Measuring Learning

A guide to designing job performance measures & analyzing results



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Thanks for downloading our e-book, "Measuring Learning".

Who We Are

We at Earthly Systems provide SumTotal Learn post-production services to organisations around the world. In fact, we're the only global post-production service provider that deals exclusively with SumTotal.

We're passionate about helping organisations make the most of their SumTotal investment, which is why we deliver services and content (like this ebook) to help you use your LMS to its full potential.



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The Importance of Measurement

Uncovering why organisations should be measuring learning & job performance

As organizations become leaner and budgets get tighter, all departments are expected to clearly show their business impact. Human Resource (HR) departments are no exception. More and more, they are expected to prove the return on investment (ROI) of learning programs.

But, a heavy focus on ROI can cause us to be narrow-minded.

Focusing on ROI does a great job at presenting the current situation, but it fails to tell us the 'why' or the 'what happened'. If you uncover a negative ROI - or even a positive ROI - for your learning program, the next essential step is to explain why it occurred. Why are you seeing that return, and what can you do to change it?

To uncover the 'why', it is essential that you measure two things: **learning** and **job performance**.

- **Learning evaluation** focuses on whether your learning program is effectively teaching the skills and knowledge it is meant to teach. Did your learners understand?
- Job performance evaluation focuses on whether the skills and knowledge taught in your program are effectively being transferred to the work environment. Did your learners apply the skills they were taught?

This ebook will teach you the best ways to measure learning and job performance and (crucially) how to analyse the data, so you can deliver superior learning programs - and answer all your stakeholders' hard-hitting questions.

Learning Evaluation

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Designing Learning Measures

Measuring learning is the only way to determine whether participants are actually <u>learning</u> what you want them to learn. For a learning measure to be effective, you want it to be (1) as accurate as possible and (2) directly related to your program's objectives.

The method of measurement will depend on the learning program's goals. For example, it would not make sense to measure a behavioural objective using a multiple-choice exam.

Before choosing a measurement tool, think about whether the data it will provide aligns with learning program goals. Consider:

How will the measure be used?
What are its advantages?
Its limitations?
How do you create quality questions and interpret the answers?

Having this knowledge is key to designing a learning program that can be measured for success against your desired objectives.

Let's consider two types of tests: **knowledge-based tests** and **proficiency tests.**

Knowledge-Based Tests



Testing a learner's knowledge gain is one of the easiest and most common ways to measure learning. This is best done using pre-tests and post-tests (tests both before and after the learning program is completed).

When arranging a knowledge-based test for participants, be sure to consider these best practices:

- Arrange questions from less-difficult to more-difficult so participants don't become discouraged
- Don't use direct quotes from the learning program, as this encourages memorisation, not understanding
- **Avoid trick questions** as you want to understand the learner's actual knowledge, not confusing them into answering incorrectly
- Avoid negatives, as they are often misinterpreted
- Avoid providing clues in one question that could give away the answer to another
- Use a variety of types of questions to add interest

The number of questions you use in your test should be directly related to the criticality of your program's objectives. For example, a highly critical objective should be tested using more questions (about 10-20 questions) than a less-critical objective (1-2 questions) or a medium-critical objective (3-9 questions).

There are many types of knowledge-based questions you can use for knowledge-based testing. Four common question types are **sentence completion**, **true or false**, **matching items**, and **multiple choice**.

Sentence Completion

Sentence completion questions require the learner to complete an incomplete sentence with one or more words.

Use when: you need to know if a learner can recall the correct answer, rather than just recognize it

Advantages:

 Objective measure of knowledge

Limitations:

- Not useful when program objectives require more than information recall
- Difficult to create
- Time-consuming to score

Tips for creating sentence completion questions:

- