Part II : Designing The Training Program

5. The Design of Training Curriculum: Goals, Knowledge and Achievement Activities.

6. Designing the Instruction of Training: Methods, Media and Technology.

7. Selection and Description of Human and Material Services.

Chapter V

The Design of Training Curriculum: The Goals, Knowledge and Achievement Activities

Introduction

The Design of Training Goals

The Design of Training Knowledge

The Design of Achievement Activities

What Comes Next?

Introduction

The training curriculum is the total professional knowledge and skills that trainees will achieve through participation in related learning and assessment activities. Traditionally, the training curriculum embodies four basic elements: goals, knowledge content, learning activities and evaluation of achievement..

Learning activities are educational endeavors for achieving the mandated concepts, attitudes and skills. Evaluation procedures and activities as well are educational endeavors for determining the adequacy of learning achievements. Therefore, the two curricular elements could be lumped together in one item, that is, achievement activities or experiences. Hence, the traditional four components of the curriculum could be reduced in training to the above three only.

Further, while it is suggested that a training curriculum encompasses three major elements, the training program on the other hand extends beyond these three to all human, educational and material services which are deemed necessary for learning, teaching and implementing required training acts. Thus, the contents of chapters (5-9) comprise the concept of a training program. This chapter, nonetheless, limits itself to the curriculum of training, leaving the additional elements of the program to subsequent chapters.

The Design of Training Goals

Training goals should be congruent with the philosophical implications of society. They must stem directly from the professional needs of the working force and institutions.

In subsequent paragraphs, the concept and types of goals are briefly prescribed, followed by some criteria for writing goals' statements and then, the actual designing of goals themselves is presented.

The Concept and Types of Training Goals

Training goals are statements of professional intents: knowledge, attitudes or skills which trainees will attain as a result of their participation in a training program. Goals' statements, in order to be operational, should be linguistically sound, concise, clear and self-expressive of their contents.

Training goals, when stated broadly, and representing several behaviors/knowledge and/or attitudes, are known to be general or generic. When goals however are reduced in size to a specific or limited educational content, embodying thus particular skill, knowledge or value, they are called behavioral or specific objectives.

Considering **the training stage** in which goals are to be used, three new types will emerge: general goals or objectives which serve as a prelude or passing gates to program implementation; the formative objectives which are in reality the operating activities of training; and lastly, the terminal Objectives which function mainly as guiding tools for implementation and as adequacy indicators for achievement assessment.

The **third classification of training goals** is qualitative in nature, **based on the behavioral domains**. Goals in this regard could be cognitive, affective or psychomotor. **The author of this book prefers**, however, to adopt the **following types of goals in training**:

1. Professional goals/ objectives which focus primarily on job performance and responsibilities.

2. Organization's goals/ objectives which are concerned with administrative-supervisory matters of human and material services of work.

3. Personal goals/ objectives which concentrate on special needs of employees mostly outside work. These needs may be human, psycho-behavioral, family, economic, personal status, private concerns or merely personal ambitions.

4. Social goals/ objectives which are concerned basically with: human communication/ relations among different individuals and groups within an organization, social values, expectations, general codes and conducts that should be maintained throughout daily work/life.

Criteria for Writing Training Goals

Goals, in order to be trainable, should be written according to specific criteria such as (goal statements in forms 12 and 13 embody these criteria):

1. Valid representation of training needs. This is the most fundamental and crucial criterion which the designer must attend to, since content validity of goal statements will determine the validity of all training factors, processes and services... starting from curriculum document, instruction of training, human and material services, to assessment of productivity.

2. Sound language and meaning. Goal statements must be grammatically correct and self-expressive on their intents. They should be directly understood by all concerned parties without further need for clarification or interpretation. Otherwise, the statements should undergo some reshufflings or revisions to achieve this criterion.

3. Operational language. Neutral or vague verbs, for instance, should be avoided when building statements of goals, since these verbs may confuse training processes, particularly formative and summative

evaluations. To know, comprehend, and apply are examples of neutral behaviors. Instead the verbs: to count, point, compute, summarize, detail, explain, perform, and execute are examples of operational verbs.

4. Complete/ meaningful structure. Statements of general goals should be fully spelled out. Statements of terminal and formative objectives on the other hand, must contain three components: **The name of the required behavior or skill, its professional content, and criteria/conditions of performance/ achievement.**
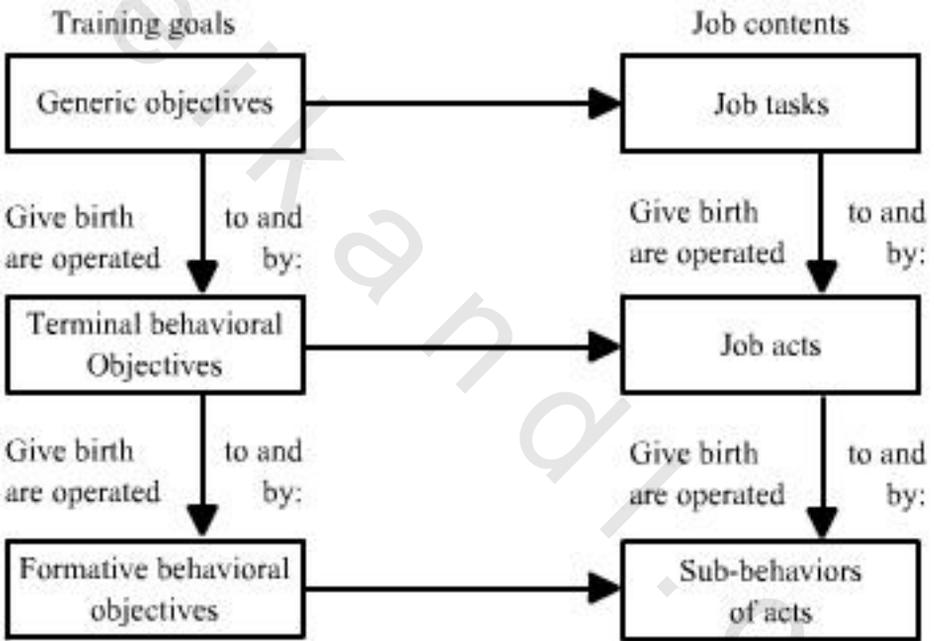

Figure I: Possible representational and operational relationships among elements of training goals and job contents.

Corresponding Relationships among Training Goals and Job Content

It is obvious in education that goals, in order to be valid, must represent the required knowledge, behavioral or attitudinal content. of training, the

The Design of Generic Goals and Terminal Objectives

Generic objectives or goals, as indicated earlier, are overall statements which encompass the training knowledge, attitudes and skills that a prospective program will foster in the reports of employees.

They are general in language and meaning to the extent that their achievement by trainees can not be directly measured. Consequently, the designer most likely will resort to more specific statements called behavioral objectives.

Behavioral objectives are professional statements derived usually from general goals; thus representing in explicit terms, the skills to be attained by means of training.

Two main types of behavioral objectives prevail in education and training: terminal and formative. **Terminal objectives** in this paragraph are statements of summative or final abilities which will be produced by training.

Formative objectives in the next paragraph, are micro-steps or sub-behaviors that, when performed sequentially, will lead to the formation of final abilities embedded in terminal objectives.

Form (12) specializes in the development of general and terminal objectives. The designer could use the form as follows:

1. Constructing general goals after the names of job tasks.

If the task is behaviorally simple in composition, then one general goal will be adequate. The example in form (12) conforms with this case. When the task however is compound, several goals become necessary. The designer makes sure, in this respect, to develop a goal for each behavioral block within a job or a task. Reviewing the task's content (or acts) coupled with its title will enable him to build required general goals for training.

For illustration, the task (observance of traffic safety and laws within a job: car driving) is taken as an example. Two major components arise in this task: laws of driving on the road, and laws of human and material safety. As a result, two general goals become mandatory; each concentrates on a different behavioral block already stated.

2. Modeling terminal objectives immediately after job's acts. As form (12) shows, the behavioral objectives are almost mere restatements of their parallel acts.

Once again, if the act has a relatively limited content, and could be performed by employees within a reasonably short period of time, then one objective will suffice. If the act, on the other hand, is complex, then more objectives will be needed, depending on the degree of behavioral multiplicity of the act itself.

Form (12): Design of generic & terminal objectives of training.

The job: Car driving   Designer: …………………...

Task: Car maintenance   Administration: ……………..

