ABSTRACT: In economic terms, training projects represent a major outlay for many corporations. In spite of the growing need to evaluate the cost-effectiveness of training programs in organizations, such cost-benefit analyses are rarely conducted. Moreover, the extant conceptual approaches and mathematical formulas typically used for this purpose produce inaccurate estimates of the economic utility of training programs for organizations.

An amended approach to this procedure is elaborated and its benefits demonstrated. The proposed model regards any potential plan as an investment project that should be evaluated in a similar way to the assessment of other investment options. Thus, it is recommended that a training project be considered only if its potential real, post-tax rate of return exceeds the real, post-tax cost of capital to the firm, subject to the unique features of investment in human capital. This process could improve the potential financial benefits to the firm, from investment in training.

Global competition, technological advances, demographic shifts and diversity in the work place are all exerting increasing pressure on organizations to improve the skills of their work force. In economic terms, training represents a major outlay for American organizations (Carnevale, Gainer & Villet, 1990; Cascio, 1989, 1992; Noe, 1986), with an estimated annual cost of 100 billion dollars in 1996 (Saks, Haccoun & Laxer, 1996). However, only few studies have dealt with evaluating the effectiveness of training (i.e., the level of success of a training program)
in a rigorous scientific manner (Tracey, Tannenbaum & Kavangh, 1995; Tziner, Haccoun & Kadir, 1991).

Surprisingly enough, those methods that do attempt to determine training effectiveness rely heavily on employee responses (Brinkerhoff, 1989; Tannebaum & Yukl, 1992). As Tannebaum and Yukl (1992) state, reactions cannot serve as the sole criterion of effectiveness. Kraiger, Ford and Salas (1993) suggest that learning may be evidenced by changes in cognitive, affective, and skill capacities, so that an examination of training effectiveness should target changes in all these areas.

Cognitive-based outcomes of the training process entail a meaningful change in: (1) the level of declarative knowledge; (2) the acquisition of meaningful structures for organizing knowledge; and (3) the development of superior cognitive strategies. Affectively-based learning outcomes refer to changes in stated attitudes and in motivation in the desired direction, such as the trainee recognizing the value of the acquired knowledge/skills, attraction toward the object of learning, increased self-efficacy, and/or willingness to exert effort in order to implement the acquired knowledge/skills (assuming these outcomes are attributable to the training process). Skill-based outcomes involve the extent and automaticity with which trained skills, attitudes and behaviors are exhibited after training has been completed. Thus, if evaluation is conducted with respect to cognitive, affective and skill-based outcomes, it is likely to produce a more accurate estimate of whether training objectives have been achieved (i.e., the training program has proved effective).

Instrumental as this approach may be to assessing training effectiveness, it still does not tackle the issue of the cost-effectiveness of training programs. Although there is a growing awareness of the importance of this consideration in promoting sound management of human resources, systematic cost-benefit studies of training are hard to find. This may very well be attributable to the lack of a sound conceptual and computational framework.

Although Cohen (1985) addressed this problem, the conceptual model and ensuing computational formula he advanced are unfortunately deficient. In fact, his model contains only an incomplete measure of training cost-effectiveness, incorporating solely: (1) the productive value of employee training less earnings paid after training; (2) the cost of training; and (3) the length of time the trainee will continue working for the company after training is completed.

In addition, Cohen (1985) also ignores the following important considerations:

(a) Relative profitability, i.e., the return on the training project as compared with the cost of capital (money) to the employers. As the cost of resources may differ substantially from one firm to