

## **Part III: Designing Program Dissemination and Evaluation**

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**8. Designing the Training Document, Program Marketing &  
Preparation for Implementation.**

**9. Designing the Evaluation of Training-Program's Productivity &  
Validity.**

## Chapter VIII

# Designing the Training Document, Program Marketing and Preparation for Implementation

Introduction

Writing the Training Document

The Design of Program Marketing

Preparation for Program Implementation

What Comes Next?

### Introduction

Based on the designing data of the previous chapters, time is appropriate now to write the program document, to initiate the program marketing, and to launch preparatory activities for the implementation of training.

This chapter, while concentrating on the mechanics of writing a training document, presents briefly the organizational guidelines for both program marketing and implementation.

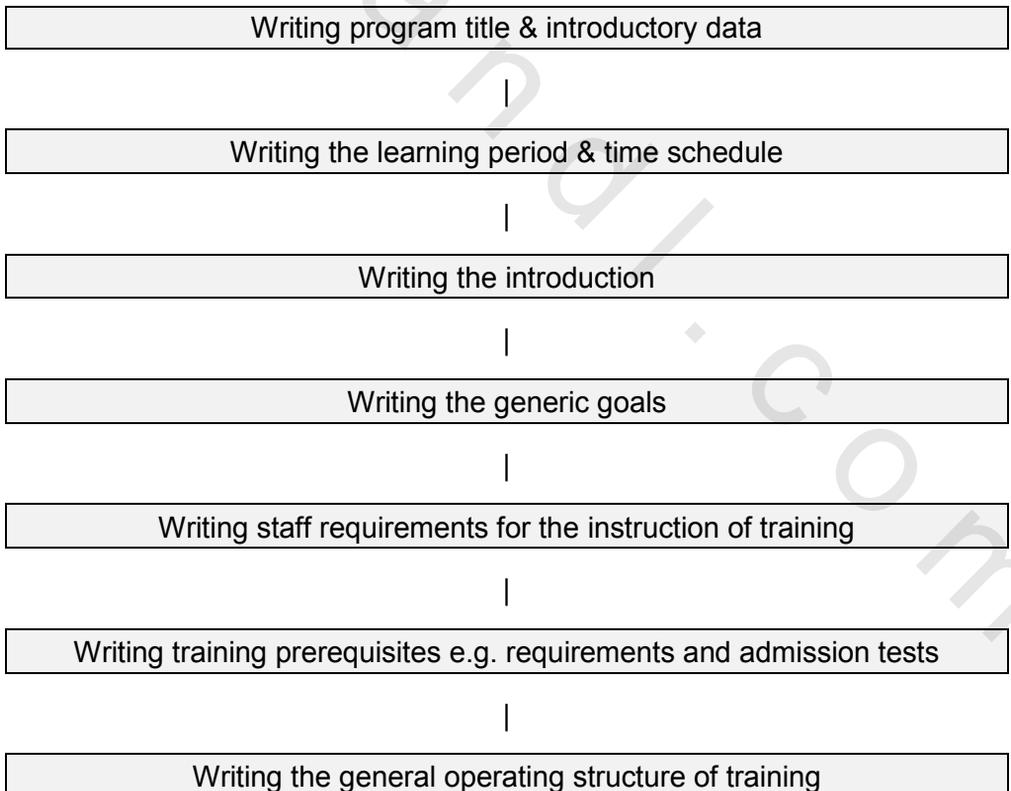
### Writing the Training Document

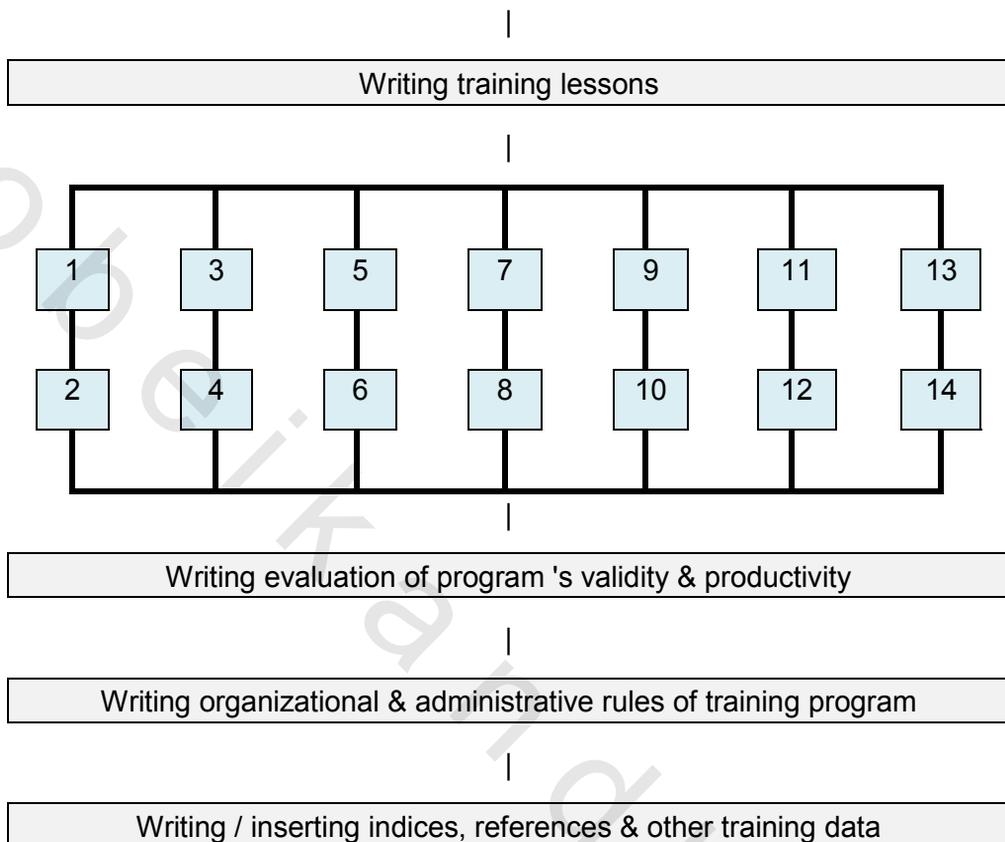
The training document is the finalized and articulated record of all factors and processes involved in a professional development program. It could appear in the form of audio tapes or compact discs, a set of hand-outs, slides or transparencies, a work package, a set of video cassettes,

8mm or 16mm films, filmstrips, microfilms or microfiches; or computer materials.

