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ABSTRACT
        This guidebook for vocational planners and evaluators
describes the many possibilities in evaluating short-term programs.
It is intended for use by educators in postsecondary institutions
developing and implementing short-term programs, those providing
service under the Job Training Partnership Act, and employers who
provide in-house skill training. An introduction provides an overview
of the project on which the guidebook is based. Chapter 2 compares
short- and long-term training programs in terms of duration,
philosophy, organizational context, purpose, clientele, instructional
staff, curriculum, and linkage with employers. Chapter 3 reviews
evaluation models. Various ways to design an evaluation and
evaluation criteria and standards are presented. The chapter also
offers an evaluation framework that incorporates evaluative criteria
appropriate for short-term programs. Chapter 4 discusses key
administrative concerns in planning and implementing evaluation. It
presents guidelines for conducting all types of
evaluation--evaluability assessment, needs assessment, input
evaluation, process evaluation, outcome evaluation, impact
evaluation, and cost benefit/cost effectiveness analysis. Chapter 5
presents additional guidelines for selecting an evaluation approach.
Two innovative approaches are presented: aggregate program review and
peer review. The chapter ends with the postcard model--an abbreviated
method of evaluating very short programs. Four pages of references
conclude the document. (YLB)

EVALUATING SHORT-TERM
SKILL TRAINING

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FOREWORD

In recent years, short-term skill training in postsecondary institutions, as well as in business and industry, has expanded rapidly. Technological change and structural shifts in the economic base have created critical skill shortages in many areas. Government employment and training programs have also increasingly emphasized short-term training as a way of preparing the unemployed and economically disadvantaged for entry into the job market.

Despite the extent of short-term training, planners, administrators, and evaluators of short-term programs have had few practical guidelines to assist them in selecting, designing, and implementing their programs. This guide responds to their needs by presenting an overview of short-term training. An introduction to evaluation models, designs, and criteria is provided and specific approaches to evaluating short-term programs are discussed.

many individuals in State departments of vocational education, postsecondary institutions, and the National Center who provided us with resources, references, and information regarding short-term skill training programs and their evaluation

Finally, the information in this document would not have been "accessible" without the patient help of Cathy Jones, Lou Pierson, and Jeannette Painter in manuscript preparation. The editorial assistance of Janet Kiplinger and Jeanne Desy is especially appreciated

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EXECUTIVE SUMMARY

Short-term skill training programs have developed and grown rapidly in response to critical skill shortages and worker displacements caused by technological advancement, the trend toward an information- and service-based economy, and increasing foreign competition in the production of goods. Whereas the amount of public and private resources devoted to these training programs has soared, their evaluation has received considerably less emphasis. This publication was developed to provide local instructors, administrators, and evaluators of short-term training programs with information and insight to assist them in evaluating these programs. Although this publication is designed primarily for use by those individuals responsible for developing, designing, coordinating, and assessing short-term training programs in postsecondary institutions, providers of training in industry- or government-sponsored agencies may also find this guide useful

Short-term programs share several characteristics. The most obvious, perhaps, is their length Most are a year or less in duration. Short-term programs are defined here as lasting nine months or less, to distinguish them from 1-year certificate programs. A second characteristic of short-term programs is their emphasis on training—providing specific, narrowly defined job-related learning experiences—rather than education.

Providers of short-term training vary. They include employers, labor unions, trade associations, private and public secondary institutions, government sponsored employment and training agencies, and the military. Short-term training is directed at meeting the immediate and unique labor force needs of a particular community, employer, and/or groups of individuals The clientele, or trainees, are frequently sponsored either by their e · 'oyer or through public training funds

Instructors of short-term skill training generally teach on the basis of part-time temporary contracts. Many are recruited from the ranks of existing staff at local postsecondary institutions, others are recruited from business and industry Instructors of short-term training programs must be knowledgeable and skilled in instructional strategies and content, and adept in modifying and fitting training to client needs.

In many short-term programs curriculum is systematically designed to produce specific job and task-related competencies, since program outcomes and cost effectiveness are important Employers are often directly involved with program design and planning

Program evaluation—a systematic process of obtaining and providing information about the worth or merit of a program for purposes of decision making—can be as useful for short-term programs as for longer programs. Evaluation models include: systems analysis, behavioral objectives, decision making, goal-free evaluation, art criticism, accreditation, and transac' onal models The usefulness for short-term programs of the systems analysis model lies in its emphasis on educational efficiency. The behavioral objectives model stresses objectivity in identifying and measuring behavioral outcomes The decision-making model emphasizes comprehensive review and analysis of the content, inputs, process, and products of the program for formative input into program decisions. Goal-free evaluation is especially noted for its assessment of both intended and unintended

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outcomes The art criticism model is useful for improving program standards The accreditation model emphasizes the review of multiple programs according to predetermined criteria Finally, the transactional model provides qualitative information for judging programs on the basis of absolute and relative standards.

Evaluation design may be fixed—systematically planned in advance—or emergent—changing in response to changing program activities, programs, and audiences. It may be tailored to meet the needs of formative or summative evaluation. It may be experimental or quasi-experimental, focusing on differences between outcomes for control and experimental groups, or it may be naturalistic and unobtrusive, using intact groups in natural settings, thereby eliminating some of the ethical and practical problems that arise in experimental evaluation.

If the evaluation is to be useful, it must provide sufficient information for decision making, and it must be presented clearly and in a timely fashion. If it is to be feasible, the evaluation procedures should be practical, politically viable, and cost-effective. The rights of human subjects, conflicts of interest, and the need for balanced reporting should be considered in designing, conducting, and presenting evaluation results.

Finally, the accuracy of evaluation depends upon several considerations: a clearly defined object of evaluation, appropriate sources of information, adequate contextual information, under standing of evaluation purposes and procedures by those involved in the process, and reliable and valid collection and measurement of information.

Evaluability assessment is the process of deciding whether the evaluation is likely to fulfill its goals and merit the expended effort. The evaluability assessment provides answers to such questions as, What is the demand for evaluation? What is the source? Is it feasible? What decisions will be served by evaluation? and What part of the program development should receive what kind of emphasis in the evaluation? This is a vital first step in any evaluation of short-term training programs.

Needs assessment is a process of both program development and program evaluation The needs assessment process identifies the gaps between what should be and what actually is, prioritizes these gaps or needs, and selects those to be addressed by the program. In planning needs assessment, the evaluator must determine who will be included in the process, the strategy to be used, and the methods by which information will be analyzed and reported. In short-term training, needs assessment activities generally focus on determining individual trainee, company, or industry needs.

Input evaluation focuses on determining the best use of the available resources to ensure that program goals are met. Sources of information for input evaluation might include existing program review guidelines for vocational education and program standards specifications. One means by which program design may be evaluated and validated is through the involvement of experts This can take the form of an advocacy team, task force, advisory committees, employer representative, or curriculum developer.

Process evaluation is utilized to monitor program implementation and program operators for potential problems or inconsistencies between the original program design and its actual process This is an important tool for providers of short-term training programs, for it enables them to ensure that programs are on target prior to the end of training. For the majority of these programs, there is no chance to improve delivery once the training program is ended.

Outcome evaluation addresses the question of whether and to what extent immediate program objectives have been met. Program outcomes/objectives may focus upon individual outcomes (i e , student satisfaction, achievement), group outcomes (percent of placement, retention rate), and outcomes for other clients and stakeholders (providing skilled workers to industry) Assessment of multiple outcome measures permits evaluators of short-term skill training programs to control for spurious results and to obtain a clear and more complete picture of program effectiveness and productivity

Impact evaluation addresses the broader short- and long-term effects of training for the individual, company, or business and for society as a whole. Examp' s of the way in which each may be measured are higher earnings over a period of time and career development, increased productivity and improved quality of product; reduction in unemployment and more equality of opportunity in employment. Assessing the impact of short-term skill training is becoming increasingly relevant as the level of both public and private investment in such training soars.

Cost-benefit analysis and cost-effectiveness analysis are tools for assessing the efficiency of program operation. Cost-benefit analysis may be used in the planning and design of specific programs, whereas cost-effectiveness may be used to compare the effectiveness and the efficiency of two or more programs

Aggregate program review and peer review are two promising approaches to evaluating short-term skill training. Aggregate review is directed at assessing a group of programs at the institutional level Characteristics such as program costs, attendance, enrollments, expenditures and revenues, student achievements, and placement rates or other measures of outcomes and impact might be monitored for all programs and used to identify programs for in-depth review. Peer review involves the use of external evaluators to evaluate the program or group of programs Peers may be colleagues from outside the institution involved in providing similar services, or they may be private training consultants. Peers may fruitfully be utilized to provide formative evaluation of needs assessment, program design, and program implementation procedures.

The evaluation of short-term programs is both easier and more difficult than evaluation of long-term programs. It is easier because the objectives of short-term programs are usually clearly and precisely specified in advance, and more difficult because the resources earmarked for evaluation tend to be minimal or nonexistent and because reassessment is not possible Yet evaluation is crucial to quality assurance Furthermore, it provides a means of systematically accounting for the dollars spent.

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CHAPTER 1

INTRODUCTION

The number of short-term occupational skill training programs in public postsecondary institutions and in businesses and industries is rapidly increasing. Three types of programs account for much of this growth: (1) those meeting critical skill shortages in particular regions, (2) those providing customized training to particular businesses and industries, and (3) those reducing unemployment and meeting the needs of unemployed workers (for example, dislocated workers, displaced homemakers, and disadvantaged youth and adults).

Because training programs do address these diverse needs, they differ substantially in their purpose, design, and operation. However, they share certain characteristics that set them apart from longer, more established programs. In general, funding is scarce for these programs. They are more closely related to employment than most long-term programs. They focus more clearly and directly on specific objectives. And because short-term training programs are a relatively recent phenomenon, there have been few guidelines for assessing their effectiveness.

The irregular demand for short-term programs, the fact that they are short-term and one-of-a-kind, and the urgent need to "get the job done" have placed them outside the scope of regular, systematic evaluations in many postsecondary institutions. Relatively low levels of funding have discouraged many vocational educators from attempting in-depth evaluations of their programs Nevertheless, as more private and public resources are invested in short-term programs, the need for evaluation will become more apparent. In addition, administrators must decide the extent to which their institutions can become engaged in these programs and must determine how teaching services can be improved. They also need to know what impact their short-term training programs are having on the trainees, the employers, and the community as a whole.

Program evaluation in general has been extensively studied, but not much has been written about evaluating short-term skill training programs. The purpose of this guidebook is to provide vocational planners and evaluators with information that can be used in evaluating short-term training programs. The guidebook is intended for use by educators in postsecondary institutions that are developing and implementing short-term programs, those providing service under the Job Training Partnership Act (JTPA), and employers in the private sector who provide in-house skill training.

Overview of the Research Project

The goal of the project on which this guidebook was based was to develop guidelines for the evaluation of short-term skill training programs. In order to accomplish this goal, three major objectives were established:

- To determine the nature and characteristics of various types of short-term skill training programs, with reference primarily to their purposes, design, and operation

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- To determine program evaluation approaches appropriate for various types of short-term skill training

- To ascertain specific criteria appropriate for evaluating various types of short-term skill training programs primarily in terms of their operations (processes) and outcomes (products)

Methodology

A three-pronged approach was used to accomplish the project objectives:

- Reviews and syntheses of the literature and research relevant to each of the three specific objectives were conducted. These reviews focused primarily on the purpose, design, and operation of short-term skill training programs and the effectiveness of such programs

- Site visits, interviews, and observations were conducted at a number of postsecondary institutes and other sites that operate various types of short-term skill training programs The purpose of these visits was to sharpen and refine the descriptions of such programs and of useful program evaluation approaches and to define the specific criteria needed to evaluate such programs.

- Finally, a panel of consultants—experts in vocational evaluation—was convened to examine the program characteristics, to help identify the most appropriate evaluation approaches for different types of programs, and to help identify specific evaluation criteria.

