TO EVALUATE TRAINING IMPACT IN HEALTHCARE:
AN ACTION-RESEARCH PROJECT ORIENTED TO A SUSTAINABLE MODEL

Sara Cervai[1], Gabriele Blasutig[1], Marianna Ginocchietti[1], & Antonella Bologna[2]
[1]Department of Social and Political Sciences, University of Trieste, (Italy)
[2]Training Center ASUGI, Trieste (Italy)

Abstract

Organizations in general, and particularly those in the healthcare sector, need to have evidence of the added value of training; the few existing tools and models may be too complex and time-consuming and are therefore usually dismissed or not used properly.

The aim of this presentation is to introduce a sustainable model to analyze the impact of training in the healthcare sector.

The TIE-H model (Training Impact Evaluation - Healthcare Model) has been created through a process of Action Research intervention involving the training referents of a large Italian healthcare organization in a four year-long process, and was tested on over 350 training courses. The main feature of the model is its focus on the training impact starting from the planning phase. The first step consists of classifying training based on three impact criteria; afterword deploying goals, indicators and timing of evaluation. The first criterion refers to the impact area: individual, team, organization; the second one refers to the added value (efficiency/effectiveness, quality, engagement and culture) and the third one refers to the degree of expected change (normative, improvement, strategic and disruptive).

At the end of each training, following the defined timing, indicators are monitored to define the impact of the training, its expected and un-expected results.

In addition to providing a new impact evaluation process, the TIE-H model has proved to be effective since the planning phase, making the training project process closer to the training aims, allowing for an easier identification of expectations of training results, thus acting as a guideline for training planning.

Keywords: Training impact, training evaluation, healthcare employees, action research.

1. Introduction

An interesting editorial of Industrial and Commercial Training (2004) reports that *"Some 70 per cent of organisations have no formal measurement practices to assess the impact of training employees on the performance of their business"*, and the situation does not seem to have changed much during this past decades.

Training and Personnel Development is nowadays a strategic area of any organization (i.e. Noe, 2010), and is of crucial value in the healthcare sector where the training of employees refers both to the continuous education of the single health professional, both to the development of the whole organization. Moreover, the training in healthcare sectors is one of the richest chapters compared to other organizations. Therefore, as pointed out by Kennedy et al (2014), it is crucial to know on which level a training intervention has achieved its objectives. This knowledge can only be collected through effective training evaluation (Jasson, 2017).

2. State of the art

The assessment or evaluation of Training Impact lies in the wider topic of Training Evaluation and Training Effectiveness. One of the most cited and criticized model remains the Kirkpatrick model (Kaufmann et al., 1996) with its theoretical four levels simplified in an implementation of the first two. This model consists in evaluating the training on the basis of reaction, learning, behaviour and results; the author stated they are strictly correlated so that a positive result in the first level brings to a positive result in the second and so on. Although a large number of empirical studies refuted this hypothesis, it happens

that for very practical reasons -in saving time and money- the companies declaring to use this model applying only tools to monitor trainees' satisfaction and the acquisition of competences at the end of the training. It consists in a coarsy simplification that does not permit to assess the impact of a training.

In scientific literature, several models on training evaluation have been developed. In one of the most recent and complete review elaborated by Perez-Soltero et. al. (2019), in the 35 models under review, the training evaluation has been considered based on aim (e.g. formative, summative), actors (learners/stakeholders), timing (short/long time) and tools (questionnaire/ROI).

An area dedicated to training impact appears in most of the models, even named with a different label. For example, the CIRO model (Warr & Peter, 1970) and IPO Model (Bushnell, 1990) contain "outcomes"; CIPP Evaluation models (Madaus, Stufflebeam, Scriven 1983) considers Product; the Motivational Influences Training Effectiveness (Noe, 1986) includes Trainees' change of behaviour/in performance. The Impact area is present also in: the Three-Stage Model for Assessing and improving training (Attia et al. 2005) with two levels of Impact – Individual and Collective; the Griffin approach (2012); the eQvet-us training outcome evaluation model (Moldovan, 2016) and, naturally, in the models aimed at calculating ROI (Phillips, 1996, Wang et al., 2002).

Considering the healthcare sector, most of the evaluation models are dedicated to the pre-service training (university, technical schools), and they are mainly useful for a continuous improvement process and for a competence assessment, having the students as focus of the evaluation. For example, the Outcome-based evaluation model (OBE), where the training outcome was defined by Davis et al. as "a culminating demonstration of learning: it is what the student should be able to do at the end of the course" (2007, p.717). And this approach is not helpful for analyzing the impact of training inside organization.

