The Predictive Learning Impact Model 2.0

L&D leaders want to know what makes training effective and how to continuously improve it. MTM brings data, predictive analytics and practical recommendations to the table to help answer these questions with the Predictive Learning Impact Model 2.0.

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Contents

Abstract

Learning and Development (L&D) functions are funded on the premise that learning leads to application which leads to performance improvement. The two most prevalent evaluation approaches (Kirkpatrick's 4-Levels of Evaluation and Phillip's ROI Methodology) collect data along the training-to-performance logic model with the goal of demonstrating that training is effective. The purpose of this whitepaper is to test the training-to-performance logic model, confirm it, and glean meaningful insights for L&D at large. Along they way, we will share insights about our newly revised, improved and statistically validated SmartSheets—the survey tools that were used to gather specific data to test the model. The validation confirms the new SmartSheets are better than past measures of training effectiveness. Using advanced statistical tools and a large data set of training evaluation results representing 23 companies across 8 industries, we answer questions that many L&D professionals have raised but few have answered. Those questions include: Which aspects of training contribute most to individual learning? Does training influence application and performance? What value does the Net Promoter Score provide? Do managers play a key role in the training-to-performance logic model? As a preview, our results highlight the three factors that contribute most to learning effectiveness: instructor quality, courseware quality and worthwhile investment. We also provide evidence that supports the training-to-performance logic model—training does lead to learning, application, and performance. Results show that NPS is a global indicator of training quality. Lastly, we show that managers substantially and positively influence expected application, meaning they play a critical role in making training more effective.

Who should read this document?

- L&D personnel who are responsible for measuring the effectiveness of their training courses and making improvements.
- L&D leaders who want to understand which metrics to gather and how to use them to demonstrate value and focus efforts for improvements.
- Measurement professionals who are interested in applying advanced statistics to training evaluation data.

Pre-requisite knowledge

This paper contains some information about advanced statistics. While it will be helpful to have some understanding of statistical modeling, it is more important to have a working knowledge of training evaluation basics such as:

- Most L&D leaders receive pressure from the C-suite to demonstrate the value of the programs they develop.
- The training-to-performance logic model articulates the assumption that someone who attends training intends to apply learning, will apply it, and if done successfully will demonstrate improved performance individually, and eventually improvement for the organization. Training > Application > Individual Performance Improvement > Organizational Performance Improvement.
- Kirkpatrick's 4 Levels of Evaluation / Phillip's ROI Methodology and associated questions used to gather feedback about each level.
- Metrics That Matter and how it leverages SmartSheets to gather feedback from learners immediately after training (post-event) and 60-day after training (follow-up) using questions that align to the Kirkpatrick and Phillips models.

Structure

This paper is divided into three sections to structure the content and make it more readable. The three sections are:

1. Reasons for this Research

- L&D leaders need insights about whether training leads to performance (Does training work?).
- MTM revised its SmartSheets to help clients better measure the outcomes of learning; those questions needed statistical validation.
- New ideas needed to be tested: Is NPS a valuable measure for L&D and what influence do managers have on learning?

2. Insights & Key Findings

- Training works! Our model shows how three critical training factors lead to learning, application and performance.
- Three factors (instructor quality, courseware quality and worthwhile investment) interact to provide high quality training.
- NPS is a valuable outcome measure for L&D.
- Managers have a strong positive influence on application of training.

3. Practical Application

- The Predictive Learning Impact Model 2.0 is not just a theoretical and statistical model.
- It can be applied to:
    - Demonstrate course effectiveness (compared to benchmarks)
    - Determine which aspects of a course (compared to benchmarks) need improvement
- The paper shows how to use the model, benchmarks and course scores to determine effectiveness and areas for improvement.

Reasons for this Research

Fundamental Questions for Learning & Development

Two questions cause sleepless nights for many learning professionals: **Is training working? How can it be improved?**

This whitepaper provides scientifically-based insights about these questions with the intent of arming L&D leaders with the information they need to communicate the value of L&D and prioritize continuous improvement efforts.

A bit of context is necessary. Training evaluation has a long history beginning with Katzell whose 4-Level framework was popularized by Kirkpatrick in the mid to late 1950s as the standard, utilitarian approach for the learning industry.[1] Today, most L&D professionals are aware of the 4 Levels of Evaluation and frequently use it as a method for gathering feedback from learners. Others like Jack and Patti Phillips, Josh Bersin, Robert Brinkerhoff and Judy Hale have proposed different and successful variations for evaluating training. But the work of Nobel Prize winner, Gary Becker can help us answer our two main questions.

In the late 1960s and early 1970s, Gary Becker studied the value of an undergraduate education.[2] He answered the question, "Is a college education economically worthwhile?" with a resounding "Yes." Despite the costs associated with tuition, housing, and the lack of income for four years, a degree is more valuable than beginning a career right after high school because starting salaries for graduates are substantially and sustainably higher. Becker continued his research and investigated the impact of training on performance. Yet again, he found that investing in short-term bursts of learning had a significant return on performance.

If you ask a CEO to reflect on her own college education, she is likely to say "Yes, it was absolutely worth the investment," for a variety of important reasons such as acquisition of domain knowledge (e.g., business, law, medicine, engineering, etc.), collaborative skills, social skills, connections, guiding principles and expanding her world view. In contrast to a 4-year liberal arts degree, training focuses on a specific task, role or job function. Businesses cannot afford to send employees on a 4-year journey of insight and discovery when they need to build widgets, transport goods, sell software or otherwise run the business tomorrow with a skilled workforce.

