DOI: 10.5897/AJBM11.542

ISSN 1993-8233©2011 Academic Journals

Full Length Research Paper

Training needs assessment practices in corporate sector of Pakistan

Syed Kamran Sherazi, Irfan Ahmed*, Muhammad Zubair Iqbal, Muhammad Umar and Kashifur-Rehman

Igra University, Islamabad, Pakistan.

Accepted 12 July, 2011

The purpose of this study is to investigate the manager training needs assessment techniques adopted by Pakistan corporate sector, especially in Islamabad and Rawalpindi region, and its impact on training outcomes. The finding related to TNA comprehensiveness was disparate because majority of the organization are using only one level or personal level analysis for their managers training needs assessment. So, it has negative impact on the outcomes of training. The study revealed that training in Pakistan is mostly subjective based. Objectivity of the training is less emphasized during their training session. These desperate results are basically due to lack of comprehensive managerial TNA approach used by corporate sectors in Pakistan before conducting training program. The objective of our study is to mention the drawback which corporate sector is facing regarding TNA and training outcomes and also relate the TNA comprehensiveness to effective outcome of training.

Key words: TNA, managers training, katpatrick model, OTP model.

INTRODUCTION

In fact, training is a major tool for the development of human resource. Companies are spending millions of dollar in training for developed human asset. But, to what extent are these training effective for developing the employee? It's a question for the companies to judge the accuracy, reliability and effectiveness of the training program. Cheng and Ho (2001) suggest that training is a costly investment and this is even more important taking into consideration that only 10% of total training expenses could lead to positive transfer of training; it means only 10% changes occur in employee efficiency and effectiveness at workplace after training. Many theories of training effectiveness only focus on factors relating to the process of training, such as the design of the training and implementation of training program. But less attention is paid in the literature that focuses on level of managers TNA, whether it is in the form of organization analysis, personal analysis or task analysis. The best approach for effective outcomes of training for organization, especially in third world country for TNA approach is totally neglecting. Mostly, TNA method is conducted overseas. The studies of Malaysian companies suggest that its main reason is cultural and national differences among west and south Asia regarding TNA practices (Poon and Rozhan, 2000; Zakaria and Rozhan, 2000).

Another researcher, Arthur et al. (2003) reported that only a few studies on training, especially regarding TNA have been investigated and available in literature. Agnaia (1996) reported that performance appraisals system is one of the major TNA techniques which is adopt mostly Libyan companies. Performance appraisal system is also often considered the most common and widely used method in manager TNA (Brown, 2002; Osborne, 1996). Abu-Doleh (2004) investigate that much of Jordanian Private and Public organization emphasis was placed on the individual analysis and functional analysis rather than to organizational analysis. Not surprisingly, no single organizations in the two sectors are using all the three approaches simultaneously for conducting their manager TNA. Its mean any call for training that is undertaken without a watchful analysis of whether it is needed, or not required, is probable ineffective and a waste of money and resources of the organization. Abu-Doleh and Branine (1996) investigate that no single firm in Jordan

^{*}Corresponding author. E-mail: irfisam@gmail.com.

corporate sector is evolved to conduct their manager TNA on the basis of three approach of OTP model. They also found that all public organizations 100% and the great majority of the private organizations 83.3% which did regularly assess their managers TNA needs in the absence of organizational analysis.

Another interesting fact which is considerable is that a lot of research are being conducted to find out the different aspect of TNA, like training evaluation and Training analysis (Mathews, 2001), a technology-based approach to training needs analysis (Grant et al., 1997). TNA comprehensiveness and organizational effectiveness (Saari et al., 1988), perception of manager training and development needs and their view on future prospective of TNA (Stewart and Waddell, 2003), and obstacle for conducting Training needs assessment (Al-Khayyat, 1998) but there is no particular study investigated the impact of three level of TNA or fully systematic manager TNA with relation to effective training. We believe that after literature review, if organization especially HRD personnel are adopted three level of TNA can be more effective for a better result of training outcomes instead of conducting only on level of analysis.