No.S	Job acts (Illustrative examples)	General goals	Behavioral terminal objectives (Illustrative examples)
1	Maintaining battery water to required level.	Given all the tools, equipment, and materials used normally in car maintenance, the trainees will successfully perform the ten major skills required in the	1. The trainee will maintain battery water of his car at all times with precision of 100%.
2	Maintaining radiator water to required level.		3. The trainee will check the adequacy of engine oil against required level with precision of 100% during 3 mts.
3	Maintaining engine oil to required level		5. The trainee will be able to control engine temperature at all times by using different means learned in the training program.
4	Maintaining wheel oil to required level.		7. The trainee will maintain car brakes effectively working by applying all means available to him.
5	Controlling engine temperature to required level.		8.1. The trainee will park his car and display caution signs during 3 mts, with success of 100%.
6	Keeping car lights working properly		8.2. The trainee will prepare all tools

7	Keeping car brakes working effectively.	program.	necessary for changing the tire with success of 100% during 2 mts.
8	Changing flat car tire.		8.3. The trainee will lift the car by jack with 100% precision.
9	Keeping car locks working properly.		8.4. The trainee will take off the flat tire and store it in trunk in 3 mts.
10	Maintaining cleanliness of car.		8.5. The trainee will place the good tire in its position and tighten all screws with precision of 100% in 3 mts.
			8.6. The trainee will lower jack & store all tools in their place within trunk in 2 mts.

The Design of Formative Objectives

Formative Objectives are professional statements representing the micro-steps or sub-behaviors of acts or terminal objectives. When these objectives are executed sequentially, it will lead to the formation of final abilities required by training. Form (13) concerns itself with the design of current objectives.

Form (13): Design of formative objectives of training.

The job: Car driving   Designer: ……………………….

Task: Car maintenance   Administration: …………………

General goals	Terminal behavioral objectives	Formative behavioral objectives
Given all the tools, equipment, and materials used normally in car maintena	1. The trainee will maintain battery water of his car at all times with mastery level of 100%.	1.1. Will bring battery from car's trunk within one minute. 1.2. Will lift engine cover and secure it within one minute. 1.3. Will clean dust and other matters from battery within 2 minutes. 1.4. Will unscrew battery knobs and put each beside its pocket within 2 minutes. 1.5. Will fill battery pocket with water as needed within 3

nce, the trainees will successfully perform the ten major skills required in the program.		minutes.
		1.6. Will check the adequacy of battery water with accuracy of 100%.
		1.7. Will close battery pockets by screwing knobs within 2 minutes and accuracy of 100%.
		1.8. Will take down engine cover, returning it to its position with accuracy of 100%.
		1.9. Will store water can in its place within car trunk.
	3. The trainee will check the adequacy of engine oil against required level with precision o f100% during 3 minutes.	3.1
		3.2
		3.3
		3.4
		3.5
		3.6

When deriving formative objectives, the designer looks either at job acts or terminal objectives. If the sub-behaviors of acts, are already specified, then the designer could list them as they are, or with minor linguistic modifications.

Whatever the developmental procedure the designer may pursue, the following conditions should be met in stating formative objectives:

1. Linguistically sound and clear.

2. Behaviorally sequenced.

3. Behaviorally observable.

4. Behaviorally measurable.

5. Behaviorally operational.

Formative objectives specified in this stage of training design, maintain a major role in next forms (14, 15, 16, 17, and 18); since the designer upon

them will derive training knowledge, achievement activities, methods and technologies in the following paragraphs and chapters.

The Design of Training Knowledge

Training knowledge is the sum of terms, facts, concepts, principles, rules, steps, criteria, theories or anything else which represents the academic content of terminal or formative objectives,, or their counterparts in job acts. These types of professional knowledge should be learned by the trainees as a part of achieving the behavioral skills required by a training program.

Criteria for Selecting and Organizing Training Knowledge

Training knowledge could be selected and organized according to criteria such as:

1. Selecting knowledge after the content of terminal or formative objectives or job acts. Working with this criterion will provide training curriculum with the needed valid knowledge.

2. Selecting knowledge according to its importance in attaining professional objectives or acts. Professional knowledge in this regard may be classified into three categories:

* **Basic knowledge** which represents a must for trainees to achieve. This knowledge directly embraces the content of terminal or formative objectives.

* **Worthy knowledge** which completes vertically and horizontally the learning of basic knowledge.

* **Minor knowledge** which enriches, deepens or enlarges the achievement of basic and worthy knowledge.

If types of water that are used ordinarily with car battery denote for example, a basic knowledge (like those of known commercial products), and others which may substitute basic water (such as desalinated water) are seen to be worthy knowledge, then types of water or liquids which could

possibly be used in emergencies where basic and worthy waters are totally out of hand, signify minor knowledge.

Form (14): Selection and description of training knwoloedge.

The job: Car driving   Designer: ………………………….

Task: Car maintenance   Administration: ……………………

The act Reserving battery water   Date: ………………………………

No.S	Formative objectives (Illustrative examples)	Training knowledge (Illustrative examples)
1-1	Will bring battery water from car's trunk within one minute.	Types of battery water: types and functions of car battery.
1-2	Will lift engine cover and secure it in one minute.	Concept of engine cover, the securing tool; steps of lifting the cover.
1-3	Will clean dust and other matter from battery within 2 minutes.	Concept of battery cleanliness; its benefits; materials and tools used; steps & criteria of cleanliness.
1-4	Will unscrew battery knobs and put each beside its pocket within 2 minutes.	Battery pockets; their pats and functions.
1-5	Will fill battery pockets with water as needed within 3 minutes.	Steps of filling pockets with water.
1-6	Will check the adequacy of battery water with accuracy of 100%.	Criteria of water adequacy in battery pockets.
1-7	Will close battery pockets by screwing knobs within 2 minutes and accuracy of 100%.	Closing steps of battery pockets; criteria of effective closing.

1-8	Will take down engine cover, returning it to its position with accuracy of 100%.	Steps of closing the engine cover; criteria of effective closing.
1-9	Will store water can in its place within car trunk.	Concept of storing, places appropriate for storage; criteria of effective storage.

* In the actual designing of the training program, knowledge should be spelled out to its necessary / finest details.

3. Organizing knowledge according to sequence of job acts or terminal objectives and their offsprings, the formative ones. Training knowledge is arranged here after the curricular / practical sequence of above professional tools.

Selection and Description of Training Knowledge

Considering the criteria stated in the previous paragraph, the designer could derive training knowledge by simply writing formative objectives in form (14), specifying for each the knowledge headlines of its behavioral content.

The designer may, afterwards, detail the training knowledge to the degree which deems necessary for professional / academic understanding by both trainees and trainers. Specialized job sources should be consulted of course, in order to obtain the appropriate knowledge in this regard.

The designer, however, can derive training knowledge directly from the less specific terminal objectives or their predecessors: the job acts. The main shortcoming which probably accrues out of this process is the failure to recognize some types of knowledge that are basic: to the comprehension of required training skills:

The Design of Achievement Activities

Achievement activities are all learning and formative evaluation activities which trainees encounter throughout the course of their training.

These activities play two fundamental educational roles: the comprehension of professional experiences which program's objectives and knowledges call for, and determining the adequacy of this comprehension.

While achievement activities serve as a vehicle for translating program's objectives and knowledge into behavioral skills, they represent the third major element of training curriculum.

Criteria for Selection and Construction of Achievement Activities

In principle, andragogy is different from pedagogy. Therefore trainees, as adults, require somewhat different achievement activities than those of young learners. Consequently, several criteria should be noted when these activities are selected and constructed for training.

1. The educational, behavioral and content implications of formative objectives or the sub-behaviors of job acts.

If the objective calls, for example, for definition of terms, recalling facts, concepts, principles or steps; explanation of a factor or process; performance of a skill, then achievement activities should adopt these educational abilities.

Further, if the behavioral nature of an objective is an oral, written or psychomotor one, learning and evaluative activities should therefore conform with whatever the behavioral nature might be. Moreover, the training activities for learning and evaluation, in order to be professionally valid, must fully represent the curricular contents of formative objectives from which achievement activities are originally derived.

In summary, learning-evaluative activities should be modeled first and foremost after the act's behaviors or formative objectives of training, in terms of:

* Educational ability.

* Behavioral nature.

* Professional content.

2. The homogeneity versus the heterogeneity of trainees backgrounds.

In this regard, different professional backgrounds of trainees require dissimilar achievement activities, different exercises, examples, projects, learning evaluative tools, procedures and behavioral situations.

