

REVIEW OF TRAINING EVALUATION

Sunita Dahiya¹ and Ajeya Jha²

¹HRD, Indiabulls, Gurgaon.

²Department of Management, Sikkim Manipal Institute of Technology, Sikkim,
E-mail: dahiyaunita330@yahoo.com

1. INTRODUCTION

Training is vital for any and every organization. With the changing socio-economic and technological relevance of training, the definitions, scope, methods and evaluation of training programmes have also changed. One of the earlier classic definitions of training is 'bringing lasting improvement in skills in jobs'. The present day definitions take a multi-dimensional perspective enveloping the needs of individuals, teams, organizations and the society. The steps in the training programme development are planning, programme implementation, and programme evaluation and follow-up. The evaluation of any training system helps measure the 'knowledge gap', what is defined by Riech as 'the gap between what the trainer teaches and what the trainee learns'. Evaluations help to measure Reich's gap by determining the value and effectiveness of a learning programme. It uses assessment and validation tools to provide data for the evaluation.

Evaluation of training systems, programmes or courses tends to be a demand of a social, institutional or economic nature. 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.

2. TRAINING EVALUATION

Evaluation is an integral part of most instructional design (ID) models. Evaluation tools and methodologies help determine the effectiveness of instructional interventions. Despite its importance, there is evidence that evaluations of training programs are often inconsistent or missing (Carnevale and Schulz, 1990).

In the literature reviewed, where a definition of evaluation is given, the majority of writers tend to view it as the gathering of information in order to make a value judgment about the program, such as necessary changes or the possible cessation of the program. Williams (1976) defines evaluation as the assessment of value or worth. Harper and Bell (1982) refer to the planned collection, collation and analysis of information to enable judgments about value and worth. However, as Williams (1976) observes, value is a rather vague concept, and

this has contributed to the different interpretations of the term evaluation.

Goldstein (1993) defines evaluation as the "systematic collection of descriptive and judgmental information necessary to make effective decisions related to selection, adoption, value and modification of various instructional activities".

Lewis and Thornhill (1994) define training evaluation as the process of attempting to assess the total value of training—that is, the cost benefits and general outcomes which benefit the organization as well as the value of the improved performance of those who have undertaken training.

Kirkpatrick (1996) defines evaluation as determination of the effectiveness of a training programme. Evaluation of training as any attempt to obtain information on the effects of a training programme, and to assess the value of the training in the light of that information.

According to Van Dyk et al. (1997), definitions of evaluation have several implications:

- Evaluation is an ongoing process. It is not done at the end of course only.
- The evaluation process is directed towards a specific goal and objectives.
- Evaluation requires the use of accurate and appropriate measuring instruments to collect information for decision making.
- Evaluation is a form of quality control.
- Evaluation is not only concerned with the evaluation of students but with the wider training system as a whole.

3. IMPORTANCE OF TRAINING EVALUATION

In the current climate of globalization, heightened competition and the development of information technology, the paradigm for success has shifted towards intellectual assets. Increasingly, the key source of competitiveness in firms is that ability to develop and use the skills of the workforce. New forms of business and management structures are required to effectively exploit intellectual assets leading to a renewed focus on the development of human resources (Donovan et. al.,

2001). Training requires substantial allocation of financial, human and time resources.

Riech (1983) defined 'the gap between what the trainer teaches and what the trainee learns'. The evaluation of any training system helps measure the 'knowledge gap'. Evaluations help to measure Reich's gap by determining the value and effectiveness of a learning programme. It uses assessment and validation tools to provide data for the evaluation.

Bramley and Newby (1984a) identify five main purposes of evaluation: feedback (linking learning outcomes to objectives, and providing a form of quality control), control (using evaluation to make links from training to organisational activities, and to consider cost effectiveness), research (determining relationships between learning, training, transfer to the job), intervention (in which the results of the evaluation influence the context in which it is occurring), and power games (manipulating evaluative data for organisational politics).

Sims (1993) defined that the goal of evaluation is to improve the training programme; provide feedback to the programme planners, managers and participants; and to assess employee skills levels. Training is evaluated because evaluation is one way in which trainers can assess their effectiveness. From an administrative point of view, training is evaluated to justify the time and money spent on training.

