

PAPER DETAILS

TITLE: General Overview of Training Effectiveness and Measurement Models

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PAGES: 144-156

ORIGINAL PDF URL: <https://dergipark.org.tr/tr/download/article-file/842804>

GENERAL OVERVIEW OF TRAINING EFFECTIVENESS AND MEASUREMENT MODELS

İpek Kalemci TÜZÜN*

ABSTRACTS

Any organization that wants to succeed, and to continue to succeed, has to maintain workforce consisting of people who are willing to learn and develop continuously. Training and developing human capital is tremendously important in the effective management and maintenance of a skilled workforce. Training is one of the ways of improving organization's effectiveness. In order to implement right training methods, organization should be aware of the training methods and their effectiveness. Study provides conceptual framework of determining which methods to use when developing training program. The various training methods- both off-the-job and on-the-job- are described along with their strengths and limitations. Paper also explores the measurement methods of training evaluation which is very crucial for the training effectiveness. This study tries to give general overview of training methods and measurement models.

Key Words: training, on-the-job training, off-the-job training, measurement, effectiveness

EĞİTİM METOTLARININ ETKİNLİĞİNE VE

ÖLÇÜM

MODELLERİNE GENEL BİR BAKIŞ

ÖZET

Bir örgüt başarılı olmak ve bunu sürdürmek için, sürekli öğrenmek ve gelişmek isteyen insanlardan oluşan işgücünü oluşturmalı ve bunu koruyabilmelidir. İş gücünün gelişimi ve eğitimi, becerikli işgücünü koruyabilmek ve etkin bir yönetim sağlayabilmek için oldukça önemlidir. Eğitim örgütün, etkinliğini geliştirebilmenin bir yoludur. Örgütler, doğru eğitim programlarını uygulayabilmek için, eğitim yöntemlerinin ve bu yöntemlerin etkinliğinin farkında olmalıdır. Çalışma, eğitim programı oluştururken hangi eğitim yönteminin ne zaman uygulanabileceğine dair kavramsal bir duruş sergilemektedir. İş dışında ve iş başında eğitim yöntemlerinin güçlü ve zayıf yönleri tartışılmış, bununla birlikte, eğitim etkinliğini belirleyebilmek için koşul olan ölçüm modellerine de yer verilmiştir. Bu çalışma eğitim yöntemlerine ve ölçüm modellerine genel bir bakış açısı sunmaya çalışmıştır

Anahtar Kelimeler: Eğitim, iş dışında eğitim, iş başında eğitim, ölçüm, etkinlik

INTRODUCTION

Training is a part of the human resource development, along with the other human resources activities, such as recruitment, selection and compensation. The role of human re-

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source department is to improve the organization's effectiveness by providing employees with knowledge, skills and attitudes that will improve their current or future job performance. In order to implement the right training methods, the training specialist should be aware of the pros and cons and effectiveness of each training method. Besides, for evaluating training effectiveness, measurement should be done according to the models.

1. TRAINING

The verb "to train" is derived from the old French word *trainer*, meaning "to drag". Hence such English definitions may be found as; to draw along; to allure; to cause; to grow in the desired manner; to prepare for performance by instruction, practice exercise, etc. Training can be described as "providing the conditions in which people can learn effectively". To learn is "to gain knowledge, skill, ability" (King, 1968:125).

Knowledge refers to the information we acquire and place into memory, how it is organized into the structure of what we already know and to our understanding of how and when it is used. Thus knowledge can be seen as three distinct types; declarative, procedural and strategic (Kraiger and Salas, 1993:311).

Declarative Knowledge is a person's store of factual information about a subject matter. *Procedural knowledge* is the person's understandings about how and when to apply the facts that has been learned. *Strategic Knowledge* consists of the person's awareness of what he knows and the internal rules for accessing relevant facts and procedures to be applied toward some goal. Strategic knowledge is used for planning, monitoring, and revising goal-directed activity (Blanchard and Thacker, 1998:6).

Skill is the capacities needed to perform a set of tasks that are developed as a result of training and experience (Dunette, 1976:8). A skill is a proficiency at doing something beyond just knowing what something is about. Abilities have been defined as general capacities related to performing a set of tasks that are developed over time as a result of heredity and experience (Flesihman, 1972:28).