The author of this book, as a trainer during 1988/1989, experienced the reality of the above statement. Various geographical, professional and educational/academic backgrounds of trainees who participated in three training programs necessitated the use of different activities for both learning and evaluation (Refer to chapter I for their countries, professional affiliations and the professions involved).

3. Length of time available for training. The more time that there is available for training, the more training activities may be employed in learning and evaluation. On the other hand, a shortage of time forces staff personnel to limit themselves to a minimum that barely permits the achievement of trainees' needs.

4. The budget available for training. Unrestricted or open budget gives the designer and training personnel free hands to select/construct any type of activity believed to foster the achievement of trainees. This kind of budget is far more productive in training than its counterpart: the restricted one, or the other which undergoes financial cuts due to economic deprivations or uncertainties.

5. The nature of human and material services available for training. The availability of qualified and sufficient trainers, experts, administrators, technicians, secretarial, and maintenance personnel and facilities, equipment, machinery, media, materials and technology ... will make it possible for the designer to differentiate training activities as much as needed. While limited human and material resources will limit activities to a large degree, affecting negatively the achievement of professional skills.

There are, of course, additional criteria which could also be considered and are widely cited in training literature(1) such as: the congruence of achievement activities with adults characteristics, experiences, desires, difficulties, aptitudes, needs for experimentation and feedback.

Form (15): Design of learning activities of training.

The Job: Car driving   Designer: ……………………….

The task: Car maintenance   Administration: …………………

No.S	Formative objectives (Illustrative examples)	Learning activities (Illustrative examples)
1-1	Will bring battery water from car's trunk within one minute.	Trainee defines battery water, recalls different brands / types of battery water; prepares water for battery use.
1-2	Will lift engine cover and secure it with the special tool within one miute	Trainee defines engine cover; names the lifting steps of engine cover; performs the steps sequentially.
1-3	Will clean dust and other matters from battery within 2 minutes.	Trainee defines battery cleanliness; recalls things to be cleaned from battery; names tools and materials used in battery cleaning; cleans three different kinds of car battery.
1-4	Will unscrew battery knobs and put each beside its pocket within 2 minutes.	Trainee defines battery knobs and pockets; explains battery parts and functions; performs the opening of battery pockets.
1-5	Will fill battery pockets with water as needed within 3 minutes.	Trainee specifies battery pockets that need water; fills pockets with water as needed.
1-6	Will check the adequacy of battery water with accuracy of 100%.	Trainee mentions adequacy criteria of battery water, evaluates the adequacy of battery water according to specified criteria.
1-7	Will close battery pockets by screwing knobs within 2 minutes and accuracy of 100%.	Trainee names steps of closing battery pockets, criteria of effective closing; closes battery pockets effectively.
1-8	Will take down engine cover, returning it to its position with accuracy of 100%.	Trainee recalls closing steps of engine cover; counts criteria of effective closing, closes engine cover effectively.

1-9	Will store water car in its place within car trunk.	Trainee defines concept of storing, specifies appropriate places and criteria of storing, stores battery water within trunk.

Form (16): Designing of formative evaluation of training.

The: Car driving   Designer: ……………………….

The task: Car maintenance   Administration: …………………

No.S	Formative objectives (Illustrative examples)	Formative evaluation (Illustrative examples)
1-1	Will bring battery water from car's trunk within one minute.	Trainee answers appropriate oral / written tests; bring water bottle within one minute, from car trunk whenever is asked to do so.
1-2	Will lift engine cover and secure it with the special tool within one minute	Trainee answers appropriate oral / written tests; lifts engine cover successfully within one minute.
1-3	Will clean dust and other matters from battery within 2 minute.	Trainee answers oral / written questions; cleans dusty battery within two minutes with 90% success.
1-4	Will unscrew battery knobs and putting each beside its pocket within 2 minutes.	Trainee answers appropriate oral / written questions; opens battery knobs successfully within two minutes.
1-5	Will fill battery pockets with water as needed within 3 minutes.	Trainee fills battery pockets with water as needed within three minutes.
1-6	Will check the adequacy of battery water with accuracy of 100%.	Trainee answers appropriate oral / written test; evaluates the adequacy of water in battery with accuracy of 100%.

1-7	Will close battery pockets by screwing knobs within 2 minutes and accuracy of 100%.	Trainee answers oral / written questions; closes battery pockets in two minutes and with 100% precision.
1-8	Will take down engine cover, returning it to its position with accuracy of 100%.	Trainee answers appropriate oral / written questions; closes engine cover with 100% accuracy.
1-9	Will store water can in its place within car trunk.	Trainee answers oral / written questions; stores water bottle successfully in car trunk within one minute.

While the above extra criteria are important for maintaining the quality and validity of training activities, they could be fulfilled automatically through the application of the main five previously cited.

The Design of Achievement Activities: The Learning Component.

Learning activities are what trainees say, listen, write or do to transform the objectives and knowledge contents of training into required professional skills. Form (15) represents a simple tool for designing learning activities.

It is composed of two main categories: the first is devoted for formative objectives (or job acts), while the second is for listing learning activities appropriate for each objective or act.

When writing learning activities, the designer may consider the following:

1. Constructing multi-level inductive activities for each objective. To ease this task for the designer, he may adopt one or more of the following behavioral taxonomies: Bloom's taxonomy of cognitive domain; Krathwohl's taxonomy of affective domain; Harrow's taxonomy of psychomotor domain or Derr's taxonomy of social purposes. If, for example, the formative objective belongs to the application level of the cognitive domain (e.g. objective 1 - 1), then knowledge, comprehension and application exercises may deem subsequently necessary to produce the final required skill.

With the same token, if the objective represents an evaluative skill (e.g. objective 1 - 6), then knowledge, comprehension, application, analysis, synthesis and evaluation activities would seem appropriate for the achievement of the above objective.

Two things should be noted, nonetheless, when using learning activities which belong to lower behavioral levels of the required professional skills due to different human, financial, material and time constrains usually imposed on training:

* Should be adopted only in training whenever the designer/ trainer doubts the capability of trainees to achieve, normally, the mandated skills, due to some inadequacies in their knowledge and experience backgrounds.

* Should be brief, direct and most relevant.

2. Constructing learning activities that are representative of each behavioral skills embedded in formative objectives... whether this representation is of the behavioral type, nature, or fidelity.

One simple way to achieve this skill validity, is to look at the objective, recognizing its behavior and performance conditions, then developing the activities that are operational in translating the theoretical statements of professional goals and facts into concrete observable skills.

3. Constructing extra activities whenever possible, for the purpose of skill concentration or over-achievement. The successful training program is one which provides trainees with opportunities to transform initially developed skills into daily working habits.

The Design of Achievement Activities: The Formative Evaluation Component

Formative evaluation occurs during training and concerns itself with the augmentation of learning by guiding, improving and building the achievement of required professional skills.

The tools of formative evaluation are usually a mixture of personal interviews, work projects, individual and group exercises, oral, written and performance exams.

When designing formative evaluation, the designer may examine the formative objectives in form (16), one after another, subsequently writing for each, the evaluative experiences that trainees should encounter in order to improve the quality of learning, thus complying with the achievement standards adopted by the training program.

What Comes Next?

The above chapter has explained the design concepts and mechanisms of a training curriculum, with its major elements: the goals, knowledge content and achievement activities.

The logical step that follows now, is the selection and description of methods, media and technology which will carry out the activities and responsibilities of the training curriculum to their ultimate ends: the development of professional skills by trainees. Chapter VI treats these instructional topics.

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Chapter VI

Designing the Instruction of Training: Methods, Media & Technologies

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Introduction

Concepts and Types of Training Methods

Selection Criteria of Training Methods

A Sample of Methods Used in Training

Selection and Description of Methods for Training

The Concept and Types of Training Media and Technologies

Selection Criteria of Media and Technologies for Training

Selection and Description of Media / Technologies for Training

Motivational Principles of Professional Interaction in Training

Principles and Techniques of Organizing Trainees and Training
                    Services

What Comes Next?

Introduction

The instruction of training is primarily accomplished by the use of appropriate methods, media and technology.

These instructional mechanisms represent the communication vehicles for the messages of training. This mediating role of training messages by instruction, could be depicted in figure (I).

The following paragraph will present the concepts and types of basic methods, media and technology used in training, followed by the criteria and devices of their selection and description for training.