Something odd happens when you ask the same CEO if she values training. If you ask her about a specific course, she can give a firm answer of yes or no and to what degree the course brought value to her. But when asked in general if the learning function is providing value, she might say, "I think so, but I can't prove it." She is confident in the value of a 4-year degree but less confident in the curriculum that is specifically designed to serve the needs of the business. In fact she is likely to ask L&D leaders to prove the value.

Ironic Situation

Nobel Laureate Gary Becker found that a college education and on-going training are worthwhile investments. So why do business leaders continue asking L&D to prove its value?

Why this skepticism? Why is she asking for proof of value when a Nobel Prize laureate has already shown that education and training are valuable?

The likely answer is that the c-suite is accountable to the board, investors and other stakeholders. An investment in L&D can be a few million dollars or a few hundred million each year. The board, investors and stakeholders want to know that this major expense will lead to returns. Along the way, they want to know if training is providing quality learning (a leading indicator of performance improvement) and a plan to improve the quality of training if it is lagging. The c-suite needs information about the ongoing impact of development programs at the individual and curriculum levels so they can monitor and manage the business.

So, the need to understand whether training is working is driven at two levels. First, the c-suite needs to know effectiveness and impact to manage the investment. Second, L&D leaders need to know so they can manage the operations of the learning department. When programs are not effective, L&D leaders also need information to guide continuous improvement. Regardless of the great work done by Becker, leaders (business and L&D) need specific information about each program to manage operations. For these reasons, the need to measure, monitor and manage the effectiveness and impact of courses will persist.

Let's go back to our questions: Is training working and how can we improve it? We need data to answer these questions. We could gather data using **experimental or quasi-experimental designs** (impact studies). The results would be highly rigorous and provide great insights about cause and effect (Does training cause performance improvement?), but it is often difficult, even prohibitive, to conduct impact studies for more than a handful of courses at a time.

An alternative is to use a **scalable comparison-to-standards approach**. This method gathers a reasonable set of information about the training experience usually via surveys, and then compares the results to benchmarks. The approach provides information about the quality of training for every course. This comparison-to-standards approach is the approach used to collect data for this study and helped produce the Predictive Learning Impact Model 2.0 which we will discuss later.

Predictive Learning Impact Model 2.0

The comparison-to-standards approach is used to collect data and helped produce the Predictive Learning Impact Model 2.0.

Please note that this approach also closely approximates the findings from impact studies.[3] That is, results from surveys are often similar in magnitude as results from impact studies, indicating that surveys provide valuable information for decision making in a timely manner. One critical aspect for using surveys is validation. A survey that is validated is a true and reliable measure of a topic. A survey that is not validated might measure the topic of interest, but it also might not.

This study collected data using SmartSheets from Metrics that Matter. Notably, the questions on the SmartSheets were revised in 2017, and part of this study was dedicated to testing these new questions to determine the reliability and validity of the survey—industry terms that measure its quality.[4] We measured composite reliability (CR) to determine the consistency of the instrument. When the CR is greater than 0.70 for all the constructs in the survey, that instrument demonstrates reliability. To demonstrate construct validity, we need to demonstrate convergent validity and discriminant validity. For convergent validity, we examined the average variance extracted (AVE). When AVE exceeds 0.50 for all the constructs in the survey, it demonstrates convergent validity. For discriminant validity, the maximum shared variance (MSV) is our calculation of interest. When MSV is less than the AVE for a construct, then that construct demonstrates discriminant validity. For all of these measures, the new survey exceeded all thresholds. As expected, the new SmartSheets are high-quality, valid and reliable measurement tools.

MTM's SmartSheets ask key questions aimed to uncover the sources of learning effectiveness, job application, and performance change. These evaluations are aligned with measurement models authored by Kirkpatrick[5] and Phillips.[6] The backbone of measurement in L&D comes directly from these models. They measure learning effectiveness along the general training-to-performance logic model shown in Figure 1. Training leads to learning which can be applied to improve individual performance and business outcomes.

The new SmartSheet questions build on the guidance provided by these industry titans. However, they have been simplified, shortened and improved so it is easier for respondents to read, understand and respond to each question.

We believe so strongly in the changes made to our SmartSheets that we have tested them using an advanced statistical technique called Structural Equation Modeling (SEM). Based on prior research, we have a model to test and to improve upon.[7] The tests we share below indicate the new questions are better than the old because they fit the model better and predict outcomes better than the original model.

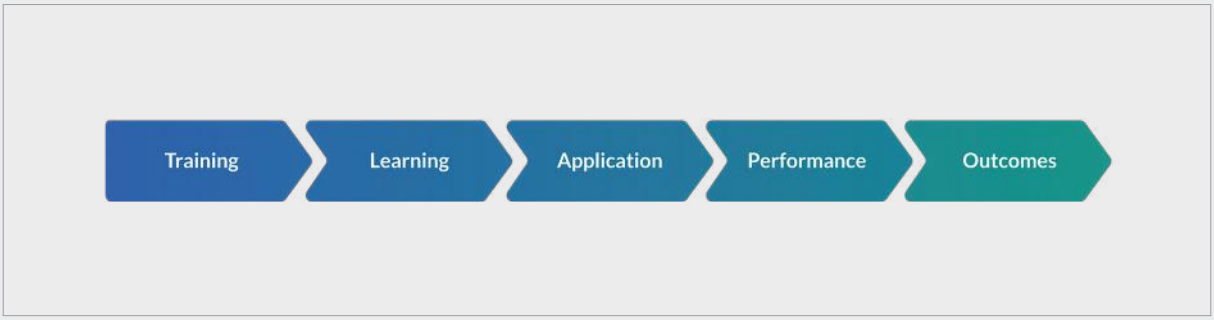

Figure 1. The Training-to-Performance Logic Model

Reasons for this Research

Statistical Methodology

Before we dive into the results of our tests, here's a quick look at the analytic technique we used. Structural Equation Modeling (SEM) is a statistical technique used to test the relationships among ideas and the factors that influence them. For example, what factors influence obesity? Overeating, lack of exercise, a high-fat diet and some genetic pre-cursors usually lead to weight gain. SEM finds the strongest relationships among all the factors. Other techniques like correlation or regression analysis test one idea at a time to determine their influencers. SEM tests many ideas and their interrelationships simultaneously. The outcome is a network of relationships and a causal pathway showing how factors are linked.