Literature Review

The initial project activity was the review and synthesis of relevant literature and research. Computer searches were conducted to identify research studies and related reports pertinent to the project's three major objectives; Educational Resources Information Center (ERIC) and the National Technical Information System (NTIS) databases were used. The key ERIC descriptors chosen focused on short-term training programs, program evaluation, and specific evaluative criteria. Key documents pertaining to evaluation in both education and training were identified After reviewing the key documents and abstracts of the relevant studies, project staff synthesized findings regarding the nature and characteristics of short-term programs, program evaluation approaches, and specific evaluation criteria.

Site Visits

In order to observe short-term training programs firsthand, site visits were conducted The sites visited are listed in appendix A. Sites were selected to provide diversity in location, institutional size and type, and kind of short-term training offered in terms of program purpose, design, and operating procedures.

National Center staff interviewed program directors and evaluators. Programs in operation were observed. The emphasis of the site visits was to observe key similarities and differences among programs, to explore the nature of evaluation in these programs, and to determine the

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evaluation criteria being utilized. The information collected at these site visits provided insight into ways the major objectives of this project could be achieved. Specific examples of the lessons learned and descriptions of specific ways to operate an evaluation program that were observed are provided throughout the guidebook.

Panel of Consultants

A panel of consultants was assembled to examine and elaborate upon the program character-istics, evaluation approaches, and evaluation criteria identified by National Center staff as a result of the literature review and site visits. Four consultants were convened for a 1-day panel discus-sion. The four panel members (see appendix B) were selected to represent the following roles, responsibilities, and organizations:

- One practitioner from a community or technical college who develops short-term and other kinds of training programs for specific industries and employers

- One State-level person with responsibility for Statewide evaluation of programs serving business and industry and of those serving special populations provided with specialized training programs

- One human resource development person from industry who develops and administers company training programs

How to Use This Guidebook

This guidebook is designed to describe the many possibilities in evaluating short-term pro-grams. It is written for the trainer or administrator whose experience in evaluation is limited, the early chapters present an overview of evaluation theory and of the commonly used evaluation models. Many vocational educators and industry trainers have made only limited use of evaluation in the past and may wish to have access to this information.

Chapter 2, "A Look at Short-Term Training Programs," compares the general characteristics of short-term and long-term training programs in terms of program duration, philosophy, organi-zational context, purpose, clientele, instructional staff, funding, curriculum, and linkage with em-ployers. This chapter may be especially useful to those who are developing new programs.

Chapter 3, "Program Evaluation: An Overview," briefly reviews evaluation models that might be useful in addressing evaluation needs of short-term skill training programs. Various ways to design an evaluation are presented, as well as some criteria for conducting evaluations. This chap-ter also offers an evaluation framework that incorporates evaluative criteria appropriate for short-term programs.

Chapter 4, "Options in Evaluation Design," discusses key administrative concerns in planning and implementing evaluation. This chapter, based upon the insights gained during site visits and recommendations from panel members, presents guidelines for conducting all types of evalua-tion—evaluabilty assessment, needs assessment, input evaluation, process evaluation, outcome evaluation, impact evaluation, and cost-benefit/cost-effectiveness analysis.

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Chapter 5, "Choosing an Evaluation Approach," presents decision makers with some additional guidelines in selecting an approach to evaluating short-term skill training programs Two innovative approaches to evaluation of short-term programs are presented These techniques are in use in other kinds of programs, but their use in evaluating short-term skills training is innovative and holds real potential for these programs Finally, the chapter discusses how several evaluation components can be effectively combined and utilized in assessing even the shortest of training programs.

CHAPTER 2

A LOOK AT SHORT-TERM TRAINING PROGRAMS

A good way to understand the nature of short-term training programs is to compare them with long-term programs. Chapter 2 does this by comparing the following elements (1) duration, (2) philosophy, (3) organizational context, (4) purpose, (5) clientele, (6) instructional staff, (7) curriculum, and (8) linkage with employers. Admittedly, these categories may not be specific enough for fine distinctions, but they do form a useful framework for asce· aining the fundamental nature of the short-term program.

Duration

Paulsen (1981) defines short-term skill training programs as "usually a year or less in duration designed to train, retrain, or upgrade the skills of workers" (p. 1). Warmbrod and Faddis (1983) add that short-term training has been an important approach to meeting upgrading or retraining needs that do not require the completion of an associate degree or 1-year certificate. Such training may involve accelerated courses, short courses, workshops, seminars, or lectures (p. 25).

Long-term training programs generally last 1 year or longer. Typically, the shortest are 1-year certificate or diploma programs. They may include concentrations in robotics, laser optics, computer electronics, hazardous waste control, and training activities that support economic development. For the purposes of this guidebook, short-term skill training programs are somewhat arbitrarily seen as those lasting 9 months or less. This seems to distinguish them clearly from certificate programs of approximately 1 year in duration. In practice, however, it appears that the majority of short-term programs are less than 6 months in duration.

Philosophy

The underlying philosophy and rationale for much of short- and long-term training lie in their impact on maximizing productivity and efficiency in the workplace. However, the way in which short- and long-term programs propose to deal with the broader questions of increasing productivity in the workplace differ in principle. Briefly stated, short-term programs tend to focus on *training*, whereas long-term programs tend to focus on *education*. Although some might argue that these terms are interchangeable, a look at their definitions indicates that they are different concepts pertaining to different learning experiences.

Moss (1983) offers this analysis:

Webster's Third New International Dictionary, Unabridged (1976) and the *Dictionary of Education*, 3rd edition, (1973) describe *education* as a process of rearing, bringing up, developing, and fostering growth and expansion of knowledge, and other desirable qualities of mind and character that will be of positive value to the individual in the society in

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which she or he lives Training, on the other hand, is seen more as shaping or develop-
ing individuals, through drill and discipline, to attain clearly determined, readily demon-
strated goals. Euc   un connotes using knowledge and skills to liberate individuals
from the bonds of ignorance—to expand her or his options; it is a process done primarily
in the interest of the person being educated. Training seems to connote using the learn-
ing process to mold and control individual behavior toward specific goals/roles that are
needed by society; it results in conforming behavior. (p. 20)

Nadler (1979) notes a similar distinction between training and education He defines training
as "those activities which are designed to improve human performance on the job the employee is
presently doing or is being hired to do" (p. 40). On the other hand, he defines education as those
"human resource development activities which are designed to improve the overall competence of
the employee in a specified direction and beyond the job held" (p. 60). In essence, training per-
tains to specific, narrowly defined, job-related learning experiences; whereas education pertains to
learning experiences that develop the individual in a broader sphere, enabling him or her to take
responsibility rather than simply fitting in as a cog.

Thus, from a philosophical standpoint, short-term programs can be conceptualized as
emphasizing training. This does not imply that their only objectives are aimed at developing nar-
rowly defined, job-specific competencies. The United Auto Workers/Ford Targeted Vocational
Retraining programs are an example of individual-oriented training in which skill training is a part
of a more comprehensive program directed at developing new career ladders for laid-off workers.
On the other hand, longer programs do not necessarily imply education of the individual in a
broader sphere. Many certificate programs are more specific and are directed toward developing
job-specific skills. Thus, although a certain amount of overlap may exist between short- and long-
term training, they are, from a philosophical perspective, fundamentally different. What long- and
short-term training have in common is that they strive to maximize their impact on productivity in
the labor market while maintaining a high degree of efficiency in producing their respective prod-
ucts. Just what that impact is—whether it is measurable or comparable between programs and
over occupations and industries, and whether alternative policies and programs based on different
philosophies would be more effective in producing desirable economic goals—is a question for
evaluation research.

Organizational Context

Short-term training programs are offered in a variety of organizational contexts, each of which
has different emphasis. Providers of short-term training include, for example, vocational-technical
institutes, community colleges, employers, labor unions, joint labor union-management groups,
the military, trade associations, various Federal and State government agencies such as employ-
ment agencies, welfare agencies, vocational rehabilitation agencies, and community agencies
Their differences are likely to be expressed in their philosophies and purposes, their methods of
selecting trainees, their training design, and their evaluation needs.

Many short-term training programs are contracted or subcontracted out to training deliverers
Each new organization involved in providing training brings with it its own policies and proce-
dures. This additional structure is intended to assure overall program quality in the institution
Short-term training contracts often modify or even short-circuit the impact of such institutional
policies.

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Long-term training programs, in contrast, are generally offered by 2- and 4-year colleges and universities, vocational-technical institutes, or labor unions and trade organizations Thus, the organizational context of the longer-term training programs is generally less complex than that of short-term skill training.

Purpose

Both short- and long-term training programs promote investment in human resources and economic development. Both types of program support the expansion and diversification of the local, State, and Federal economic bases by improving their employment and tax bases. Both programs also support the retention and revitalization of existing businesses and industries and provide skilled workers for new firms.

Short-term training programs, however, are specifically directed toward meeting the immediate and unique labor force needs of a particular community. Paulsen (1981) notes that these programs "may be designed to meet immediate needs of business and industry for skilled workers, attract new companies to an area, or respond to State/Federal/professional licensirg or certification requirements" (p. 3). Long-term programs, on the other hand, are designed to meet future labor force needs.

Long-term programs may also be aimed at meeting current structural imbalances in the labor market, especially in skill areas that require longer training. In instances of critical shortage of skills that take a longer time to develop, short-term training programs often provide temporary solutions until fully qualified workers become available. (The ultimate purpose of these short-term programs may be to "self-destruct" or evolve into longer programs, although economic conditions or various bottlenecks may stall this process.)

Clientele

By and large, the clientele of short-term training programs is different from that of long-term programs. Short-term program participants are usually sponsored by their employers or by agencies. Employer-sponsored participr ts are commonly paid while they learn. In contrast. participants in long-term programs are usually self-selected volunteers who are personally committed to improving their future through training and education. Typically, they are not sponsored

Many short-term training programs are designed for the disadvantaged and handicapped Skill training for the economically disadvantaged and retraining for dislocated workers are common, especially in training programs sponsored by government agencies (e.g., JTPA programs) Most public funding for economically disadvantaged populations is not sufficient for the long-term development of these groups.

Instructional Staff

Paulsen (1981) finds that, because of the short-term, sporadic nature of these skill training programs, postsecondary institutions often have difficulty with faculty availability, turnover, and instructional quality. He states that constant recruiting efforts result in higher costs for the institution

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In field site visits, National Center researchers found that colleges and technical institutes recruited instructors for short-term programs from the ranks of their existing full-time and part-time staff, as well as directly from business and industry. In colleges accustomed to providing short-term training, program coordinators have built a sizable pool of instructors who can teach specific programs when they are offered.

Some short-term programs are developed using existing courses, finding instructional resources for these programs is not difficult. In other cases, however, as when a company needs state-of-the-art training in a specialized skill area, neither existing courses nor available instructors can provide appropriate instruction in the content area. In these cases, technical experts from within the company are sometimes used to provide instruction. These instructors may be given technical support in designing curriculum and instructional techniques by the postsecondary institution

Instructors at Monroe Community College in Rochester, New York, have on occasion been paired with company technical experts during an initial sequence of teaching. This has allowed the college's instructors to learn the subject matter while the technical experts gained instructional skills. In this way, both the college and the companies involved have gained expertise that may be useful in designing and conducting future training.

Ensuring the quality of instructors is important, particularly when a program is customized for individual businesses. Wenig and Wolansky (1983) surveyed employers' perceptions of outstanding employer-sponsored skill training and found that well-qualified trainers were among the criteria seen as essential for effective training. Qualifications, however, are only one of the elements in a trainer's effectiveness; a multidimensional approach to trainer evaluation seems most appropriate. This view is supported by the findings of a comprehensive study on trainer effectiveness by Bennett and Leduchowicz (1985) sponsored by the Manpower Service Commission of the United Kingdom. The researchers conclude:

> A unified concept of trainers does not exist and there do not appear to be a limited number of perspectives of trainers' effectiveness. Trainers' effectiveness is viewed in terms of a large number of factors which can be grouped under six major aspects— trainer role orientation and perception, trainer competencies, trainer characteristics and credibility, trainer work behavior and style, outcomes of trainer activity, and organizational factors. (p. 42)

Selection of instructors for short-term programs at postsecondary institutions is based not only upon their credentials as instructors and technical expertise, but also upon their experience and reputation within the college or institute. Administrators interviewed for this study said that instructors should be able to adapt to the culture of the business world and to be flexible, adapting and changing programs as needed. In fact, short-term programs may require very good instructors. "Give me your *A Team*" was the mandate given to college short-term training coordinators by the executive director for Finger Lakes (New York) Regional Education Center for Economic Development. Some program administrators frequently monitor or evaluate short-term program instructors, particularly when the instructors are being used for the first time.