One of the few models tailored for healthcare organizations, considering training impact as part of the evaluation, has been developed by Cervai and Polo (2015). The main feature of the Expero4care model is the comparison between stakeholders' expectations and perceptions, also in term of expected/perceived impact.

Although there are dozens of researches reporting case studies on the analysis and measures of the impact of training in healthcare (1805 papers in EBSCO database containing the words impact and training in the title), however none of them - at author's best knowledge – present a theoretical model to guide the healthcare organisation in the evaluation of the impact of training, that is the rational of the present paper.

3. Aim and objectives

Considering the need, on the one side, for healthcare organisations to monitor training impact as part of the standard training evaluation process and, on the other side, for scientific literature to present a general model that can be extended to and available for different organisations, we conducted a 4 years Action-Research with an Italian healthcare organisation, aimed at developing and testing a new model. The authors' intentions were to render this model suitable and sustainable (robust, as stated the Griffin theoretical model, 2012) for the single organization, and exportable to other healthcare organizations, too.

4. Research design

In the following part, we describe the Action Research process, starting from a description of the context, the rational for the choice of the AR approach, the description of the process, the results.

4.1. Context

A local health district in North-Eastern Italy approached the academic unit requesting support in the evaluation of the impact of training provided to the personnel. The public healthcare organisation consists of 2 hospitals, 11 territorial departments 4,128 employees in healthcare professions (around 3,000 involved in training activities) and administrative staff (around 1000). In 2019, the budget for training courses amounted to 500Keuro, with 7,420 hrs of training provided.

In the Training Center there are 10 employees (1 manager, 6 training designers, 3 administrative staff), moreover a wide network of referents, almost one in each department/service, act as the operational arm of the Training Center in most peripheral services. This network includes physicians, nurses and technical health professionals – around 40 people with a formal role of Training Referent. They focus on analysing training needs and providing the Training Center with the features of the training course requested by the facility itself in order to build the Yearly Training Plan (decided upon by the general management and approved at a regional level). Training referents support the Training Center in tailoring a training course once it has been approved. In short, they link the central administration with each branch, service and department in hospitals and heal<th services.

After a first round of negotiation involving academic researchers and representatives of the Training Center, it becomes evident that it was crucial to involve the training referents in the process of training impact evaluation. Academic researchers proposed an Action Research model aimed at generating a sense-making process in building a model to evaluate the impact of trainings in the organisation.

4.2. Sample

The project team consisted of three academics, the head manager of the training center and 32 training referents employed in different services/departments of the healthcare organisation (18.75% male and 81.25% female; all graduates: 62.5% in nursing, 31.25% in technical and healthcare professions, 6.25% in medicine).

In the four years project, hundreds of trainings have been considered for classification and validation of the TIE-H model with limitation to the planning phase. In 2022, on the basis of managerial decision about sustainability and strategical value of the training, a selection of 18 training courses was chosen to monitor the impact completing the whole cycle (from the planning to the evaluation), reaching a great success for the organization.

4.3. The action research method

Among various approaches on A-R deriving from Lewin theory, the authors mainly applied the Action Science approach (Argyris & Schön, 1992) with the aim of creating common meanings and in order to generate learning processes in developing a shared model for training impact evaluation. The process is based on reflexivity where participants are asked to describe their past experiences concerning the training impact evaluation, ponder possible added values to be gained from a common model, and the related benefits for both the organisation and the participants. Researchers are seen as experts who devote their competences to find a common model that covers both the needs of training referents (simplification of processes, common classification/meanings, etc..) and the requirements of the organisation (to evaluate the training impact). The researchers also considered the Reason & Bradbury's approach (2008) to A-R in order to underline the importance of developing knowledge through participation, and to develop awareness of the training impact evaluation. The researchers mainly acted as enablers, supporting contributions from training referents, facilitating the mutual ex-change of experiences of previous attempts to evaluate impact, reporting and summarizing different options and, finally, proposing a common model to be implemented. Indeed, the aim was not only to create a model, but to propose a new process that the healthcare organisation could implement (Koch & Kralik, 2006). Given that the involvement of the training referents was crucial for the implementation of the model, the Action Research approach (Johnson, 2008) was chosen to strengthen the meaningfulness of this tool, without burdening the process.

4.4. The action research process

The project lasted 4 years (September 2018 – December 2022) and alternated workgroup (with project team and training referents) and individual activities (carried out by the researchers and by the referents).