The two goals of SEM analysis are:

- To understand the pattern of relationships among a set of variables
- To describe the model that best fits the data and thus provides a causal pathway among ideas

The data used in the analysis was gathered by Metrics That Matter using web-based surveys. Two types of Likert scale questions are included in the analysis. The first collected data using a simple agreement scale (e.g., 1 = strongly disagree, 2 = disagree 3 = neutral, 4 = agree, and 5 = strongly agree); some organizations used 5-point scales and others used 7-point or 10-point scales. The data were transformed to a 10-point scale for analysis. The second set of questions used an 11-point Likert scale with 10% increments (e.g., 0%, 10%, 20% … 80%, 90%, 100%).

Reasons for this Research

Predictive Learning Impact Model History

In 2009 Dr. Nick Bontis tested the training-to-performance logic model shown in Figure 2.[7] His investigation defined the relationships in the training-to-performance logic model and produced the Predictive Learning Impact Model shown in Figure 2. The results were ground-breaking because they showed the relationships between quality training components and learning and how learning leads to application and performance improvement. The details of this model will be shared in the context of the Predictive Learning Impact Model 2.0 in the next sections.

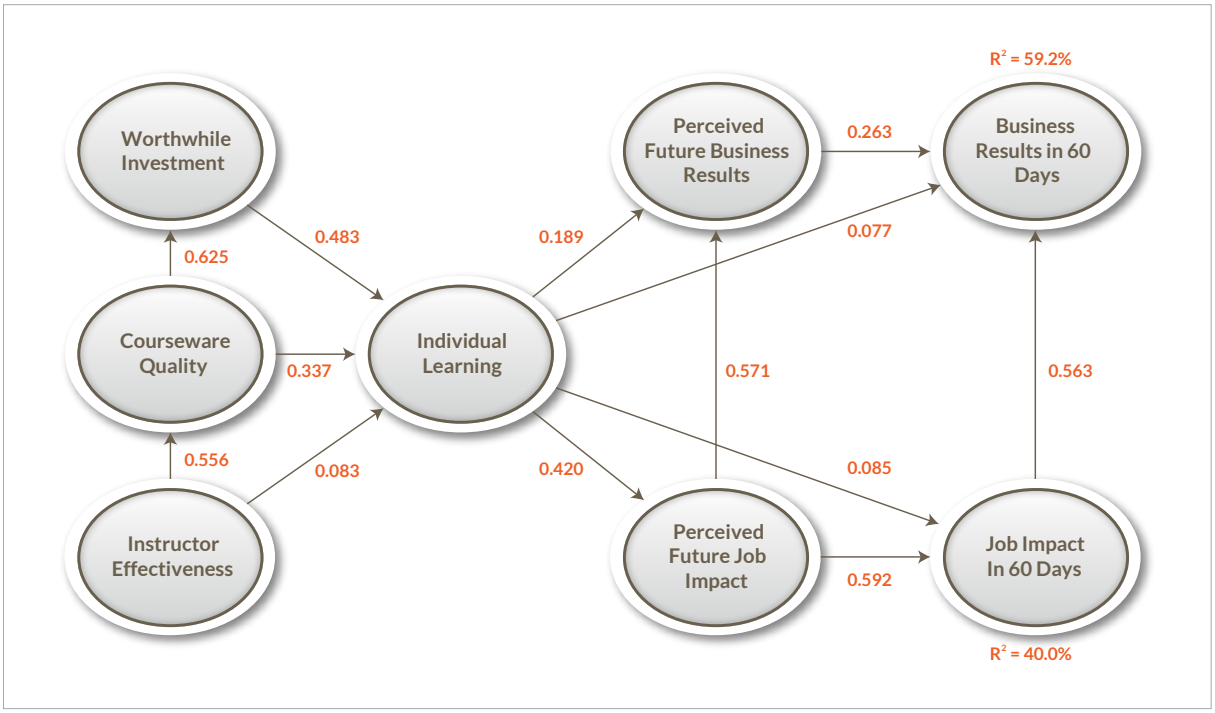

Figure 2. The Predictive Learning Impact Model 1.0 (2009).

Insights & Key Findings

Replicating the Original Predictive Learning Impact Model

Using the new SmartSheets, the MTM team replicated the Predictive Learning Impact Model 1.0 to see if the questions still supported the training-to-performance logic model. To test the new model, we gathered data from 23 companies from multiple and varied industries to pilot test the new survey. Across these organizations, we matched responses from learners who completed post-course evaluations and follow-up evaluations. The combined data set consisted of 6,746 learners who responded to both post-event and follow-up evaluations. We aligned the new questions to the original model and used structural equation modeling (SEM) to test for statistical significance and fit. We also added two important concepts to the model—Net Promoter Score and Manager Support which we will discuss later.

Figure 3 shows the replica of the Predictive Learning Impact Model 1.0. Stronger relationships are realized in the 2019 model as indicated by an increase in the coefficients for every connection across the dominant (causal) path in the model (highlighted in green). Two key pathway coefficients increased by more than 0.1 (worthwhile investment -> learning effectiveness and expected job application -> reported job application). The new model also fit the data better than the original. There was a significant increase in variance explained for both the reported application model (+15%) and the reported performance impact model (+17%) from 2009 to 2019. These metrics give us confidence that the new SmartSheets are better measures of training effectiveness.