Instructional staff for long-term programs, on the other hand, tend to be full-time employees of their organizations. In postsecondary institutions, these instructors may even be tenured. Their primary responsibility is to deliver instruction. Since these instructors are full-time, their turnover rate is lower than that of their counterparts in short-term programs

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Curriculum

Institutionalized, long-term skill training programs are usually designed on the basis of occupational analysis data, whereas short-term skill training in business and industry is generally designed from job and task analysis information. Occupational analysis data suggest generic skills common to various jobs within an occupation. Job analysis and task analysis result in descriptions of job competencies that are highly specific and refer to tasks performed in a particular enterprise at a particular point.

Short-term training programs must often deal with the unique needs of the clientele, who may have very different entry-level competencies, cognitive styles, and learning styles. For this reason, short-term programs are designed with great precision in order to lead to the desired performance outcomes. Because programs are often employer-sponsored, cost-effectiveness is frequently emphasized. Although outcomes and cost-effectiveness are also important in long-term training programs, these factors seem more critical to short-term training programs. Short-term training curricula are often systematically designed to reduce the probability of error in the curricula, thus enhancing program outcomes and cost-effectiveness.

Short-term program curricula are more flexible in ature, content, duration, and format than long-term programs. However, this flexibility is costly. Many of these programs are "one-shot" efforts, often tailor-made to meet one client's specific needs and not repeated. Therefore, recovery of start-up costs is usually not possible. Moreover, short-term programs offered by postsecondary institutions are often noncredit, so tuition is not reimbursed by the State.

The advantages to clients of purchasing training services from colleges or technical institutes often outweigh the additional cost of the training. Clients have the institution's assurance of quality and can handpick courses from existing programs to meet their specific needs. Because facilities, and often specialized equipment, are already set up, the company does not have to develop or maintain them. Colleges can also gain by offering short-term training. Instructors can update their knowledge of skill training content while the institution develops good community relations

Linkage with Employers

Short-term skill training differs from long-term training in its commitment toward employment and in employer participation and involvement. Since short-term training is directly related to getting, maintaining, or upgrading employment, it must be designed to address particular needs Long-term programs often have only a general relationship to specific employer or trainee employment needs. Often, the only interface with the world of work is the placement office, collegewide employer surveys, or vocational program advisory councils. These sources, though useful, generally do not directly affect the relationship of trainee and trainer and often they have little effect on curriculum, instructional evaluation, and other program components. Short-term programs, on the other hand, exist because of their strong interface with the world of work. By necessity, they have a much higher degree of collaboration and linkage with employers at all levels of program administration than long-term programs have.

A summary of the characteristics of short-term and long-term training programs by categor al distinctions is presented in table 1. As stated earlier, there are some overlaps among characteristics and between the two types of programs. Identifying fundamental differences between short- and long-term training programs, however, may suggest elements to consider in designing a short-term program.

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TABLE 1

SUMMARY OF SHORT- AND LONG-TERM TRAINING PROGRAM CHARACTERISTICS

Categorical Distinctions	Training Program	
	Short-Term	Long-Term
Duration	• A few hours to less than 1 year (generally not more than 6 months) • No diploma awarded • Some recognition "certificate"	• More than 1 year • Diploma or 1-year certificate
Philosophy	• Emphasis on "training" • Goal oriented toward achieving specific objectives • Job-related learning experience specific objectives • Individual-related learning experience targeted toward specific objectives	• Emphasis on "training" or "education" • Promotes excellent opportunities for growth and development • Objectives are less specific, more flexible • Knowledge for liberating individuals • Individual-related learning experiences
Organizational	• Providers of training may include: — vocational-technical institutes, — community colleges, — employers, — labor unions, — community organizations, — employment agencies, — vocational education secondary, — welfare agencies, — vocational rehabilitation, — JTPA, and — trade organizations. • Multiple forms of interagency arrangements	• Providers generally include: — 2- and 4-year colleges/universities — vocational technical institutes — labor unions • Training institution independent
Purpose	• Promotes investment in human resources • Meets immediate and unique labor force needs	• Promotes investment in human resources • Meets future perceived labor force needs • Reduces structural unemployment
Clientele	• Participants often sponsored by their employer or by governmental agency • Generally experience little or no loss of wages as a result of participating in short-term training	• Smaller percentages of participants are sponsored by an employer or agency • Generally pay for their own training/education • May forgo some earnings in order to participate in long-term training
Instructional staff	• Are usually experts hired from the field • Jobs characterized by high staff turnover • Does not consider teaching primary responsibility • May be full- or part-time instructors • Are selected from a pool of qualified instructors	• Are usually full-time instructors at the institution • Is characterized by low turnover • Has teaching as primary responsibility

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TABLE 1 — *Continued*

Categorical Distinctions	Training Program	
	Short-Term	Long-Term
Curriculum	• Is characterized by systematic instructional design • Includes a need assessment focused on specific problems • Focuses on client needs • Has a specific narrow emphasis on depth • Focuses on the immediacy of application of acquired skill • Has specific behavior objectives • Offers little freedom and flexibility for trainer in terms of objectives/curriculum • Usually produces a comprehensive student guide, workbook, and instructor's manual • Intent is specific • Accountability is emphasized • Emphasizes mastery of skills • Competency-based training • Usually offered as noncredit • May be linked with regular programs	• Is based on occupation analysis • Usually reduces needs assessment to employment outlook research • Focuses on individual and societal needs • Emphasizes breadth • Focuses on future perceived needs • Has general objectives • Provides instructor with greater freedom and flexibility in terms of curriculum objectives • Has textbook and laboratory manuals • Usually has interdisciplinary content • Does not overemphasize accountability • Supports mastery of principles and skills • Usually is not competency-based • Is offered for earned credit
Linkages with Employment	• Programs generally linked with specific employment • Greater percentage of resources on employment linkages	• Linkage with employment more general • Relatively fewer resources devoted to employment linkage

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CHAPTER 3

PROGRAM EVALUATION: AN OVERVIEW

This chapter reviews major program evaluation models and approaches that have potential for the evaluation of short term training programs First, however, it is necessary to define what is meant by program evaluation.

The literature offers various definitions of program evaluation, and many would agree with Ruthman (1984) when he argues that "program evaluation has no uniform and consistently applied definition. The term has become the subject of a variety of interpretations in relation to its purposes, scope and methodology" (p. 10).

Tyler (1942) was among the first to define evaluation, which he did in connection with the Eight-Year Study at The Ohio State University. Evaluation, he decided was the process of determining whether the objectives of a program had been achieved. The Phi Delta Kappa National Study Committee on Evaluation (Stufflebeam et al. 1971) defined education evaluation in more detail as "the *process* of *delineating, obtaining,* and *providing useful information* for *judging decision alternatives*" (p. 40). The Phi Delta Kappa Committee identifies eight key terms in this definition (as italicized above). They are as follows:

- **Process**—A particular and continuing activity subsuming many methods and involving a number of steps or operations

- **Delineating**—Identifying evaluative information required through an inventory of the decision alternatives to be weighed and the criteria to be applied in weighing them

- **Obtaining**—Making information available through such processes as collecting, organizing, and analyzing and through such means as measurement, data processing, and statistical analysis

- **Providing**—Fitting information together into systems or subsystems that best serve the purposes of the evaluation and reporting the information to the decision maker

- **Useful**—Satisfying the scientific, practical, and prudential criteria and pertaining to the judgemental criteria to be employed in choosing among the decision alternatives

- **Information**—Descriptive or interpretive data about entities (tangible) and their relationships, in terms of some purpose

- **Judging**—The act of choosing among the several decision alternatives; the act of decision making

- **Decision alternatives**—Two or more different actions that might be taken in response to some situation requiring altered action (pp 40-43)

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Another definition of evaluation is proposed by Worthen and Sanders (1973)

Evaluation is the determination of the worth of a thing. It includes obtaining information for use in judging the worth of a program, product, procedure, or objective, or the potential utility of alternative approaches designed to attain specified objectives. (p 19)

In a similar vein, the Joint Committee on Standards for Educational Evaluation (1981) defines evaluation as the systematic assessment of the worth or merit of some object.

Berk (1981) argues that the literature offers many different definitions of evaluation (e g , Alkin 1972, Cooley and Lohnes 1976; Cronbach 1963; Fink and Kosecoff 1980; Freeman 1977; Guba 1966, Popham 1975; Posavac and Carey 1980; Provus 1967, 1971; Scriven 1967, Stake 1967, Stufflebeam et al. 1971; Walberg 1974; Wolf 1979). For his own purposes, Ruthman (1984) defines program evaluation as "the use of scientific methods to measure the implementation and outcomes of programs for decision-making purposes." A careful analysis of these definitions shows that they agree on one point—that the purpose of evaluation is to provide information for decision making.

Evaluation Models

Most evaluation theorists and practitioners use models to conceptualize program evaluation, and there has been a proliferation of models in recent years. However, a careful analysis of numerous recent models shows that they differ only in minor respects from the established models, which have acquired widespread acceptance through extensive field testing. The newer models tend to be adaptations of established models that are tailored to meet specific needs.

Stake (1967), Popham (1975), and Worthen and Sanders (1973) present and clarify many of these major models. Drawing upon their work, House (1978) has developed a taxonomy of the major approaches to program evaluation. His classification provides a useful framework for identifying those models, or approaches, that might be useful in assessing short-term skill training programs. The models he describes are systems analysis, behavioral objectives, decision making, goal-free evaluation, art criticism, accreditation, and transaction. The following sections briefly describe each of these models and the major questions they address.

Systems Analysis Model

The systems analysis model is rooted in the principles of scientific management. In this approach. education is perceived as "a process of social service production. . . . its aim is to rationalize the educational process in order to maximize efficiency [i.e., increase productivity and reduce waste]" (Farley et al. 1985). Farley et al. further identify the following underlying assumptions of the systems analysis approach:

- Program goals and objectives can be explicitly stated in measurable (i.e., quantifiable) terms.

- The use of scientific methods through controlled experiments can uncover constant and uniform relationships between system "inputs" and system "outputs "

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- The findings from such studies can be used to develop formal procedures by means of which schools and teachers can efficiently produce the desired level of program objectives. (p 26)

The systems analysis model is useful in answering questions about efficiency. "Are the expected effects achieved? Can the effects be achieved more economically? What are the most efficient programs?" (House 1978, p. 12). The model actually uses correlational or experimental techniques to analyze the effects of alternative production functions

Behavioral Objective Model (BOM)

The behavioral objective evaluation model was one of the first to be introduced and is still the model most commonly used by practitioners. Introduced by Tyler in the 1940s and 1950s, this model brought a scientific management orientation to evaluation. Farley et al (1985) note that Tyler advocated a behavioral objective approach to curriculum design and that he further emphasized the need for defining objectives "in terms of the behavioral outcomes students would be expected to demonstrate upon completion of the curriculum" (p. 56).

House (1980) provides the following brief summary of the behavioral objectives model of evaluation.

The evaluation of a program should define its outcome and its objectives in specific individual behaviors. The task of the evaluator was to determine whether the students were exhibiting these particular behaviors after being in the program. (p. 26)

Objectivity and *quantitative measurement* are two key characteristics of this kind of evaluation. Although initially designed for curriculum design and revision, this model, the behavioral objective approach, has also been widely used for evaluating educational and social programs

According to Tyler's model of program evaluation, the behavioral objectives approach includes the following steps: (1) formulate goals and objectives, (2) define these objectives in behavioral terms, (3) specify ideal situations for the achievement of these objectives, (4) select appropriate measures, (5) measure the achievement of the objectives, and (6) compare the achievement with the previously established criteria. In this approach, goals that are not attained reveal inadequacies in the program; the program is considered successful when the goals are met.