The literature reveals that majorities of companies rely their manger TNA on the basis of performance gap or on the basis of personal analysis. But there is a bigger flaw or in-advocacy for conducting manager TNA on the bases of performance appraisals, because performance appraisal is totally dependent on the appraiser. This may be that appraiser show bias or favor which results in a waste of time, and money on training. Many organizations lack proper job description system of a particular job, in this case, the performance gap could be difficult to measure, and again, results in conducting training on the bases of task analysis is poor. In many cases, the training is not a solution for employee; maybe the employee's motivation level is low due to lack of proper compensation or other work place environmental effect or organization does not provide the necessary input to the employee to perform their job. Here, this special case relying on only one TNA approach is not sufficient for effective training. There is need for analysis at macro level or analysis at organizational analysis to cater for the organizational problem regarding training and development of employees. Majority of previous researches revealed that there is no single organization in private sector which used all the three approaches of TNA or comprehensive TNA techniques simultaneously, conducting for assessing their manager training needs. Now, the study objectives are to find out the type of manager TNA approach organizations in Pakistan, especially the organization situated in federal and Rawalpindi territory that are widely conducting manager TNA in their organizations. Secondly study also find out the relation between comprehensive and detail analysis of Manger TNA and its effect on outcomes of the training. This study examines the effective outcomes of the training with the

relation of comprehensive level of TNA.

LITERATURE REVIEW

Training need assessment

The model for training needs analysis was first presented by McGhee and Thayer in 1961. The OTP three level idea of needs assessment is considered the foundation framework for needs assessment in the academic literature (Holton et al., 2000). Undertaking efficient needs assessment before starting training program has been recommended to organizations for almost 40 years. This model of organization, task, and person analysis has been cited and described in training and industrial/ organizational psychology texts. Further studies revealed that needs assessment (or needs analysis) is the process of determining the organization's training needs and seeks to answer the question of whether the organization's needs, objectives, and problems can be met or addressed by training' (Arthur et al., 2003). Training need assessment is a critical part of the training system because it provides data to determine who is to be trained, what training programs are needed, and how the results of training programs are to be evaluated (Walter and Moshe, 2000). So, in extreme cases, inadequate or incomplete training is even likely to promote performance deficiencies (Goldstein, 1993). Therefore, any call for training without a careful analysis of whether training are needed, or not required, the solution for the problem is possibly ineffective and a waste of money and resources of organization (Abu-Doleh, 1996; Branine, 1996).

In sum, training needs assessment is considered as one of the fundamental prerequisites of an effective training program. Abu-doleh (2004) found that conducting a full systematic training needs analysis and getting the help of external training consultants in the analysis of manger TNA were not common practice in the investigated organizations. He also found that the skills inventory is the most extensively used formal practice for assessing manager TNA. Brian et al. (2001) investigate that Finnish organizations are likely to pay more attention toward customers and work groups, when observing training needs. Wilson (1999) suggested the conventional and simpler methods such as interviews, questionnaires, observations, and focus groups to gather information for HRD needs analysis. Gilley et al. (2002) suggested the more analytical method such as is/should analysis, critical analysis and root-cause analysis methods to gather information. Needs analysis is viewed as a process in which the HRD needs of both the employees and the organizations are identified in order to address the gap between employees' abilities and performance and the organization's requirements. Hence, the four levels of identification, namely, 1) organizations' overall performance; 2) the departments' requirements:

3) individual employees' skills, knowledge and attitudes; and also 4) employees' jobs and functionalities, were examined (Haslinda, 2009).

Salas and Cannon-Bowers (2001) have proclaimed the importance of training at strategic level. According to him, training is a fundamental component of human resource development (HRD). But only providing training to employee is not sufficient, it is necessary to provide the relevant training which actually fulfills the requirement of the employee, so it is called effective training. Training effectiveness, as defined by Baldwin and Ford (1988), is effectiveness of training, which means to what extent the employees of the organization acquired new skill and also apply the new skill at their work place or transfer their acquired knowledge into the job. If the relevant training needs are identified and addressed, then the training leads to the desired results. Eerde et al. (2008) investigates that the reasons why training program does not give the desired effect may be that the training does not suit the needs of the organization. Despite all these things related to training need assessment, organizations still spend US\$ 200 billion annually on training and development. DeSimone et al. (2006) agreed that training effectiveness is "relative," but only to the extent that there is no single measure of training success such as productivity or job satisfaction. However, he suggests that ill-conceived or poorly executed programs reflect more than incompetence or unwillingness. A systematic analysis of needs before making decisions about training appears to in a result of defective's outcome of training. In other words, it is worth the effort to consider the question why training is needed, what should be the content of the training to fulfill this need and to whom it should be provided (Eerde et al., 2008).