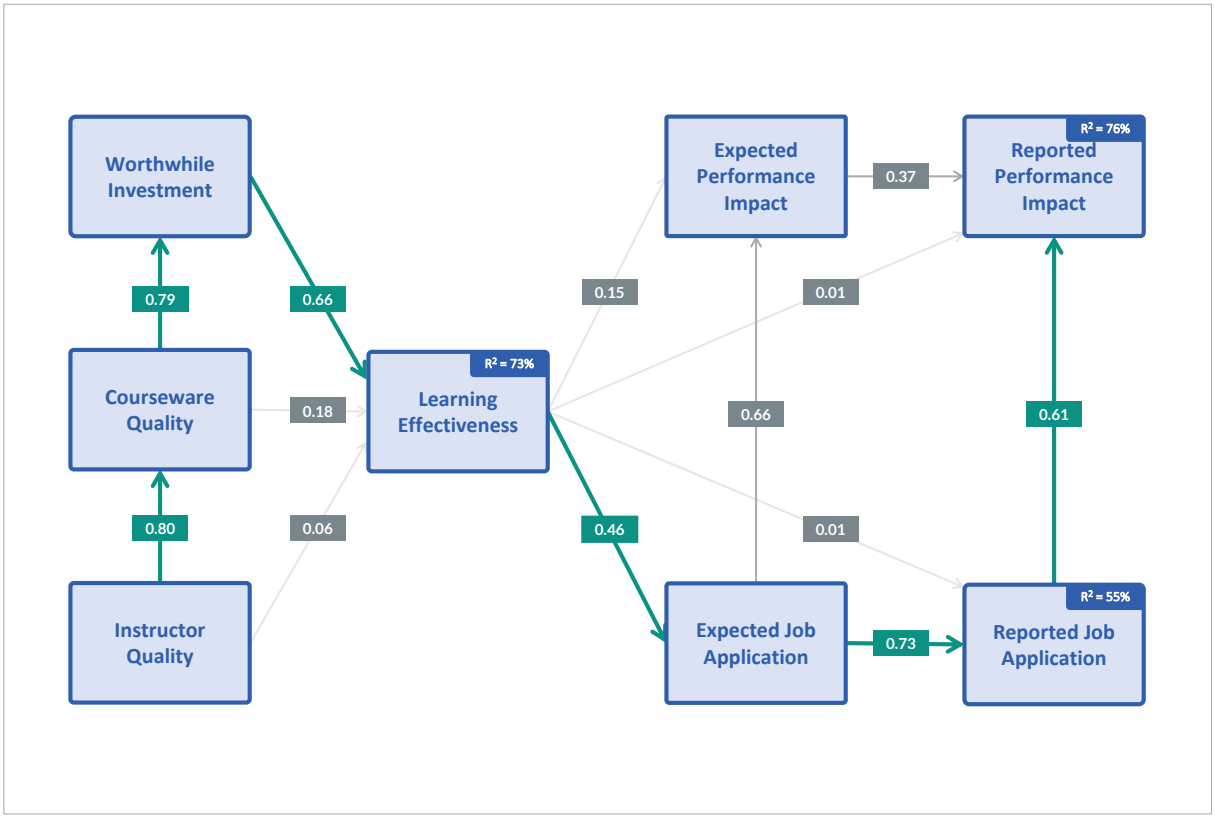

Figure 3. Replicating the Predictive Learning Impact Model 1.0

Better than Before

To illustrate how the changes in the SmartSheet improved the model, we can look at the percent change in variance explained. The new model predicts 76% of the variance in Reported Performance Impact versus 59% for the original model. This is substantial improvement indicating the model fits the new data better. Now that we know we have a better fit and stronger predictors, let's take a moment to examine what the new model explains about the training-to-performance logic model. The first step in the logic model is Training leads to Learning.

Consider the left side of the model where three factors (Worthwhile Investment, Courseware Quality and Instructor Quality) converge on one (Learning Effectiveness). Figure 3 shows a line leading to the right from each of these factors directly to Learning Effectiveness. This means that each factor individually contributes to learning. Importantly, there are also arrows connecting these three factors vertically. Instructor Quality leads to Courseware Quality which leads to Worthwhile Investment. This shows that instructors make courseware better and the combination of both helps make training more worthwhile. Conversely, a bad instructor or low-quality courseware impacts a learner's estimate of the worthwhile value of the course and learning effectiveness. The pathway through Worthwhile Investment is the strongest path to learning.

What happens after learning occurs? Based on the training-to-performance logic model, we would expect application to follow learning which then leads to performance improvement. In Figure 3 starting with Learning Effectiveness, follow the gray arrows and see how learning leads to the other factors: Expected Performance Impact (top right), Reported Performance Impact (top far right), Expected Job Application (bottom right) and Reported Job Application (bottom far right).* By examining the gray and green lines, we see the green lines have the highest values which means these factors are most strongly related to each other. Following the green lines, we see that Learning Effectiveness leads to Expected Job Application (bottom right). Notably, the far-right column shows factors that are based on data collected from follow-up evaluations. Thus, learners have been on the job and reflected how much they have applied and how much that application has improved their job performance. Following the strongest relationships (green arrows), Expected Job Application leads to Reported Job Application (bottom far right) which leads to Reported Performance Impact (top far right). The dominant path shown with green arrows represents the strongest relationships among the factors. This is known as the causal pathway, and it is the same as the Predictive Learning Impact Model 1.0.

What conclusions can we draw? This model shows that three factors (Instructor Quality, Courseware Quality and Worthwhile Investment) lead to Learning Effectiveness. In turn, Learning Effectiveness leads to Expected Application, Reported Application and Reported Performance Impact. This model confirms the training-to-performance logic model.