Hammond (1973) designed a model of evaluation that includes five basic steps (1) isolate the subject to be evaluated in the program, (2) define the institutional and instructional variables, (3) formulate objectives in behavioral terms, (4) assess the behavior identified in the objectives, and (5) analyze the results of the assessment.

Metfessel and Michael (1973) propose yet another model with strong emphasis on behavioral objectives. Eight main steps are identified in their approach to evaluation

1. Involve members of the total community

2. Construct broad goals and specific objectives

3 Translate specific objectives into forms that are communicable and that facilitate learning

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4   Develop instrumentation

5   Carry out periodic measurement

6   Analyze data collected

7. Interpret data analyzed

8   Formulate recommendations for the modification of programs, goals, and objectives

The most useful contribution of this model is that it provides for criterion measures against which the actual achievement can be compared to determine if the objectives have been achieved

Decision-Making Model (DMM)

The decision-making evaluation model reflects the belief that evaluation should generate information that can facilitate intelligent judgement by decision makers. The context, input, process, and product model (CIPP) designed by Stufflebeam et al. (1971) has received widespread acceptance and has been extensively used.

Stufflebeam and Shinkfield (1985) provide an updated version of their definition of evaluation

Evaluation is the process of delineating, obtaining, and providing descriptive and judgemental information about the worth and merit of some object's goals, design, implementation, and impacts in order to guide decision making, serve needs for accountability and promote understanding of the involved phenomena. (p. 159)

Stufflebeam and Shinkfield (1985) also indicate the objectives of the four types of evaluation included in the CIPP model:

- **Context evaluation**—To define institutional context, to identify the target population and assess their needs, to identify opportunities for addressing the needs, to diagnose *problems* underlying *needs*, and to judge whether proposed objectives are sufficiently responsive to the assessed needs

- **Input evaluation**—To identify and assess *system capabilities*, alternative program strategies and procedural designs for implementing the strategies, budgets, and schedules

- **Process evaluation**—To identify or predict defects in the procedural design or its implementation while implementation is in process, to provide information for the preprogrammed decisions, and to record or judge procedural events and activities

- **Product evaluation**—To collect descriptions and judgments of outcomes and to relate them to objectives and to context, input and process information, and to interpret their worth and merit (p. 170)

In the most recent version of the CIPP model, Stufflebeam and Shinkfield (1985) suggest alternative methods of data collection for each type of evaluation:

- **Context evaluation**—Using such methods as systems analysis, survey, document review, hearings, interviews, diagnostic tests, and the Delphi technique

- **Input evaluation**—Inventorying and analyzing available human and material resources, solution strategies, and procedural designs for relevance, feasibility, and economy, literature search; visits to exemplary programs; advocacy teams, and pilot trials

- **Process evaluation**—Monitoring the activity's potential procedural barriers and remaining alert to unanticipated barriers; obtaining specified information for programmed decisions, describing the actual barriers, and interacting with and observing the activities of project staff

- **Product evaluation**—Defining operationally and measuring outcome criteria, collecting judgments of outcomes from stakeholders, and performing both qualitative and quantitative analyses (p. 171)

Stufflebeam and Shinkfield (1985) also introduce two distinct roles for the CIPP evaluation models, namely decision making (formative orientation) and accountability (summative orientation) However, they indicate that the major emphasis of the model is still on the decision-making process.

Goal-Free Evaluation Model

Scriven (1983) is a respected evaluation theorist whose theories have brought important insights into the process. Scriven was the first evaluation theorist to make the distinction between goal-based and goal-free evaluation. In goal-based evaluation the evaluator examines only the program goals and assesses the extent to which these goals are achieved. In goal-free evaluation, the evaluator focuses on the unanticipated as well as on the intended outcomes of a program Explicating his advocacy of goal-free evaluation, Scriven notes:

Goals are often best seen as inspirational devices—they make poor foundations for analysis. It is also important to note that for evaluators to be aware of the goals of a program is for them to be given a strong perceptual bias in a particular direction which, in conjunction with whatever positive or negative effect they possess for a program, unleashes the possibility of distorted perception of the results (p. 237)

Popham (1975) points out that "the chief advantage of goal-free evaluation is that it encourages the evaluator to be attentive to a wider range of program outcomes than might be the case with a goal-based evaluator who has been influenced to look at project results consonant with project aims" (p 28).

Although Scriven (1983) advocates a goal-free approach to evaluation, he sees goal-based and goal-free evaluation as complementary. An evaluation can start as goal free, and then shift to goal based, or both approaches can be used simultaneously by different evaluators.

Art Criticism Model

The art criticism model as used in evaluations of educational programs involves the use of expert judgements of the worth or merit of an educational program. House (1978) describes this model as "the model of an educational critic, one who has attained, by experience and training, the ability to judge the important facets of educational programs" (p. 5). The art criticism model assumes that the major objective of evaluation is to improve the overall standards of programs, and it further assumes agreement upon standards and the qualifications of critics.

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Accreditation Model

The accreditation model is the primary tool used by the North Central Association for accreditation of programs. The model has been adopted by many States for use in their program review process. The review process involves an internal evaluation of the program by local administrators and instructional staff according to predetermined criteria, standards, and procedures. An external panel of experts then conducts an on-site evaluation using the same standards and criteria. The Minnesota Adult Vocational Education Evaluation System, Ohio's Program Review for Improvement, Development, and Expansion of Vocational Education (PRIDE), and the Arkansas Vocational Evaluation System are examples of State vocational evaluation programs that use this model.

Transaction Model

This model uses primarily qualitative approaches and focuses on the educational process. Case studies, interviews, and observations are used to explore the activities that take place in the educational programs as they appear to different actors.

Stake (1967) defines these key components in his transaction model.

- **An antecedent**—A condition existing prior to teaching and learning that may relate to learning outcomes. The status of the student prior to the lesson (i.e., the aptitude, previous experience, interest, and willingness) is a complex antecedent.

- **Transactions**—The encounters of students with teachers, student with student, author with reader, parent with counselor—the succession of engagements that comprise the process of education. Examples are the presentation of a film, a class discussion, the working of a homework problem, an explanation on the margin of a term paper, and the administration of a test.

- **Outcomes**—A body of information that includes measurement of the impact of instruction of teachers, administrators, counselors, and others. The wear and tear on equipment, effect of the learning environment, and required costs are also outcomes. Outcomes considered in Stake's transaction model of evaluation include not only those that are evident, but also applications, transfers, and relearning effects that may not be available for measurement until long after a learning session has ended. In short, outcomes are the consequences of educating—immediate and long range, cognitive and conative, and personal and public.

The Stake model of evaluation calls for the identification of the rationale of the program being evaluated. Stake (1967) says, "The rationale should provide the basis for evaluating intents" (p 9) Stake feels that "there are two bases for judging the characteristics of a program: (1) with respect to absolute standards as reflected by personal judgments and (2) with respect to relative standards as reflected by the characteristics of alternate programs" (p. 13).

All the evaluation models just described differ in their target audiences. They are based upon different methodologies and different assumptions of what is true, known, and knowable. They are similar, however, in that each presents a way of systematically assessing the merits or worth of training programs.

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Evaluation Design

An evaluation design is a systematic plan for learning the answers to a specific set of questions about a training program. The term design is often used loosely in the literature of program evaluation to mean two distinct things. first, a plan for conducting evaluation, and second, the research design after which an evaluation activity is patterned. For the sake of clarity, this guidebook refers to the latter as the evaluation research design

Types of Evaluation Design

Brinkerhoff et al. (1983) identified six main types of evaluation designs

- Fixed evaluation

- Emergent evaluation

- Formative evaluation

- Summative evaluation

- Experimental and quasi-experimental evaluation

- Unobtrusive inquiry

An evaluation design is *fixed* when the process is systematically planned in advance and all the procedures for data collection, analysis, and reporting are spelled out in detail. The *emergent* design, on the other hand, "readily responds to ongoing influences, evolving as it accommodates changing audiences, problems and program activities. Emergent evaluation designs are usually used in conjunction with naturalist inquiry" (Lincoln and Guba 1985, p. 4).

Because of the different roles imposed on formative and summative evaluation, distinct evaluation designs are often needed to satisfy clients' needs for information. In commenting on this issue, Brinkerhoff et al. (1983) note:

> It is possible to build evaluations to provide ongoing information for improvement and information for judgments of worth. However, often formative and summative evaluation have conflicting purposes and cannot easily be reconciled in the same design. (pp. 38-39)

In the past, program evaluation has been dominated by the paradigm of scientific inquiry that draws its roots from the natural and agricultural sciences. The emphasis has been on close manipulation and close monitoring of treatment under control conditions. Program evaluation designs of this kind were patterned after experimental and quasi-experimental research (see Campbell and Stanley 1963), and their ultimate goal was the establishment of a causal relationship between the training program and its outcomes. In scientific inquiry, the strength of an evaluation design is judged by the rigor of the manipulation and control procedures. However, the scientific paradigm has failed to provide decision makers with answers to complex questions involving complex, situation-specific human interactions and values. Scholars in education have therefore investigated alternative modes of inquiry. This new vision of program evaluation has resulted in the

naturalistic paradigm All the elements that are viewed as weaknesses in scientific inquiry constitute the strengths of naturalistic inquiry (e g , the absence of control and manipulation, the inclusion of contextual factors, the attention to values, and the interaction of the evaluator as a human instrument).

The major focus of scientific inquiry is to find significant statistical differences between experimental and control groups. Naturalistic inquiry, on the other hand, attempts to provide a thick description of reconstructed, multiple realities in a particular setting through in-depth case study methods Naturalistic inquiry makes use of an emergent design that unfolds with the progression of the inquiry process (Lincoln and Guba 1985).

Two other major differences that characterize the design of scientific inquiry are (1) random selection of subjects and (2) randomized treatment of groups. In the true experiment in the scientific mode, many threats to internal and external validity are controlled by random selection of subjects, random assignment of subjects to groups, and random assignment of treatments to experimental and control groups. This is often constraining, as random selection is not always feasible, nor desirable for ethical reasons; it might, for example, entail denying training opportunities to some individuals Another major drawback of true experimental design is the artificial situation it creates. The quasi-experimental design that makes use of intact groups is less constraining and is often preferred by educational evaluators. Naturalistic inquiry, on the other hand, makes use of intact groups in natural settings and does not control and manipulate treatments. This limits the generalizations that can be made, but the thick description resulting from a naturalistic inquiry does make provision for transferring conclusions to similar settings.

Evaluation Criteria

The evaluation standards established by the Joint Committee on Standards for Educational Evaluation (1981) may be adopted to serve as criteria for the evaluation of short-term training programs. The Joint Committee identified four attributes of every program that should be evaluated. utility, feasibility, propriety, and accuracy. The Joint Committee stated, "The Committee is satisfied that standards which shape an evaluation so that it has these four characteristics are necessary and sufficient for sound evaluation in education" (p. 13).

The Joint Committee identified 30 standards that together constitute the 4 characteristics Fifteen of the 30 criteria appear to have the most relevance for short-term skill training programs, and they are described in the following sections.[1]

Evaluation Standards

Utility

Information scope and selection. The information collected for an evaluation should be sufficient to support a judgment of the program's worth and merit. The information is useful when it answers relevant program evaluation questions.

Clarity of information. The information collected should relate clearly and specifically to the program evaluation objectives. The information should provide a firm foundation for evaluation conclusions and recommendations. Finally, the information should be characterized by logical development so that the program evaluation audiences can understand it.

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[1]This information is taken from McKinney and Kohan (1985. pp 21-33)

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Timeliness. The evaluation should provide information to the program developers and sponsors at the time when the information can best be used The most critical information needs of the program developer and sponsor must be met on time to avoid delays in important decisions about the program

Feasibility

Practical procedures. Program evaluation procedures should be realistic and should reflect time and financial constraints. Procedures should take into account practical problems If, for example, the evaluation is formative in nature, procedures for collecting information should be designed to minimize school and classroom disruptions.