Training evaluation and effectiveness

The training evaluation literature reveal that training program outcomes are a number of dimension and these outcomes require multiple criteria to be evaluated (Cascio, 1987; Landy, 1989). There are four main evaluation models or frameworks available in literature through which training outcome can be measured: (i) Kirkpatrick (ii) the Bell system, (iii) Parker, and (iv) CIRO. However, Kirkpatrick's assessment model is one of the most commonly used by many organizations and researchers as well (Hale, 2003). The model was presented by Kirkpatrick in 1969. This model is considered the best approach to measure the effectiveness of training. There are four stages or four levels to be considered when evaluating training effectiveness. The first two levels, reaction and learning, is considered to determine only the subjective nature of the training, whereas, the other two levels, behavior and result, measured the objectivity of the training. Reaction measures are obtained via verbal comments or questionnaires. Typically, reaction measures assess the impressions of participants and provide little

meaningful information regarding training effectiveness. Learning measures attempt to evaluate how much information was learned by participants and usually involve written knowledge or performance tests. The reaction level measures whether people are happy with the training inputs or not satisfied (Hale, 2003). The learning level of Kirkpatrick model answers the following question, "what do people remember from the training program; do they acquire the knowledge and skill and what extent they gain from training program?" (Hale, 2003). This measurement is made through special standardized tests at the end of the program, such as pre, post, paper and pencil tests, skill practice, workshops and job simulation. The behavior level addresses the issue of "do people use what they know at work?" (Hale, 2003).

Finally, the last two level of Kirkpatrick model, results level determines "what are the outcomes of applications on the job over a period of time?" (Hale, 2003). This level of evaluation focuses on the impact of behaviors change on the organization's performance. Because changing an employee's behavior and attitudes is not the final objective of T and D, the end results should include important elements such as, what extent productivity is improved, can training program increase the quality of services, the efficiency of the organization, etc. Kirkpatrick (1959, 1960) suggested that behavioral and results measures are useful indicators of actual knowledge transference to job specific performance. Examples of objectives measures of training effectiveness include: increase in profitability of organization and productivity. decreased customer complaints, costs, turnover and absenteeism. However, both subjective and objective measures are useful for a complete understanding of the effectiveness of training program but in majority, the subjective measures have been utilized by organizations (Alliger and Janak, 1989; Saari et al., 1988).

RESEARCH METHODOLOGY

Sampling

In order to investigate our research query, we select twenty important organization situated in Islamabad and Rawalpindi region. Total sample of our questionnaires was 120. 60% respondent organizations were selected form services sector and 40% from manufacturing sector. The study emphasized more to services sector because in service industry, most workers are considered as knowledge economy worker. They easily agree to give an immediate and better response for the questionnaire. The selected population of the study was mostly at managerial level from private sector and officer cadre level from public sector. From private sector, the respondents were HR managers, executives HR, HR personnel, training managers and assistant training managers. Whereas from public or government organization, the respondents we included in our study were directors, deputy directors, assistant directors, G.M, training directors and assistant training directors. Over a period of two months in late 2010, the study visited twenty organizations before getting prior appointment and we were careful not to distribute our questionnaires or throw it to the managers. We requested per day, five to six officers or managers to give us their precious one and half hour time for participating in this study. The

Table 1. Respondents by industry sector.

Industry	Percentage		
Telecom sector	16.6		
Govt. Authority and commission	33.3		
Construction sector	8.3		
Textile sector	8.5		
Ghee, oil and gas	16.6		
Insurance sector	5		
Cement sector	8.3		
Beverage sector	3.3		
Total	100		

study collected data through self administrative questionnaire as well as additionally face to face meeting was made for the purpose of accuracy and reliability of data. During conversation with managers, they were also excited to share their experiences related to TNA techniques and practical practices especially in Pakistani scenario and its consequences on training. The sample of the study from different organizations located in Islamabad and Rawalpindi territory is listed in Table 1.

Variables measurement

Background variables

The study requested, for background analysis, variables such as the nature of the enterprise either privately held or public organization, total number of years organization is operating in their particular industry and number of full time or permanent employees currently working in organization.