The conventional presentation form of a training document however, is a written one. This form is widely prevailing in the fields of education and training, despite recent technological advances. Hence, the projected designing guidelines in the chapter will be limited to this popular written form. These guidelines involve eleven major steps, depicted in figure 1 and are illustrated in the following paragraphs.

**Step One: Writing the Program's Title and Primary Introductory Data.** The designer composes in this step the cover pages by writing. The program's title, the training institute, the publishing / issuing date, the training period (e.g. March 1 -21, 1992); and other related data.





**Figure I: Projected components & sequence of writing a sequence of writing a training program.**

On the next page or two, the table of contents, and the list of figures and tables are stated, particularly when the training program is clearly long and complex.

***Step Two: Writing the Training Period and Time Schedule.***

The training period is the time limits in which the program will operate by the sponsored institution. This period is stated usually in hours, days, weeks or months.

The time schedule, on the other hand, is the time table during which training activities will take place through its sub - periods. Summing up these periods will lead essentially to the grand total time of training.

To write this paragraph, the designer may state: "The program will operate within a three-week period, starting from March 1st through the 15th, 1992. Training sessions will take place daily, Monday through Friday, from 8 o'clock in the morning to 5:00 in the afternoon.

If work - holidays occur during the training period, it should be specified independently by separate statement or within the weekly schedule which, preferably, concludes the current paragraph. The time table constructed previously in chapter VII could suffice for the purpose here.

### ***Step Three: Writing the Program Introduction.***

The introduction is the key to presenting and understanding the training program, it is the prelude to the psychological/cognitive acceptance by readers whether these are trainees, trainers or training personnel. Consequently, it should be written in a language that is:

**1. logical in presentation**, objective in facts and terminology, and not directive nor contradictory.

**2. Reasonable in length.** It should not be short to the extent that it is incapable of presenting training information satisfyingly, likewise, it should not be too long, thus stimulating resentment or turn-over from reading it, or the loss or misplacement of some important facts as a result of presenting too much unnecessary information.

It is suggested accordingly, that the introduction to be about one page when the training program is relatively simple and short in its structure. Two to three pages are sufficient when a program is generally novel, complex, or very important in content and seemingly difficult to achieve.

**3. Useful, comprehensive and compatible in presenting the training topic.** For the introduction to be convincing, it should be logical and comprehensive in presentation, and compatible in information content.

To achieve these characteristics in the introduction, the designer may consider the following points:

- Program back-ground: where it came from and the general professional needs which led to its existence.
- Type of employees or trainees that will participate in tile program.
- Appropriate number of participants in the program.
- Main program outlines or components.
- Behavioral or professional significance which the program will contribute to the future employees, and the organization of the job.
- The program's general status relative to past, current, and future training.

**4. Chronologically sequenced.** The content should represent the three time cycles: the past, present and future of the training program and professional development. Following the points suggested in paragraph 3 above may help the designer to achieve this introductory time sequence.

#### ***Step Four: Writing the Generic Goals***

Generic goals are composite statements representing a mixture of professional skills which trainees should achieve as a result of the training program. The skills of one goal embody a harmonious configuration of cognitive, affective- social and psychomotor behaviors.

Due to the behavioral multiplicity of these goals, their statements are broken down into ones which are more specific and limited in content. These are called usually, the terminal and formative behavioral objectives (Refer to chapter 5).

Regardless of the nature of generic goals, the designer, when presenting them in this paragraph, should maintain their implementation sequence within program. He may state: "Participants are expected to achieve as a result of program's administration, the following goals:

1. ....
2. ....
3. ....
4. ....
5. ....

### ***Step Five: Writing Training Prerequisites***

Training prerequisites are of two main types: admission requirements of trainees to program, and admission tests.

#### ***Admission requirements to training program***

Every new learning endeavor requires specific post-learning experiences to be based on and to increase its achievement. Professional skills which are sought by training, comply essentially with this rule. Thus, the achievement of these skills necessitates that trainees have different prerequisites, such as:

1. Physical / psycho-motors characteristics, e.g. fine hand skills; coordination of sight and hand movements and stamina.
2. Cognitive characteristics, e.g. special and general intelligence, cognitive abilities (knowledge comprehension, application, analysis, synthesis or evaluation), type of cognitive level (enactive, iconic and symbolic).
3. Psychological characteristics e.g. professional attitudes, focus of control, persistence and concentration.
4. Academic achievements: e.g. professional courses, workshops or diplomas, achievement grades, and work experiences.
5. Training Institution requirements: Training institutions do require some times special conditions for entry to their programs, e.g. specific age category, private or governmental sector, men or woman, achievement of particular course, materials or skills specific for professional level, population segment, race or geographic region.

All above admission prerequisites and possible others, should be spelled out by the designer, so that they will be completely clear and understood perfectly later by practitioners.

### ***Admission tests:***

Admission tests could be written, oral or academic performance exams, personal interviews, or merely answering written questionnaires. The results of these tests benefit training in two respects:

1. Sorting employees into acceptable and rejected categories of trainees.
2. Sorting novice trainees into homogeneous levels of achievement, hence responding to the demands of each level accordingly. When writing admission tests for the training document, the designer should:
  - \* Describe their contents, roles, strengths and weaknesses.
  - \* Present application steps.
  - \* Provide the standard answers.
  - \* provide a copy of each test. If the context of the current paragraph is not able to hold the test copies, especially when they are diverse and long, the designer then consider putting them in specific indices at the end of the training document. This suggestion applies as well to admission requirements stated previously.

### ***Step Six: Writing Staff Requirements for the Instruction of Training***

Admission or working prerequisites to a training program are not limited to trainees, rather they should be extended to trainers, administrators, technicians and other personnel. The training cadre should also have the required personal and professional qualifications before they could be accredited to training roles. These requirements may be summed as follows:

1. Specialized knowledge in training topics.

2. Professionalism in teaching training subjects (e.g. methods, principles, media and administration).

3. Practical knowledge in andragogy.

4. Practical skill in the evaluation of achievement / productivity.

Staff requirements must be detailed like any other component of the program. "Qualifications of training staff" could be a suitable title of this paragraph.