- Mann (1996) elaborates on the view and points out that training evaluation can serve as a diagnostic technique to permit the revision of programmes to meet the large number of goals and objectives, thus the information can be used to select or revise programmes.

According to Van Dyk et. al. (1997) evaluation has the following three purpose: it is performed to make decisions about individual learners (their needs, the instructional plan and sequence, their grouping and feedback); course improvement (Deciding on the most appropriate methods and material and where and how to revise the material); and how effective the system is.

Horwitz (1999) states that the challenge facing human resource development practitioners is to ensure that all training and development activity meets the organisation's requirements for strategic functioning in order to give it centrality in organizational life. It is therefore vital to identify and implement factors associated with human resource development effectiveness. A strategic approach to the transfer of learning raises an important but often situational contingent question about roles, responsibility, accountability and performance management and reward systems for training (Horwitz 1999).

Eseryel (2002) evaluation activities in training situations involve multiple goals associated with

multiple levels, evaluation should perhaps be viewed as a collaborative activity between training designers, training managers, trainers, floor managers, and possibly others. There is a need for a unifying model for evaluation theory, research, and practice that will account for the collaborative nature of and complexities involved in the evaluation of training. Only a small percentage of organizations succeed in establishing a sound evaluation process that feeds back into the training design process.

Designing a good evaluation effort involves knowing when to collect evaluation measures and which groups to collect them from (Sims, 1993; Van Dyk et al. 1997). The first step in planning training evaluation is to determine the purpose of evaluating the programme—what do you want to know about the training programme? Each kind of question necessitates consideration of how the evaluation should be designed to provide answers. Evaluation must never be seen as a single activity or as a haphazard process. It is an integral part of the instructional system design process and should therefore be conducted in a systematic and structured manner if one wants to ensure that it is objective and credible (McClelland, 1994; Sims, 1993; Van Dyk et al., 1997).

4. EVALUATION MODE

The question of what to evaluate is crucial to the evaluation strategy and one of the most neglected aspects of training (Mann, 1996; McClelland, 1994). Often the value of conducting training evaluations is overshadowed by the necessity simply to gain participant's or student's immediate post-course reactions — the results of which are sometimes mistakenly viewed as indicating whether or not the course was successful (Axtell et al., 1997; McClelland, 1994).

Evaluations can also be devised to measure long-term reactions and effects such as what learning or behavioural change has occurred. However, to be able to measure the impact of the training, the evaluation process should also address the following question: what changes are necessary to make the course/programme more focused and/or relevant (Bristol et. al., 2002). For this purpose it is generally agreed that the pre-test and posttest methodologies are preferable to the simple posttest (Bristol et. al., 2002). The pre-test posttest design is seen as more powerful than the posttest design only (Sackett and Yang, 1996).

Designing a good evaluation effort involves knowing when to collect evaluation measures and which groups to collect them from (Sims, 1993; Van Dyk et al., 1997). The first step in planning training evaluation is to determine the purpose of evaluating the programme—what do you want about the training programme. Each kind of question necessitates consideration of how the evaluation should be designed to provide answers.

Evaluation must never be seen as a single activity or as a haphazard process. It is an integral part of the instructional system design process and should therefore be conducted in a systematic and structured manner if one wants to ensure that it is objective and credible (McClelland, 1994; Sims, 1993; Van Dyk et al., 1997).

Tziner et al. (2007) studied six employee characteristics (conscientiousness, self-efficacy, motivation to learn, learning goal orientation, performance goal orientation, instrumentality) and one work environment characteristic (transfer of training climate) on 130 trainees in a large industrial company in an attempt to predict training effectiveness (training grade, supervisor evaluation of the application of training). The results strongly support the predicted links, although not all the predictor variables contributed a statistically significant share of the explained variance of the training outcomes. Motivation to learn and learning goal orientation were found to contribute most to predicting training outcomes.

Rajeev et al. (2009) used a combination of formative and summative evaluation techniques and is an approximation of Kirkpatrick's model. Multiple methods are employed to determine the knowledge gain, performance of skills and organizational effectiveness of training.

5. USE OF MODELS DURING TRAINING DESIGN AND EVALUATION

The designer of training and human resource development programme has a variety of conceptual models which can be explored in the development of programmes (Al-Khayyat and Elgamal, 1997; Goldstein, 1993; Van Dyk et al., 1997). These models are extremely useful and enhance the chances of success in training design and evaluation. They are mainly characterized by the dominant use of the systems approach, are micro rather than macro and are conceptually rather than empirically based (Al-Khayyat and Elgamal, 1997).