Concepts and Types of Training Methods

Training methods are communication tools between trainers and trainees. They are also the carriers of Information and professional content during the course of instruction. Generally, training methods may be classified within the following categories:
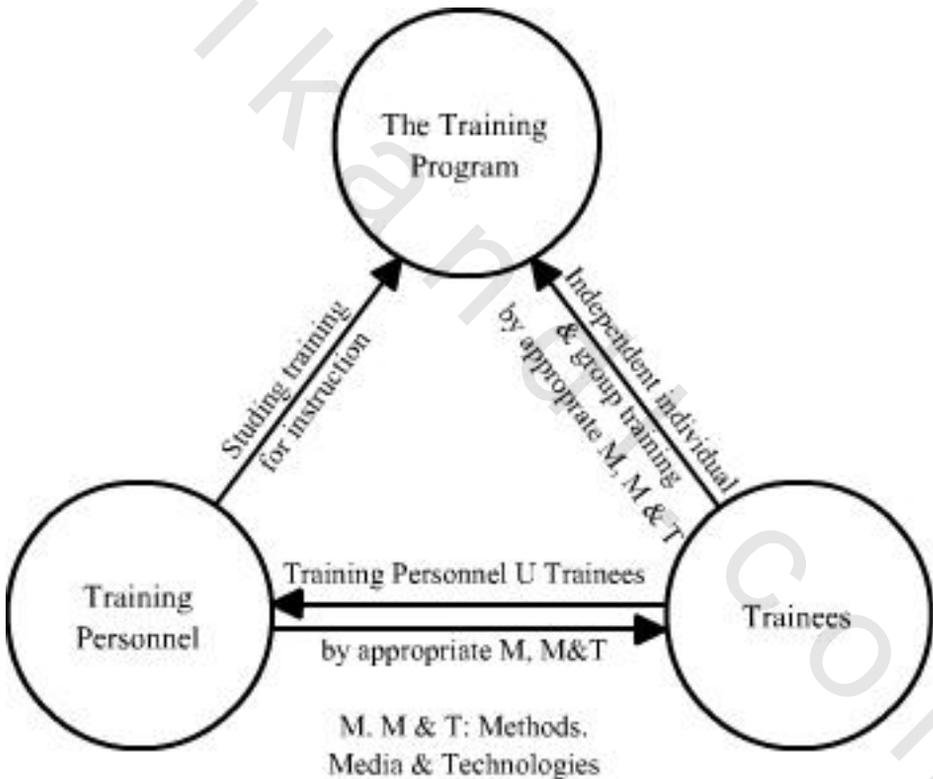

Figure I: The role of methods, media and technology in the instruction of training.

Training Methods According to Presentation Form:

1. Vocal, e.g. questioning and lecturing.

2. Written, e.g. exercises, reports, programmed training and individual prescriptions.

3. Practical, e.g. performance exercises, demonstrations, apprenticeships and on-job training.

Training Methods According to Roles in Training:

1. Planning, e.g. the Delphi technique, job accidents, case study, basket decisions, and simulation materials, games and exercises.

2. Developmental, e.g. lecturing, on-job training, programmed training, apprenticeship, micro-training, laboratory training, and behavioral modification techniques.

3. Evaluative, e.g. role playing, training by objectives, questions and answers, projects, and application exercises.

Training Methods According to Number of Trainees:

1. Individual, e.g. computer-assisted training, individual prescription, programmed training, personal or private tutoring, and individual projects.

2. Small groups, e.g. group exercises, group discussions, micro training and role-playing.

3. Large groups, e.g. lecturing, open (auditorium) demonstration, open questions.

Training Methods According to Behavioral Domain:

1. Knowledge development, e.g. lecturing, questioning, programmed training, and computer-assisted training.

2. Skill development, e.g. on-job training, apprenticeship, demonstration, simulation exercises, micro training, and performance exercises…

3. Problem solving, e.g. job accidents, case study, basket decisions, training by objectives, the Delphi technique, and projects.

4. Attitude development, e.g. group discussion, role playing, modeling , behavioral modification, and field visitation.

Training Methods According to Location:

1. Inside the training institution (on-campus methods), e.g. laboratory training, micro-training, basket decisions, simulation games and exercises, computer-assisted training, questioning and lecturing.

2. Outside the training institution (off-campus methods), e.g. field visitation, the Delphi technique, on-job training, apprenticeship, case study, and field projects.

Training Methods According to Human Performers:

1. Trainer's methods, e.g. lecturing, questioning, modeling, behavioral modification, training by objectives.

2. Trainees' individual and group methods, e.g. independent training, programmed training, individual/ group projects, private training, training by prescriptions, case studies, basket decisions, group demonstrations, role playing, micro training.

3. Expert methods. Experts could be local or international, part-time and outside trainers. Examples of their methods are: apprenticeship, on-job training, field visitation, guided Off-campus projects, the Delphi technique, demonstration of selected skills, lecturing on special topics.

Selection Criteria of Training Methods

Several criteria determine the nature of selected methods for training. These are:

1. The number of trainees participating in the program. It is suggested here that if the program has 1-5 trainees, then individual methods could be adopted. On the other hand, a mixture of individual and group methods are to be used when trainees are between 6-25. Finally, large group methods become possible when trainees exceed 26 in number.

2. Trainees' personal characteristics and professional backgrounds, their age categories, and social status.

3. Trainers qualifications to implement training. Highly qualified personnel make differentiation of methods possible.

4. The nature of training tasks. The tasks could be theoretical, practical, attitudinal, human relations in nature, or, could be knowledge, application, problem solving, attitudinal, and evaluation and guidance. These different tasks demand the use of different methods.

5. The amount of time available for training. More time permits different methods to be used.

6. The availability of human and material services (including the financial budget). These services beside trainers, are the most crucial factors which limit or enrich the use of training methods.

7. The responsive ability of methods to training needs which could be:

A - Motivation B - Active participation C - Individualization D - Content sequencing E- Feedback F- Learning transfer.

Different methods do fulfill, of course, different training needs. A sample in this regard is summarized in the following list (1):

* Lecturing: D.

* Group discussion: A, B, C, and E.

* Case study: A, B, C, 0, E, and F

* Simulation experiences: A, B, C, D, E, and F.

* Role playing: A, B, C, D, E, and F.

* Working projects: A, B, C, D, E, and F.

* On-job training: A, B, C, D, E, and F.

* Assignments: B, C, and D.

A Sample of Methods Used in Training

Many methods are currently used in training, among the most common, are the listed below:

1. Lecturing/oral illustration.	16. Work projects/reports.
2. Questioning.	17. On-Job training.
3. Training by objectives.	18. Apprenticeship.
4. Competency-based training.	19. Micro-training.
5. Computer-assisted training.	20. Behavioral modification.
6. Performance exercises.	21. Demonstration.
7. Small group discussions.	22. Role playing.
8. Small group practices.	23.Simulation exercises.
9. Tutoring or private training.	24. Programmed training
10. Modeling.	25. Expert training.
11. Individual prescription.	26. Laboratory training.
12. Case study.	27. Independent training.
13. Basket decisions.	28. Field visitation.
14. Job accidents.	29. Training packages.
15. Delphi technique.	30. Training kits.

Selection and Description of Methods for Training

When selecting methods for training, the designer resorts to the use of the criteria in the previous paragraph. To ease this job for the designer however, form (17) is presented.

Form (17) is composed mainly of two categories; one for formative objectives and the other for parallel training methods. Formative objectives nonetheless, could be substituted by job acts or terminal Objectives, if these are more available or deemed more operational in deriving the proper training methods.

Instructional disqualification of trainers may, however, force the designer to elaborate on form (17) by introducing explanatory notes for each selected method concerning the concept, situational use, and application steps.

While the designer could use form (17) for suggesting specific method (s) for each formative objective, the following sequence is proposed here:

A. The selection and use of three methods for the initial learning of professional skills: oral i1lustration or presentation, or short lecturing through which basic information/ knowledge is presented to trainees; behavioral demonstration; then question and answer method.

B. The selection and use of what is appropriate from remaining methods formerly cited, considering particularly the following important methods:

1. Personal or individual tutoring or independent training.

2. Peer group tutoring (trainees tutor trainees).

3. Modeling.

4. Individual practice.

5.Smallgroup exercises/practice.