### ***Step Seven: Writing the General Structure of the Training Program***

This paragraph is not obligatory for the program document, though it is beneficial as an introductory statement to training lessons later.

When writing the paragraph, several principles may be noted:

1. Be very brief.

2. Be supported with illustrative drawings and tables.

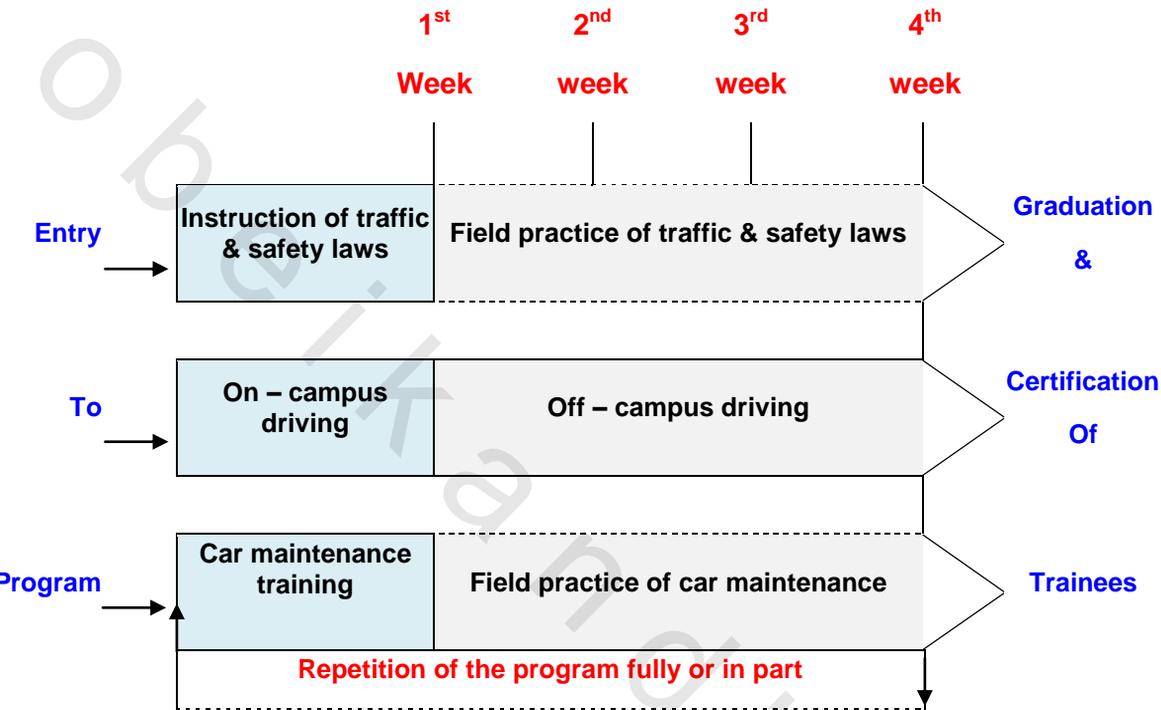
3. Present general information, so that training facts are not literally repeated in other paragraphs, especially, the training lessons.

If the job: Car driving (the illustrative example throughout this book) is considered. The paragraph of the training document could appear as follows:

"The training program "car driving", is composed of three behavioral units: driving on the road for a four week period (one week on-campus and three weeks off campus training); car maintenance for one week; and observation of traffic and safety laws for one week. Driver training will continue off-campus on actual roads for three weeks during which maintenance skills and observance of traffic and safety laws will be applied. The training program with its tri-components, can be represented diagrammatically in figure II:

Training on car maintenance will be implemented oncampus within the mechanic workshop. Traffic and safety laws will be instructed in demonstration rooms equipped with boards, video films, slides and transparency kits, and simulations. Finally, a car driving unit will be

implemented at the special facilities of the city traffic department for one week period, then will continue off-campus, coupled with car maintenance, and traffic and safety laws, for three weeks.



**Figure II: General curricular & operational structure of training program – Car driving.**

Three categories of trainers are available to conduct the program: Instructions of traffic and safety laws, maintenance technicians, and road driving trainers.

**Step Eight: Writing Training Lessons**

Training lessons are working sessions through which the program is administered and trainees usually develop their required professional skills.

For composing training lessons, the designer may consider the following elements:

1. The lesson's serial number, and title within the training program.
2. The date of its implementation
3. The training period in hours or minutes
4. The general goal and behavioral objective
5. Trainees achievement prerequisites, e.g. concepts, skills or previous lessons
6. Required training knowledge
7. Activities and exercises of trainees, including projects, assignments and practice which they will undertake, for the purpose of achievement, and graduation.
8. Types and procedures of formative evaluation and summative tests or performances expected from trainees at the end of the training program.
9. The instruction of training which includes:
  - \* Necessary human resources in types and numbers commensurate with their roles throughout training.
  - \* Main training methods which may be used in implementing each lesson.
  - \* Training media and technology, both the basic and support ones. \* Training sites or facilities which will be used by each lesson.
  - \* Trainees' materials, e.g. notes, handouts, textbooks, references, programmed materials, training packages, movies, video films, audio tapes, etc.
  - \* Trainers references. e.g. the program document, the trainers guidebooks, training packages, etc.

When writing training lessons, the designer takes into consideration the following principles:

1. Writing each lesson's element to its finest details. Training lessons should be self - performing tools by both trainers and trainees, one more

reason to detail training lessons is to respond to different high/low professional qualifications of trainers and other program personnel .

2. Describing the developmental steps of non - commercial media and materials, so that technicians and program support services will be helped later while developing these training tools.

3. Describing the qualifications of human resources, e.g. types and qualities, numbers of each needed by each lesson, expected training roles.

4. Describing the training facilities, equipments, machinery, technology and references, taking into account the behavioral needs which be fulfilled by each. If appropriate, the possible dates during which these services be employed in training, should be included.

5. Differentiating the presentation forms of training lessons . They should not be limited to written ones. Instead, other forms may be adopted, such as : mini-courses, micro-training units, training packages, behavioral units (or training by objectives units), motion picture units (e.g. video, 8 mm or 16 mm films), computer-assisted training units, audio slide kits and many others .

6. Providing lesson's texts with illustrative drawings, pictures, graphics and tables wherever appropriate.

7. Opening the lesson with a general statement representing its intent (s), main act / acts or professional skills, and closing, with a brief, meaningful summary .

