1945, the successes of its programs had made a lasting effect on participating organizations. In the postwar period, C. R. Dooley created the TWI Foundation in an attempt to address economic reconstruction needs through his training approach. From 1948 to 1950, Dooley served the U.S. State Department in various capacities, serving on various international boards and agencies to “spread the gospel” of the TWI approach, including some time in Paris and Geneva, Switzerland.

Recent surveys of industry training practices confirm that OJT remains the most frequently used training method for a wide range of jobs, including skilled, semiskilled, sales, supervisory, and management positions; types of organizations; and sizes of organizations (Futrell, 1988; Churchill, Ford, & Walker, 1985; Kirkpatrick, 1985; Kondrasuk, 1979; Utgaard & Davis, 1970; Rothwell & Kazanas, 1990). Jacobs and Osman-Gani (1999) found that OJT is the most frequently used training approach for organizations in Singapore, across several business sectors. Rothwell and Kazanas (1990) studied the use of structured on-the-job training in various types of organizations and found that most organizations, especially manufacturing organizations, were doing a substantial amount of their training through OJT, but it was unclear whether the OJT that they had observed had been planned and delivered in a systematic manner.

Carnevale and Gainer (1989) estimate an employee learns 90 percent of his or her job knowledge and skills

through OJT. Furthermore, they suggest that organizations will spend three times more per employee for OJT than for off-the-job training, and they point out that most organizations have no designated budget item for OJT. Finally, up to one-third of a new hire's first-year salary is devoted to costs of OJT.

These results confirm what most managers and employees know to be true from their practical experience: In spite of benchmarking surveys and educated guesses that indicate the prevalence of off-the-job training in organizations, most training and learning in organizations continues to take place in actual work settings, not in a training classroom.

## **EMERGENCE OF STRUCTURED ON-THE-JOB TRAINING**

The effects of the global economy have necessarily increased the importance of training within organizations. However, while training has generally found itself in a more strategic position, this has not meant that everyone has been totally satisfied with the way it has been used. In fact, both managers and HRD professionals have expressed deep concerns about how training is carried out in their organizations (Sloman, 1989). Paradoxically, the more often training is used, the more concern seems to be expressed about it. To a large extent, the emergence of S-OJT has been a result of these concerns.

### **Concerns with Off-the-Job Training**

At first glance, most off-the-job training programs appear to be effective, of high quality, and generally well received by trainees. By virtue of its location, an off-site training program may offer some trainees a reprieve from the pressures of the immediate work setting, which helps them focus more intently on the training content. Nevertheless, many

managers recognize that, no matter what topic presented, off-the-job training programs can result in any one of the following problems:

- Employees learn what was presented in the training, but because no one else from their work area was aware of the nature of the training program, they seldom have occasion or are rewarded to use what was learned.
- Employees learn what was presented in the training, but because no one highlighted the aspects that were critical for meeting customer's needs before the training occurred, they are uncertain of the relevance of the information learned.
- Employees enjoy learning the content of the training programs and praise the programs after they return to their work area without realizing that what they have learned is different from what they practice on their jobs.
- Employees return to their work areas and discover that what they learned during the training represented only a small amount of the information that they require in order to do their jobs.
- Employees learn what was presented in the training, but because management fails to supply the follow-up required, their use of the information inevitably drops off.

As a result of these concerns, many managers have come to suspect that the goals of off-the-job training programs often contradict the organization's goals. Increasingly, training content and schedules seem unresponsive to the sponsoring organization's business needs, and training certificates take on more importance than job knowledge and skills. At the same time, many HRD professionals perceive that managers do not realize how much time is required to

design effective off-the-job training programs. Nonetheless, off-the-job training programs may cost more than the value they produce for an organization.

### **Concerns with On-the-Job Training**

OJT has been subject to different concerns. While OJT has been used more often than off-the-job training, most instances of OJT are essentially informal, which means that they occur without advance planning or involvement by management. The entire training may be placed in the hands of an individual who does not know the work, has poor work habits, or considers the training an imposition on his or her work time. Under these conditions, training takes lower priority than work, even when training might help improve the quality of the work. Most employees are forced to learn regardless of these constraints. Thus, most of the OJT programs conducted in organizations can be considered unplanned or, as described by Swanson and Sawzin (1975), unstructured in nature.

Unstructured OJT occurs when trainees learn job knowledge and skills from impromptu explanations or demonstrations by others; through trial and error efforts, self-motivated reading, or questioning on their own; or simply imitating the behaviors of others. Consider the comments of a newly hired nurse who received unstructured OJT from an experienced nurse. Her comments are representative of most employees who receive unstructured OJT:

“When I first came on, I was trained by another nurse at the time. We became friends, more or less. I relied upon her to tell me what to do. She told me, ‘Do this or don’t do that. This is how I do this.’ Eventually I learned what she wanted me to learn, but I found that I could learn just as well on my own. I’m not sure if I really learned what they wanted me to learn. Anyway, after a while, I just started figuring out things on my own.”