Political viability. The evaluation procedures should be politically viable given the various interest groups and stakeholders that surround the program. Procedures are politically viable when the purpose of the evaluation is achieved despite pressures from the formal and informal organizational power structures of the community, sponsor, and client.

Cost-effectiveness. The evaluation should produce information of sufficient value to justify the expense of conducting the evaluation. Alternative evaluation approaches that might produce more useful information at the same or less cost should be examined. In summary for the information needed, the evaluation should be conducted as economically as possible.

Propriety

Rights of human subjects. The evaluation should respect and protect the rights and welfare of human subjects Legal, ethical, and common sense issues should be carefully examined.

Conflicts of interest. The program evaluation should be designed to avoid conflicts of interest, which can compromise the evaluation process and results.

Balanced reporting. The evaluation should be complete and fair in its presentation of the program's strengths and weaknesses, reporting both negative and positive findings Strengths and weaknesses should not be manipulated to please partisans or interest groups. Findings that might prove embarrassing to some groups or individuals should not be omitted

Accuracy

Clearly identified object. The object of the program evaluations should be clearly identified and realistically described. Unique features of the object should be identified. Furthermore, the descriptions and unique features of the object should be a valid characterization of the object

Appropriate information sources. The program evaluation should provide adequate information to answer the evaluation questions. If possible, multiple information sources should be tapped, using a variety of methods, such as interviews, surveys, and observations.

Adequacy of contextual information. Contextual information should be used in interpreting program evaluation results. For example, the program developer and client should know whether the program's success or failure was influenced by the academic background or socioeconomic

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status of the participants, the instructor's background, the classroom climate, instructor and sponsor support or resistance of the program, and/or community support or apathy toward the program.

Program and procedures explicated. The purposes and procedures of an evaluation should be understood by those involved. The objective of the evaluation should be clear The procedures for collecting, organizing, analyzing, and reporting should be described in such detail that other evaluators could replicate the evaluation effort.

Reliability. In data collection activities, *reliability* refers to accuracy in measurement Although there are several types of reliability (e.g., stability, interrater, equivalency, internal consistency), all refer to determining error. The less error in a measurement, the more reliable it is. When doing an evaluation, the reliability of the measuring instruments must be discussed, and reliability in general must be addressed.

Validity. Validity refers to "how truthful, genuine and authentic data are in representing what they purport to. To be valid is to make truthful claims, instruments must measure what they intend and claim to measure" (Brinkerhoff et al. 1983, p. 100). As with reliability, there are different types of validity (content, concurrent, predictive, and construct). No matter which type of validity is applicable to the evaluation effort, the validity of the data collection instruments must be addressed.

Assessing Evaluation Approaches

No single evaluation approach can be expected to satisfy all 15 criteria, and it is important to know what criteria a given approach does or does not satisfy. One way you can examine evaluation approaches in view of these criteria is shown in figure 1, a sample evaluation instrument The left-hand column of the table lists the criteria just discussed, and each of the next four columns is headed by one of the most widely used approaches to evaluating short-term training. You can rate how well a given approach meets each criterion by circling the appropriate number where the line and column intersect. The rating key explains the meaning of the numbers.

Additional evaluation models or approaches may be included in this framework. The importance of the framework is to underscore the idea that short-term training program evaluation design and assessment should meet a comprehensive criterion set. The relative importance of each criterion may be determined by the evaluation sponsor, the client, or by a consensus of both these stakeholders. Additional criteria may be added to the framework by the key stakeholders in the evaluation effort.

	Four Predominant Short-Term Program Evaluation Approaches										
Evaluation Criteria	Needs Assessment			Follow-up Studies			Outcome Studies			Cost-Benefit Cost-Effectiveness		
Utility												
— Information scope	1	2	3	1	2	3	1	2	3	1	2	3
— Clarity of information	1	2	3	1	2	3	1	2	3	1	2	3
— Timeliness	1	2	3	1	2	3	1	2	3	1	2	3
Feasibility												
— Practical procedures	1	2	3	1	2	3	1	2	3	1	2	3
— Political viability	1	2	3	1	2	3	1	2	3	1	2	3
— Cost-effectiveness	1	2	3	1	2	3	1	2	3	1	2	3
Propriety												
— Rights of human subjects	1	2	3	1	2	3	1	2	3	1	2	3
— Conflicts of interest	1	2	3	1	2	3	1	2	3	1	2	3
— Balanced reporting	1	2	3	1	2	3	1	2	3	1	2	3
Accuracy												
— Clearly identified object	1	2	3	1	2	3	1	2	3	1	2	3
— Appropriate information sources	1	2	3	1	2	3	1	2	3	1	2	3
— Adequacy of contextual information	1	2	3	1	2	3	1	2	3	1	2	3
— Purposes and procedures explicated	1	2	3	1	2	3	1	2	3	1	2	3
— Reliability	1	2	3	1	2	3	1	2	3	1	2	3
— Validity	1	2	3	1	2	3	1	2	3	1	2	3

Rating Key: 1 = Did not satisfactorily meet the criteria
2 = Partially met the criteria
3 = Satisfactorily met the criteria

Figure 1. Sample evaluation instrument

CHAPTER 4

OPTIONS IN EVALUATION DESIGN

Chapter 3 discussed some of the general questions that administrators need to consider in assessing short-term skill training programs. This chapter discusses the various components of evaluation and suggests guidelines for applying them to short-term skill training programs. The components are treated as options from which the evaluator selects those that seem effective and appropriate to particular program evaluation needs.

Evaluability Assessment

The accountability movement has been the major force behind the widespread implementation of program evaluation. It follows that if resources are to be committed to an evaluation, then the evaluation itself must show promise. The procedure used to ensure that an evaluation effort will fulfill its goals is referred to as evaluability assessment. The purpose of this assessment is to estimate the extent to which the goals of an evaluation are likely to be met, "considering such factors as the program's characteristics, the evaluability research methodology, cost, and constraints on the use of desired research methods" (Ruthman 1984, p. 28).

The fundamental questions addressed by an evaluability assessment are these.

- Is there a demand for the evaluation?

- What decisions are to be served by the evaluation activity?

Most evaluation efforts go through four main phases or stages: needs assessment, program planning, formative evaluation, and summative evaluation. The need for an evaluation effort is indicated by either an internal source or an external source. As the information needs of internal and external agencies are not always the same, the types of evaluation required to address these varying needs may differ. As illustrated in figure 2, internal requests may indicate a need for all four types of evaluations, whereas the external requests, which generally come from funding agencies often focus on needs assessment and summative evaluations. An evaluability assessment should enable an administrator or an evaluator to determine whether it is appropriate to—

- conduct a needs assessment,

- describe how programs were planned and implemented, and how they operate (program planning),

- provide information to program planners for program improvement (formative evaluation), or

- provide accountability information to funding agencies (summative evaluation)

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	Needs Assessment	Program Planning	Formative Evaluation	Summative Evaluation
Internal Request for Evaluation	Yes	Yes	Yes	Yes
External Request for Evaluation	Yes Sometimes	Not Usually	Not Usually	Yes (Main Focus)

Figure 2. Sources for initiation of program evaluation

For many short-term skill training programs the initial contract plan or proposal spells out in considerable detail the required program evaluation activities, as well as specific criteria and standards for measuring and judging the program success. In these instances, service providers are bound to evaluate the program according to the initial evaluation plans. When such evaluation specifications are not formulated initially, the evaluator must negotiate with the agency requesting the evaluation in order to determine the purpose of the evaluation effort.

Four important factors should be considered when conducting an evaluability assessment funding, human resources, equipment, and organizational support and feasibility

Funding

Evaluation is difficult to do well, and good evaluation can be expensive; therefore, the evaluability assessment must determine whether the sponsor of the evaluation is committed to funding the evaluation. When evaluation is requested internally, a similar financial commitment is still necessary. At this stage, it may not be possible to estimate accurately the cost of conducting the evaluation, but an approximate estimate is nevertheless useful and will give a rough idea of the financial investment involved. The financial resources allocated to the evaluation activity influence the breadth, depth, and rigor of the evaluation and therefore the quality of the information generated by the effort, as well as the credibility of the results.

Human Resources

Designing and conducting an evaluation calls for highly specialized skills and expertise. The success or failure of an evaluation effort, as well as the quality, usefulness, and credibility of the results, depends to a great extent on the quality of the evaluator. Locating the appropriate individuals to design and conduct the evaluation activities should therefore be a major point of concern The basic qualifications of a good evaluator include the ability to—

- communicate verbally and in writing;

- solve problems;

- practice interpersonal skills,

- make detailed observations,

- use computational skills,

- write problem statement and evaluation proposals,

- estimate evaluation costs;

- conceptualize, design, manage, and conduct evaluation activities,

- design questionnaires, achievement tests, and other data gathering instruments,

- analyze qualitative data, interviews, and observation/field notes;

- analyze evaluation results using computers and common statistical packages,

- write precise evaluation reports,

- give oral presentations of eval.   .ion reports;

- apply evaluation theories (both quantitative and qualitative), models, designs, and practices,

- conduct and design educational research; and

- use descriptive and inferential statistics.

When an internal evaluation has been requested, an individual who fits these qualifications should be identified within the organization. If no one with the appropriate skills and background is available, the alternative is to seek the help of private consultants. Many private firms specialize in evaluation, but their fees are often exorbitant. A more cost-effective alternative might be to hire an experienced university faculty member to supervise the effort. External agencies that commission evaluations usually make use of their own evaluators or private consultants

Equipment

Depending upon the scope of the evaluation efforts, large amounts of data may be collected during the process. Efficiency in summarizing and analyzing these data and making the results available to decision makers is of primary importance if the results are to be useful in making timely decisions. Consequently, data processing equipment and statistical software are necessary for processing the information gathered. When achievement tests are administered to large numbers of students in an evaluation, considerable time can be saved by using an optical scanner to score answer sheets. In conducting the evaluability assessment, it is important to identify the data processing equipment that will be available to increase the efficiency and effectiveness of the evaluation process.

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Organizational Support and Feasibility

Successful program evaluation, whether internally or externally commissioned, requires the support of the entire organizational and administrative staff. It is best to determine at the onset if such support will be provided, and this can be ascertained during the evaluability assessment

Another important consideration is the feasibility of the evaluation activity. This can be determined through an analysis of the contextual constraints as well as the existing constraints on resources, materials, expertise, staff, and time. In an internal evaluation, the evaluability assessment can also help to determine the roles of key actors in the process (e.g , the evaluator, the developer, and the program planning team).

The evaluability assessment is an important part of the evaluation and should take place before any major program evaluation effort. It can save scarce resources, time, and effort that otherwise might be lost in evaluation activities that fail to generate the information needed

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Needs Assessment

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Needs assessment is the foundation upon which most training and development projects are built It is a "systematic management tool in both program planning and development" (McCaslin and Lave 1976, p. 5). It can be used to determine priorities and to facilitate the decision-making process (Witkin 1984).

A need has been defined as "a gap between what is and what should be in terms of results" (Kaufman 1983, p. 3). Building upon his definition, Kaufman has formulated a comprehensive definition of needs assessment in the context of his organizational element model. A needs assessment, he states, is ideally concerned with gaps in outcomes. It is a formal analysis that shows (and documents) the gaps between current results and desired results, arranges the gaps (needs) in order of priority, and selects the needs to be resolved. Needs assessment forms an integral part of program planning and evaluation, as illustrated in figure 2 shown earlier in this chapter.

There is some debate as to whether needs assessment is part of program planning or program evaluation. In fact, it is both. Needs assessment is a prerequisite to program evaluation It is used to identify and assess these existing needs that must be addressed. After program implementation, needs assessment helps to establish whether and to what extent the needs have been met. This leads to decisions regarding program continuation, termination, or modification.

Needs assessment and program evaluation are two processes that facilitate decision-making Although they use the same kind of information, their focus in the decision-making process is different. Program evaluation operates at the program level, and needs assessment at the organizational level (Witkin 1984).