### ***Step Nine: Writing Evaluation of Program's Validity and Productivity***

Program's validity means here its behavioral representation of professional needs of trainees, while productivity denotes the program's ability to produce the required skills.

Chapter (9) specializes in the treatment of above topics . The designer considers however while writing this paragraph, all principles , procedures and instruments deemed necessary for determining the program's validity

and productivity. Actual instruments or tools cuts, be inserted in special indices at the end of the training document.

### ***Step Ten: Writing Organizational & Administrative Rules of the Training Program***

Training like any other constructive human behavior, needs some directions, focusing principles / procedures coordination, supervision and guidance. Consequently, rules governing the daily aspects or activities of training should be specified in the document, and then, handed later to trainees at the beginning of program implementation. These organizational and administrative procedures could be :

1. Types and techniques of supervision adopted throughout training.
2. Security and safety rules of attending the training sites or facilities.
3. Rules of using training materials and machineries.
4. Rules of housing and meals (of room and board).
5. Rules of communication with the external world.
6. Rules of participation in training sessions.
7. Rules of general acceptable conduct throughout training.
8. Rules of attendance and absenteeism.
9. Rules of emergency holidays.
10. Rejection rules from training program.
11. Rules of graduation and certification.
12. Rules of using the car parking lot.

### ***Step Eleven: Writing/Inserting Indices, References and Other Training Peripherals***

This paragraph is a concluding section of the training document, it contains besides the references, all the materials, instruments, tools,

questionnaires and tests that cannot be included within the texts of above ten paragraphs of the training document .

## The Design of Program Marketing

Program marketing is the process of advertisement through which a training program is introduced to professional communities in public and private sectors, by means of newspapers, magazines, posters, T.V / Radio announcements, personal interviews, invitation letters, electronic (tele-communication) messages, periodical ads, or field visitations .

The intended result from the use of these procedures, is the adoption of the training program by concerned parties.

Usually, the mailing letters or handouts are carried out by the training institution in advertising the program to selected parties. These invitation / announcement mediums may briefly contain the following elements(1) :

1. Title of program.
2. Date, period and site (s) of implementation.
3. Trainer or coordinator of the program.
4. Main out-lines or goals of the program.
5. Participants' qualifications.
6. Registration date and fees (if applicable).
7. Procedural steps of the program's request or registration.
8. Address (persons, P. O. Box, telephones, telex, fax) by which registration is possible.

## Preparation for Program Implementation

Implementation of training is the act of administering the designed program with trainees by employing all suggested human services such as trainees, administrators, experts, technicians, secretarial and maintenance

personnel, and material services such as facilities, equipments machinery, technology, media and materials, budget and time schedules.

Considering all of the above, preparation for training implementation covers the following concerns:

1. The preparation of materials, media and technology.
2. The preparation of facilities.
3. The preparation of tools and machinery.
4. The preparation of written, raw and pre - fabricated materials, including text books, work books, handouts, references, etc.
5. The preparation of rules and guidelines of organizing and administering training.
6. The preparation of different human services by providing them with training rules and materials; and holding preparatory / training sessions (short and intensive sessions) with any personnel who may need them.
7. The preparation of daily plans of training.
8. The preparation and organization of experts and specialists' participations.
9. The preparation of appropriate internal / external systems of communication.
10. The preparation of transportation.
11. The preparation of housing and food services.
12. The preparation of general and recreational services.

***Implementation of training on the other hand, takes general steps as:***

1. Reviewing the readiness of all concerned human and material services for the commencement of training, with instant supply or modification wherever deemed necessary.

2. Holding a general meeting with trainees to acquaint them with the program, the training faculty, and working facilities. Trainees will be accompanied during a quick tour, showing them the training facilities and sites .

3. Administering of pre - training academic tests to determine the background knowledge and skills of trainees.

4. Sorting trainees into homogeneous groups in order to respond to their professional needs accordingly...

5. Distributing the training schedule, handouts and other appropriate materials. Trainers' instructional plans should also be handed to trainees.

6. Administering training program with trainees according to document, plans and the prepared human and material services.

7. Evaluation of trainees achievement and program's validity/ productivity according to suggested plans.

### What Comes Next?

Now, the training document is concrete and ready for operation.

The human and material services are qualified and prepared for work. The program is marketed to concerned communities / parties and will be administered with trainees as is planned.

What it is left to be done after actual implementation is to evaluate the validity of the program to trainees needs and essentially, specifying its effectiveness in producing the required professional skills. The concluding chapter of this book (chapter 9) specializes in above evaluation tasks.

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## Chapter IX

### Designing the Productivity and Validity Evaluations of Training Programs

Introduction

Types and Purposes of Training Evaluation

Measures and Tools of Training Evaluation

Sample Tools of Training Evaluation

Evaluation of Program's Productivity with Cost - Benefit

Analysis

Evaluating Program's Validity and Deciding Upon its Future

What Comes Next?

### Introduction

Evaluation of training is the process of weighing its behavioral values against specific criteria. When these criteria are concerned with program's effectiveness or ability to produce the desirable outcomes, then the act is called evaluation of effects, or product evaluation.

When criteria on the other hand, probe program's ability to represent professional needs of trainees, the weighing of training consequently denotes the evaluation of the program's validity (refer to last paragraph before the end of the chapter).

The current chapter treats briefly the evaluation of training productivity and validity; giving more attention to the practical aspects of these important issues.

## Types and Purposes of Training Evaluation

Program's evaluation, besides above two major types, could be, according to its occurrence throughout training, of three kinds:

**The first: pre-entry, analytic, or needs assessment evaluation** which leads to the formation of the training program.

**The second: formative evaluation** which concerns itself with building up and improving the trainees' achievement of required professional skills; thus guiding, revising or upgrading what is deemed necessary for training in regard to human and material resources.