To understand the function of training in a company, it is needed to ask the question of what training is state for the company. Training is an "opportunity" for learning and it is accomplished by providing employees with opportunities to learn how to perform more effectively and by preparing them for any changes in their job. Training focuses on the acquisition of knowledge, skills and attitudes needed to perform more effectively on one's current job.

Role of training may be seen as "ensuring that the organization has the people with the correct mix of attributes, through providing appropriate learning opportunities and motivating people to learn, and thus enabling them to perform to the highest levels of quality and service" (Bentley, 1990:25 Training must be therefore managed as a frontline business activity.

The investment in people, both in developing and maintaining the appropriate skills, becomes a vital part of the organization's strategy for the future. Like any investment, investment in training should produce an effective and measurable payback. Effective training enhances the knowledge, skills, attitudes and behavior of people and hence their performance.

Training activities and businesses objectives are related to each other as links. Effective training program helps organizations to achieve their objectives. General objectives of training activities are; orienting new employees to the organization and their job, helping employees perform their current jobs well, helping employees qualify for the future jobs, keeping employees informed of changes within the organization, providing opportunities for personal development (Drummond, 1989:165).

In order to achieve organizational objectives, organizations should be aware of the training methods and their effectiveness

2. TRAINING METHODS

Many training techniques are created almost every year by the rapid development in technology. Deciding among methods usually depends on the type of training intended, the trainees selected, the objectives of the training program and the training method. Training is a situational process that is why no single method is right for every situation. While some objectives could be easily achieved through one method, other objectives could necessitate other methods. Many training programs have learning objective in more than one area. When they do, they need to combine several training methods into an integrated whole.

Training methods could be classified as cognitive and behavioral approaches. Cognitive methods provide verbal or written information, demonstrate relationships among concepts, or provide the rules for how to do something. These types of methods can also be called as off-the-job training methods. On the other hand, behavioral methods allow trainee to practice behavior in real or simulated fashion. They stimulate learning through behavior which is best for skill development and attitude change. These methods can be called as on-the-job training methods. Thus; either behavioral or cognitive learning methods can effectively be used to change attitudes, though they do so through different means. Cognitive methods are best for knowledge development and behavioral methods for skills (Blanchard and Thacker, 1998:277). The decision about what approach to take to training depends on several factors that include the amount of funding available for training, specificity and complexity of the knowledge and skills needed, timeliness of training needed, and the capacity and motivation of the learner.

To be effective, training method should; motivate the trainee to improve his or her performance, clearly demonstrate desired skills, provide an opportunity for active participation by

the trainee, provide an opportunity to practice, provide timely feedback on the trainee's performance, provide some means for reinforcement while the trainee learns, be structured from simple to complex tasks, be adaptable to specific problems, encourage positive transfer from training to the job (Woods, 1995:180).

2.1. Off-The-Job Training Methods

Training which takes place in environment other than actual workplace is called off-the-job training. Off-the-job training is usually designed to meet the shared learning needs of a group rather than a particular individual's needs. Lectures, computer-based training, games and simulations are the common forms of off-the-job training methods.

2.1.1 Lecture Method

The lecture is best used to create a general understanding of a topic or to influence attitudes through education about a topic. Perhaps the most common form of off-the-job training is the oral presentation of information to an audience (Blanchard and Thacker, 1999:278). By using lecture method, large amount of information can be delivered in a relatively short period of time to a large number of people. A major concern about lecture method is that no allowance is made during the lectures for clarifying the levels of understanding among participants. Trainees do not actively involve training process and they may forget much information when it is presented orally. When the only training objective is to gather specific factual information, learning can be accomplished by putting information into the text material. (Drummond, 1999).