McCaslin and Lave (1976) advocate a four-step approach to needs assessment

- Identify program goals or objectives that need to be assessed.

- Identify procedure for determining and measuring the present status

- Compare differences or discrepancies that exist between the goal and the actual status

- Assign priorities or rankings to the discrepancies found. (p. 6)

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We believe that it is important to add the following step to the McCaslin and Lave approach because the needs assessment process is not complete without a needs analysis:

- Conduct a needs analysis to determine what factors in the system are responsible for the "what is" and "what should be" status of goals.

Whom to Include

When conducting a needs assessment it is important to determine whom to include in the process in order to get representative input from individuals or groups interested in, or affected by, the process. Needs assessment can focus on three levels of needs: (1) individual needs, (2) employers' needs, and (3) societal needs. Individual needs may include interests, knowledge, understanding principles, skills, and attitudes. Employer needs may be considered in terms of such factors as industrial growth, occupational supply and demand, and present and projected employment needs and conditions.

Societal needs may be educational (providing an adequate education for all citizens), economic (promoting economic growth and development), social (providing the poor and the disadvantaged with a means of moving beyond these barriers), and governmental.

Witkin (1984) identifies three primary groups involved in needs assessment activities: (1) service providers (agencies, institutions, organizations, program developers), (2) service receivers (the beneficiaries of services), and (3) stakeholders (agencies or organizations that have an interest in the service received). Some groups that may be included in a needs assessment of short-term skill training are students, educators, employers, employees, government agencies, and professional organizations.

Students. The needs assessment may include the following subcategories of students in the process.

- Students currently registered

- Graduates

- Dropouts

- The temporarily unemployed

- The hard-core unemployed

- The structurally unemployed

- Dislocated workers

- Welfare recipients

- Youth

- Adults

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Educators. The following subgroups may be included in the needs assessment

- Instructors

- Administrators

- Supportive staff

- Regional education agency personnel

- State department of education personnel

- Faculty members from universities

Employers and employees. A successful needs assessment of a training program in business or industry surveys both the employers and the employees. It may be meaningful to include individuals at various levels of responsibility within the organization.

Government agencies. This group is largely composed of stakeholders in the short-term skill training program. These might include.

- State boards of education

- Manpower councils

- State departments of labor

- State legislators

- Departments of economics and community development

- Industrial commissions

- JTPA administrators

- Private industry councils (PICs)

- State job training coordinating councils (SJTCCs)

The purpose of the needs assessment effort, as well as practical considerations such as resource and time constraints, will influence the selection of individual groups or subgroups

Procedures for Conducting Needs Assessment

Various strategies can be used for gathering information for a needs assessment. Because of the values involved in the process, it is suggested that both qualitative and quantitative methods be used for collecting the data. Following are some of the most common methods in current usage surveys, interviews, nominal group techniques, the Delphi method, fault-free analysis, and decision-free techniques. Zemke and Kramlinger (1984) provide an excellent description of these methods and a discussion of the issues involved in their use, as well as an overview of highlights of the advantages and disadvantages associated with each method

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The quantitative data generated by the needs assessment can be analyzed and reported by means of procedures generally used in conjunction with surveys Common descriptive and inferential statistics are also appropriate when the data are amenable to such treatment In general, graphical displays of the findings enhance comprehension Qualitative data are more meaningful when presented in narrative form, but this does not exclude the use of matrices and tables when appropriate.

A needs assessment report usually consists of both a technical report and a brief executive report. The technical report should describe all the procedures used and present all the data collected, data analyses, interpretations, findings, conclusions, and recommendations The executive report is a brief document, usually about two to three pages, that explains how the problem was identified, summarizes the needs in terms of the discrepancy between actual and desired states of affairs, and presents the causal analysis of the needs.

Needs Assessment for Specified Purposes

Participant-oriented employment assistance programs, such as those sponsored by the government under JTPA or by UAW-Ford in its Targeted Vocational Retraining, focus their needs assessment on participant needs and labor market needs. In the Marion Job Training Center in Marion, Ohio, for example, the client needs assessment process consisted of a battery of tests to assess basic skills, general knowledge, achievement, aptitudes, interests, and attitudes. Individual counseling is also used to determine the needs, interests, and goals of participants. To assess labor market needs, the Center relies upon the projections and descriptions in the Occupational Outlook Handbook, a list of occupations in demand in the State, and local job listings.

The UAW-Ford Reemployment Services Assistance Centers are designed to help clients determine their own training/career development needs. These centers screen proposals by providers of training services and identify those with the greatest potential for meeting their clients' training and reemployment needs. Program selection criteria are based upon client needs. Scheduling, transportation, and location of the training program are considered, as well as prerequisite skills and competencies. Client interests and short- and long-term goals and the transferability of training are also examined. In addition, the UAW-Ford request for proposal process stipulated that recommended programs show a strong assurance of labor market demand and a commitment from local firms to hire graduates of the programs for jobs with minimum entrance level salaries.

Needs assessment for customized training usually follows a somewhat different process. Postsecondary institutions often rely on a company's own assessment of its needs as a starting point for program development. Occasionally, however, instructors may discover a different set of needs when the program is under way. Employees may lack some basic skills or demonstrate non-training-related communication problems. Some of these surprises might be averted through screening candidates for the skill training. A collaborative approach to needs assessment and program planning and design can be very helpful, as it enables the postsecondary institution to verify the identified training needs at several levels in the company before the program actually begins. An example of this extended program planning process is provided by Trident Technical College in table 2.

The development of training programs directed at meeting emerging industry needs in specific skill areas relies heavily on the task force approach. In the New York Finger Lakes area, regional task forces in five growing industries represent the needs of individual companies that are too small to demand customized training. Initially, industry representatives meet with college administrators and training coordinators to discuss the local need for a training program. An employer

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TABLE 2
CUSTOMIZED ON-SITE INDUSTRIAL POSTEMPLOYMENT COURSE

Step	TTC	Industry	Coordinator Hours	Instructor Hours	Secretarial Hours
A. Initial Meeting with Industry Representative	Discuss TTC – Training Capabilities – Objective – Goals	Discuss – Existing Training – Future Training Needs – Scheduling Alternatives – Target Audience			
B. Initial Course Planning	Discuss – Course Material Available – Presentation Options – Material Organization – Train. Location Options – Support Requirements	Provide – Technical Details – Content Agreement – Location Agreement			
C. Formal Course Planning	Review – Technical Details – Course Proposal – Cost Analysis – Instructor Options – Textbook Options	Approve – Course Proposal – Cost Proposal – Text			
D. Instructor Selection	Acquire Resume of Potential Instructors – Arrange Interviews – Prepare Temporary Employment Agreement	– Review Resumes – Interview Instructors – Approve Instructor Selection			
E. Course Development	Prepare – Course Objectives – Performance Objectives – Course Syllabus – Tests	Provide – Subject Matter Specialists (If Necessary) – Company Visitation			
F Course Approval	– Review Complete Training Package – Provide Final Course Proposal	– Approve Training Plan – Select/Notify Students			
G. Implementation Inst.	Begin Training Contract	Implement Training Schedule			
H. Monitoring & Evaluation	– Critique Instructor – Identify & Correct Problems – Insure Support Materials	– Supply Feedback – Determine Training Effectiveness			
I. Travel Hours & Cost					
J. Preparation of Billing					

SOURCE: Trident Technical College, Charleston, South Carolina.

survey may be used to help determine the level of demand and narrow down specific skills and competencies. During the needs assessment and program planning process, the task force may meet several times to define needs; refine program objectives, validate curriculum, equipment, and learning materials; and suggest or even approve instructors for the program. The task force per-forms much the same functions as the advisory council utilized extensively in vocational educa-tion, but it is generally seen as a transitory body. If the program becomes an established certificate or even degree program, task force members are ideal candidates for the advisory council. Advi-sory committees that are already assembled for longer, established programs in related areas may be used to validate the need for and design of individual short courses. At Hennepin Technical Centers' south campus, in Eden Prairie, Minnesota, advisory committees oversee some 90 percent of all short programs.

Needs assessment is an important activity that deserves considerable attention, as it is the starting point for efforts to design and improve training programs. If properly conducted, it can save time, effort, and money.

Input Evaluation

The main purpose of input evaluation is to provide the information needed to design a pro-gram to meet identified goals and objectives. More specifically, input evaluation assesses existing resources and determines additional resources needed to bring about desired changes (i.e., to attain the intended objectives).

Anderson et al. (1977) indicated that input evaluation "describes the resources available and determines the best use of those resources in terms of cost and benefits, resulting in a design to meet the goals" (p. 118). Stufflebeam and Shinkfield (1985) argue that

the overall intent of an input evaluation is to help the clients consider alternative pro-gram strategies in the context of their needs and environmental circumstances and to evolve a plan that will work for them; another important function is to help the client avoid the wasteful practice of pursuing proposed innovations that predictably would fail or at least waste resources. (p. 173)

Anderson et al. (1977) note that "input evaluation results in a proposed design for the implementa-tion of a program" (p. 119) and raises a number of important issues: "feasibility of accomplishing goals, availability of strategies to meet goals, potential costs of various strategies, probability of success of various strategies based on past experiences, the utilization of staff, scheduling of activ-ities, and the need to call on outside resources" (p. 119). Most of these issues should be examined carefully during the design and planning of short-term skill training programs.

There is no single approach to the conduct of an input evaluation. Some of the most common approaches in current use are the Program Evaluation and Review Technique (PERT), the Delphi technique, and cost-effectiveness analysis (Anderson et al. 1977). Stufflebeam and Shinkfiel (1985) identify a set of procedures that can be used for conducting an input evaluation:

- Review current practice, by examining the literature, visiting exemplary programs, obtain-ing consultant advice from government agencies, and inviting local staff to generate proposals.

- Examine promising approaches in terms of potential effectiveness and feasibility.

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- Identify the criteria that the proposed program must meet and assess potential program designs according to these criteria and in terms of effectiveness and feasibility.

- Gather feedback from staff and administrators about the feasibility of installing proposed programs within the constraints of available resources

Stufflebeam and Shinkfield (1985) also identify an innovative approach for conducting input evaluation entitled "The Advocacy Team Technique." The process calls for the selection of two or more teams of experts. They are given the program objectives, specifications for designing a program proposal, and the criteria by which their input will be judged. The resulting proposals are rated by a panel of experts or pilot-tested against specific criteria. Local staff must then select the alternatives that best meet program needs. As the authors point out, this technique provides—

- an explicit procedure for generating and assessing complete program strategies,

- an explicit record of why a particular solution strategy was selected,

- a forum that uses potential bias and competition in a constructive search for alternatives, and

- a means of involving personnel from the adopting system.

Two other useful sources of information for input evaluation are (1) the program review guidelines that outline standards by which vocational education programs should be evaluated and (2) the program standards specifications that identify the space, equipment, facilities, and tools necessary for the delivery of specific vocational education programs. These two sets of documents have considerable implications for the input evaluation and can be very useful.

It is important to gather information from all appropriate sources. The task force or advisory committee, employer, and/or internal curriculum development specialist can be particularly useful in providing evaluative input into the design of instructional programs. Advisory committees and employers can validate program performance (task) objectives, as well as substantive content, materials, and equipment. Curriculum developers an provide assurance that the design and sequencing of courses and curriculum material are appropriate to identified student needs and that they should facilitate learning. Figure 3 presents an example of an advisory committee assessment form utilized at District 916 Area Vocational Technical Institute.

Criteria that may be considered in designing skill training programs include the following·

- Efficient use of instructors and equipment without overcrowding

- Adequate support services to meet student needs (i.e., counselors, library or instructional materials center)

- Qualified instructors

- Sufficient time allotted to training

- Homogeneous group of trainees who can be expected to learn at about the same pace

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CRITERIA FOR TASK LIST AND PROGRAM MATERIALS ASSESSMENT		

Program Name _____   Program Number _____

Date _____ _____

Advisory Council Committee
Chair Signature_____ _____

Assistant Director
Signature _____

ITEM	SAT.	UNSAT.
1. The program tasks appear to be valid (in other words, a new employee would be expected to perform these tasks).		
2. The content of the course material appears to be valid (in other words, the materials contain information that is needed for new employees to perform their jobs).		
3. Course material appears to be free from sexual, racial, and religious stereotyping.		