During the first year the whole team agreed to begin from the state of the art, both exploring scientific literature and analysing the large database of training courses provided by the Training Center of the healthcare organisation over the past years. Academic researchers reviewed literature and presented results to organizational team, in order to find the features of a model that can fit the organizational needs. A first theoretical draft was presented at the end of the first year, proposing a classification of different areas and criteria to monitor training impact. Training referents were requested to test the model in the second year so to understand its feasibility and to individuate strengths and weakness points.

During the second year, academic researchers analysed how the training referents had applied the model, finding gaps and critical points; *this helped* to elaborate a new tailored version of the model and *to propose* a training course to support *the referents* in individuating indicators to monitor the training impact.

In the third year – because of the Covid19 – the Action Research process slowed down, working only with remote meetings: a case study was proposed to the team of training referents. This case study refers to an innovative training course developed to prepare healthcare employees to work in Covid sectors. The whole group of training referents shared ideas and developed a common method to monitor the training impact of this particular course. The experience was important to define a common method and to exercise on defining indicators and tools to monitor the impact. Whereupon each referent implemented the model on two single trainings and the researchers analyzed the results.

During the fourth and final year of the project, the model in its definitive version was included as standard in the organizational process of the Training Center. A selection of the training courses, those the impact was monitored, were presented to the healthcare managers during a formal meeting. Academic researchers introduced the model to the Regional Government that is intentioned to adopt it a regional level.

5. The TIE-H model

The main result of the Action Research project consists in the elaboration of a new model to evaluate the impact of a single training. The model, hereby called TIE – H (Training Impact Evaluation – Healthcare), consists of two steps. The first one acts in the planning phase of the training and the second one after a defined period from the end of the training.

5.1. First phase – planning

It consists in a reflection about the kind of impact expected from the training course, following the schema proposed in Figure 1, where there are three criteria: each one includes three or four categories. Being aware that a training can impact several categories at the same time, the choice in each criterion should consider the category in which the impact is prevalent.

After reflecting on the type of training impact expected, the training referents describe the expected results, defining the time in which it will be possible to monitor them (called T1), the indicators and the tools. Finally, it is required to define the expected results in terms of expected value of the indicators in T1 and, where possible the starting value (called T0).

Figure 1. TIE-H Model – Criteria to define the Training Impact.

Area	Value	Innovation
❑ Individual	❑ Effectiveness	❑ Normative
❑ Team	❑ Service Quality	❑ Improvement
❑ Organization	❑ Engagement	❑ Strategic
	❑ Organizational culture	❑ Disruptive
Expected results *(describe using indicators, tools and expected value)*		
Training impact will be monitored on *(insert date)*		

5.2. Second phase – monitoring

The timing of the impact evaluation has been defined in the first phase. It is usually carried out 3 to 9 months after the end of the training. The training referent monitors the indicators through the tools defined in the first phase and reports on the evidence. The situation could reveal three scenarios. The first scenario (Scenario #1) shows that the monitored indicators highlight that the expected results have been obtained. It means that the training impact shows that the training aims have been achieved in practice and it is possible to report the results in terms of accountability. In the second and third scenario the expected results have not been achieved, the indicators show that the situation is different from what expected. Consequently, the training referent needs to go into deep, usually through a qualitative analysis, to discover the causes. The model proposes two possible scenarios: the staff need more (or different) training (Scenario #2) or there are obstacles in organizational process to allow the application of the acquired competences (Scenario #3). In the Scenario #2, a new training process is going to be planned, considering the impact of the previous training as a need analysis for the next training event. It could be that competencies levels acquired with the first training are not enough to be applied in practice, it could be that other actors need to be trained, it could be that a different training has to be planned to match the organizational needs. In the Scenario #3, although the competencies seem to be gained, there are difficulties in their application, so that the expected results cannot be observed. It could be that there are protocols to be changed, structures to be re-organized, or more time is needed to observe the expected changes.

6. Limits and conclusion

Through the application of the TIE-H model, the organization is able to analyze the impact of the trainings. Our choice is to analyze a selection of trainings, not the whole amount of trainings provided by the organization. It means to select those trainings that are strategic for the organization to be monitored.

The number depends on the capacity and resources of the Training Center structure. Once selected the training to be monitored, the process starts from the planning phase. It is a strategic step because in clarifying from the beginning the features of the expected results, the training referent has the opportunity to reflect on what is going to change through that training. We observed that this process is helpful also for the training design itself, moreover it permits to define what has to be monitored after the training.

We prefer to use "monitor" and "observation" with the prior intention to avoid the risk to move on a meaning of judgement. Moreover, we observed that it can be hard to find measure to highlight changes, so we give the opportunity to use both qualitative and quantitative tools to monitor the impact.