Level of TNA

The study measured the level of TNA undertaken in the organization prior to decisions made on training based on the OTP model presented by McGhee and Thayer in 1961. Eerde et al. (2008) used this scale for measuring the TNA comprehensiveness. We adopted this scale from Rossilah and Hishamuddin (2007) study in Malaysian companies on 5-point likert response scale ranging from '1 = Never' to '5 = Always' to assess the more frequent techniques of TNA adopting by Pakistani corporate sector on each of the three levels.

Training effectiveness

Kirkpatrick's four-level evaluation model criteria are mostly used for measuring effectiveness of training by researchers. The study adopted this scale from Atiyyah (1993), studying training evaluation in Libyan banking sector which was previously adopted from the model idea of Kirkpatrick. This model is assessed with a five point likert scale ranged from 1 = to a very small extent to 5 = to a very great extent.

Procedure

Three major areas were covered in the questionnaire. The first section of the instrument were dealings with organizational and

employees demographics. The data is put in MS excel sheet for computing the mean of perception of mangers and officer regarding TNA practices and also perception regarding training effectiveness in questionnaire. The means of different techniques used in TNA, prior to training programs started, are listed in Table 2, whereas, the third section required managers and officers to rate the perceived importance and frequency of usage for specific methods of subjective and objective training effectiveness measurement on reaction, learning, behavior, and results. The respondents rated their perception on a five point Likert scale. The perception of managers and officer regarding training effectiveness are mentioned in the form of mean in Table 3.

FINDINGS AND DATA ANALYSIS

Regarding manager training needs assessment, Table 2 shows that in a third world country, which is struggling for development, the TNA techniques are practiced on ad hoc basis. Mostly, organizations are not much familiar with different kinds of TNA practices and techniques. It is interesting to note that assessing managers training needs, majority of investigated organizations is not enough to claim that they are really engaged in effective TNA analysis. The same finding was observed by Abu-Doleh (2004) in Jordan companies. Here in Pakistan, in the corporate sector, the respondent gives almost the same result .The techniques which are used in first block of the table in organizational analysis level are not commonly or specifically developed for TNA techniques. Mostly, it is used for strategic management. However, the use of these techniques to identify organizational training needs were mentioned and or discussed by several authors (Chiu et al., 1999; Craig, 1994).

Perceived training needs assessment practices

The respondents have a perception that the organization is not paying much attention toward the organization level analysis. 46% responded that the organization never adopt this SWOT analysis techniques for conducting manager training needs. 35% employees responded that the organization also not involved for conducting the manger TNA through PEST analysis techniques. This

Table 2. Techniques used in conducting manager training need assessment (mean).

Technique	N (%)	R (%)	S (%)	F (%)	A (%)
Organization analysis					
SWOT Analysis	46.7	34.2	15.8	3.3	0
Organizational scanning	42.5	37.5	14.2	5.8	0
PEST analysis	42	35.8	17.5	4.2	0
Operational analysis					
Task / KSA analysis	0	4.2	8.3	60	27
Competency analysis	39.2	53.3	7.5	0	0
Job analysis	65.2	28.3	6.5	0	0
Skill inventory	22.5	55	22.5	0	0
Individual analysis					
Performance appraisals	0	0	0	18.3	81.7
Critical incident	0	37.5	61.7	0	0
Diary analysis	47.5	52.5	0	0	0

Indicators: SWOT: strength, weakness, opportunities, thereat; PEST: political, economical, sociological, technological; N: never. R: rare. S: seldom. F: frequent.

Table 3. Training effectiveness analysis on Kirkpatrick model (mean %).

Measurement level for training effectiveness	To a very small extent	To a small extent	To a considerable extent	To a great extent	To a very great extent
Perception of trainee about material					
and facilities of training					
Material and facilities of training	0	0	10.5	51.7	45
Methods and content of training	0	0	2.5	63.3	34.2
Acquisition during the training progr	ram				
Attitude and abilities	0	0	5.8	54.2	40
Skills and knowledge	0	0	4.2	60	35.8
Change occurs after training program	m				
Performance increase	40.8	54.2	9.2	0	0
Impact on effectiveness and efficiency of employees	40.8	45	14.2	0	0
Effect on organization performance					
Cost saving and impact on profit	36.7	54.2	9.2	0	0
Quality improvement	25	47.5	27.5	0	0
Customer satisfaction	41.7	58.3	0	0	0

Subjectivity measure of training program: 1 and 2 levels; Objectivity measure of training program: 3 and 4 levels.