Unstructured OJT has been called many things: follow Joe (or Jane) training, sink-or-swim training, sit-by-Nellie training, buddy training, learning the ropes, and do-it-yourself training, to name a few. These terms have some historical significance: *Sit-by-Nellie training* comes from learning how to operate looms in Britain during the industrial revolution. *Learning the ropes* comes from learning to understand and manipulate the maze of lines and shrouds on eighteenth-century American whaling ships. But the meaning remains even today. Anyone of working age has been subjected to this type of training at some point in his or her career and knows the frustration it can cause.

Moreover, unstructured OJT has a number of problems:

- The desired training outcomes are rarely, if ever, achieved, and when it is, all trainees rarely achieve the same outcomes.
- The training content is often inaccurate or incomplete, or else it represents an accumulation of bad habits, misinformation, and possibly unsafe shortcuts on which employees have come to rely over time.
- Experienced employees are seldom able to communicate what they know in a way that others can understand.
- Experienced employees use different methods each time they conduct the training, and not all the methods are equally effective.
- Employees are often unsure whether they are even allowed to train others, and they may say, "It's not my job."
- Many employees fear that sharing their knowledge and skills will reduce their own status as experts and possibly even threaten their job security.

Thus, while unstructured OJT occurs most often, employees seldom achieve the desired levels of competence as



a result of its use. Studies have shown that unstructured OJT leads to increased error rates, lower productivity, and decreased training efficiency, compared to structured on-the-job training (Jacobs & Hrubby-Moore, 1998; Jacobs, 1994; Jacobs, Jones, & Neil, 1992). Perhaps the best that can be said about unstructured OJT is that, despite its problems, most employees eventually overcome the barriers that it creates and learn at least some of what they need to know and do. Managers often believe that they can train employees and do their own work at the same time. Unfortunately, such an arrangement does not provide the basis for a positive learning experience, nor does it make for the most efficient use of organizational resources.

To summarize, off-the-job training programs are well intentioned, but they either miss the mark or are too far away from the performance setting to have an impact on employee's competence. Managers can ill afford to take employees away from their jobs each time training is required or wait patiently for the programs to be scheduled at the convenience of someone else. Moreover, most uses of unstructured OJT are ineffective in achieving the training objectives, which inhibits the achievement of important organizational outcomes.

Training should take place closer to the point of work performance. At times this means close to the customer. Demographic projections about the future workforce and its educational characteristics complicate these concerns. In 1987, Johnston and Packer asserted the need for employee training and development will become increasingly acute in the near future, in large part because a great number of individuals entering the labor market do not have the skills required for high-wage jobs. More recently, in an essay written for *The Economist*, Peter Drucker projected that the next thirty years will be characterized by the next generation, which will feature a totally new set of demographics. For instance, by 2030, people over sixty-five in Germany, the world's third

largest economy, will account for almost half the adult population. The critical question is how to get far more output from those remaining in the workforce to support the pension system of those already retired (Drucker, 2001).

In 2000, the Social Security Administration reported that labor force participation had reached its highest proportion ever in the United States. More than 30 percent of the labor force has a college degree. Over 75 percent of women are now working. And employers need even more people to fill job openings. The number of those individuals entering the labor force from 2000 to 2020 aged twenty-five to fifty-four is expected to grow by only 3 percent. As a result, many employers have been forced to lure even more people into the workforce, such as hard-to-place workers (welfare recipients, people with disabilities, immigrants) and individuals with low skills.

The conjunction of these organizational and societal issues has motivated the continuing interest in S-OJT. Although S-OJT is not a panacea, it has the potential for developing employee competence effectively and efficiently, even in the most difficult economic times. For many organizations, the challenge today is that of survival in an economic era that emphasizes the quality of products and services; cooperation between employees, management, and unions; and high efficiency (Kaufman & Jones, 1990).

This book seeks to help organizations respond to these challenges, through the ongoing development of employees to achieve the highest levels of competence possible.

## CONCLUSION

Expertise is important for organizations that seek to meet the challenges of the global economy. Although the expert level of competence might not be necessary in all instances, it is important to develop employees to the appropriate levels of

competence. Managers and HRD professionals recognize that off-the-job training programs often do not have the desired relevance and that on-the-job training efforts are usually ineffective. The interest in S-OJT has emerged in this context.

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