**Table (1): A summary of training evaluation's domains, types, parameters & tools (illustrative examples).**

Evaluation domains	Productivity evaluation	Validity evaluation	Evaluation parameters	Evaluation tools	Notes
A. Training aim (goals, knowledge, learning & evaluation activities).	<ol style="list-style-type: none"> <li>1. New professional skills.</li> <li>2. New attitudes.</li> <li>3. New products.</li> <li>4. New services.</li> </ol>	<ol style="list-style-type: none"> <li>1. Congruence with trainees characteristics.</li> <li>2. Representation of trainees needs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Achievement of required skills.</li> <li>2. Reactions of trainees.</li> <li>3. Satisfaction of trainees needs.</li> <li>4. Satisfaction of organization.</li> <li>5. Job productivity.</li> </ol>	<ol style="list-style-type: none"> <li>1. On the job performance.</li> <li>2. Oral, written &amp; performance test.</li> <li>3. Simulation materials &amp; games.</li> <li>4. projects, reports, case studies.</li> <li>5. Personal interviews.</li> <li>6. Questionnaires.</li> <li>7. Surveys &amp; inventories.</li> </ol>	Where same elements are applied the principle of "best fit" must be practiced.
B. The instruction of training (media, methods & technology).	<ol style="list-style-type: none"> <li>1. New professional skills.</li> <li>2. New attitudes.</li> <li>3. New products.</li> <li>4. New</li> </ol>	<ol style="list-style-type: none"> <li>1. Congruence with trainees characteristics.</li> <li>2. Congruence with achievement requirements.</li> <li>3. Representati</li> </ol>	<ol style="list-style-type: none"> <li>1. Achievement of required skills.</li> <li>2. reactions of trainees.</li> <li>3. Satisfaction of</li> </ol>		
C. Human					

services (trainers, administrators, experts, technicians, secretarial & maintenance personnel).	services.	on of training content.	trainees needs. 4. Satisfaction of organization. 5. Job productivity.		
	<ol style="list-style-type: none"> <li>1. new professional skills.</li> <li>2. New attitudes.</li> <li>3. New products.</li> <li>4. New services.</li> </ol>				
D. Material services (facilities, equipment, machinery, technology, media & materials)	<ol style="list-style-type: none"> <li>1. New professional skills.</li> <li>2. New attitudes.</li> <li>3. New products.</li> <li>4. Quantitative congruence with number of trainees.</li> </ol>	<ol style="list-style-type: none"> <li>1. Physical congruence with the nature of training skills.</li> <li>2. Operational congruence with achievement requirements.</li> <li>3. Quantitative congruence with number of trainees.</li> </ol>	<ol style="list-style-type: none"> <li>1. Achievement of required skills.</li> <li>2. Reactions of trainees.</li> <li>3. Satisfaction of trainees needs.</li> <li>4. Satisfaction of organization.</li> <li>5. Job productivity.</li> </ol>		
			<ol style="list-style-type: none"> <li>1. Achievement of required skills.</li> <li>2. Reactions of trainees.</li> <li>3. Satisfaction of trainees needs.</li> <li>4. Satisfaction of organization.</li> <li>5. Job productivity.</li> </ol>		

**The third: summative or final evaluation** which occurs at the end of training, e.g., identify trainees as having passed or failed according to the evaluative criteria.

Whatever the types of training evaluation may be, the main purposes of it, are<sup>1</sup>:

1. Specification of training productivity.
2. Specification of training validity.
3. Steering training to achieve proposed goals.
4. Improving the quality of training.
5. Justification of training roles, plans and cost to the public, concerned institutions, or governmental agencies.

## Measures and Tools of Training Evaluation

Measures and tools which are often used in the evaluation of the training, are briefed below(1) :

1. Oral tests.
2. Performance tests. e.g. exercises, basket decisions, demonstrations, and simulation acts.
3. Reports, projects and research studies.
4. Individual measures e.g. evaluation by objectives, performance editing, individual testing and interviews.
5. Comparative measures. e.g. rating of trainees' performance, dual comparison (trainee with trainee), evaluation by the normal curve, Z scores, and stannines.
6. Absolute qualitative measures. e.g. job accidents technique, behavioral lists, and forced choice tests.

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<sup>1</sup> **Training embraces all factors & processes involved in a professional development program. The projected purposes therefore concern these components individually and as a whole.**

7. Absolute statistical measures. e.g. rating scales and lists, behavioral surveys and inventories, and cost - benefit analysis.

## Sample Tools of Training Evaluation

Training evaluation does not limit itself to trainees' performance or skill achievement. Rather, it extends responsibilities to their reactions (or attitudes) toward the program, trainers and training faculty, human and material support services, and the value of behavioral returns to their professional future.

In the following paragraphs, three different tools are presented as illustrative samples of what is available for the evaluation of training.

### *Abridged Tool for Evaluation of Trainer and Training Lessons*

This simple tool (Tool I) was developed by the author as a trainer in the Institute of Public Administration in Riyadh, Saudi Arabia, in order to be used in a training program under a title: "Development of trainers' skills".

### *An Evaluative Tool of Trainees' Reactions toward a Training Program<sup>(2)</sup>*

This comprehensive opinionnaire (Tool II) portrays most factors and processes of training. Thus, when used properly, it may pinpoint their gaps and weaknesses, leading to the needed improvement of training.

### *An Evaluative Tool of the Organization's Improvement as a Result of Training:*

**Tool (II): An evaluation tool of trainees' attitudes toward training.**

Trainee: ..... The program: .....  
 Job: ..... Institution: .....  
 Organization: ..... Date: .....

A. Considering every thing you have experienced during training, what is your rating of the program? Put (√) where suitable:

Not useful       useful       very useful       excellent

B. Were your expectations of the training program? Put (√) where suitable:

Surpassed       matched       below what you expected

Could you please explain the reasons for your rating?

1. ....
2. ....
3. ....