2.1.2. Computer Based Training

Computer based training can be defined as any training that occurs through the use of computer. Many companies are implementing computer based training as an alternative to classroom based training. Some of the reason for this thinking is; reduces trainee learning time, reduces the cost of training, provides instructional consistency, affords privacy of learning, trainees can study only what they need to know, increases access to training, allows trainee to master learning, that is the best way to keep interest and motivation high (Jerris, 1999:330). Perhaps the most important advantage of computer based training is its control over the content of the material, method of presentation, and movement of the trainee through sequentially structured learning episodes based on previous trainee responses (Kearsly, 1984). On the other hand, companies have to realize that although E-learning provides a more cost-effective method of knowledge dissemination, there are drawbacks to this type of delivery. Primarily, predictions of others behavior and reactions is impossible. E-learning should never replace in-person training, but should reinforce company values and provide foundations for learning. There is a totally different dimension in dealing with human

problems and behaviors; important dimensions that can never be fully conveyed through computer based training (Lee, 2000).

2.1.3. Games and Simulation

Training games and simulations are designed to reproduce or simulate processes, events, and circumstances that occur in the trainee's job. Trainees can experience these events in a controlled setting area, where they can develop their skills or discover concepts that will improve their performance. Many organizations also develop games that are designed to introduce or reinforce important concepts. These games often involve group participation, so that the team members working in harmony are required to make decisions or formulate a course of action that will help resolve a particular problem or create opportunity for the organization. The most important part of this training is not the activities in which the participants engage, but processing the results when the game is completed (Newman and Hodgets, 1998:195). Vestibule training, business games, in basket exercises, case studies, role plays, sensitivity training and behavior modeling are the methods used in games and simulations.

Vestibule Training involves the virtual duplication of work environment in an off-site setting. Simulation exercises, place the trainee in an artificial environment that closely imitates actual working conditions where the trainer demonstrates on the same kind of machine and using the same procedures that trainees will use on the job. The theory is that if managers or employees have faced with similar situations, even if they were simulated, they will be more likely to make the right decisions (Woods, 1995:180).

Business Games are another form of simulations that participants learn how to deal with a variety of issues in a simulated business environment. Trainees are provided with information describing a situation and are asked to make decisions about what to do. The system then provides feedback about the impact of their decisions, and they are asked to make another decision. This process continues until some predefined state of the organization exists or specified number of trials has been completed (Blanchard and Thacker, 1998:295). Business games involve an element of competition, either against other players or against the game itself. The purposes of business games would be; strengthening executive and upper management skills, improving decision making skills at all levels, demonstrating principles and concepts, integrating separate components of training into a integrated whole, exploring and solving complex problems, developing leadership skills (Kaplan, and at all Lombardo, Mazique, 1985:241).

In *Case Study* method, detail of series of events, either real or hypothetical, takes place in a business environment. When this method of training used, participants asked to sort through data provided in the case to identify the principal issues and then propose solutions

to these issues (Woods, 1995:183). The learning objective is to have trainees apply known concepts and principles and discover new ones. A variation of case study is the incident process, in which trainees are given only a brief description of the problem and must gather additional information from the trainer by asking specific questions (Pigor and Pigor, 1987:414).

In –Basket Exercises are form of simulation in which participants are asked to prioritize problems, messages, reports, and other items that might be found in manager's in-basket (Jerris, 1999:330). As a training tool, in basket exercises aim to clarify; how to identify which issues require the most immediate response, to teach participants how to delegate those problems which do not require personal attention and to instruct employees how to work on several problems simultaneously (Woods, 1995:183). This means, in basket technique focuses primarily on decision making and allows an opportunity for both assessing and developing decision making knowledge, skills and attitudes. In-basket is best at developing procedural and strategic knowledge (Blanchard and Thacker, 1998:297).

The purpose of *Role Playing* method is to give participants a chance to experience such situations in a controlled setting. Trainees are provided with a description of the context usually a topic area, a general description of a situation, a description of their roles, and the problem they each face. Once the participants have read their role descriptions, they act their roles by interacting with one another. Structured role play provides trainees with more detail about the situation as well as more detailed description of each character's attitudes, needs, and opinions. This type of role play is used generally to develop interpersonal skills such as communication, conflict resolution and group decision making. Spontaneous role plays are loosely constructed interactions in which one of the participants plays him/her self while the others play people with whom the first trainee has interact in the past (Goldstein, 1993).

Behavior Modeling gives participants a chance to actually see how a model would act in a certain situation, rather than simply be told how to act. Behavioral modeling uses natural tendency for people to observe to learn how to do something new. This technique generally used in combination of others (Woods, 1995:185). Behavior modeling differs from both role plays and simulations by first providing the trainee with an understanding of what the desired skill level looks like (Goldstein, 1993). Behavioral modeling gives emphasis on doing rather than telling. Managers can be shown how to delegate, communicate, conduct meeting, interview an applicant or discipline an employee. It is useful for almost any type of skill training. It has been used for training in interpersonal skills, sales training, interviewee and interviewer training, safety training and many others areas (Decker and Naten, 1985). This form of training is an excellent source for managers and supervisors.

Sensitivity Training method often used to develop interpersonal skills. It is also called as laboratory training. It helps make participants more aware of their own behaviors as well as their behavior towards others. Laboratory training can supplement and provide a cost effective alternative to portions of the classroom and on-the-job training programs. Sensitivity training allows participants to see how others see them in a constructive way. The principal disadvantage is that the process can sometimes become dangerously personal for the employee (DOE handbook, 1995).

When all these methods are analyzed, we can say which each of these methods are appropriate in under what circumstances, such as:

- Vestibule training obviously is best at teaching people how to work with equipment.
- Business games are best for developing business decision-making skills and for exploring and solving complex problems
- The in- basket technique is best suited to development of strategic knowledge used in making day-to-day decisions.
- Case studies are most appropriate for developing analytic skills, and complex problem-solving strategies. Because trainees do not actually implement their decision or solution, its focus is more on the “what to do”(strategic knowledge) than on the “how to get it done”(skills)
- Role plays provide a good vehicle for developing interpersonal skills and personal insight, allowing trainees to practice interacting with others and receiving feedback.

2.2. On-The-Job Training Methods

The purpose of the on-the-job training session is to provide employee with task-specific knowledge and skills in work area. The knowledge and skills presented during on-the-job are directly related to job requirements. Job instruction technique, job rotation, coaching and apprenticeship training are the common forms of on-the job training methods.

Job Instruction Training is a structured approach to training, which requires trainees to proceed through a series of steps in sequential pattern. The technique uses behavioral strategy with a focus on skill development, but there are usually some factual and procedural knowledge objectives as well. This type of training is good for task oriented duties such as operating equipment. The instructor or supervisor prepares a job breakdown on the job, while watching an experienced worker perform each step of the job. Job instruction technique consists of four steps, preparation, present, try out and follow up (Blandchard and Thacker, 1999:306).

Job Rotation is the systematic movement of employees from job to job or project to project within an organization, as a way to achieve various different human resources objectives

such as: simply staffing jobs, orienting new employees, preventing job boredom or burnout, rewarding employees, enhancing career development, exposing employees to diverse environments (Woods, 1995:188). Excellent job rotation program can decrease the training costs while increases the impact of training, because job rotation is a hand on experience. Job rotation makes individuals more self-motivated, flexible, adaptable, innovative, eager to learn and able to communicate effectively. One of the possible problems with the rotation programs is the cost, because job rotation increases the amount of management time to spend on lower level employees. It may increase the workload and decrease the productivity for the rotating employee's manager and for other employees. Job rotation may be especially valuable for organizations that require firm-specific skills because it provides an incentive to organizations to promote from within (Jerris, 1999:329).

Coaching is the process of one-on-one guidance and instruction to improve knowledge, skills and work performance. Coaching is becoming a very popular means of development, and often includes working one-on-one with the learner to conduct a needs assessment, set major goals to accomplish, develop an action plan, and support the learner to accomplish the plan. The learner drives these activities and the coach provides continuing feedback and support (DOE Handbook1074, 1995). Usually coaching is directed at employees with performance deficiencies, but also used as a motivational tool for those performing well. Coaching methods solve precise problems such as communication, time management and social skills. Executive coaching generally takes place on a monthly basis and continues over a period of several years. Often, coaches are brought in where there is a change in the structure of the company, when a team or individual is not performing well or where new skills are required. Coaching assumes that you are fine but could be even better (Kirwan, 200).

Apprenticeship is one of the oldest forms of training which is designed to provide planned, practical instruction over a significant time span. Apprenticeship was the major approach to learning a craft. The apprentice worked with a recognized mastercraftperson (McNamara, 2000).