Goal-based and systems-based approaches are predominantly used in the evaluation of training (Philips, 1991). Various frameworks for evaluation of training programs have been proposed under the influence of these two approaches. The most influential framework has come from Kirkpatrick (Carnevale and Schulz, 1990; Dixon, 1996; Gordon, 1991; Philips, 1991, 1997). Kirkpatrick's four stage model of evaluation is the one most widely known and used by trainees. Kirkpatrick's work generated a great deal of subsequent work (Bramley, 1996; Hamblin, 1974; Warr et al., 1978; Foxon, 1989). Kirkpatrick's model (1959) follows the goal-based evaluation approach and is based on four simple questions that translate into four levels of evaluation. These four levels are widely known as reaction, learning, behavior, and results. On the other hand, under the systems approach, the most influential models include: Context, Input, Process, Product (CIPP) Model (Worthen

and Sanders, 1987); Training Validation System (TVS) Approach (Fitz-Enz, 1994); and Input, Process, Output, Outcome (IPO) Model (Bushnell, 1990).

On the other hand, systems-based models (e.g. CIPP, IPO, and TVS) seem to be more useful in terms of thinking about the overall context and situation but they may not provide sufficient granularity. Systems-based models may not represent the dynamic interactions between the design and the evaluation of training. Few of these models provide detailed descriptions of the processes involved in each step. None provide tools for evaluation. Furthermore, these models do not address the collaborative process of evaluation, that is, the different roles and responsibilities that people may play during an evaluation process.

The model is seen as the "road map" or "planning process" for the designer. An effective model can help the user to understand what is essentially a complicated process and presents reality in a simplified and comprehensible form (Goldstein, 1993; Molenda et al., 1996; Van Dyk et al., 1997).

Two types of training and development models tend to dominate the literature. The first is based on a micro-view of training activities, while the second is macro-based. The former is used extensively, while the latter is seldom found in the literature. The micro-approach focuses on a particular training event, which analyses and explains its activities without explicitly accounting for environmental elements surrounding the training activities. The macro-model focuses on the internal and external organizational factors that impact on training activities (Al-Khayyat and Elgamal, 1997).

Evaluation changes from a complicated, elusive generality into clear and achievable goals if it is broken down into logical steps (Kirkpatrick (1996). According to four-level model (Reaction, Learning, Behaviour and Result) of Kirkpatrick a training programme can be evaluated on the basis of each level.

According to Bramley and Kitson (1994) evaluation at level 1 (Reaction) is extremely common. Goldstein (1993) supports the statement that while most trainers believe that initial receptivity provides a good atmosphere of learning.

Mann (1996) the reaction level measure is useful in providing information on how well run, the training sessions were and how much they liked, etc. A positive attitude does not predict how well participants are able to perform trained tasks. The reaction measure is not linked to subsequent performance and such a measure should be used with caution.

Kirkpatrick (1996) it is important to recognize that a favourable reaction to the programme does not ensure learning. According to Bramley and Kitson (1994) measuring learning at Level 2 is also problematic.

Bramley and Kitson (1994) mentioned that problems of evaluating at Levels 3 and 4 (Behaviour and Result) are not well understood, because not enough of this kind of evaluation is being done. Mann (1996) states that just as favorable do not necessarily mean that learning will occur in the training programme, superior training performance does not always result in similarly behavior in the work setting. Not more than 10 percent of industrial training expenditure actually results in the transfer to the job.

Hoyle (2006) behavioral objects are rarely even set by the trainers. Progress in the techniques of evaluation has been slow, though a good deal of research has been done.

Clark (2007) Collecting, organizing and analyzing level-four (Results level) information can be difficult, time-consuming and more costly than the other three levels, but the results are often quite worthwhile when viewed in the full context of its value to the organization.

There are many factors that make it extremely difficult to evaluate certain kinds of training programmes in terms of result. Therefore the training should be evaluated in terms of reaction, learning, behavior first and then results (Kitpatrick, 1996).

However, Goldstein (1993) contends that the systems model cannot be considered a magic wand for all the problems that were unsolved prior to its introduction. The systems approach does provide a model that emphasizes important components and their interaction. It is a useful tool that enables designers of instructional programmes to examine the total training process.