ratio mention that the organizations in Pakistan sometimes involve in preparing training program for their employee due to changes in political and economical situation of Pakistan, but contrary to fact, this method is not so common. Majority of respondents using this technique actually own their HRD department, because large organizations have enough resources in term of finance

and human assets which support them to conduct comprehensives managers TNA techniques before conducting training program. Thus, the major and only essential source of information in the selection of individuals to be trained was the judgment of performance appraisal. Various sources were considered moderately important, however, discrepancy was mostly observed for

training through performance evaluation. The data analysis reveal that majority of the organizations (81%) assess manager TNA through performance appraisal system. Majority of the organization also focuses on to conduct TNA at personal level. More then half of the organization (60%) in large size organization also pay attention toward the task or operational level analysis. But very few (3.3%) organization focus on SWOT and, 4.4% focus on PEST analysis at organizational level TNA technique. Its means no single organization in private as well as in public sector used the organization analysis techniques, frequently or always. And surprisingly, no single organization involved or engage in three level TNA or comprehensiveness TNA practices before conducting training program which is actually recommended by literature for better outcomes of training.

Perceived training effectiveness

The results of study for effective outcome of the training are mentioned in Table 3. The first level of Kirkpatrick model which is also called a behavioral measure of training, the respondents rated very high at 51.7%(to a great extent) and 45%(to a very great extent) for training material and facilities provided by organization. The employees were also highly satisfied regarding method and content of the training program given by their organization. Whereas, the question regarding acquisition of knowledge and skills through training program, the respondents rated their satisfaction level at 54% (to a great extent) and 45% (to a very great extent). But in the last two level of Kirkpatrick model, which is also called a result measure or objectivity measure of training, the respondents were not much satisfied. 45% (to a very small extent) respondents rated the change occur after training program. They also rated below changes at 58% (to a small extent) on their effectiveness and efficiency and customer satisfaction at third level of training evaluation model. Finally, at last level of Kirkpatrick, no single respondent rated the organization performance enhancement after training at "to great extent or a very great extent". This shows a bigger flow and a question mark on the effectiveness of training program.

DISCUSSION

The results of this study provide some disparate findings in terms of effective outcomes of training. The reason is that the organizations in Pakistan only focus on conducting the personal analysis TNA before starting training program. As a result of not engaging in comprehensive TNA approach, the result of the training program is poor and considered a subjective nature. If we analyze the ratio mentioned in Table 3, the first two level of Katpatrick model were considered as a subjective whereas, the rest

of the two final levels are considered as objective level. The result showed that lack of comprehensive TNA approach gives less result and does not meet objectivity criteria of training program. No single respondent have perception that the organization achieved the training objectivity in a real scene. Through the conversation with managers, most organizations in Pakistan are not well aware of the Kirkpatrick model which is used for the evaluation of training. Most organizations achieve the subjectivity of the training instead of forcing on the objectivity of the training. Many managers respond that training is a long term investment. Thorough analysis of TNA or comprehensive TNA approach leads to better result of training outcomes; because comprehensive TNA starts from micro level to macro level or TNA scanning start from organizational level and come to personal level. If the problem is not at organization level, then it is a possibility that the problem may be at operational or task level and again, if the problem is not at task level. the training manager comes up at personal level. Through this comprehensive approach, organization can appropriately assess the actual need of the training at managerial level and obviously, it has a good impact on the outcomes of the training. Simply, when the TNA comprehensiveness increases, the last two levels of Kirkpatrick model objectivity will also increase and a lack in TNA comprehensiveness results in a low achievement of training objectivity.

RECOMMENDATIONS

In this study, there are three variable TNA comprehensive, organization size and effective outcome of training. But in future, the research can explore more regarding TNA comprehensiveness and its impact on training effectiveness; like in OPT model, what kind or what level greatly influence the training outcome. It is possible for researchers to find newer technique for assessing the TNA for managers. Some other environmental effects, like social and economical situation which are varying geographically, can be another possible variable which researcher can add in the future. Like Pakistan where the political instability and uncertainty has much influence on the organization. So, according to the political situation, there is need for changing TNA technique with the circumstances of Pakistan. The study has already mentioned in the background that organizations used performance appraisal for assessing manager training needs. But it has a drawback due to appraiser biased behavior. So, it is important for Pakistan corporate sector to go for comprehensive TNA rather than focus only on personal analysis which is totally dependent on appraiser evaluation.