6. Small group discussions.

7. Individual prescription.

8. Basket decisions.

9. Case study.

10. Computer-assisted training.

11. Micro training.

12. Job accidents.

13. On-job training.

14. Apprenticeship.

15. Work projects.

The Concept and Types of Training Media and Technologies

Training media and technology are information vehicles conveying required knowledge, skills and attitudes to:

1. Trainers who give them away by means of instruction.

2. Trainees who take them by means of learning.

Media and technology could serve, by their own rights, as primary instructional/ learning techniques or devices; or as aides to instructional methods used in training. These educational tools may be grouped within the following categories:

1. Realia, e.g. experts, community sites, museums and exhibits.

2. Specimens and artifacts, e.g. models, simulation machines, materials and tools, and real samples.

3. Training laboratories, e.g. micro-training rooms, photography studios, media development centers, behavioral modification/ development centers or clinics.

4. Photographs, illustrative drawings and maps.

5. Motion pictures including 16 mm and 8 mm films, videos and television.

6. Still projected visuals including slides, transparencies, opaque materials, film strips, micro-films, and fiches.

7. Audio materials including cassettes, cartridges, reels, hands free telephones, audio cards, closed circuit radios, audio slides.

8. Instructional boards and bulletins.

9. Printed materials, e.g. handouts, textbooks, work/ guide bocks, newspapers, magazines, programmed materials.

10. Training packages and kits.

11. Computers, software and electronic materials.

12. Tele-media (audio-visual and A/V).

13. Dramatics, role playing and games.

Selection Criteria of Media and Technologies for Training

Media and technologies may be selected for training by criteria such as(2):

1. Technical characteristics, e.g. light, sound, and technical production.

2. Content representation of training.

3. Usability in training facilities.

4. Compatibility with trainees' cognitive styles.

5. Reasonable buying/maintenance costs.

6. Usability within training time.

7. Compatibility with professional qualifications of training personnel.

Selection and Description of Media / Technologies for Training

To select and describe appropriate media and technologies for training, the designer should have in hand both selection criteria, and adequate theoretical/ practical knowledge. The criteria stated formerly, will enable the designer to designate the right mediums for transmitting professional messages; while specialized knowledge will make it possible for him to differentiate among various types of available media and technologies, then manipulating their use to the degree constructive for training.

Form (18) is offered for initial selection and description of training media and technologies. It utilizes basically the formative objectives, though job acts and terminal objectives that may be employed instead.

When selecting and describing media and technologies for training, two principles should be noted:

1. Description of media and technologies on separate sheets, when professional qualifications of training personnel, are in doubt.

2. The selection of one type of media and technology, if it proves effective for the instruction of training.

This proposition stems from the fact that training is a process composed primarily of direct technical acts, and bound strictly to specific period of time.

Motivational Principles of Professional Interaction in Training

Training, like any other topic of education, is a teaching process through which trainees interact with human and material services to achieve the mandated professional skills. Hence, in order to foster this interaction and make it consequently more productive, several motivational principles should be maintained (3).

1. Pacing the information and activities of training to allow for trainees to comprehend the professional content.

2. Focusing on present and realities of trainees, by providing them with real experiences, problems, events and activities which are sampled directly from their professional/ work setting.

3. Providing trainees with adequate opportunities to express themselves, their professional needs, and individual life experiences.

4. Encouraging trainees to carry out the responsibility of their ideas and actions by means of illustrations, interpretation and justification.

5. Responding to desires of trainees concerning the types and timing of training activities.

The job: Car driving   Designer: ………………………

The task: Car maintenance   Administration: …………………

The act: Maintaining battery water   Date: ……………………………

No.S	Formative objectives	Training Media and Technologies (Illustrative examples)
1.1	Will bring battery water from car's trunk within one minute.	Real battery water, role playing; video-tape; audio slides; pictures of water branks; explanatory notes or handouts.
1.2	Will lift engine cover and secure it with the special tool within one minute.	Role playing, real car, car simulator, drawings & pictures, video, 8mm or 16mm films, instructional boards, slides, overhead transparencies, programmed materials.
1.3	Will clean dust and other matters from battery within 2 minutes.	Real battery; cleaning materials and tools; dramatics; audio cassettes; video, 8mm and 16mm films; slides; pictures; programmed materials.
1.4	Will unscrew battery knobs and put each beside its pocket within 2 minutes.	Real battery; printed handouts; pictures.
1.5	Will fill battery pockets with water as needed within 3 minutes.	Real battery; battery water; role playing; slide presentation.
1.6	Will check the adequacy of battery water with accuracy of 100%.	Video 8mm, or 16mm films; illustrative drawings; handouts.
1.7	Will close battery pockets by screwing knobs within 2 minutes	Real battery; pictures; slides;

	and accuracy of 100%.	drawings; handouts.
1.8	Will take down engine cover, returning it to its position with 100% accuracy.	Same as in (1-2) above.
1.9	Will store water can in its place within car trunk.	Same as in (1-1) above.

6. Making sure that trainees understand at all times the mission of the training, e.g. goals, knowledge, skills, activities ... etc.

7. Avoiding strict formalities in communicating/ interacting with trainees. Instead, humanity, self-confidence and respect for fellow human kind are used to encourage trainees' involvement in the activities of training.

8. Utilizing previous knowledge and experiences of trainees in the conduct of training. Giving each trainee a specific, appropriate responsibility will enhance his contribution to the advancement of training.

9. Interacting openly with trainees as mature individuals with different/ rich life and professional experiences at their disposal.

10. Avoiding any form of punishment during training, except those concerned with disciplinary and administrative matters such as absenteeism, misconduct or any others.

11. Adopting over-achievement techniques whenever possible to enable trainees to master required professional skills.

12. Pacing training activities over the available period to provide trainees with ample time to rationalize, participate and achieve required professional skills.

13. Encouraging cooperation instead of personal competition of trainees; and providing objective support and guidance instead of criticism and hunting for faults.

14. Providing systematic feedback to trainees concerning the qualities and degrees of their achievements, then guiding them to appropriate experiences for correction and enrichment.

Principles and Techniques of Organizing Trainees and Training Services

The overall organizational principles which should be maintained throughout training is the avoidance of lecturing as a method of instruction and as a coordinating mechanism of human and material services. This cautioning principle, stems from the fact that training is not, in its own right, an educational tool for the masses like lecturing is. Rather, it is mostly concerned with the behavioral education of individuals and small groups.

Considering the proposition above, principles and techniques for the organization of trainees and training services, are suggested below.

### Organizational Principles of Trainees and Training Services

Five principles are offered to organize the intended environment for training. These are:

1. Manipulation of human and material services of training to allow for:

* Active practicing of professional skills

* Differentiation of individual and small groups activities and exercises.

* Repeating training for mastering the professional skills whenever necessary.

* Pacing training tasks according to emergent needs.

2. Effective utilization of available facilities, equipment, materials, machinery, media and technology.

3. Allowance for modeling and application exercises 01 training skills

4. Fostering active participation of trainees and human services in training.

5. Providing trainees with systematic feedback for correction, practice and follow-up activities.

Organizational Techniques of Trainees and Training Services

The organizational techniques prevailing in training, are of individual and small groups in nature. These techniques are explained below:

1.   **The individual / independent technique** is one by which trainees train themselves, using working prescriptions, packages, kits, or special assignments. Suggested physical arrangements of this technique appear in the following illustrations.
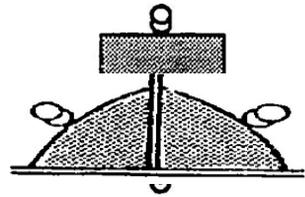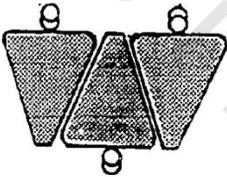
2. Private tutoring techniques are those by which a trainer tutors one to three trainees, or a trainee works with one to three peers for the development of specific professional skills. Physical arrangements of this technique could be as illustrated below:
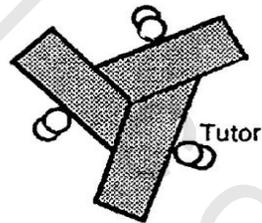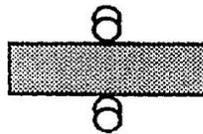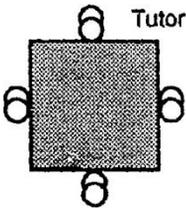
3. Small groups' techniques are those by which a trainee leads a group of 5-12 peers to discuss a topic, model a skill, exercise a behavioral act or perform an assignment or project. The technique may use forms like these:
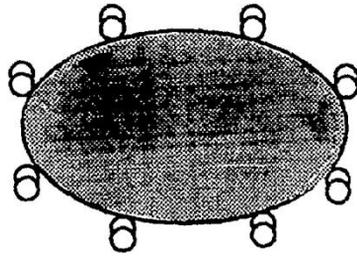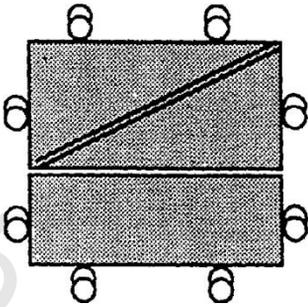
4. Large group techniques include those by which a trainer, expert or an administrator addresses a whole audience of trainees. Large groups may be used for the purposes of presenting new information, whether professional knowledge, patterns of daily conduct, administrative rules, instructions, human services or introductory announcements prior to the start of a training program.