C. Rate the following (0 = Nil, 1 = Weak, 2 = Acceptable, 3 = Good, 4 = V. good, 5 = Excellent):

- |                                 |                                      |
|---------------------------------|--------------------------------------|
| ___ 1. Microtraining.           | ___ 13. On-job training.             |
| ___ 2. Individual tutoring.     | ___ 14. Job games.                   |
| ___ 3. Individual prescription. | ___ 15. Simulation acts.             |
| ___ 4. Modeling.                | ___ 16. Demonstration.               |
| ___ 5. Programmed training.     | ___ 17. Job accidents.               |
| ___ 6. Small group discussion.  | ___ 18. Projects, reports & studies. |
| ___ 7. Training exercises.      | ___ 20. Lecturing.                   |
| ___ 8. Case studies.            | ___ 21. Apprenticing.                |
| ___ 9. Questions.               | ___ 22. Training by objectives.      |
| ___ 10. Sequencing training.    | ___ 23. Competency-based training.   |
| ___ 11. Peer training.          | ___ 24. Basket decisions.            |
| ___ 12 Field visitation.        |                                      |

D. Rate the following elements (0 = Nil, 1 = Weak, 2 = Acceptable, 3 = Good, 4 = V. good, 5 = Excellent):

- \_\_\_ 1. Communication with others.                      \_\_\_ 6. Depth in training subject.  
 \_\_\_ 2. Attitude towards others.                      \_\_\_ 7. Using media & technology.  
 \_\_\_ 3. Motivation of trainees.                      \_\_\_ 8. Using handouts & materials.  
 \_\_\_ 4. Commitment to time schedule.                      \_\_\_ 9. Organization of training  
 environment.  
 \_\_\_ 5. Enthusiasm to training topic.                      \_\_\_ 10. Evaluating & guiding training.

E. Ratio of lecturing to other methods (Put (√) where suitable):

High                       Moderate                       Low

F. Time ratio of using media & technology during the period of training (put (√) where suitable):

Most of the time     Half of the time     one quarter of the time   
 Almost nil

G. The tasks during training were (put (√) where suitable):

1. General tasks were: Heavy     Appropriate     Light     Nil
2. Case studies: Diverse     Moderate     Light     Nil
3. Training assignments: Too many     Moderate     Light     Nil

H. Rate the following trainers according to their individual performance & attitudes during training:

Trainers	A	B	C	D	F	Notes
1.						
2.						
3.						
4.						
5.						

**suggestions for improvement:** .....

.....

**An Evaluative Tool of the Organization's Improvement as a Result of Training: Tool III: Assessment of organization's improvement as a result of training.**

Organization: ..... Observer: .....  
 ..... Date: .....  
 Specialty: .....

\*put (√) in the appropriate box of every statement below.

					Criterion status	
	More	Average	Lower	Lower		
1. Operation & Maintenance costs become:	<input type="checkbox"/>					
2. Personal & job tensions become:	<input type="checkbox"/>					
3. Work accidents become:	<input type="checkbox"/>					
4. Complaints about working conditions become:	<input type="checkbox"/>					
5. Work absenteeism becomes:	<input type="checkbox"/>					
6. Partial dropouts from work become:	<input type="checkbox"/>					
7. Complete dropouts from work become:	<input type="checkbox"/>					
8. Customers' complaints become:	<input type="checkbox"/>					
9. Time necessary for mastery of work becomes:	<input type="checkbox"/>					
10. Performance reports of employees become:	<input type="checkbox"/>					
11. Organization's performance/merchandise become:	<input type="checkbox"/>					
12. Organization's profits/reputation become: More	<input type="checkbox"/>					
13. Quality of products/services become:	<input type="checkbox"/>					
14. Quality of products/ services become:	<input type="checkbox"/>					
15. Employees participation in organization's daily life becomes:	<input type="checkbox"/>					
16. Operating capacity of organization becomes:	<input type="checkbox"/>					
17. The working routine becomes:	<input type="checkbox"/>					

18. Employees' problems & excuse become:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Human relation within the organization become:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. New customers/recipients become:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Notes:**

$$\text{Improved ratio} = \frac{\text{Total of discrepant elements}}{\text{Total of corresponding \& discrepant elements}}$$

$$= \frac{\text{Discrepant elements}}{\text{Scale elements}}$$

## Evaluation of Program's Productivity with Cost - Benefit Analysis

To specify the program's productivity, one should know, first, how much it cost and the professional returns which are produced in forms of new skills, attitudes, and knowledge.

Program costs must include every penny paid by both employers and training institutions. These costs could be direct expenditure as part of the allocated budget, and indirect as the case of covering expenses, trainees salaries during training, organization's loss of products / services as a result of employees leave for training.

For evaluation of the program's productivity with cost-benefit analysis, four major steps are proposed:

### ***Step One: Specification of Post-Achievement Scores and their Accruing Decisions for Future Training / Employment,***

The measurement of achievement is accomplished by one or more appropriate techniques presented above. Regardless of these techniques, however, tests or tools which are often used in the evaluation of achievement, fall within two categories: norm - referenced measures which compare the achievement of the trainee with another or with that of a homogeneous group.

The shortcoming of this approach stems from the fact that there will be no warrant for the trainee to successfully accomplish his professional tasks in reality. Why? Because the normative ability which serves as a judgmental standard could be high or low, sufficient or insufficient for performing the actual job. Hence, the trainee mayor may not be capable of carrying out the expected work responsibilities.

Contrary to the relative measures above, absolute-referenced tests produce more guaranteed results. The trainee, for example, who is prepared to be a plane pilot and is judged professionally by absolute behavioral standards, is generally considered a safe flyer; while it is doubtful that his peer, who is certified by relative or norm referenced measures, is seen to be that way.

Regardless of the nature of absolute and relative measures, final achievement scores are jotted on form (25). The pre-training scores are also taken and recorded in their specified categories.

As form (25) shows, it is comprised of several columns: serial numbers of job acts or terminal behavioral objectives, then the statements of objectives or acts. The third and fourth contain pre and post-training scores. The fifth represents the final results of achievement in terms of grades, pass/fail, or other evaluative terms.

The last column concerns itself with training employment decisions and activities, based of course on the quality of achievement scores in the previous columns. The decisions and activities are of two types: in the case of achievement and in the case of non achievement Examples of each are as follow:

**In the case of achievement,** Training / employment decisions and activities could be :

1. Trainees graduated with grades.
2. Trainees advanced to another training level.
3. Trainees promoted to higher job or responsibility.
4. Trainees assigned to new job or responsibility.
5. Trainees rewarded with new benefits, statutes or positions.

6. Trainees permitted to work conditionally on the premise of making up deficient skills within specific future period.

**In case of non-achievement,** Training / employment decisions and activities could be :

1. Trainees dropped from program.
2. Trainees transferred to clinical training sessions for overcoming achievement deficiencies.
3. Trainees repeating the whole training program.
4. Trainees repeating specific segments of the training program.
5. Trainees to relinquish partly or in full the cost of training from their salaries.
6. Trainees blocked from promotion until further notice.
7. Trainees demoted to appropriate lower level or rank.
8. Trainees transferred internally to another job within their organizations.
9. Trainees transferred to another location or regional branch of the organization.
10. Trainees terminated temporarily from job until they achieve the required skills.
11. Trainees terminated from job permanently.