How can L&D professionals use this information? This model shows that the concepts of learning, application and performance are linked. If individual learning is low, then it is safe to assume that application and performance are low too. The course needs improvement. Conversely, if individual learning is high, then application and performance are likely to be high too. L&D organizations now have a trusted and reliable leading indicator that individual learning will lead to application and performance.

As mentioned earlier, L&D professionals should compare their course scores to benchmarks. If performance or application scores are below benchmarks, then they should look to the learning scores, worthwhile investment scores, courseware scores and instructor scores to see which aspects of training are lagging. Scores below benchmark should be red flags that beg instructional designers for attention. Table 1 shows how to use the Predictive Learning Impact Model 2.0 with course scores and benchmarks to identify areas for improvement.

	Industry Benchmark	Course Score	Difference Score
Instructor Quality	96%	96%	0%
Courseware Quality	91%	93%	2%
Worthwhile Investment	93%	96%	3%
Learning Effectiveness	88%	85%	-3%
Expected Job Application	85%	82%	-3%
Reported Job Application	82%	79%	-3%
Expected Performance Impact	80%	75%	-5%
Reported Performance Impact	80%	74%	-6%

Table 1. Identifying Areas for Improvement—Course Scores and Benchmarks

Values are included here for example purposes only; benchmark values are not actual MTM benchmark scores.
*Expected Application is a measure collected immediately after training; it is the learner's estimate of how much training they will apply on the job.
*Reported Performance is a measure collected 60 days after training; learner's reflect on their behaviors and confirm how much training they have applied.
*Excepted and Reported Performance Impact are measures of performance improvement.

By showing the industry benchmark and the course scores side-by-side, it is easy to find over- and underperformance. It is even easier to look at the difference score for each factor. Any negative score (highlighted in red) indicates the course is underperforming benchmarks. In this way the Predictive Learning Impact Model 2.0, gives L&D program managers a simple way to determine what is working and what is not so they can begin to prioritize how to improve training.

Now that we've examined the Predictive Learning Impact Model 1.0 using data from MTM's revised SmartSheets, let's add a couple of new factors into the mix and observe how they adjust the relationships to form the Predictive Learning Impact Model 2.0.

Insights from the Predictive Learning Impact Model 2.0

The Predictive Learning Impact Model 2.0 provides four key insights:

- Three factors drive individual learning
- Learning leads to application and performance
- Net Promoter Score (NPS) is an outcome of learning and application not just an indicator of satisfaction
- Manager Support improves the impact of learning by improving application

The first two insights on this list were addressed in the previous section. They are the same insights provided by the Predictive Learning Impact Model 1.0, but the model fits the new data better than the original, meaning the new SmartSheets are better tools for measuring learning effectiveness.

Let's take a look at the two newest insights regarding NPS and Manager Support. Figure 4 shows the Predictive Learning Impact Model 2.0. Notice that it looks like the original model with NPS and Manager Support positioned to the right of Learning Effectiveness.