Finally, this Action Research project gave the opportunity to reflect about the training impact in only one organization, where the TIE-H model and the related processes have been acquired as part of the internal process of training management. The implementation in other healthcare organizations could confirm its possible general application and also contribute to further improving the model. Further studies are needed to test its validity and, in particular, its suitability to different healthcare organizations, and possibly other kinds of organization as well.

References

(2004). Firms fail to measure the impact of training, *Industrial and Commercial Training,* 36(5), https://doi.org/10.1108/ict.2004.03736eab.004

Argyris, C. & Schön, D. A. (1992). *Theory in Practice: Increasing Professional Effectiveness*. 1st ed., 6. print. San Francisco: Jossey-Bass Publ:, 1992.

Attia, A. M., Honeycutt, E. D., Jr., & Leach, M. P. (2005). A three-stage model for assessing and improving sales force training and development. *Journal of Personal Selling & Sales Management, 25*(3), 253–268.

Bushnell, D. S. (1990). Input, Process, Output: A Model for Evaluating Training. *Training & Development Journal*. March 1990, 41+.

Cervai, S. & Polo, F. (2015). Evaluating the Quality of the Learning Outcome in Healthcare Sector: The Expero4care Model. *Journal of Workplace Learning*. 27 (8), 611–626.

Davis, M. H. & Amin, Z. & Grande, J. P. &O'Neill, A. E.& Pawlina, W.& Viggiano, T. R. & Zuberi, R. (2007). Case Studies in Outcome-Based Education. *Medical Teacher*. 29 (7), 717–722.

Griffin, R. (2012). A Practitioner Friendly and Scientifically Robust Training Evaluation Approach. *Journal of Workplace Learning*. 24 (6), 393–402.

Jasson, C. C. & Govender, C. (2017). Measuring Return on Investment and Risk in Training – A Business Training Evaluation Model for Managers and Leaders. *Acta Commercii*. 17 (1), 30 June 2017 https://doi.org/10.4102/ac.v17i1.401

Johnson, A. P. (2008). *A Short Guide to Action Research*. 3rd ed. Boston: Pearson/Allyn and Bacon.

Kaufman, R. & Keller, J.& Watkins, R. (1996). What Works and What Doesn't: Evaluation beyond Kirkpatrick. *Nonprofit Management Leadership*, 35 (2), 8–12.

Kennedy, P. E.& Chyung, S. Y.& Winiecki, D. J.& Brinkerhoff, R. O. (2014). Training Professionals' Usage and Understanding of Kirkpatrick's Level 3 and Level 4 Evaluations: Usage and Understanding of Kirkpatrick's Level 3 and 4 Evaluations. *International Journal of Training and Development*. 18 (1), 1–21.

Koch, T. & Kralik, D. (2006). *Participatory Action Research in Health Care*. Malden, MA, Oxford: Blackwell Pub.

Madaus, G. F. & Stufflebeam, D. & Scriven, M. S. (1983). Program Evaluation. In Madaus, G. F. & Stufflebeam, D. (Eds.), *Evaluation Models* (3-22); Netherlands, Dordrecht: Springer.

Noe, R. A. (2010). *Employee Training and Development*. 5th ed. New York: McGraw-Hill Irwin.

Noe, R. A. (1986). Trainees' Attributes and Attitudes: Neglected Influences on Training Effectiveness. *The Academy of Management Review*. 11 (4), 736.

Perez-Soltero, A.; Aguilar Bernal, C.; Barceló Valenzuela, M.; Sánchez Schmitz, G.; Meroño Cerdán, A. L. & Fornés Rivera, R. D. (2019). Knowledge Transfer in Training Processes: Towards an Integrative Evaluation Model. *IUP Journal of Knowledge Management*. 17 (1), 7–40.

Phillips, J. J. (1996). ROI: The Search for Best Practices. *Training & Development*. 42+.

Reason, P. & Bradbury H. (2008). *The Sage Handbook of Action Research: Participative Inquiry and Practice*. 2nd ed. London: SAGE Publications.

Wang, G. G.& Dou, Z.& Li, N. (2002). A Systems Approach to Measuring Return on Investment for HRD Interventions. *Human Resource Development Quarterly*. 13 (2), 203–224.

Warr, P. B. & Peter B. (1970). Evaluation of Management Training: A Practical Framework, with Cases, for Evaluating Training Needs and Results. In Warr P.& Bird M. & Rackham N. & Rackham, N. (Eds.) *A Gower Press special study*. London: Gower P.