When employees finish a training course, they are often asked to evaluate the experience. Traditionally these evaluations have focused on measuring either “knowledge gain” – did they learn a new skill or technique – or the reaction to the course – did they think it was useful and did they enjoy it?

Unfortunately, although widespread, these kinds of evaluations fall way short of the potential for learning measurement. Ford Motor Company and a team of researchers based in the UK have developed learning metrics that don’t simply evaluate whether employees have learned new skills, but whether those skills have been applied for the organization’s benefit. In other words, what changed in the workplace as a result of the training? Ford now uses these metrics to ensure all training reinforces the company’s strategy and goals.

Building on the traditional model

One of the most widely used approaches to training evaluation in organizations is Kirkpatrick’s model, which divides evaluation into four levels of measurement (see sidebar, next page):

1. Reactions: did the employee perceive the training as useful?  
2. Learning: was a new skill acquired?  
3. Behavior: has behavior changed as a consequence of training?  
4. Results: was there an impact on business performance?

The problem with Kirkpatrick’s model is that it claims that each level causes the next. According to the model, positive reactions lead to more learning, which leads to more application of the learning and on to better business results. But in reality, one level may not positively correlate with the next. For example, if someone doesn’t like a course, their reaction might be negative, but it doesn’t necessarily mean that the employee didn’t learn and never applied the new skill. On the other hand, an employee may have enjoyed a course immensely and never apply it back on the job.

Another key weakness of Kirkpatrick’s model is the lack of reliable measurement at the levels of knowledge, affective outcomes, and skill & behavior outcomes.

Figure 1: The Kraiger et al model to classify learning outcomes
behavior and results. While many organizations collect training reaction data (e.g. so-called “happy sheets”), and some gather evidence of learning having taken place (e.g. “end of course tests”), there are few concrete examples of organizations evaluating the behavior or results aspects of this model. This means that transfer of training is often an act of faith instead of a demonstrable result.

Ford and many other organizations regularly measure learning levels one and two of Kirkpatrick’s model, but the Ford team wanted to focus efforts on developing metrics at the third and fourth levels - behavior and results.

Finding a new approach
The team reviewed the organizational psychology and management literature on the factors that influence the transfer of training and discovered that training theory had moved on from Kirkpatrick’s model. The modern approach is based on another theory of training evaluation, a model that better enabled the team to design the metrics Ford was looking for. The model proposed by Kraiger, Ford & Salas divides post-training activity into three kinds of outcomes (see Figure 1, previous page):
1. Cognitive outcomes: has knowledge changed or increased as a result of this intervention?
2. Skill-based outcomes: has task proficiency improved?
3. Affective outcomes: has motivation increased as a result of training?

The first two are similar to the first two levels on the Kirkpatrick model, but they are not considered as a hierarchy - in the Kraiger et al model, one level does not lead to the next. Therefore, it offered a suitable framework to create a set of concrete criteria against which training and development activity could be assessed. Moreover, the perspective taken focuses predominantly on level three, the behavioral part of the Kirkpatrick model which, experience shows, has been only rarely implemented in organizations.

Identifying factors that predict learning
The extensive literature on transfer of training identifies two main predictors of successful transfer - divided into individual and situational factors. A range of authors have highlighted individual factors such as conscientiousness, organizational commitment, and job involvement as having a

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<tr>
<th>Scope</th>
<th>Focus</th>
<th>Factor</th>
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<tr>
<td>Generic</td>
<td>Organization/ Situational</td>
<td>Continuous learning culture – values</td>
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<td></td>
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<td>Continuous learning culture – management practices</td>
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<td>Non-work support</td>
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<td>Individual</td>
<td>Attitude to training and learning</td>
<td>Perceived self-competence</td>
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<td>Career commitment</td>
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<td>Organizational commitment</td>
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<td>General job satisfaction</td>
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<td>Specific</td>
<td>Organization/ Situational</td>
<td>Transfer of training climate – work environment</td>
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<td>Transfer of training climate – feedback giving</td>
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<td>Individual</td>
<td>Application of training and learning</td>
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<td>Motivation to change</td>
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The problems are that there is little reference to how learning has occurred.

3. Behavior: Information on changes in job-related behavior and transfer of training to the workplace. The problems are that the model offers few workable measurement techniques, and doesn’t recommend interventions.

4. Results: Includes costs, turnover, absenteeism, grievances, and morale. The problems are that there is no guidance on tools and techniques for measurement, and there is difficulty in establishing criteria that are directly associated with training interventions. It may also be readily over- or under-estimated.
A NEW WAY TO EVALUATE LEARNING AND TRAINING

It systematically monitors whether the learning has been applied.

The Ford Learning Network (FLN)

About 175,000 of Ford's 350,000 employees have access to the FLN, which the company launched in 2001. There are three components that make the FLN unique:

1. It's linked to competencies: It allows employees in any aspect of the Ford business – financial, product engineering, manufacturing, marketing, sales, and distribution-channel relationships – to find out their knowledge gaps.
2. It's based around search criteria: Employees can search all of Ford's learning options, including classroom courses, and e-learning, in addition to resources for which Ford has arranged agreements such as books from Barnes & Noble bookstore or research from the Massachusetts Institute of Technology.
3. It systematically monitors whether the learning has been applied. The metrics described in this article are used for this portion of the tool.