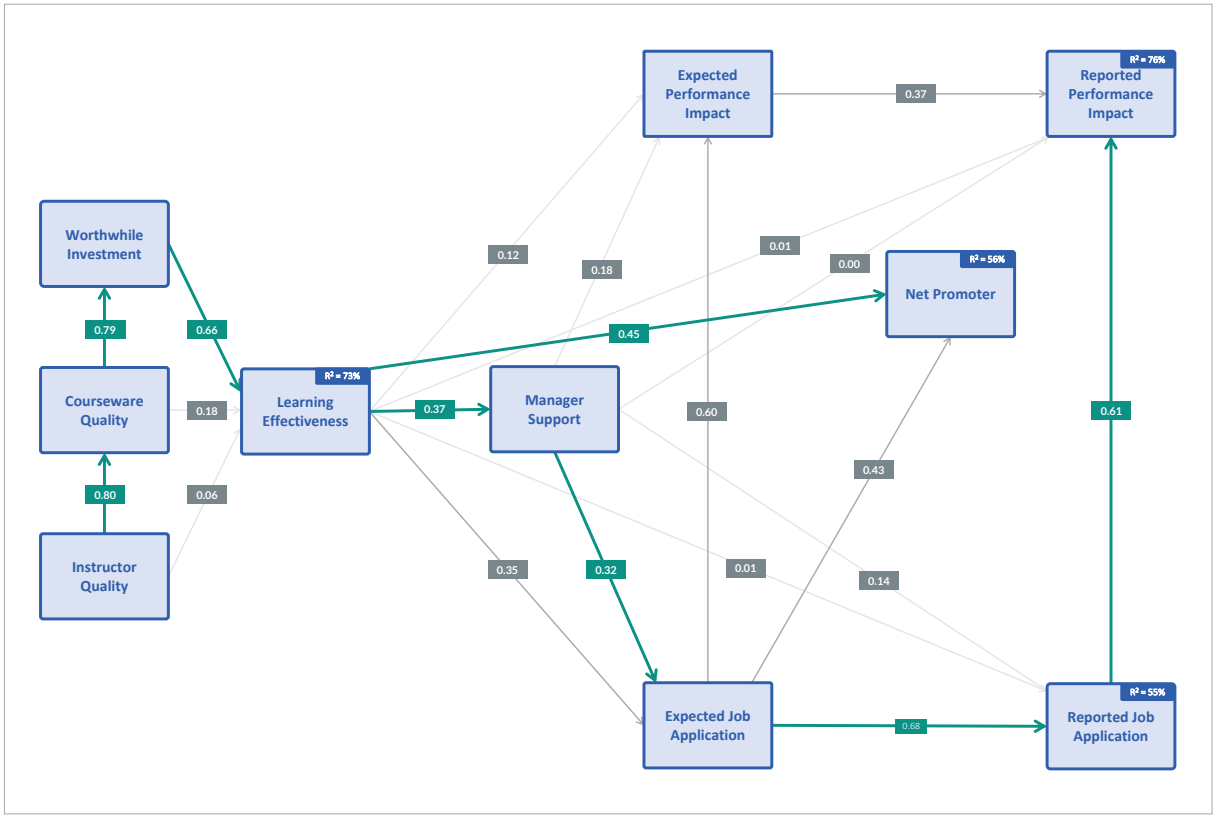

Figure 4. The Predictive Learning Impact Model 2.0

When considering the two Predictive Learning Impact Models, the major structural difference between the two is that version 2.0 contains a factor for Net Promoter Score and for Manager Support. These two concepts were included in the 2.0 model because the MTM team added these metrics to the recommended list of KPIs during the past decade.

Model	Training	Learning	Manager Support	Expected Job Application	Expected Performance Change	Net Promoter	Reported Job Application	Reported Performance Change
2010 Predictive Learning Impact Model	Worthwhile Investment: **Included** Courseware Quality: **Included** Instructor Quality: **Included**	**Included**	Not Applicable	**Included**	**Included**	Not Applicable	**Included**	**Included**
2019 Predictive Learning Impact Model 2.0	Worthwhile Investment: **Included** Courseware Quality: **Included** Instructor Quality: **Included**	**Included**	**Included**	**Included**	**Included**	**Included**	**Included**	**Included**

Table 2. Comparison between the Predictive Learning Impact Models Versions 1.0 and 2.0.

Is Net Promoter Score a Valuable Metric for L&D?

Net Promoter Score (NPS) is a measure of loyalty and satisfaction.[8] It was designed to be used by marketing departments to determine if current customers will return as future customers. The concept is easily transferable to learning: Will a current attendee come back for more training based on the learning experience? Notably, as you will see here, NPS is a much more robust measure of satisfaction than the typical Level 1 question, "I was satisfied with the quality of this training."

NPS is a measure developed by Fred Reichheld who worked for Bain and Company. He was searching for a single measure to indicate customer loyalty. He settled on the following question, "How likely is it that you would recommend this company to a friend or colleague?" The Likert scale for the question ranged from 0 = not at all likely to 10 = very likely. NPS is not an average. It is a computed value based on three types of respondents. Those who answer 9 or 10 are classed as promoters. These are loyal enthusiasts who actively extol your company and return to buy more products. Those who answer 7 or 8 are passives; they are satisfied but unenthusiastic. Those who respond 0 – 6 are detractors, and they are unhappy customers trapped in a bad relationship. To compute the NPS, subtract the percentage of detractors from the percentage of promoters. Passives do not factor into the equation. The resulting score can range from -100% (all detractors) to +100% (all promoters) and higher is better.

NPS is often used by L&D professionals as a quality control measure to assess satisfaction with the quality of training. The MTM team struggled with where to place the measure in the Predictive Learning Impact Model 2.0 because it is strongly related to Worthwhile Investment, but it is not a theoretical driver of Learning Effectiveness. In the end, NPS is best positioned as an outcome. It is a global indicator of a learner's opinion about the quality of training. It is a complex opinion that incorporates the learner's perspective about the quality of training (instructors, courseware and worthwhile investment), whether learning occurred, and whether the learner believes that training will be applied. All of these factors contribute to the NPS score. As you can see from Figure 4, Learning Effectiveness and Expected Application directly contribute to NPS.

What conclusions can we draw? If the NPS score is high, then it is highly likely that learning occurred, and that the learner is going to apply it on the job. Since learning and application are linked to performance in the Predictive Learning Impact Model 2.0, it is reasonable to assume that performance will improve if the NPS is high.

How can L&D professionals use this information? NPS should be used as a global indicator of quality. If it is low, investigate which areas are underperforming, likely Learning Effectiveness and Expected Application. If NPS is high, the course is performing well, providing knowledge and skills that are likely to be applied and will improve performance.

Manager Support

What is the role of manager support? Over the past few decades L&D organizations have transitioned from developing and deploying training to creating performance improvement interventions. The new focus incorporates pre- and post-course actions to support the learner along the development journey. One of the key aspects of support comes from the learner's manager. Let's examine if manager support actually plays a role in the training-to-performance logic model.

Manager support typically occurs at two times, before and after training. Before training, managers should qualify learners to determine if they are ready to attend a course. They should also set expectations about what should be learned. These are typically quick decisions and interactions. Manager support tends to be more substantial after training when the manager checks in with the learner about the knowledge and skills acquired. The manager also monitors how the new skills are applied and whether they improve performance. The manager should also monitor whether the performance is up to standards and provide encouragement and corrective feedback.

It seems reasonable that a manager could influence a learner's success on the job after training. This hypothesis was tested by including measures of manager support in the Predictive Learning Impact Model 2.0. Figure 4 shows that Manager Support fits into the model after Learning Effectiveness and before Expected Application.

We need to exercise caution when determining the true nature of this relationship. The model shows an arrow from Learning Effectiveness to Manager Support, implying that learning has a causal effect on support from managers. It does not. Let's compare Figures 3 and 4 for insights.

If we go back to Figure 3 which does not include Manager Support, the only arrow pointing to Expected Application comes from Learning Effectiveness, a relationship that does have a logical cause and effect connection. In Figure 4 Manager Support is an intervening influencer and has a significant partial mediation effect. How do we know?