While previous techniques are widely used in the instruction of training, the large group technique is limited to very few instances, among them the ones cited above. **The organizational forms of large groups may appear as the following:**

Traditional large group organization

Somewhat reformed

large group

organization
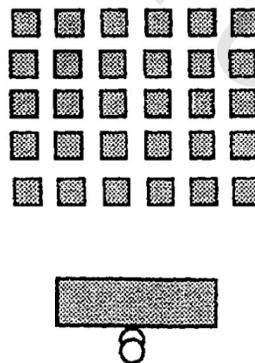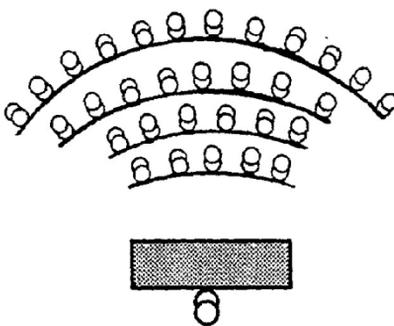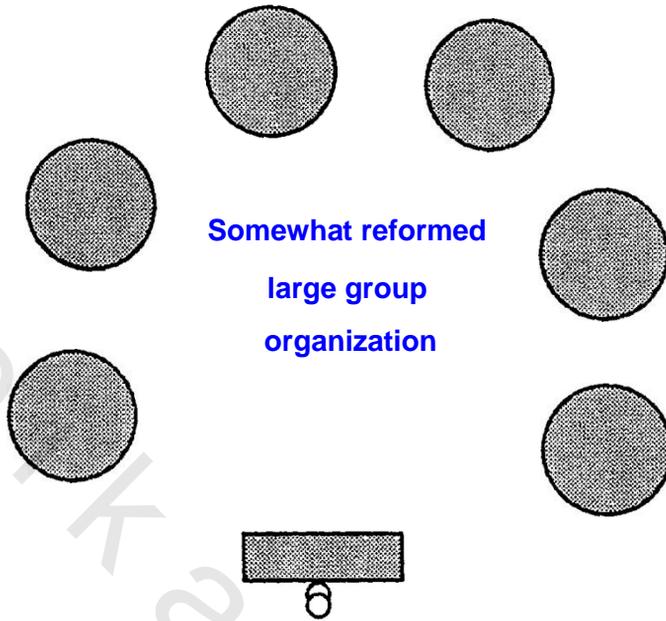
General Framework for the Instruction of Training

This concluding paragraph presents a general instructional framework for training. The framework is explained briefly as follows(4):

A. Planning training by considering:

1. The behavioral objectives of training.

2. The backgrounds of participant-trainees.

3. The time available for training.

4. The professional content of training.

5. The facilities, equipments, tools, machinery, materials, media and technologies which are available for training.

B. Preparation of training materials necessary for accomplishing the behavioral objectives, which are compatible at the same time with elements stated in paragraph (A) above.

Examples of these materials are: exercises, demonstrations, case studies, slides, transparencies, drawings, photographs, specimens, models, simulators, study questions, tests, work projects; handouts or summary notes and educational boards.

C. Preparation of training lessons by taking into account, elements of above paragraphs (A and B). The components of each lesson could be :

1. The serial number of the lesson and its working title.

2. The implementation date of the lesson during the course of training.

3. The allocated time in hours or minutes.

4. The general goal of the lesson as well as its behavioral terminal objectives.

5. The knowledge, skills, or previous lessons which are prerequisites for the achievement of each lesson.

6. The knowledge content of behavioral objectives specified for each lesson.

7. Activities, exercises, projects and assignments which trainees will do while learning the lesson.

8. Procedures and activities of formative evaluation necessary for the achievement of the objectives of training.

9. The instructional tools of the lesson which are:

o   Human training services.
o   Appropriate methods.
o   Training materials, media and technology·
o   Training sites or facilities.
o   Trainers working resources, if different from designated for trainees.

  * Final tests which should be administered at the end of each lesson.

D. Organization and preparation of training facilities. This step considers such physical characteristics of the training site as: light, ventilation, physical arrangements of seats, equipment, machinery, tools and technology.

E. The initiation of training by:

1. Starting the lesson on time.

2. Maintaining an open and pleasurable atmosphere.

3. Relating the lesson to other lessons, skills, previous programs, or professional experiences.

4. Using an appropriate point, experience, or event to begin the lesson with trainees.

5. Announcing the lesson title to trainees.

F. Implementing the lesson by:

1. Using the training plan as suggested in step (A).

2. Using the recommended questions and exercises to check the comprehension of trainees.

3. Balancing the use of lesson's time as it is distributed among different activities, so that no activity may run over into the time of another.

4. Distributing handouts or training materials if applicable.

G. Ending the lesson by:

1. Quick review of trainee's new achievements.

2. Conducting tests whenever necessary'.

3. Correcting weaknesses and providing more time and experiences for adequate feedback and mastery of professional skills.

What Comes Next?

Accomplishing the current designing task of the instruction of training, will pave the way to the next undertaking: the selection and description of human and material services which will be discussed in the coming chapter.

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Chapter VII

The Design of Human and Material Services

Selecting and Describing Primary Training Personnel

Selecting and Describing Support Training Personnel

Selecting and Describing Training Facilities and Equipments

Selecting and Describing Training Machinery and Materials

Assessing the Overall Budget of Training

Designing the Timetable/Program Guide of Training

Quantitative Criteria for Selecting Human Services Needed by

     Training

What Comes Next?

Introduction

Human services of training encompasses trainers, experts, administrators, technicians, as well as secretarial, operating, and maintenance personnel .

Material Services on the other hand include all training factors other than the human elements, such as facilities, equipment, machinery, materials, media, technology, budgets, and work schedules.

The chapter handles the designing responsibility of these human and material services by six sequential steps which appear as follows.

Selecting and Describing Primary Training Personnel

Trainers, experts, administrators are first degree training personnel.

They are the primary operators of the professional program.

Form (19) specifies the types and numbers of the above Working staff that fulfill the implementation needs of a training program. In actual designing, additional forms are essential for detailing the professional qualifications of the selected personnel.

The basic professional qualifications that could be considered in selecting and describing trainers, experts and administrators appear as follows:

Form (19): Selection and description of primary training personnel (Trainers, Experts & Administrators).

The job: Car driving……………….…..   **Designer: ………………………….**

The task: Car maintenance……………   **Administration: ……………………**

No.S	Terminal behavioral objectives (Illustrative examples)	Trainers	Experts	Administrators
1	The trainee will maintain battery water of his car at all times with precision of 100%.	One battery technician	One battery expert (if needed)	These could be the same for all program's objectives.
3	The trainee will check the adequacy of engine oil against the required level with precision of 100% in 3 mts.	One engine oil mechanic.	One engine oil expert (if needed)	
5	The trainee will be able to control engine temperature at all times by using different means learned in the training program.	One engine mechanic.	One engine expert (if needed).	Example of such administrators are:
7	The trainee will maintain car brakes effectively by applying the mean	One brakes mechanic.	One brakes expert (if	

	available to him.		needed)	1. Department manager. 2. Program coordinator. 3. Administrative personnel.
8.1	The trainee will park his car & display the caution sign in 3 mts. with 100% success.	One car driver.	One traffic officer (if needed)	
8.2	The trainee will bring all tools necessary for changing the tire with 100% success in 2 mts.	One flat tire mechanic	One maintenance specialist (if needed).	
8.3	The trainee will lift the car by jack in 3 mts. with 100% precision.	One flat tire mechanic.	One maintenance specialist (if needed).	
8.4	The trainee will take off the flat tire & store it in trunk in 3 mts.	One flat tire mechanic.	One maintenance specialist (if needed)	
8.5	The trainee will place the good tire in its position & tighten screws in 3 mts. with 100% precision.	On flat tire mechanic.	One maintenance specialist (if needed).	
8.6	The trainee will lower & store all tools in their place within trunk in 2 mts. * From form 12	One flat tire mechanic.	One maintenance specialist (if needed). Mechanic.	