In the future, researchers can explore a longitudinal study for more appropriate analysis of training needs assessment of managers. This may give a direction for judging better technique of TNA, especially in Pakistan circumstances. This study could not identify the best TNA technique, study only explore the TNA current practices and its impact on the training outcome. In future, the study can explore the best technique of TNA which is more suitable in Pakistani scenario.

REFERENCES

- Abu-Doleh J (2004). Management Training and Development Needs Assessment Practices in the Jordanian Private and Public Sectors: Integrated or Isolated. J. Trans. Manage. Dev., 9(2): 107 - 121.
- Agnaia AA (1996). Assessment of Management Training Needs and Selection for Training: The Case of Libyan Companies. Int. J. Manpower, 17 (3): 31-51.
- Al-Khayyat R (1998). Training and development needs assessment: a practical model for partner institutes. J. Eur. Ind. Train., 22:18-27.
- Alliger GM, Janak EA (1989). Kirkpatrick's Levels of Training Criteria: Thirty Years Later. Pers. Psychol., 42: 331 - 342.
- Arthur W Jr., Bennett W Jr., Edens PS, Bell ST (2003). Effectiveness of Training in Organizations: A Meta-analysis of Design and Evaluation Features. J. Appl. Psychol., 88: 234-245.
- Atiyyah H (1993). Management Development in Arab Countries: The Challenges of the 1990s. J. Manage. Dev., 12(1): 3-13.
- Baldwin TT, Ford JK (1988). Transfer of training: A review and directions for future research. Pers. Psychol., 41: 63-105.
- Brown J (2002). Training Needs Assessment: A Must For Developing
- An Effective Training Program. Pub.. Pers. Manage., 31(4): 569 79. Cascio WF (1987). Appl. Psychol. Pers. Manage. (3rd ed.) Englewood Cliffs, New Jersey: Prentice Hall, Inc.
- Cheng EWL, Ho DCK (2001). A review of transfer of training studies in the past decade. Pers. Rev., 30: 102-112.
- DeSimone RL, Werner JM, Harris DM (2006). Human resource development (4th ed.). Orlando FL: Harcourt.
- Eerde VW, Tang KC, Simon, Talbot G (2008). 'The mediating role of training utility in the relationship between training needs assessment and organizational effectiveness. Int. J. Hum. Resour. Manage., 19(1): 63 –73.

- Gilley JW, Eggland SA, Gilley AM (2002). Principles of Human Resource Development. (2nd ed) Cambridge, Perseus Publishing.
- Goldstein IL (1993). Training in Organizations: Needs Assessment, Development and Evaluation (3rd ed.), Monterey: Brooks/Cole.
- Grant C, Scott T, Mctear M (1997). A Technology Based Approach to Training Needs Analysis. Innov. Educ. Teachnol Int., 34(3): 188 -1
- Hale R (2003). How training can add real value to the business. Ind. Commer. Train., 35(2): 49-52.
- Haslinda A (2009). Training Needs Assessment and Analysis: A Case of Malaysian Manufacturing Firms. Eur. J. Sci. Res., 37(3): 351-360
- Holton E, Bates R, Naquin S (2000). Large scale Performance driven Training Needs Assessment: A Case Study. Pub. Pers. Manage., 29(2): 249-268.
- Mathews BP (2001). Quality Training: Needs and Evaluation-Finding from a European Survey Total. Qual. Manage., 12 (4):483---490
- McGhee W, Thayer P (1961). Training in Business and Industry. New
- Poon JML, Rozhan (2000) Management Training and Development Practices of Malaysian Organizations. Malay. Manage. Rev., 35(2): 77-84.
- Rossilah J, Hishamuddin Md.Som (2007). Training Needs Analysis: Practices of Top Companies in Malaysia. Int. Rev. Bus. Res., 3(3): 162-175.
- Saari LM, Johnson TR, McLaughlin SD, M.Zimmerle D (1988). A Survey of Management Training and Education Practices in U.S. Companies. Pers. Psychol., 41: 731-743.
- Salas E, Cannon-Bowers JA (2001). The Science of Training: A Decade of Progress. Annu. Rev. Psychol., 52: 471-499.
- Walter, Moshe M (2000). A Comparative Perspective on Executive Development: Trends in Eleven European Countries. Pub.. Adm., 78(1): 135-153.
- Wilson JP (1999). Human resource development. Learning and training for individuals and organizations. London, Kogan Page.