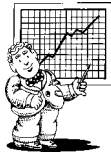# **white**paper

Measuring Training Impact

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In the world of training and development, the subject of measuring return on investment (ROI) is discussed frequently. It seems that everyone is searching for the perfect measurement system to increase organizational capabilities and link them with the business strategy. Human resource practitioners, OD consultants, training managers and senior managers realize that the training and development activities should eventually show a ROI and improve the bottom line. Otherwise, why even bother to have a training and development process?

Reasons for Measuring Training and Development Activities

Why should organizations measure the progress of their training and development curriculums? Here are a few reasons:

- To make sure the curriculum is taking the organization in the right direction.

- To determine whether the actions being taken or behavior changes resulting from the training align with the business case or the reasons for the change.

- To justify the costs of the training and development curriculum that was chosen to enhance change initiatives.

- To provide base-line measurements that can identify favorable or unfavorable trends with respect to the training curriculum and the organization's goals and objectives.

- Measurement information can help management identify gaps and give them the tools to decide whether to stay the course or change direction.

Levels of Evaluation

There has been considerable attention devoted to the levels of measuring training and development processes. The most noted model is Donald L. Kirkpatrick's four levels of evaluation. This model was developed in 1959 and since then, we have realized significant progress in our understanding of evaluation. For example, Jack Phillips has built upon Kirkpatrick's model by adding a fifth level that focuses specifically on ROI. Also, recent research by Kurt Kraiger and his colleagues (1993) has greatly enhanced our understanding of learning outcomes. The levels of evaluation are described below and on the following pages.

Level 1: Reactions and Planned Action

Question: How did participants respond to the training?

Reaction measures, also known as "smile sheets," are the most commonly used form of evaluation.

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Reaction measures assess how participants responded to the training class, event, or materials. Warr and Bruce (1995) describe three kinds of reactions that are measured:

- *Enjoyment of training* (emotional reaction)—"I found this training program to be enjoyable."

- *Usefulness of training* (perceived value) —"What level of value does the training content have for your job?"

- *Difficulty of training*—"I found the issues taught in training difficult to understand."

The typical measurement instruments used for this level are participant questionnaires and/or verbal feedback. This information is usually collected immediately after the training is completed. Reaction measures are usually fairly brief, but can go into great depth about any of the issues described above.

Level 2: Learning

Question: To what extent did participants experience changes in attitudes, skills, or motivations as a result of the training?

Learning can be defined and assessed in many ways. For example, we could measure participants' ability to answer questions about the training content or their ability to demonstrate newly acquired skills. Kurt Kraiger and his colleagues (1993) identified three types of learning that might result from training:

- *Cognitive Outcomes*—Usually assessed by multiple choice questions, open-ended responses, listing of facts, or similar methods. Knowledge checks such as these are very similar to tests used in schools to assign grades. Measures of cognitive outcomes can be assessed immediately after training or later to assess knowledge retention over time.

- *Skill-Based Outcomes*—These outcomes are typically measured by requiring that participants demonstrate their new skills in the training environment. Skill-based outcomes are not the same as behavior-change outcomes (Level 3) that occur in the work environment. Learning outcomes that focus on skills only measure participants' ability to demonstrate the skills.

- *Attitudinal Outcomes*—These measures focus on how participants feel or think about the training content. They have implications for participants' motivation to use the training, their confidence for using the skills, and their ability to reach goals.

To determine whether learning has occurred, we could compare pre-/post-performance to learning measures. Having a control group also helps us draw conclusions by allowing us to compare the performance of trained and untrained individuals.

Level 3: Behavior

Question: Can behavior change be observed on the job as a result of training (i.e., training transfer)?

Level 3 is all about how participants use their skills or apply their new knowledge in the workplace. In most cases, training success is defined in terms of behavior change. However, Level 3 focuses on what happens to training participants *after* they leave the training environment. At this point, we are focusing on training *effectiveness* and not training *evaluation*. Measures used at Levels 1 and 2 are associated only with the influence of the training. If results are positive or negative, we can usually point to the training as the primary cause. Levels 3, 4, and 5 include the influences of many factors besides the content of the training or its delivery.

Measuring behavior change usually requires some type of pre-/post-training assessment. Often, this type of assessment comes in the form of a multirater (i.e., 360°) assessment. Performance management systems have also been used to track changes in performance before and after training. However, this approach requires a carefully structured performance management system that keeps accurate records of participants' accomplishments. There are other

methods of measuring behavior change, but they are often not practical. For example, we could observe training participants on the job and monitor their performance with checklists. Or we could track the number of errors they make when using skills taught in training. Multirater assessments can be easily administered and provide a quick read on skill application. Ideally, a control group should be used to add validity to the findings.

Level 4: Results

Question: How have organizational outcomes changed as a result of the training program?

By far, Level 4 is the most difficult training outcome to measure. "Results" can include almost any criteria by which organizational success is defined. These measurements are linked to the organization's business case, critical success factors, or strategic objectives. Examples of results might include:

- Productivity

- Customer satisfaction

- Efficiency (e.g., scrap)

- Morale

- Profitability

These outcomes are usually tracked over time (e.g., month to month) or measured before and after the training. Changes in results might appear in the form of significant deviations in long-term trends or sudden jumps in monthly measures. Unfortunately, it is not always clear how long it will take for a training intervention to have an impact on organizational results. Changes could occur immediately or appear years later. As in any study, measuring parallel results from a control group adds validity to the conclusions.

Even though business results are the most removed from training, they often receive the most attention. Sometimes so many factors interfere with the

influence of training that it might appear that training has no real effect on the bottom line. Numerous researchers have made the point that it is not appropriate to evaluate training at Level 4. The uncontrolled, non-laboratory setting of organizations makes it almost impossible to isolate the impact of any one program.

In Level 4, we assume that if organizations train and develop people, they should realize positive bottom-line outcomes. Measuring the effectiveness of training and development curriculums at this level can be an expensive, time-consuming drain of resources. Before undertaking this level of measurement, an organization must carefully consider whether it is cost effective and warranted.

Level 5: Return on Investment

Question: Did the benefits of training outweigh the costs?

By focusing on a calculated percentage return, Level 5 is distinct from the more generic Level 4. Level 5 is an "add-on" from Jack Phillips. It measures the cost of the training intervention versus the return on investment. Usually, gains observed from the training intervention (such as changes in results or behavior change) are converted into monetary values. These returns are then compared to the per-person cost of the training. Many factors are used to calculate ROI, and entire books have been written to explain the process (also known as utility analysis). For example, ROI must account for the fact that money spent on training could have been invested in other company ventures. Therefore, training must not only return its costs, it must exceed the potential value of alternative investments.

Although most OD managers or training and development managers would love to calculate these measures, they are difficult to obtain and explain. Attempting to show cause-and-effect relationships between training and ROI takes expertise and

patience. In the end, the effort spent calculating and presenting a complex estimation of value can be more trouble than it is worth.

Measurement Criteria

Here are some criteria to consider when identifying the measures of effectiveness for training and development curriculums:

- Measurement systems must be easy to understand by everyone involved.

- Decide what you are going to do with the data you gather. Are you going to distribute it? Is it going to be part of a presentation?

- Manage your internal customers' expectations. Make sure they are comfortable with the type of data you are collecting and will have confidence in the results.

- Before deciding on which measurements to use, identify the business needs. What is the root problem that is driving the training?

- Identify the objectives of the training curriculum for the short term and the long term. Where should you see immediate versus long-term effects?

- Candidly discuss any barriers, drivers, or constraints to implementing the training and development curriculum (i.e., resources, level of investment, other concurrent initiatives, etc.).

- Define the audience levels of employees who will benefit from the training (number of employees, location, shift, etc.). How will the training affect these breakouts?

- Link the business strategy and cultural strategy to the training and development curriculum. How does the training support the strategy?

- Allow the measurement systems to be influenced by those making the decisions. If you don't involve your primary customers in the design of the measurements, they will be less likely to accept the results.

- Decide whether your measures will be "one shot" or long term. Are you going to evaluate the program once, using a single group of employees? Or do you plan to collect data on a regular basis (e.g., monthly)?

- Identify a minimum acceptable level of effectiveness of your training and development curriculum. What kinds of results do you expect? What will satisfy you and your internal customers?

- Use any measurements of training and development activities that can be converted to dollars (the most effective way to measure ROI).

Additional Materials

- Barron, T. (1997, January). *Is There an ROI in ROI?* Technical & Skills Training.

- Kirkapatrick, D. L. (1998*). Evaluating Training Programs: The Four Levels.* Berrett-Koehler Publishers. San Francisco.

- Parry, S. B. (1996, May). *Measuring Training's ROI.* Training & Development.

- Phillips, J. J. (1997). *Measuring Return on Investment.* American Society for Training & Development. Alexandria, VA.

- Phillips, J.J. (1996, March). *Was it the Training?* Training & Development.

- Phillips, J. J. (1996, February). *ROI: The Search.* Training & Development.

Levels of Measurement for Evaluating Training & Development Initiatives

Level of Measurement	Definition	Examples of Measurement	Comments
Level 1 Reactions and Planned Action	How did participants respond to the training?	• Post-session participant questionnaire. • Verbal feedback. • Observation of trainees.	• Low cost. • Immediate feedback. • The rumor mill can also provide feedback.
Level 2 Learning	To what extent did the participants change awareness, skills, or motivation?	• Pre-test/Post-test change scores on measures of skill or knowledge. Might involve a control group. • Retrospective assessment of skills before training versus skills after training. • Performance tests or simulations to gauge learning.	• Effectiveness of learning is the catalyst for behavior change. • Long-term follow-up can measure the retention of the learning.
Level 3 Behavior (on-the-job application)	Can behavior change be observed on the job as a result of the training?	• Pre-test/Post-test measures of behavior (assessments, 360° feedback, surveys, interviews, etc.). Might involve a control group. • Retrospective assessment of skills before training versus skills after training (e.g., how was I before versus after).	• Requires a waiting period to allow participants time to try out their skills. • Might want to conduct multiple follow-ups at identified intervals. • Can be a small-scale versus large-scale effort.
Level 4 Results	What is the level of change in organizational performance indicators that occurred because the participant attended the class?	• Changes against baselines. • Evaluation of cost versus benefits. • Training curriculum yields "x" % of change, growth in dollars, etc.	• Difficult to isolate a clear link between training and results. Many other factors come into play. • Works best when you are already tracking performance indicators over time. • Often requires "inferring" or estimating effects.
Level 5 Return on Investment	What is the ROI of the training curriculum? Did the return exceed the investment?	• Cost of training and development versus ROI.	• Difficult to show cause-and-effect-relationships. • Usually involves many estimates. • Can be difficult to convey results.

Measurement and Training Impact