Blanchard and Thacker (1999:304), discuss various training methods to address different knowledge, skills, and attitudes learning objectives which are shown in Table 1. This table represents a general guide for the effectiveness of training models.

3. MEASURING THE EFFECTIVENESS OF TRAINING

Measuring the training effectiveness should be an important asset for the organizations. There are some criteria for measuring the success of training; direct cost, indirect cost, efficiency, performance to schedule, reactions, learning, behavior change, performance change (Sheppard C, 1999).

3.1. Measurement Models

3.1.1. The Kirkpatrick's Four Level Approach

Beginning with World War II, evaluation research has developed as a result of substantive support by the U.S. federal government in training and evaluation activities. It provides answers to the questions of “do we implement or repeat a program or not?” and “if so, what modifications should be made?” (Stone and Watson, 1999).

In order to classify areas of evaluation, the first one would be Kirkpatrick Four Levels of Evaluation. It was created by Donald Kirkpatrick in 1959, at the time; he was a professor of marketing at the University of Wisconsin. It is still one of the most widely used approach. His four level of evaluation are: *reaction* – a measure of satisfaction, *learning* – a measure of learning, *behavior* – a measure of behavior change and *results* – a measure of results (Phillips J., 1997:39). This conceptual framework answers four very important questions, as shown in Table 2.

Table 1: Training Method Effectiveness at Meeting Knowledge, Skills, Attitudes Objectives

GOAL OF TRAINING						
TRAINING METHODS	Knowledge			Skills		Attitudes
	Declarative	Procedural	Strategic	Technical	Interpersonal	
LECTURE	3	2	1	1	1	3
COMPUTER BASED	5	4	3	2a	2	3
SIMULATION						
Equipment	1	3	2	5	1	2
Case Study	3	2	4	2	2	3
Business Game	2	3	5	2	2b	2
In-Basket	1	3	4	1	2c	2
Role Play	1	2	2	2	4	5d
Behavior M.	1	3	3	4	5	3
OJT						
JIT	3	5	4	4	2	5
Apprentice	5	5	4	5	2	5
Coaching	3	5	4	4	4	5

Scale: 1=not effective

2= mildly effective

3= moderately effective

4= effective

5= very effective

a This rating is for general technical skills. For some specific skills the rating would be 5

b If the business game is designed for interpersonal skills, this would be 4.

c If multiple in-baskets were used this rating would be 3.

d Specifically role reversal.

Resource: Blanchard, N. and Thacker J., (1999), *Effective Training: Systems, Strategies and Practices*, Prentice Hall, Upper Saddle River, p:304.

Kirkpatrick model is now nearly 45 years old. Its elegant simplicity has caused it to be the most widely used methods of evaluation training programs. ASTD's (American Society for Training Development) survey, which reports feedback from almost 300 Human Resource executives and managers, revealed that 67% of organizations that conduct evaluations use the Kirkpatrick model (Stone J and Watson V, 1999).

Table 2: Kirkpatrick Four Levels of Evaluation

Level 1: Reaction	Were the participants pleased? What do they plan to do with what they learned?
Level 2: Learning	What skills, knowledge, or attitudes have change? By how much?
Level 3: Behavior	Did the participants change their behavior based on what was learned in the program?
Level 4: Results	Did the change in behavior positively affect the organization?

Resource: Stone J. and Watson V., 1999, *Evaluation of Trainig*, www.ispi-atlanta.org,

3.1.2. Kaufman's Five Level of Evaluation

Some researchers, recognizing some shortcomings of Kirkpatrick's four level approach, have attempted to modify and add to this basic framework. Kaufman offers one such presentation. As shown in Table 3, Kaufman has expanded the definition of Level 1 and added a fifth level addressing societal issues (Philips, 1997:40).