Whatever the evaluative measures, which the designer may adopt (norm or absolute), he actually needs an independent form for each trainee in the program.

Form (25) could serve, beside the analysis of performance, as a condensed record of trainees' achievements and also as a tool for further analysis of training data in forms (26) and (27) which follow.

Form (25 a) and (25 b) exemplify directly the evaluative tasks which step one calls for, using normative data as in form (25 a), then the absolute as in form (25 b).

**Form (25a): Designing summative evaluation of trainees' achievements & accruing decisions for future training decisions for future training / employment with form – referenced measures: a prelude to program's cost – benefit analysis.**

Employee: .....				The designer: .....		
The job: Car driving. ....				Administration: .....		
The task: Car maintenance. ....				Date: .....		
Serial No.s	Terminal behavioral objectives (or job acts)**	Pre-training scores	Post-training * scores	Final results	Training – employment decisions & activities	
					In case of achievement	In case of non-achievements
1	Maintaining battery water to required level.	0/4	4/4	A	1. The trainee is certified to carry out maintenance responsibilities 2. The trainee may upgrade his skills in objectives No.s: 2, 4, 7, 9, and	
2	Maintaining radiator water to required level.	0/4	3/4	C		
3	Maintaining engine oil to required level	0/4	4/4	A		
4	Maintaining wheel oil to required level.	0/4	3.5/4	B		
5	Controlling engine temperature to required level.	1/4	4/4	A		

6	Keeping car lights working properly.	1/4	4/4	A	10.	
7	Keeping car brakes working effectively	0/4	3/4	C		
8	Changing flat car tire.	1/4	4/4	A		
9	Keeping car locks working properly	1/4	3.5/4	B		
10	Maintaining cleanliness of car.	1/4	3/4	C		
Notes	**Illustrative example from form (11). * Achievement data is hypothesized for illustration.	Total s	$\frac{5}{40}$	$\frac{36}{40}$	Pass	Grand results
		Means	0.12	0.9		

**Form (25b): Designing summative evaluation of trainees' achievements & accruing decisions for future training decisions for future training / employment with form – referenced measures: a prelude to program's cost – benefit analysis.**

Employee: .....				The designer: .....			
The job: Car driving. ....				Administration: .....			
The task: Car maintenance. ....				Date: .....			
Serial No.s	Terminal behavioral objectives (or job acts)**	Pre-training* scores	Post-training scores	Final results	Training – employment decisions & activities		
					In case of achievement	In case of no-achievements	
1	Maintaining battery water to required level.	0/4	4/4	Pass		3. The trainee would	
2	Maintaining radiator water	0/4	3/4	Fall			

	to required level.					repeat training on objectives: 2, 7, and 10. 4. The trainee will be tested in all three maintenance skills embedded in above objectives. 5. Formal certification to practice car maintenance is held until mastery of above skills is approved.
3	Maintaining engine oil to required level	0/4	3.5/4	Pass		
4	Maintaining wheel oil to required level.	0/4	4/4	Pass		
5	Controlling engine temperature to required level.	1/4	4/4	Pass		
6	Keeping car lights working properly.	1/4	4/4	Pass		
7	Keeping car brakes working effectively	0/4	3/4	Fall		
8	Changing flat car tire.	1/4	4/4	Pass		
9	Keeping car locks working properly	1/4	3.5/4	Pass		
10	Maintaining cleanliness of car.	1/4	3/4	Fall		
Notes	**Illustrative example from form (11). * Achievement data is hypothesized for illustration.	<b>Totals</b>			Failed in 3 objectives	
		<b>Means</b>				

**Step Two: Specification of Differences Between Observed and Criterion Achievement Data As the Beginning of Cost - Benefit Analysis.**

We shall now turn to the actual work of cost / benefit analysis of achievement data. This main step involves five sub-ones presented in form (26 a) and (26 b), and are briefed below:

1. Writing all names of trainees (column 1 and 2 form 26).
2. Recording pre and post training scores (column 3 in form 26).
3. Finding for each trainee, the differences in points (in case of nonnative evaluation) or in standards (in case of absolute evaluation or evaluation by objectives) between pre-post-training scores (column 4 in form (26) ).
4. Summing up the scoring data for all trainees in column 3 (Form 26), and point differences in column 4 (Form 26).
5. Finding the ratio of unachieved points (as in Form (26 a), or unachieved objectives (as in Form (26 b).

### ***Step Three: Assessment of program's financial losses.***

This step could be accomplished by calculating the percentage of the program's behavioral deficiency, then multiplying the value by the total expenses which the program incurred (refer form 26 a and b).

For finding the percentage of program behavioral deficiency, the unachieved points or objectives are divided by their counterparts: the achieved ones. The pre - training achievements should of course be excluded first from the post-training achievements, in order to obtain the exact value of program productivity and consequently, its true behavioral shortages and financial losses.

Forms (26 a and b) summarize the behavioral and digital processes involved in steps two and three above.

### ***Step Four: Assessment of Program's Productivity by Comparing Expenses With Expected Professional Outcomes.***

Programs cost money. Money In turn consumes too much of human mental, energy and time. Hence, when man spends money for an undertaking, he should get the returns which parallel the invested capital. Training efforts are not excluded of course from this economical rule. Programs, therefore, should generate the benefits which are expected from them; otherwise, their existence could never be justified.

While money, in itself, can not measure the worth of human development in personality, intellect or life skill, it is customary, for administrative and economic purposes to weigh the adequacy of programs' outcomes against their cost inputs.