1. Professionally knowledgeable.

2. Professionally skilled.

3. Knowledgeable of adult learning theories and techniques (Knowledgeable of andragogy).

4. Able to communicate and interact with others appropriately and effectively.

5. Flexible in personality, in receiving constructive criticism / feedback, and in responding to trainees needs.

Experts Should Be:

1. Honest and confident in personality and professional intentions.

2. Professional in the area of training.

3. Fully knowledgeable of the training problems / needs of the organization.

4. Persistent and capable of implementing the plans of the organization.

Administrators Should Be:

1. Professional in their working areas.

2. Systematized and objective in their administrative behaviors and interactions with others.

3. Positive in their attitudes toward trainers, trainees, the training program and the organization.

Selecting and Describing Support Training Personnel

Support personnel are the secondary human resources who assist the primary staff in advancing the course of training. Support staff may include the following examples:

1. Educational machine operators

2. Mechanics

3. Communication specialists

4. Designers / developers of training materials

5. Artists

6. Equipments maintenance

10. Personnel of spare parts and materials warehouses

11. Public relations personnel

12. Food / cafeteria staff

13. Cleaning staff

14. Health professionals

15. Car parking staff

Personnel

16. Reception staff

7 Facilities maintenance

personnel

17. Measurement / evaluation

specialists

8. Typing / copying services

9. Fifes / records services

Form (20): Selection and description of training support personnel (Technician, secretarial staff and maintenance services).

The job: …………………………………Designer: …………………………

The task: ……………………………. Administration: …………………..

Serial No.S	Terminal behavioral objectives	Technicians (illustrative examples)	Secretarial / operating personnel (illustrative examples)	Maintenance personnel (illustrative examples)
1	The trainee will maintain battery water of his car at all times with precision of 100%.	Assistant technician	Records / filling employee	General service worker
3	The trainee will check the adequacy of engine oil against the required level with precision of 100% in 3 mts.	Assistant technician	Worker / aide	General service worker
5	The trainee will be able to control engine temperature at all times by using different means learned in the training program.	Cooling system, oil, engine & spare parts technicians.	Worker / aide	General services worker
7	The trainee will maintain car brakes effectively by applying the means available to him	Brakes repair technician, spare parts worker.	Worker / aide	General services worker

8.1	The trainee will park his car & display the caution sign in 3 mts. with 100% success.	Assistant technician	Worker / aide	General services worker
8.2	The trainee will bring all tools necessary for changing the tire with 100% success in 2 mts.	Assistant technician	Worker / aide	General services worker
8.3	The trainee will lift the car by jack in 3 mts. with 100% precision.	Assistant technician	Records employee	General service worker
8.4	The trainee will take off the flat tire & store it in trunk in 3 mts.	Assistant technician	Records employee	General service worker
8.5	The trainee will place the good tire in its position & tighten screws in 3 mts with 100% precision.	Assistant technician	Records employee	General service worker
8.6	The trainee will lower & store all tools in their place within trunk in 2 mts.	Assistant technician	Records employee	General service worker

For practical reasons, the above types of support services are grouped within three categories: technicians, secretarial services and maintenance services (Refer to form 20).

When using form (20), the designer writes down in each category, the type and r1umber of the Support services needed to help in the process of translating training objectives into the mandated behavioral skills.

If machine operators are needed for example, the designer should specify along with the type, the number of these technicians who must be available to perform the maintenance job. He may write in this instance: one video operator, two projector operators, one photographer, two copy machines operators... etc.

After summarizing the types and numbers of support services in Form (20), the designer elaborates for each one: the professional characteristics and the selection criteria for training responsibilities.

Among the selection criteria (and professional characters) which could be considered here, are:

1. Adequacy of professional qualifications for the required training tasks.

2. Validity of qualifications to required training tasks.

3. Dynamic of personality.

4. Positivism of attitudes towards trainers, trainees, training and organization.

Selecting and Describing Training Facilities and Equipments

Training facilities are the physical spaces that are designed specially to host trainers, trainees, administrators, support services, the program, equipment and materials, while operating to develop the mandated professional skills.

Facilities are seen to be the bare buildings or any places which could be suitable for training, while equipment on the other hand, are all materialistic extras that permanently accompany facilities, therefore qualifying them psychologically, behaviorally and physically to hold the different aspects and processes of training.

Examples of training facilities are: working / practice rooms, media presentation halls, instructional rooms, micro - training labs, auditoriums;

typewriter offices, zerox copying offices, still pictures, drawings, and artificial models labs, a/v centers, developmental centers of training materials, machinery repair / maintenance centers, training staff offices, computer centers, post offices and communication center, admissions office, bathrooms, general relations office, ware houses, hallways, surrounding yards and gardens.

For training equipment, the given samples follow: seating furniture, work furniture, disks, carts, decorations, conditioning systems, internal (closed circuits) communication systems (e.g. phone, T.V. , radio), fire extinguishers, washing sinks, elevators, darkening systems, lighting

systems, recreational media/machines within instructional rooms (e.g. data shows). Form (21) Summarizes facilities and equipment which could be, used in the implementation or terminal objectives. Descriptive details of professional characteristics, training roles, work timing throughout training, and selection criteria of these facilities and equipment for training should all be worked out in notes, to accompany the form.

Form(21): Selection and description of training facilities & equipments.

The job: ……………………………………Designer: …………………………..

The task: …………………………………. Administration: …………………….

Serial No.s	Terminal behavioral objectives	Training facilities (Illustrative examples)	Training equipments / (Illustrative examples)
1	The trainee will maintain battery water of his car at all times with precision of 100%.	The mechanic workshop, training workshop (Electric department).	Light bulb; seating lounge (or comer); washing sink.
3	The trainee will check the adequacy of engine oil against the required level with precision of 100% in 3 mts.	The mechanic workshop, (oil dept.) instructional room.	Light bulb, seating lounge (or comer); washing sink; discharged disk or can.
5	The trainee will be able to control engine temperature at all times by using different means learned in the training program.	The mechanic workshop, training hall; instructional room	Seating lounge; washing disk, lifting machine.
7	The trainee will maintain car brakes effectively by applying the means available to him.	The mechanic workshop, gas station or training hall (Brake dept.) instructional room	Car jacks; seating lounge; washing disk.
8.1	The trainee will park his car & display the caution sign in 3 mts.	Training hall, side road specified for	Caution sign.

	with 100% success.	training; mechanic workshop (repair dept.).	
8.2	The trainee will bring all tools necessary for changing the tire with 100% success in 2 mts.	As above.	As above.
8.3	The trainee will lift the car by jack in 3 mts. with 100% precision.	As above	Car jack; caution sign.
8.4	The trainee will take off the flat tire & store it in trunk in 3 mts.	As above.	As above
8.5	The trainee will place the good tire in its position & tighten screws in 3 mts. with 100% precision.	As above	As above
8.6	The trainee will lower & store all tools in their place within trunk in 2 mts.	As above	As above

Selecting and Describing Training Machinery and Materials

Training Machineries is the hard ware or all the machines, tools, instruments and devices which trainers, trainees and working staff use in the developmental course of required professional skills. Training materials, on the other hand, are the software or raw and pre-fabricated matter, stuffs, substances, objects or mediums that are deemed necessary to the processing of behavioral objectives.

Examples of training machineries are: educational machines, technological instruments, production - operation machines and tools, repair / maintenance tools, spare parts, measurement devices, computers and their peripheral hardware, photography, drawing, photo-copy and printing machines and instruments, cleaning tools.

Training materials could be: stationery, liquid, oils, soaps, towels wood stuffs and objects, colors, powders, writing notes, work books, printed matter, references, audio materials, computer soft ware, projected media, non-projected media, educational samples and models.

Form (22) presents the training machinery and materials which are suitable for the implementation of professional behavioral objectives.

As the case of previous forms, the designer could split the current form into two: the first to specialize in machinery and the second to embody the materials.