According Molenda et. al. (1996) design of instruction can proceed in an orderly and systematic way if the processes are carried out in a logical manner and the output of each set-up provides the input for the next. Erasmus et al (2000) supports this view and states that a systematic approach to the development of training is essential.

A systematic model have three phases namely: The needs assessment phase, the training phase and the evaluation phase. Erasmus et. al. (2000) define the first phase as an investigation, undertaken to determine the nature of performance problems in order to establish the underlying causes and the way in which training can address. Once the training needs have been determined and behavioural objectives stated, a training programme can be developed to achieve the stated objectives (Cascio, 1991; Erasmus et. al., 2000; Van Dyk et. al., 1997). At the end of training program it is vital to have formal evaluation and feedback to determine the effectiveness of the programme (Cascio, 1991; Van Dyk et. al., 1997).

Foxon (1989) there are three categories of evaluation techniques are the first is the interview. This can be of the trainer, trainee or trainee's superior. It may be pre, during or post training; structured or unstructured. Questionnaires can be used to evaluate at several levels, either qualitatively or quantitatively; as self assessment or objective measures.

Alipour et. al. (2009) 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.

Horwitz (1999) who states that the measure for evaluating effectiveness and effort in this regard appear to have increased. The first level of evaluation is seen as reliance on informal feedback from the line managers and trainees and formal course evaluations. The second level requires more systematic, objective measures for evaluating the transfer of learning from the classroom to the job. This is not only an essential criterion against which training effectiveness should be evaluated, but is also related to the concern raised by Patrick (1997) that much of the training conducted in organizations fail to transfer to the work setting.

6. BARRIERS TO EFFECTIVE TRAINING EVALUATION

According to Mann (1996) the question of what to evaluate is crucial to the evaluation strategy. The failure of training programme evaluations can be attributed to inadequate planning or design, lack of objectivity, evaluation errors of one sort or another, improper interpretation of results and inappropriate use of results and lack of sponsorships and lack of budget (Abernathy, 1999; Goldstein, 1993; Sims, 1993). Companies fail to do training evaluations correctly and thus do not obtain valid business or performance results (Sims, 1993).

Lewis and Thornhill, (1994) state that evaluation results that do not reflect positive changes or positive results may be a function of an incorrect decision to conduct training. This decision may have been taken higher in the organization's hierarchy.

According to Goldstein (1993) formative evaluations is used to determine if the programme is operating as originally planned or if improvements are necessary before the programme can be determined.

Exclusive emphasis on the design aspects of measuring training outcomes is rather narrow scope. The purpose of the evaluation, the content and the objectives of the training course and the characteristics of the employee and the work context all deserve first consideration and formative evaluation merits emphasis as an adjunct to summative evaluation (Sackett and Mullen, 1993).

Barriers may exist to the statistical power of evaluation designs. This creates a dilemma for the individual reading textbook treatments of training evaluation. However, in some situations, the evaluator has the flexibility to simply increase the sample size for an evaluation study in order to ensue adequate statistical

power; in others, the sample size is fixed ((Sackett and Mullen, 1993; Sackett and Yang, 1996).

Further considerations should be given to experimental designs. A pre-test/posttest no control design does at least permit the computation of a measure of chance; the problems with these designs are attributing the change to training or some other factors (Cascio, 1991). This procedure is used most in the evaluation of training. Such tests often fail to provide evidence of change as a result of training – not because of what is technically referred to as a true effect, but because of a number of experimental issues (Sadri and Snyder, 1995).

Some of the barriers to training evaluation can be overcome through good planning, while others are more difficult (Sims, 1993). Sometime evaluators are not trained in the principles and techniques of evaluation, which include the use of data-gathering instruments (Goldstein, 1993; Sims, 1993). There is a lack of objectivity in training programme evaluations that is not focusing on the components of the training situation as an integrated system (Bernthal, 1995; Sims, 1993).

However, many training programs fail to deliver the expected organizational benefits (Kurosawa et al, 2005; Black and Lynch, 2000, 1996). Having a well-structured measuring system in place can help one determine where the problem lies. Being able to demonstrate a real and significant benefit to an organization from the training one provides can help in gaining more resources from important decision-makers.