List any tasks or course material that you feel needs to be updated, deleted or added. Use the space below and the back of this sheet if needed.

Figure 3. Sample advisory committee assessment form

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Employers who are not experienced with training often underestimate the amount of time it takes Coordinators of customized training programs must be prepared to argue for the allowance of enough learning time for programs to be efficient.

Process Evaluation

Process evaluation is used to monitor the implementation of a training program Stufflebeam and Shinkfield (1985) identify four main purposes of process evaluation:

- To provide feedback to managers and staff about the extent to which program activities are on schedule, are being carried out as planned, and are using the available resources efficiently

- To provide guidance for modifying or explicating plans as needed

- To assess periodically the extent to which program participants accept and are able to carry out their roles

- To provide an extensive record of the program as it was actually implemented, including a comparison to what was intended, a full accounting of the costs incurred, and a record of how observers and participants judged the quality of the program

Process evaluation, therefore, is essentially a formative type of evaluation, in which the focus is on program monitoring and improvement. Morris and Fitz-Gibbon (1978) suggest a four-step approach for conducting a formative evaluation:

- boundaries of the evaluation.

- Prepare a program statement

- Monitor program implementation and the achievement of program objectives

- Report to and confer with planners and staff.

Due to the time constraints normally associated with short-term skill training programs, it is important to monitor program implementation to ensure that it follows the original plans. Any discrepancies should be identified and rectified immediately. Without close control, the original objectives can be missed and the entire training effort jeopardized. Process evaluation provides a quality control and quality assurance mechanism for short-term skill training.

Quantitative input into process evaluation can be gained by monitoring attendance, performance on competency and skills tests, use of materials/supplies, and ongoing costs. Qualitative input may come from periodic observations of instruction by an administrator, department head, or training coordinator, and informal feedback from students. Greenville Technical Institute requires that deans or department heads assess classroom instruction and provide feedback to the instructor for any program longer than 2 weeks. In UAW-Ford programs, a client service administrator monitors Targeted Vocational Retraining programs on a regular basis to assure that client needs are being met. The executive director of the Finger Lakes Regional Education Center for Economic Development in New York State maintains regular contact with training coordinators at the individual colleges and periodically visits ongoing programs to provide process evaluation. Monitoring both quantitative and qualitative data provides program administrators with a means of keeping the program "on target" and meeting the needs of participants.

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Outcome Evaluation

Outcome evaluation is part of the broad product evaluation process that assesses program outcomes and impact. Its main purpose is to determine if the immediate program objectives have been met. Whereas the main focus of outcome evaluation is on immediate program effects, impact evaluation focuses on long-term effects.

Stufflebeam and Shinkfield (1985) suggest that outcome evaluation should determine both the intended and the unintended effects of a program. They also recommend that outcome evaluation should gather data from a broad range of constituents involved in a particular program.

There are many levels of outcomes on which a program evaluation can focus, such as individual outcomes, group outcomes, service provider outcomes, and outcomes for service receivers and stakeholders. In most cases, the information needs of the client dictate the level upon which the evaluation effort should focus. In some instances it is more meaningful to examine the various levels of outcomes individually; in others, an aggregate of these outcome measures may better serve the decision-making process.

Farley et al. (1985) state that outcome studies are similar to follow-up studies. Both are intended to identify short-term consequences and longer term impact resulting from vocational education programs. However, Farley et al. (1985) note that outcome studies differ from follow-up studies in that they are designed, by and large, "on the basis of systems analysis models in which program outcomes are related in some fashion to program inputs" (p. 33).

Outcome studies of vocational education programs, whether they be short- or long-term, are used to provide information on the productivity, effectiveness, and accountability of the programs If, for example, a program placed 95 out of 100 of its participants in training-related jobs, one might conclude that the program was productive and effective. However, as Farley et al. note, cost-benefit or cost-effectiveness studies can provide a more sophisticated indicator of program accountability.

There is no set of procedures specifically designed for conducting outcome evaluation, but a variety of approaches used for other purposes can be combined to generate the information needed. The following are some examples of methods for generating outcome data:

- Pretest and posttest achievement

- Follow-up studies of graduates

- Follow-up studies of employers sponsoring training programs

- On-the-job performance appraisals of graduates

- Cost-effectiveness and cost-benefits analyses

- Case studies on job sites

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The National Center for Research in Vocational Education has developed documents that provide very precise guidelines for conducting follow-up studies Following is a list of some of the more relevant studies:

- *Evaluating Student Satisfaction*, E R Ponce and S J Franchak, 1981

- *Evaluating Employer Satisfaction*, S J. Franchak, 1981.

- *Guidelines and Practices for Follow-up Studies of Former Vocational Education Students*, S J. Franchak and J. E. Spirer, 1978.

- *Guidelines and Practices for Follow-up Studies of Special Populations*, S. J. Franchak and J. E. Spirer, 1979.

The outcome measures obtained from outcome evaluations are compared to the original needs assessment in order to determine program success. The evaluation should discuss any discrepancies between "what is" and "what should be."

Stufflebeam and Shinkfield (1985) indicate that outcome evaluation is important for accountability purposes. In some short-term skill training programs, such as JTPA programs, the funding agencies set specific program outcomes in terms of performance standards. JTPA was designed to be performance driven and to ensure the achievement of program objectives. Section 106 of the act puts the responsibility on the U.S. Secretary of Labor and the State Governors to establish and apply specific performance standards to the programs. Following are the performance measures that must be recorded·

Adults

- Entered employment rate

- Cost per entered employment

- Average wage at placement

- Welfare recipient entered employment rate

Youth

- Entered employment rate

- Positive termination rate

- Cost per positive termination

Using these measures and guidelines established by the U.S. Secretary of Labor, the State Governors set standards for local service delivery areas, taking into consideration local factors that are likely to influence performance. As performance of JTPA programs depends to a large extent on environmental conditions, the standards must be set with these conditions in mind and may vary according to local conditions. It is also the Governors' responsibility to determine whether

these standards have been met and to provide the appropriate rewards, sanctions, or technical assistance. The authors of the *JTPA Performance Standard Project* (CSR, Incorporated 1984) note

> Assessment of each service delivery area's performance is made difficult by the fact that programs operate under different conditions and the standards setting system attempts to account for conditions over which the program operator has little, if any, control A simple comparison of performance is neither appropriate nor equitable as programs are administered under different conditions in different localities. (p. 3)

Table 3 provides a summary of the information that is typically required for assessing the performance of JTPA programs (CSR, Incorporated 1984). As table 3 shows, outcome evaluation can be very complex. With the growing concern for accountability in training, the traditional approach of evaluating training on the basis of participant reaction is not adequate. Participant reaction does not provide the valid and credible information required by funding agencies. Program providers can generate measure outcomes by more accurately triangulating information from various sources at various levels of validity and reliability.

Finally, because short-term skill training is closely tied to employment outcomes, training is often evaluated only in terms of those employment outcomes and not on the basis of learning outcomes. If evaluation is to be useful, it must measure learning. It must indicate, for example, whether unemployed participants effectively learned job-seeking and preparation skills or whether their training was inappropriate or inadequate Positive results are not always due to the training program and should be examined. If the business cycle suddenly takes a turn for the better, it will be necessary for evaluators to be able to sort out the positive effects of training and the effects of the improving economy.

Impact Evaluation

Training evaluation often ends with the determination of whether the program objectives have been met and the identification of the immediate outcomes of training. However, other important short- and long-term effects should be assessed if the full impacts of training are to be known These impacts can be measured in terms of the broader effect or worth of training efforts for the individual, for the business community, and for society as a whole.

Individual Impact

For the individual participating in the training program, impact can be indicated in several ways:

- Promotion (if the individual was already employed)

- Increased job satisfaction

- Integration or reintegration into the labor market after a period of unemployment

- Higher earnings

- Increased occupational mobility and career growth

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TABLE 3

INFORMATION REQUIRED BY GOVERNORS TO DETERMINE
IF JTPA PROGRAMS HAVE MET PERFORMANCE STANDARDS

Planning Process	Measures	Terminee Characteristics No. or Percentage	Others
Adults No. who terminated No. who entered employment Total expenditure for adults Wage for all adults who entered employment at termination	Entered employment rate No. terminated as a percentage of total no. terminated Cost per entered employment Total expenditure divided by no. who entered employment Average wage placement Average wage for all adults who entered employment at the time of termination Welfare entered employment at termination expressed as a percentage of no. of welfare recipients who terminated	Female 45- to 54-year-olds 55 years and over Blacks Hispanics Other minorities Dropouts Handicapped UI claimants Welfare recipients	Average no. of weeks of participation of all adult terminees
Youth No. who entered employment at termination No. of youth who had a positive termination (both entered employment and employability enhancement terminations) Total expenditure for youth	Entered employment rate No. who entered employment as a percentage of no. who terminated Positive termination No. having a positive termination as a percentage of no. terminated Cost per positive termination Total expenditure for youth divided by no. of youth having positive termination		Average no. of weeks participation for all youth Local economic conditions for the SDA Unemployment rate Average wage for the area

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- Enrollment in additional training or education

Training impact on the individual level is usually assessed through follow-up studies conducted at various intervals to determine both short- and long-term impacts Longitudinal analyses based upon National databases such as the National Longitudinal Survey (NLS) provide impact data for various types of training and these data may be useful in program design but are not useful in assessing the impacts of specific training programs.

Organizational Impact

Impact at the organizational level is usually more difficult for training institutions to document However, through collaboration with business and labor, evaluators can assess the worth of training to business and industry In general, the most significant impact of training on the business community is increased productivity.

Two dimensions must be considered in the assessment of productivity. The unit of analysis may be one of nine levels—individual, work group, department, function, plant, division, firm, industry, or nation. The measurement scope refers to the time interval used, which may be in minutes, hours, days, weeks, months, and so on. These two dimensions can be placed on a matrix to help focus the measurement of any observable change in productivity.

Other indicators of training impact at the organizational level are reduced accident rates, lower absenteeism, fewer rejects and less waste, higher morale, and improved quality of products. The training program may also have impact on the nature of organization and management, as was the case in one company visited in New York State. There the effect of the training program did not simply manifest itself in the employees' ability to understand and correct production problems The implementation of training over a 9-month period resulted in major changes in the way line supervisors viewed their roles and the way they interacted with production line employees

Societal Impact

Whatever the original intent of a training program, the program will always have impact on society. In fact, some training programs such as JTPA are specifically designed to have direct societal impact. Examples of training impact on society are—

- reduced unemployment;

- equal employment opportunities to youth, the elderly, women, and minorities,

- the return of welfare recipients to the labor market;

- a more balanced standard of living among citizens; and

- political stability in the country.

Societal impact may not be a justifiable goal for all types of training and often does not fall within the competence and responsibilities of postsecondary institutions. However, institutions can assist in efforts to impact society positively by keeping accurate records of all their training activities.

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The New York State Education Department (1984) has developed two interesting models for determining the impact of short-term skill training programs: the impact model for production and service organization, the impact model for specialized training situations. These are discussed at length in their publication *Training and Economic Development: The Impact of Industry-Specific Training on Business and the Economy of New York State.*

Knowing that a training program has been effective in meeting its intended objectives is important but not adequate if the results, the worth, or the short- and long-term impact are not known. Postsecondary institutions should endeavor to assess the impact of their training programs whenever possible.

Cost-Benefit Analysis

Short-term skill training is experiencing a boom. Substantial amounts are invested each year in short-term training by government agencies, schools, and private corporations. In spite of this massive deployment of resources, there has been little effort to assess training systematically in relation to financial investments.

The process of assessing a training program on the basis of its benefits in relation to cost is referred to as cost-benefit analysis. Cost-effectiveness analysis similarly addresses effectiveness in relation to cost. Kim (1977) defines the two key terms as follows:

- **Cost-benefit analysis** involves the determination of the cost and the benefits of a single program for the purposes of improving the ratio of benefits to cost.