The relationships among factors change substantially when Manager Support is added in Figure 4. The mathematical value representing the relationship between Learning Effectiveness and Expected Application in Figure 3 is 0.46. When Manager Support is added in Figure 4, that value drops to 0.35 indicating that Manager Support does indeed have some influence—it reduces the strength of the relationship from Learning Effectiveness to Expected Application. If it did not influence the relationship, there would have been no change in the value. Examining the relationship between Learning Effectiveness and Manager Support in Figure 4, we see that this value is 0.37 which is slightly higher than the direct relationship between Learning Effectiveness and Expected Application (0.35). Next, Manager Support connects to Expected Application. As we discussed earlier, this makes sense logically—managers can positively influence whether learners believe they will apply what they learned on the job. In this way, Manager Support amplifies the relationship between learning and application. This amplification is so strong and so meaningful that it seizes the main pathway of the model away from the traditional Learning Effectiveness to Expected Application pathway. The new dominant path goes from Learning Effectiveness to Manager Support to Expected Application.

How much influence do managers have? We are not certain, but we can make an informed estimate based on our results. We start by estimating how much Manager Support influences the model. In particular, looking at its influence on Expected Application, the R^2 value (amount of variance accounted for by preceding factors) for Expected Application increases from 21% without Manager Support to 30% with it in the model. The absolute difference is 9%-points (30% - 21%) and the percentage increase ((30%-21%) / 21%) is 43%!

How can L&D professionals use this information? Conservatively, managers can influence expected application by roughly 10%-points. Put another way, manager support can increase expected application by 43% compared to the expected application rates without manager support. Clearly, managers have a meaningful role to play. Organizations will benefit by improving manager support.

Practical Application

A New & Useful Perspective

Often it is useful to realign or reformat models so they are easier to comprehend. Towards that end, Figure 5 provides a revised view of the Predictive Learning Impact Model 2.0. It adopts the linear format of the training-to-performance logic model. It is provided here to simplify the Predictive Learning Impact Model 2.0 into a process that can be easily understood and applied. More importantly, it provides an avenue for learning leaders to understand the deficiencies in their programs and how they connect to key outcomes like job application and performance improvement.

When utilizing SmartSheet evaluations coupled with MTM's comprehensive benchmarks, an organization can determine where their training falls short and by how much. The benchmark and course scores for Company X provided in the example below are fictitious, but they show which aspects of a course are over- or underperforming.

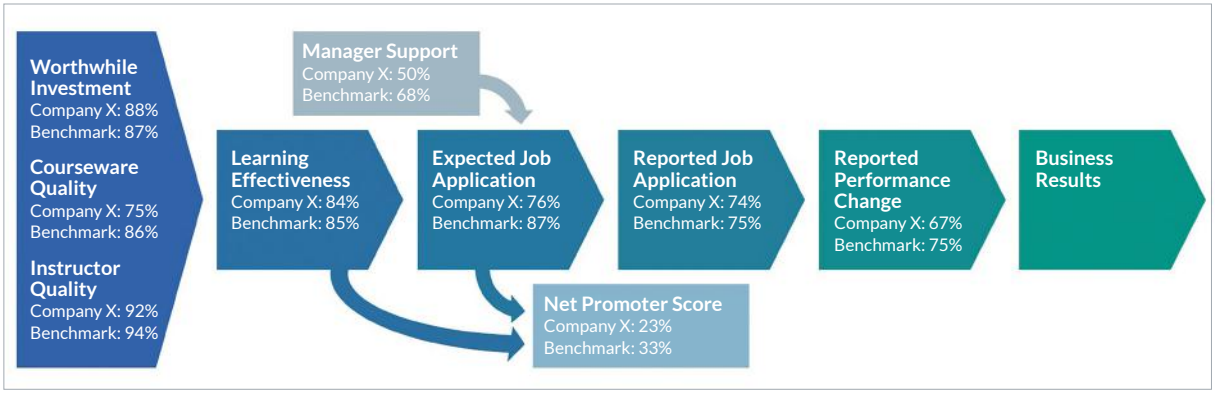

Figure 5. Combining the Training-to-Performance Logic Model and the Predictive Learning Impact Model 2.0.

In this example poor courseware and unengaged managers have created underperforming job application outcomes at Company X. (Compare the percentage scores for Company X in each chevron to the benchmark scores. Courseware (75%) is clearly lower than the benchmark (85%). When training is not being applied back to the job, then the opportunity for performance improvement disappears. Here we would recommend that the Company X directly improve their Courseware Quality scores. If Company X can influence Manager Support directly, then they should do so too. Successful implementation of improvements to courseware and manager support will lead directly to improved Expected Job Application, NPS and Reported Performance change (via Reported Job Application). Enhancing underperforming aspects of learning and the learning experience on the left have a cascading effect that leads to positive progress for the outcomes of learning, application, and performance change on the right.

The cascade effect is the key message here and was only available because of the causal modeling approach. The true power of the Predictive Learning Impact Model 2.0 is what it tells us about the interconnectivity of all the important variables related to training, learning, application, and performance. When we get all of those features right, the impact of training goes beyond individual performance and escalates to positive organizational outcomes.

Future research is always needed to uncover the scale of change of organizational outcomes but therein lies another benefit of the SmartSheets—organizations leveraging MTM have the validated survey data to link to business outcomes and discover exactly how much training matters. Continuous improvement takes continuous measurement – using SmartSheet evaluations offers MTM's clients the ability to benchmark, follow trends over time, and understand how the questions they are asking fit into the larger picture of L&D.

Conclusions & Recommendations

Based on the results of the analysis, we can draw the following conclusions and suggest the following recommendations based on the model.

Better Fit Equals Better Insight:

The validity and reliability testing as well as the new model results show that the updated SmartSheet questions improved how the model fit the data. A better fitting model assures us that we have found the causal relationships among our concepts. It also means our clients can use this model to make comparisons to benchmarks and take action on their own data.