What is really needed, however, from the designer after projecting the above appropriate services is to elaborate the qualitative and quantitative descriptions of every machine and material selected for training. These details of course will ease the implementation of the professional program by administrators, trainers and training staff, in general.

Form (22): Selection and description of training machinery & materials.

The job: ………………………………Designer: ……………………

The task: ………………………………. Administration: ………………..

Serial No.s	Terminal behavioral objectives	Training machinery (illustrative examples)	Training materials (illustrative examples)
1	The trainee will maintain battery water of his car at all times with precision of 100%.		Observation / evaluation tool or list*
3	The trainee will check the adequacy of engine oil against the required level with precision 100% in 3 mts.		A sponge or piece of cloth; observation / evaluation list
5	The trainee will be able to control engine temperature at all times by using different means learned in the training program.	Screw drivers	Cleaning tower; observation / evaluation list
7	The trainee will maintain car brakes effectively by applying	Screw drivers; car jack; spare brakes	Cleaning towel; observation /

		the mean available to him	parts.	evaluation list.
8.1		The trainee will pack his car & display the caution sign in 3 mts. with 100% success.		
8.2		The trainee will bring all tools necessary for changing the tire with 100% success in 2 mts.	Screw drivers; car jack, tire screws	Cleaning towel; observation list
8.3		The trainee will lift the car by jack in 3 mts. with 100% precision.	Car jack	Observation list
8.4		The trainee will take off the flat tire & store it in trunk in 3 mts.		
8.5		The trainee will place the good tire in its position & tighten screws in 3 mts. with 100% precision.	Screw drivers; good tire	Observation list
8.6		The trainee will lower & store all tools in their place within trunk in 2 mts.	Screw drivers	Cleaning towel; soap; observation / evaluation list.

* Contains the behavioral steps which are required for the performance of training objectives.

While the types of facilities and materials are determined by the behavioral nature of the program's objectives, the quantity of these services could be decided by the number of trainees participating in the program.

It may be inferred, In this regard, that a large number of trainees will lead to the formation of several training groups or classes, needing a variety of machinery and materials to serve their professional activities. Moreover, other criteria suggested at the end of the chapter could be applied here.

Assessing the Overall Budget of Training

Time is appropriate now for the designer to look back at different training factors and processes for the assessment of their financial costs, in order to establish the overall budget of the professional program.

As form (23) shows, the training program budget covers all the human and material services, and its various activities from needs assessment to evaluation of productivity.

The training costs however could be classified within three categories:

1. Direct costs, e.g., salaries for human resources, leasing, buying costs of material services, lees of training.

2. Hidden or indirect costs, e.g. the use depletion costs of material services concerning facilities, equipment, machineries, technology, media, materials, tools, salaries of trainees.

3. Covering costs, e.g. storing costs, price increase costs of materials, travel, transportation and hotel costs, etc.

Form (23a): Selection and description of training machinery & materials.

The job: …………………………………..Designer: …………………………………

The Task: …………………………………..Administration: ……………………..

Training Factors / Training Processes	Human services	Media & materials	Machinery & technology	Facilities & equipment	Row totals
Needs assessment for training					
Program planning					
Program / materials development					

Program implementation						
Program Evaluation						
Column total						Grand total

When assessing the budget of training, the designer may notice the following principles:

1. Calculating the budget based on all training costs - direct, and hidden or covering costs.

Form (23b): Assessment of the overall budget of training (human services).

The job: …………………….…………The job: ..…………………………….

The task:: …………………………….The task: ……..…………………….

Training factors / Training activities	Administrat-ions	Trainers	Experts	Technicians	Secretarial personnel	Maintena-nce personnel	Row totals
Needs assessment for training							
Program planning							
Program materials development							
Program implementation							

123

Program evaluation									
Column totals									Grand totals

Form (23c): Assessment of the overall budget of planning training (Human and material services).

The job: ………………………………The job: ..………………………………

The task:: …………………………… The task: ……..…………………..

Training factors ／ Training activities	Administra- tions	Trainers	Experts	Technicians	Secretarial personnel	Mainten-ance services	Facilities & equipments	Machinery & technology	Media & materials	Row totals
Needs assessment for training										
Program planning										
Column totals										Grand totals

2. Suggesting extra 10 % of the assessed budget, as petty cash, whenever possible, to cover emergencies that could arise throughout training. This amount if not needed, should be kept in treasury in order to serve the same purpose for the next program.

3. Training costs tend to increase as the program period tends to be long.

4. Training costs tend to decrease as the program is applied repeatedly with other groups of trainees.

5. Detailing the assessment of budget as much as possible for the purpose of getting concise results.

Different sub - forms as (shown by forms 23b and 23c) could be derived, representing various factors and activities of training. Cost values of sub - forms are summed up 10 produce the grand total of the budget.

Designing the Timetable/Program Guide of Training

The timetable and program - guide are condensed, descriptive forms of the most important factors and processes which make up the training program. These major factors and processes may be easily depicted in forms 24a and 24b.

The purposes which may be served by the time- table and program guide in training are briefly:

1. Information mechanism that communicates knowledge, news or any training data which could benefit the work of trainees. The time table and program-guide function as a data disseminating tool.

2. Advertising mechanism which may further the professional status, role or reputation of a training institution.

Form (24a): Designing the timetable of training lessons.

Institute: …………………………………The program: ……………………...

Departments: …………………………The period: ………………………...

No.s	Professional acts (skills, sessions or lessons)	Trainers	Sites	Dates
1	Battery water			
2	Radiator water			
3	Engine oil			
4	Wheel oil			
5	Engine Temperature			
6	Car lights			
7	Car brakes			

8	Flat tires			
9	Car locks			
10	Car cleanliness			

The direct result of this process is an attitudinal change of the concerned parties that leads normally to more support, praise or acceptance of training and institution.

As a result, people know something about the training program without definite actions expected from them. It is somewhat personal knowledge that is passive in nature.

3. Action - guide mechanism which serves as a directing - focusing device throughout training. Training personnel may use the time table or program guide as handy references of what is involved or required in training.

The designer can adopt any reasonable scheme to present form (24) that may better suit his training case. The most important point he should watch when structuring the needed time table or program guide however, is its ability to portray the basic components (factors and processes) of the training program.

The purposes which may be served by the time-table and program-guide in training are briefly: Information mechanism that communicates knowledge, news or any training data which could benefit the work of trainees. The time table and program-guide function as a data disseminating tool.

Form (24b): Designing the program-guide of training.

Institute: ………………………………   The program: ………………………

Department: …………………………   The period: ………………………

Objectives:

Behavioral or generic objectives could be written in this section.

Trainees and Program Pre-requisites
Types of trainees & pre-conditions that they should possess or conform to,

before entering the program (e.g. professional experiences, courses, workshops, achievement levels, grades or specific age).

Trainers:

Names of trainers (and their professional qualifications if appropriate) may be written here.

Training lessons:

Training topics, skills, job acts or tasks are briefly written in this paragraph.

Training facilities:

Main training sites, rooms, laboratories, and practice centers are listed here.

Training activities / achievement requirements:

Major activities, projects and experiences expected from trainees and their achievement values; tests which will be administrated; and attendance-participation requirements, could be written here.

Training Resources:

Training notes, handouts, packages, textbooks, references, guide/work-books, may be written in this concluding section.

Quantitative Criteria for Selecting Human Services Needed by Training

As for the number of trainers, experts, administrators and technicians whom are needed by a training program, several criteria could be applied:

1. The behavioral complexity of a training program. If the program is composed, for example, of different tasks and professional skills, then more personnel are needed for using the diverse training materials, facilities, equipment, machinery, and for translating the various skills embedded in the statements of objectives into observable working behaviors.

2. Number of trainees. The more trainees entering the professional program, the more trainers, experts and administrators are needed.

3. Multiplicity of training sites and implementation requirements. The more of these, again the more personnel are needed for the program.

4. The professional competency of trainers. The less competent the trainers, the more of them are needed to fulfill the expected training responsibilities.

5. The financial capabilities 01 the organization to fund the training program. II more money is available, then more professional personnel could be recruited to implement the program. The more restricted budget on the other hand, will force the organization to cut down the number 01 human services needed by the program to their possible lower levels.

What Comes Next

Now, with the selection and description 01 human and material services necessary for the conduct of training, the road is paved to move to other training pursuits: that is, designing the training document, program marketing, and the preparation for implementation which will be discussed in the next chapter (8).

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