**Form (26a): Assessment of program's financial losses based upon the differences between pre- & post- achievements. The core of costs-benefits analysis (with normative evaluation).**

The job: Car driving.....				The designer: .....	
The task: Car maintenance.....				Administration: .....	
Serial No.s	Name of trainees	Achievement scores		Differences in points	Data calculations & summaries
		Pre-training	Post-training		
1		5/40*	36/40	-4	1. Total of required training points = 400 – 114 = 286. 2. Total of difference points = 32. 3. Percentage of un-achieved points (32) to required ones (286) = 11%. 4. Percentage of programs behavioral deficiency = 11%. 5. Total financial loss of program = deficiency percentage x program's costs = 11% x 55900** = \$649.00
2		8/40	38/40	-2	
3		16/40	37/40	-3	
4		10/40	40/40	0	
5		4/40	32/40	-8	
6		17/40	40/40	0	
7		12/40	35/40	-5	
8		15/40	36/40	-4	
9		6/40	34/40	-6	
10		21/40	40/40	0	
11					

12					
	* The higher achievement point of each objective is 4 (see form 8). For ten objectives the total is then 40 & for ten trainees will be (40 x 10 = 400).	114/400	396/400	-32	Grand totals  ** Hypothetical value

**Form (26b): Assessment of program's financial losses based upon the differences between pre- & post- achievements. The core of costs-benefits analysis (with normative evaluation).**

The job: Car driving. ....			The designer: .....		
The task: Car maintenance. ....			Administration: .....		
Serial No.s	Name of trainees	Achievement scores		Differences in points	Data calculations & summaries
		Pre-training	Post-training		
1		0/10	5/10	-5	1. Total of required objectives f= 100 – 15 = 85.
2		0/10	7/10	-3	
3		1/10	9/10	-1	2. Total of un-achieved objectives = 17.
4		0/10	10/10	0	

5		0/10	8/10	-2	<p>3. Percentage of un-achieved objectives (17) to required ones (850 = 20%.</p> <p>4. Percentage of program's behavioral deficiency = 20%.</p> <p>5. Total financial loss of program = 20% x 55900.00 = \$1180**.</p> <p>** Notice: The difference of financial loss is a result of absolute &amp; normative evaluations. This is due to inadequate achievements of objectives which are disregarded according to absolute referenced measures.</p>	
6		4/10	10/10	0		
7		2/10	9/10	-1		
8		3/10	9/10	-1		
9		0/10	6/10	-4		
10		5/10	10/10	0		
11						
12						
	* Achievement required by each trainee is (10) objectives. For ten trainees, the total of objectives is 100.	114/400	396/400	-32		<p>Grand totals</p> <p>** Hypothetical value</p>

**Form (27): Assessment of program's productivity by comparing expenses with expected professional outcomes.**

The job: Car driving. .... The designer: .....			
The task: Car maintenance. .... Administration: .....			
Cost data*		Professional outcomes expand from trainees (Illustrative examples)	Productivity decisions (Illustrative examples)
Grand total of training costs or expenditures	Primary costs \$5900.00 + program's financial loss / retraining costs = \$1180.00 = \$7080.00	<ol style="list-style-type: none"> <li>1. Smooth car driving &amp; riding at most times.</li> <li>2. Reaching work and other destinations on time.</li> <li>3. Saving human life by avoiding possible accidents which could result from bad maintenance or the lack of maintenance.</li> <li>4. Saving extra repair costs which could result from bad maintenance or the lack thereof. These costs cover spare parts &amp; repair &amp; covering / industry expenses related to the ten professional maintenance acts.</li> <li>5. Encouraging commercial businesses to hire graduates or drivers or maintenance workers.</li> <li>6. Obtaining acceptance outward appearance, smell &amp; tidiness of car as a result of maintaining positive attitudes &amp; behaviors toward car.</li> </ol>	As a result of the professional economic & social outcomes which the program proclaims, it is seen as very beneficial in productivity. Thus, it deserves the consolation of repairing it with other groups of trainee according to arising needs in the future.
Number of trainees	10		
Individual training costs	\$708	Notes: <ul style="list-style-type: none"> <li>• The evaluative procedure chosen is criterion referenced measure.</li> <li>• Cost data is hypothetical for the purpose of illustration.</li> </ul>	

The ultimate goal of cost - benefit analysis then is not determining as much the value of human behavior, rather, it aims at weighing programs' effects in order to upgrade or energize their operational capacities, whenever deemed necessary.

When assessing program's productivity based on the comparison of costs and outcomes, the designer may' use any tool available to him. Form (27) is an example of what could be adopted to accomplish this evaluative task.

The form contains categories for training expenditure, number of trainees participating in the program, the expected professional outcomes, productivity decisions and additional notes.

Since expected professional outcomes and productivity decisions, represent the core of form (27), examples of these two categories are given in the form itself.

## Evaluating Program's Validity and Deciding Upon its Future

Exploring the program's validity is a more theoretical, arduous, and complex task than is the case of specifying effects. For determining program products, one may conduct an appropriate achievement or outcomes test and judge directly the adequacy of results. When judging validity however, the matter is different. It requires looking at several angles of training and many of the program's components, details, evaluative criteria, methods, and goals.

**A sample of training factors which the evaluation of validity may consider, are:**

1. The content of the curriculum.
2. The document.
3. The media, materials and technology.
4. The facilities.
5. The methods.
6. The human services.

Depending on the nature and rules of above training factors, different types of validity appear to be essential. Among many, some examples follow:

1. The constitutional validity which explores the qualifications of curricular elements (the goals, knowledge, and achievement activities) individually and as a whole, to form the training curriculum.
2. The educational validity which concentrates on probing the program's representational capacity of required professional skills.
3. The construct validity which examines the adequacy of the program's behavioral composition to embody the learnings of professional skills.
4. The psychological validity which explores the compatibility of training factors and processes to trainees' personal, attitudinal, cognitive or learning styles and characteristics.
5. The technical validity which concentrates on evaluating the production / physical aspects of educational and material services and the document of training.

Since training program is designed systematically from needs assessment to the evaluation of productivity according to the behavioral digital approach presented in this book, and, whenever the results of training are considered quantitatively and qualitatively adequate, it becomes unnecessary, then, for evaluation specialists to bother very much with the validity question of training.

If the program's outcomes, on the other hand, look low comparable to the achievement standards, the initiation of validity studies, appear to be imminent.

## What Comes Next?

With this chapter, the design cycle of training is complete. However, as a result of effect and validity evaluation presented briefly in the chapter, several training decisions for the future will arise. These are:

1. The approval of the training program as it is for future use with other groups of trainees; hence, the beginning of another training cycle.

2. The approval of the training program for future use after undergoing some revisions of its curricular, human, material, psychological or administrative factors; hence, the beginning of a dual designing/training cycle.

3. Disregarding the training program due to its low validity of primary effects, or negative hybrid (side) effects on employees, organization or job; hence, the beginning of a new training design cycle.

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