REFERENCES

- [1] Abernathy D.J., (1999). "Thinking Outside the Evaluation Box. Training and Development", **53 (2)**, 18–64.
- [2] Al-Khayyat R. and Elgamal M.A., (1997). "A Macro Model of Training and Development : Validation". *Journal of European Industrial Training*, **22 (3)**, 87–101.
- [3] Alipour M., Salehi M. and Shahnava A., (2009). "A Study of on the Job Training Effectiveness: Empirical Evidence of Iran". *International Journal of Business and Management*, **4 (11)**.
- [4] Axtell C.M., Maitlis S. and Yearta S.K., (1997). "Predicting Immediate and Longer-term Transfer of Training". *Personnel Review*, **26 (3)**, 201–213.
- [5] Bernthal P.R., (1995). "Evaluation that Goes the Distance. Training and Development". **49 (9)**, 41–46.
- [6] Black S. and Lynch L., (1996). "Human Capital Investment and Productivity", *American Economic Review*, **86 (2)**, 263–270.
- [7] Black S. and Lynch L., (2000). "What's Driving the New Economy: The Benefits of Workplace Innovation", *Working Paper No. 7479, National Bureau of Economic Research*, Cambridge.
- [8] Bramley P., (1996). "Evaluating Training Effectiveness". Maidenhead: McGraw-Hill.
- [9] Bramley P. and Kitson B., (1994). "Evaluating Training Against Business Criteria". *Journal of European Industrial Training*, **18 (1)**, 10–14.
- [10] Bramely P. and Newby A.C., (1984b). "The Evaluation of Training Part II: The Organisational Context". *Journal of European and Industrial Training*, **8 (7)**, 17–21.
- [11] Bristol A., Clancy D., Geethuis H., Geethuis S., and Holmes M., (2002). "Evaluation of Workplace Learning". *Journal of workplace Learning*, **14 (1)**, 11–18.
- [12] Bushnell D.S., (March, 1990). "Input, Process, Output: A Model for Evaluating Training". *Training and Development Journal*, **44 (3)**, 41–43.
- [13] Caliguri J., (1984). "The Evaluators Journal: A Qualitative Supplement to Program Evaluation". *Evaluation News*, **5 (4)**, 54–58.
- [14] Carnevale A.P., and Schulz E.R., (1990). "Return on Investment: Accounting for Training". *Training and Development Journal*, **44 (7)**, S1–S32.
- [15] Cascio W.F., (1991). "Applied Psychology in Personnel Management" (5th ed.). New York: Prentice Hall.
- [16] Clark D., (2007). "Instructional System Development – Evaluation phase. <http://www.nwlink.com/~Donclark/hrd/sat6.html#introevaluate>.
- [17] Dixon N.M., (1996). "New Routes to Evaluation. Training and Development", **50 (5)**, 82–86.
- [18] Donovan P., Hannigan K. and Crowe D., (2001). "The Learning Transfer System Approach to Estimating the Benefits of Training: Empirical Evidence". *Journal of European Industrial Training*, **25 (2)**, 221–228.
- [19] Erasmus B., Schenk H., Swanepoel B. and Van Dyk W., (2000). *South African Human Resource Management Theory and Practice* (2nd ed.). Cape Town: Juta.
- [20] Eseryel D., (2002). "Approaches to Evaluation of Training: Theory and Amp", *Practice. Educational Technology and Society*, **5 (2)**.
- [21] Fitz-Enz J., (1994). "Yes...you can Weigh Training's Value". *Training*, **31 (7)**, 54–58.
- [22] Foxon M., (1989). "Evaluation of Training and Development Programs: A Review of the Literature". *Australian Journal of Educational Technology*, **5 (2)**, 89–104.
- [23] Goldstein I.L., (1993). "Training in Organisations". Pacific Grove, Ca: Brooks/cole.
- [24] Gordon J., (1991). "Measuring the 'Goodness' of Training". *Training*, **28 (8)**, 19–25.
- [25] Hamblin A.C., (1974). "Evaluation and Control of Training". Maidenhead: McGraw-Hill.
- [26] Harper E. and Bell C., (1982). "Developing Training Materials: An Evaluation-Production Model". *Journal of European and Industrial Training*, **6 (4)**, 24–26.
- [27] Horwitz F.M., (1999). "The Emergence of Strategic Training and Development". *Journal of European Industrial Training*, **23 (4/5)**, 180–190.
- [28] Hoyle A.R., (2006). "Evaluation of Training – A Review of Literature". *Public Adm. Dev.*, **4**, 275–282.
- [29] Kirkpatrick D.L., (1959). "Techniques for Evaluating Training Programs". *Journal of the American Society of Training Directors*, **13**, 3–26.