Table 3: Kaufman' Five Level of Evaluation

Level	Evaluation	Focus
5	Societal Outcomes	Societal and client responsiveness, consequences and payoffs.
4	Organizational Output	Organizational contributions and payoffs.
3	Application	Individual and small group (product) utilization within the organization
2	Acquisition	Individual and small group mastery and competency
1b	Reaction	Methods', means' and processes' acceptability and efficiency
1a	Enabling	Availability and quality of human, financial, and physical resources input

Resource: Phillips, J. **Handbook of Training Evaluation and Measurement Methods**, 1997, Houston Gulf, p.41

At level 1, the factor of the concept enabling the addresses the availability of various resource inputs necessary for a successful intervention. At Level 5 is the evaluation of

societal and client responsiveness, and consequences in payoff. This moves evaluation beyond the organization, and examines the extent to which the performance improvement program has enhanced society and environment surrounding the organization.

3.1.3. CIRO (Context, Input, Reaction, Outcome) Approach

Another four-level approach originally developed by Warr, Bird, and Rackham, is a rather unique way to classify evaluation processes. Originally used in Europe, this framework has much broader scope than the traditional use of the term “evaluation” in the United States. As with other approaches, four general categories of evaluation are described, which form the letters CIRO (Context, Input, Reaction, Outcome) (Phillips, 1997:39).

Context evaluation includes obtaining and using information about the recent operational conditions or context to determine training needs and objectives. Input evaluation includes gathering and using information about possible training resources to select between alternative inputs to training process. Reaction evaluation includes obtaining and using information about the learner’s reactions to improve the training process. Outcome evaluation includes gathering and using information about the findings and outcomes of training, and generally regarded as the most important part of the evaluation. If outcome evaluation is to be successful, it needs careful preparation before training program begins (Phillips, 1997:41).

3.1.4. The Five Level Return on Investment Framework

Return on Investment (ROI) is a measure of the monetary benefits obtained by an organization over a specified time period in return for a given investment in a training program. Looking it another way, ROI is the extent to which the outputs of training exceed the inputs. ROI can be used both to justify a planned investment and to evaluate the extent to which desired return was achieved. However, it can not measure all the aspects of training success: whether the learners liked the training or not, the numbers of learners participating in the training, the extents to which learner’s personal objectives were accomplished (Shepperd, 1999)

Table 4: Five Level ROI Framework

Level	Evaluation	Focus
1	Reaction & Planned Action	Measures participant’s reaction to the program and outlines specific plans for implementation
2	Learning	Measures skills, knowledge, or attitude changes
3	Job Applications	Measure change in behavior on the job and specific application of the training material
4	Business Results	Measures business impact of the program
5	Return on Investment	Measures the monetary value of the results and cost for the program, usually expressed as a percentage

Resource: Phillips, J. 1997, **Handbook of Training Evaluation and Measurement Methods**, Hous-

ton Gulf, p.43.

ROI adds the fifth level to the Kirkpatrick for some reason. There are some pros and cons of calculating ROI of a training program. The costs of training are known and expressed in monetary terms, but the benefits are often soft, subjective, and difficult to quantify and convert into the monetary terms. Costs are known up front, before training, but benefits may accrue slowly over time. But on the other hand, course objectives and content will become more lean, relevant, and behavioral with focus on monetary results rather than on the acquisition of information. And by calculating ROI on the courses where it is possible, it is more apt to be trusted on the ones can not evaluate at four level (Parry, S, 1996:72).

CONCLUSION

Training is a substantial organizational investment getting a satisfactory return on investment means linking the training function and activities to the company's overall business activity. The investment in people, both in developing and maintaining the appropriate skills, is vital part of the organization's strategy for the future. Like any investment, investment in training should produce an effective and measurable payback. Effective training enhances the knowledge, skills, attitudes and behaviour of people and hence their performance. The improved performance of individuals leads directly to profit. Such a payback can be rapid and significant, yet it is rarely measured or presented in financial terms.

If an organization wants highly motivated, up to date, creative and productive workforce, they need to start and build a strategy for the future. This strategy has to recognize that corporate performance is totally dependent upon the performance of the organization's people. This leads to a clear commitment to invest in these people through training. Organization which implements training gives emphasis on; what percentage of employees have individual challenge, growth and learning plans, the number of hours of training that the average worker gets each year.

A training program is not complete until you have evaluated methods and results. A key to obtaining consistent success with training programs is to have a systematic approach to measurement and evaluation. Recognition of the training methods and measurement techniques are crucial for the organization's training success.

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