- **Cost-effectiveness analysis** is an analytical technique for assessing the outcomes of a program in relation to its specified objectives and against its cost. (p 3)

The two are discussed together here because both deal with what might be called the return on investment in a program.

Kim also indicates that vocational education programs can use cost-effectiveness/cost-benefit analysis as a tool in systems analysis evaluation and planning. Wentling (1980) identifies even more reasons for conducting cost-analysis evaluations in education:

- To provide information for resource allocation decisions

- To promote better utilization of facilities

- To determine optimum staff assignments

- To determine optimum scheduling or sequencing of courses

- To determine the optimum number of participants for a particular program

- To decrease the cost of high-cost/low-incidence programs

- To determine whether to finance the development of a new program

- To compare alternate programs

- To account for expenditures

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Kim has designed one of the most comprehensive models for analyzing cost-effectiveness/cost-benefit in postsecondary vocational education programs. This model is based on four major components: social demands; social support, student input; and objectives, programs, and cost The cost-effectiveness/cost-benefit measures include student outputs, noneconomic benefits, and economic benefits.

Conducting an Analysis

If a cost-benefit analysis is to be successful, all the steps in the process must be identified and planned in advance. The steps identified by Kim provide excellent guidelines:

Planning

- Determine the purposes and scope of the analysis

- Identify appropriate resources.

- Develop a study plan and time schedule.

Implementing

- Determine program objectives and target goals

- Assess program outcomes.

- Analyze direct or indirect program costs.

- Compute cost-effectiveness/cost-benefit measures

Utilizing

- Compute and interpret the measures and draw conclusions.

- Utilize the results for program evaluation, development, and planning.

Determining costs and benefits. The cost of a training program can be broken down into program development costs and program operation costs. Program development costs may include monies spent for: analysis, design, development, implementation, and evaluation and revision. Program operation costs include administrative costs, instructional staff costs, support staff costs, building and services costs, materials and supplies costs, insurance costs, and maintenance costs It is more difficult to assess with a reasonable degree of accuracy the benefits derived from training investment, because often these benefits are intangible (Wentling 1980).

CHAPTER 5

CHOOSING AN EVALUATION APPROACH

Because of the nature of short-term skill training programs and their duration, many of the approaches commonly used in the evaluation of long-term training programs may not provide the information needed. Short-term skill training programs are so numerous and diverse that system-atic evaluation of an individual program may not be feasible or desirable. The payoff in terms of the usefulness of the information may not justify the commitment in terms of financial and human resources. Furthermore, timeliness is such a critical factor in almost all short-term skill training. Courses may be so urgently needed that planning must proceed without the feedback generated from evaluation efforts. The results of evaluation may become available too late to influence any decision-making process.

Many short-term skill training programs are one-time training efforts. In such cases evaluation results cannot be used to revise and improve programs, and the function of evaluation becomes blurred. Moreover, when an institution or employer offers many short-term programs, it may not be possible to use the information from evaluations of every program. If each program is systemati-cally evaluated, already busy decision makers may be flooded with information they cannot pro-cess and act upon.

These difficulties call for alternatives to the strategies traditionally used for assessing long-term training programs. This chapter discusses two promising techniques for evaluation of short-term skill training programs, aggregate program review and peer review, and concludes with the postcard model—an abbreviated but often useful method of evaluating very short programs.

Aggregate program review and peer review are not innovative in themselves but are models of evaluations that have been used elsewhere. However, the idea of using them for short-term skill training assessment is innovative. These models hold the potential for enriching the evaluation of short-term programs.

Aggregate Program Review

Program review is an approach to program evaluation that has been and is still being used by many universities for evaluating their academic programs and by many State boards of education for assessing their vocational education programs.

For these users, program review generally focuses on the evaluation of the overall effective-ness of all long-term program offerings at the institutional level. For example, Ohio's Program Review for Improvement, Development, and Expansion (PRIDE) is a comprehensive evaluation system designed to assist vocational educators in planning and implementing quality vocational education programs (State of Ohio 1984).

The State of Arkansas has a similar program operation. The purpose of the Arkansas Vocational Evaluation System is "to provide a vehicle for the systematic collection of information for use in planning, reporting, and decision making to be used for the improvement of vocational education programs" (Arkansas Department of Vocational and Technical Education, n.d.) The following are the objectives:

- To promote and assist local education agencies and postsecondary vocational institutions in providing high quality vocational education programs

- To foster maximum utilization and accountability of State and Federal funds allocated for vocational education programs and activities

- To provide necessary information for planning, reporting, and decision making at the State and local levels (p. 10)

Many other States have similar program review systems with similar objectives. The essential difference between program evaluation and aggregate program review is that the former focuses on the evaluation of individual programs and the latter is geared toward the assessment of a range or set of programs. Most State program reviews consist of two major components: a self-assessment conducted by local staff and a visitation by an outside team.

Self assessment. Self-assessment involves all the local staff members of the training institution in a joint evaluation effort. An organizational structure proposed by the Arkansas Department of Education has proven effective for the self-assessment process. This structure includes a steering committee and a series of assessment subcommittees, each assigned to an individual program. The steering committee and one administrator or supervisor usually have the responsibility for appointing and providing leadership for the total effort. The assessment subcommittees conduct the evaluation procedures and report to the steering committee; all the findings of all these reports are compiled into a summary report.

Site visitation. In the Arkansas system site visitation is performed by a team of external evaluators selected by the director of the vocational and technical education division of the State department of education upon the recommendation of local supervisors or administrators. The team usually spends 1 day at a site. Larger schools may require 2 days. The leader of the visiting team assigns team members to subgroups that are responsible for specific evaluation tasks. Each subgroup completes the assigned tasks according to specific guidelines and criteria, and after the site visit each subgroup drafts an evaluation report. It is then the team leader's responsibility to complete the final evaluation report that summarizes the findings and submit it to the institution that has been evaluated. The school must then respond to this report, indicating the actions it will take to meet the recommendations of the site visit evaluators. This response becomes the school's Vocational Plan of Improvement.

A similar procedure could be used for the overall evaluation of short-term skill training programs at the secondary and postsecondary levels. Such an approach should help to overcome some of the difficulties usually encountered in evaluating individual short-term programs.

The panel of experts convened for the project on which this guidebook is based suggested monitoring a limited number of specific characteristics routinely as the baseline process. Program costs, enrollments, and placement rates are examples of characteristics that might be monitored for each program. For institutions with computer-managed information systems, monitoring of multiple programs in this way requires less effort than in the past and can be a cost-effective mechanism for conducting aggregate program review.

As the database or various programs accumulates, benchmarks for evaluation can be established and a procedure for flagging exceptional programs developed These exceptional programs can then be evaluated efully to determine the re   for their success (or failure) Periodic assessment of randomly selected programs may   onducted to validate monitoring criteria and flagging standards

At Trident Technical College, each type of short-term training program is overseen by a Unit Coordinator. These coordinators meet with the Dean of External Programs once a month to monitor all programs. They review a number of benchmarks:

- Current program activities

- New contracts

- Expenditures and revenues per program

- Number of companies served

- Number of contact hours

- Comparison of ongoing programs with new ones

In this way they are able to assess programs and avert potential problems by shifting emphasis between units as appropriate.

Peer Review

The second strategy proposed by the panel of experts is peer review. Peer review evaluation is essentially an evaluation effort conducted by knowledgeable individuals from outside the institution Like aggregate program review, peer review focuses on the assessment of the overall program offerings. This process can be self-initiated or commissioned by some State authorities.

The purpose of peer review is to provide an objective assessment of the training program Because external peers have no stake in the evaluation results, the results should be objective and therefore more meaningful.

If peer review evaluation is to be used, the identification and selection of appropriate peers is of major importance. These reviews can be selected from similar institutions within the same State, from similar institutions outside the State, or from the ranks of private consultants with expertise in training and development. The use of peers from similar institutions within the same State is perhaps the most economical alternative. Depending upon the agreement reached, there can be fees attached for the service or an exchange of services between institutions. Arrangements with reviewers from other States can be patterned in the same way, but additional travel costs are involved. Private consultants can perhaps provide the most specialized and expert services in the evaluation—and the most costly. Bear in mind that peer selection is an important issue with potentially important economic and political consequences. Peer-to-peer evaluation by experts from other States may require the review of sensitive issues that State legislators or school administrators do not want to share with outsiders.

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Peer review evaluation strategies can focus on various aspects of skill training programs, from needs assessment to program design and implementation. Peer evaluation of program outcomes and impacts is not appropriate because of the time and resources usually required for these processes. However, peer reviewers can be used to audit internal evaluations of program outcomes and impact conducted by in-house staff. When reviewers are carefully chosen and their agenda well thought out, the peer review technique can greatly help to alleviate the problems often encountered in evaluation

Using Evaluation Models

For short-term training courses that are brief and run only once, extensive evaluation may not be appropriate. At the same time, some form of evaluation is always desirable. Aggregate program review and peer review normally generate a great deal of useful information for the development of future programs and the improvement of existing programs. For established programs, other evaluation approaches may be beneficial.

In modifying an evaluation approach, care should always be taken; the benefits of the approach depend on following procedures with some accuracy. In peer review, for example, the evaluation hinges on the good judgement and expertise of the reviewers. In aggregate program review, the orderly administration of the self-assessment is crucial.

For training seminars that last no more than two days, an abbreviated form of evaluation can be useful. The panel of experts designed a minimal evaluation approach that can be useful for short seminars. This postcard model uses a little from three evaluation approaches. It involves the following steps:

- Needs assessment

- Outcome measure

- Follow-up

The needs assessment may be minimal if the company/client has already determined what the training need is. That is, a company might decide that a business writing course is needed. The needs assessment on the part of the educational provider can then focus on the questions, What are the specific *needs* for business writing for that particular organization? and At which points are employees deficient?

An outcome measure may be as simple as a "smile sheet" or "happiness index" at the end of the course (i.e., a student reaction questionnaire). If the client company and the provider have agreed in advance that this type of self-reported measure is an appropriate indicator of success, then a simple, short questionnaire may be all that is required for this aspect of the evaluation (Clients should not, however, be encouraged to see self-report as a very useful way to measure outcomes.)

Some form of simple follow-up is needed to ascertain whether and to what extent participants have used the skills and knowledge that they learned and whether employers are satisfied with the training the learner employee received. This follow-up may be in the form of a postcard sent to either participants or their direct supervisors, requesting them to mark appropriate responses.

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The postcard model is recommended cautiously. Its real value is probably to illustrate how important methods of evaluation, such as needs assessment, can be worked into even the briefest training program. The intention of this publication has been to indicate the many forms evaluation can take and the range of information it can generate. Those who are interested in exploring an approach mentioned here can refer to the literature discussing the model that is cited in the text

APPENDIX A

SITE VISIT LOCATIONS

Columbus Technical Institute
Columbus, Ohio

District 916 Area Vocational and Technical
   Institute
White Bear Lake, Minnesota

Finger Lakes Regional Educational Center
   for Economic Development
Mount Morris, New York

G C.A/Tropel, Inc.
Fairport, New York

Greenville Technical College
Greenville, South Carolina

Hennepin Technical Centers
Intermediate District 287
Plymouth, Minnesota

Private Industry Council, Inc.
Crawford County Job Training Center
Bucyrus, Ohio

Private Industry Council, Inc
Marion Job Training Center
Marion, Ohio

Trident Technical College
Charleston, South Carolina

Schlegal Corporation
Rochester, New York

UAW-Ford National Development and
   Training Center
Dearborn, Michigan

Zone 1: UAW-Ford Career Services and
   Reemployment Assistance Center
Macomb Community College, site
Fraser, Michigan

Zone 2. UAW-Ford Career Services and
   Reemployment Assistance Center
CareerWorks, Inc., site
Detroit, Michigan

Zone 3: UAW-Ford Career Services and
   Reemployment Assistance Center
Jewish Vocational Services, site
Dearborn Heights, Michigan

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APPENDIX B

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