- [30] Karkpatrick D., (1996). "Evaluation". In R.L. Craig and L.R. Bitten (Eds.). "The ASTD Training and Development Handbook". (4th ed. pp. 294–312) New York: McGraw-Hill.
- [31] Kurosawa Ohtake and Ariga, (2005). "Productivity, Training and Human Resource Practices – Disentangling Complex Interactions using a Survey of Japanese Manufacturing Organizations", *Interfaces for Advance Economic Analysis, Discussion Paper no. 062*. Kyoto University, Japan.
- [32] Lewis P. and Thornhill A., (1994). "The Evaluation of Training: An Organisational Culture Approach". *Journal of European Industrial Training*, **18** (8), 25–32.
- [33] Mann S., (1996). "What Should Training Evaluations Evaluate". *Journal of European Industrial Training*, **20** (9), 1–8.
- [34] McClelland S., (1994). "A Model for Designing Objective-oriented Training Evaluations". *Industrial and Commercial Training*, **26** (1).
- [35] McMahon F.A. and Carter E.M.A., (1990). "The Great Training Robbery". New York: The Falmer Press.
- [36] Molenda M.J., Pershing J.A. and Reigeluth C.M., (1996). "Designing Instructional Systems". In R. L. Craig (Ed). *The ASTD Training and Development Handbook*. (4th ed pp. 266–293). New York: McGraw Hill.
- [37] Phillips J.J., (1997). "A Rational Approach to Evaluating Training Programs Including Calculating ROI". *Journal of Lending and Credit Risk Management*, **79** (11), 43–50.
- [38] Phillips J.J., (1991). "Handbook of Training Evaluation and Measurement Methods". (2nd ed.). Houston, TX: Gulf.
- [39] Rae W.L., (1985). "How Valid is Validation?", *Industrial and Commercial Training*, **31** (1), 15–20.
- [40] Rajeev P., Madan M.S. and Jayarajan K., (2009). "Revisiting Kirkpatrick's Model – an Evaluation of an Academic Training Course". *Current Science*, **96** (2), 272–276.
- [41] Riech A.H., (1983). "Why I Teach". *Chron. Higher Educ.*, **9**, 27–31.
- [42] Sackett P.R. and Mullen E.J., (1993). "Beyond Formal Experimental Design: Towards an Expanded View of the Training Evaluation Process". *Personnel Psychology*, **46** (3), 613–628.
- [43] Sackett P.R. and Yang H., (1996). "Statistical Power and Cost in Training Evaluations: Some New Considerations". *Personnel Psychology*, **49** (3), 651–669.
- [44] Sadri G. and Snyder P.J., (1995). "Methodological Issues in Assessing Training Effectiveness". *Journal of Managerial Psychology*, **10** (4), 30–33.
- [45] Siedman B., (1979). "Missing from the Curriculum: The Other Side of Program Evaluation". *Evaluation News*, **12**, Sept., 22–23.
- [46] Sims R.R., (1993). "Evaluating Public Sector Training Programmes". *Public Personnel Management*, **22** (4), 591–616.
- [47] Smith A., (1999). "Training and Development in Australia". *International Journal of Training and Development*, **3** (4), 301–313.
- [48] Tziner A., Fisher M., Senior T. and Weisberg J., (2007). "Effects of Trainee Characteristics on Training Effectiveness". *International Journal of Selection and Assessment*, **15** (2), 167–174.
- [49] Van Dyk P. S., Nel P.S., Loedolff P.V.Z., and Haasbroek, G.D., (1997). "Training Management". Johannesburg: Thomson.
- [50] Warr P., Bird M., and Rackcam N., (1978). "Evaluation of Management Training". London: Gower.
- [51] Williams G., (1976). "The Validity of Methods of Evaluating Learning". *Journal of European Industrial Training*, **5** (1), 12–20.
- [52] Worthen B.R., and Sanders J.R., (1987). "Educational Evaluation". New York: Longman.