Predictors of Learning:

The Predictive Learning Impact Model 2.0 shows that three factors contribute most to learning: Instructor Quality, Courseware Quality and Worthwhile Investment. The pathways in the new model are stronger than the Predictive Learning Impact Model 1.0 suggesting that in the new learning environment, instructors and courseware are even less important than a worthwhile learning experience. When a course is not performing well, L&D program managers can compare their course results to the benchmarks associated with this model and prioritize what to improve.

Predicting Performance Improvement:

The rest of the Predictive Learning Impact Model 2.0 confirms the training-to-performance hypothesis. When attendees learn and intend to apply the learning, they do, and they improve their job performance. L&D program managers should compare their course results to the application and performance benchmarks for the model. When these scores are low, direct actions can be taken to focus on application and performance, but it is also valuable to look at the start of the model. Low scores associated with Instructor Quality, Courseware Quality and Worthwhile Investment will also contribute to low application and performance scores. Focus on improving Learning Effectiveness (through instructors, courseware and worthwhile training), and the rest will follow.

NPS is an Outcome and Global Measure of Success:

NPS masquerades as a satisfaction metric, but it is a quality control measure that connects to application and performance. Could it be used as an indicator of simple satisfaction with the course? Yes, but that would be undervaluing this metric. The model demonstrates that NPS rises and falls on issues that are valuable to the learner (and the business), most particularly, "Did learning occur?" and "Does the learner intend to apply what was learned?" Because NPS is connected to these critical factors, it should be used as an outcome measure that conveys learning occurred and application is imminent.

Managers Amplify Performance Improvement:

Manager Support was added to the model to test whether it plays a valuable role in the training-to-performance logic model. The model is statistically better when we include Manager Support indicating that yes, managers do have an important role to play. For most organizations, Manager Support is woefully low; typically, it is among the lowest rated sections on the SmartSheet, indicating that support is often lacking. L&D leaders and business leaders should collaborate to undertake simple support steps before and after major training events that will help learners gain new information and successfully apply it on the job. Those steps should be as follows:

- Evaluate learner readiness before attending training
- Set expectations for learning before training begins
- Get involved with application of training after the learner attends
- Follow up on expectations that were set before training
- Provide necessary resources to support performance[9]

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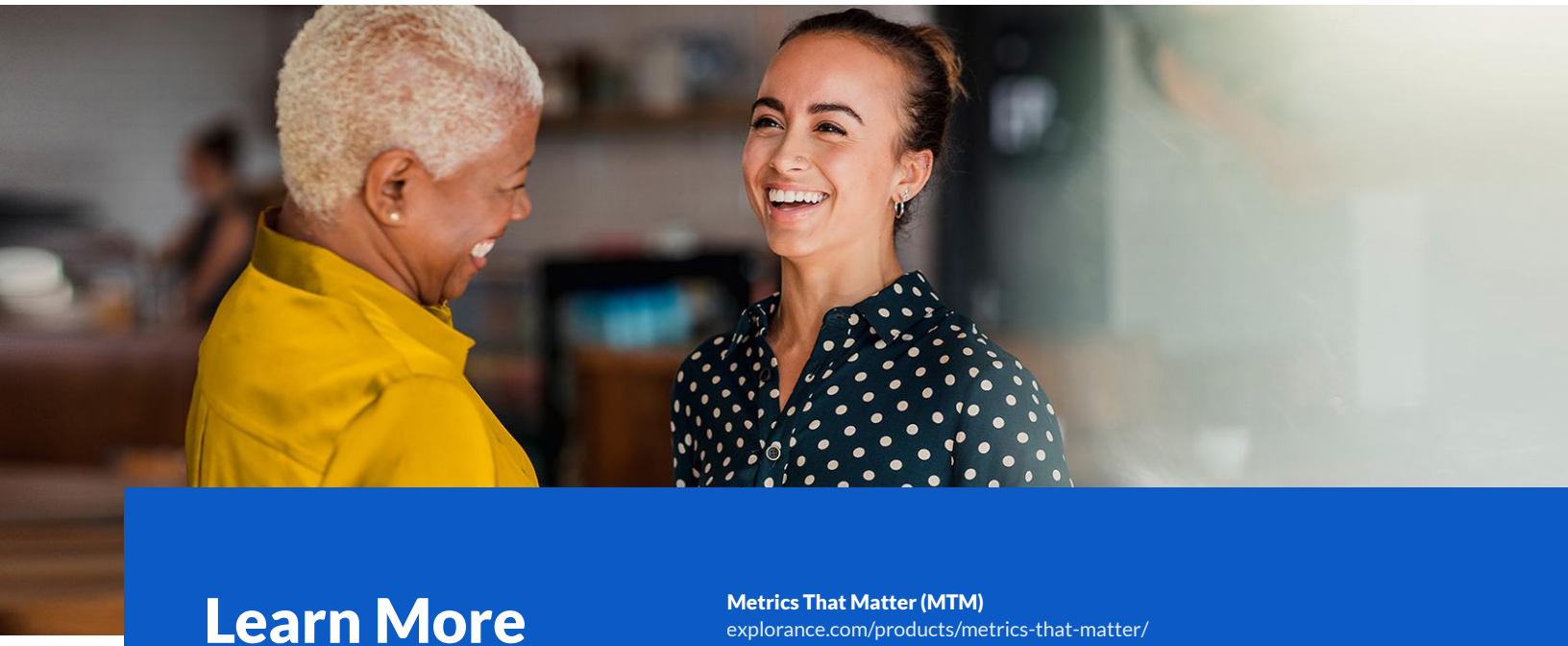

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