Other questionnaire statements included, “Colleagues have encouraged me to put what I have learned into practice” and “My work schedule allows me to try out my new learning.”

A detailed review of the draft questionnaire material was undertaken by a panel of experts (both internal and external to Ford), and a set of questionnaire items was agreed for each factor. These were reviewed in the USA, Germany and the UK, with the aim to get transnational equivalence of the sets of questions across countries.

The resulting questionnaire of 184 questions in total was formed into a trial version that was completed by more than 1,000 Ford employees around the world. This first trial established which factors and which items were statistically robust.

This was then followed by a “live” trial with employees who had recently completed a training course (e.g. Six Sigma, quality engineering) or a learning program (e.g. an MBA module) to ensure statistical validity. Thus, when these particular factors are measured, you really know that you are measuring issues that have a demonstrable impact on the application of learning and training.

All of these sets of questions are now on the automated evaluation site at Ford, where a team of consultants uses them to evaluate learning and training. They can be used independently to evaluate specific factors, without delivering the entire questionnaire.

How the metrics can be used

Within Ford there is a team of “business solutions partners” who continually evaluate whether learning and training is working. Each factor can be considered either a “catalyst” or a “roadblock” depending on the score. They use the metrics to assess learning and make improvements, either intervening to remove roadblocks or discover what are catalysts and spread them throughout the company. These metrics allow the business solutions partners to compare the impact of learning across different departments, and different functions, in different countries.

For example, after a particular learning initiative, the business solutions partners can explore how the training affected the “continuous learning culture,” “motivation to change,” and goal-setting behavior. They then send out the appropriate sets of questions to the employees who completed the course, compare the results with company norms.
motivation to achieve and to change were found to have considerable impact on readiness to apply training and learning.

Ed Sketch, Ford’s director of organizational effectiveness at the time of the project, was the architect of the Ford Learning Network, which uses the metrics described in this article. He was also the instigator of the Automated Evaluation project.


Measuring soft skills
This project involved evaluating the impact of training and learning against a set of company-wide norms to decide what interventions to make. Our trials did not include giving the questions before a training course and after, and then comparing the results, although it’s clear this could work. This would be of particular value with interventions more concerned with soft skills (e.g. interpersonal/ intrapersonal skills) where outcomes are more difficult to assess objectively.

A key finding of this project was the power that the work environment has in determining the extent to which training and learning are actually applied. The clear message is that investment in training and development needs to be solidly backed by work settings that are designed to foster learning transfer and provide support mechanisms to ensure that transfer actually takes place.

Additional evidence has also been provided for the impact that individual characteristics can have on training transfer. Factors such as an individual’s goal-setting approach, their motivation to achieve and to change were found to have considerable impact on readiness to apply training and learning.

Ed Sketch, Ford’s director of organizational effectiveness at the time of the project, was the architect of the Ford Learning Network, which uses the metrics described in this article. He was also the instigator of the Automated Evaluation project.

Norms – making return on investment calculations possible
Norms allow managers to compare the results of their questionnaires with the rest of the company. In a norm-referenced questionnaire, a sample’s average rating for a specific set of questions is meaningless until it is benchmarked against the population’s average. With norming, anybody completing a particular set of questions could be compared to other people in the company who have completed the same set of questions.

For example, a sample’s average rating for a set of questions could be 3.45 (on a scale of 1-5). Taken in isolation, this isn’t a particularly informative result. But when it is also known that the population has an average of 4.62 for the same scale, it is now possible to say that the sample has a low average rating relative to the entire population. The advantage in Ford’s case is clear – where a training intervention has generated a low average rating on one or more of the evaluation scales, the data enables the company to take specific and highly targeted action to enhance its effectiveness (or indeed, drop the intervention entirely).

From here, any training intervention can be subjected to an analysis (based on a set of statistical equations) to derive its ROI, enabling more informed decisions on future training investment. Because there are standardized metrics for learning application, it’s possible to calculate how much has been invested in delivering a learning program and then calculate to what extent it has been applied, and to what extent it had positive impacts on the business.
Ways of Assessing Student Learning During Class; These assessment techniques are increases the effectiveness of the teaching and the quality of the learning. Brainstorming. Brainstorming is the process of generating new ideas through group discussion. Every participant is expected to think and present their opinion loudly with confidence. When the evaluation session begins, analysis, criticism and discussion of the presented ideas are allowed. Steps of Brainstorming. There is always a way to prioritize your tasks, be creative, and execute like crazy until you get it done. People who love what they do also tend to execute well. – Mitch Gordon, Go Overseas. How often did the employee question basic assumptions about a problem and come up with a new solution? Did they think outside of the box and successfully take risks on their own? By keeping track of the incidents of creative, well-informed risk-taking, we can identify and reward high performers in a meaningful way. – Dave Nevogt, Hubstaff.com. 4. Amount of consistent improvement.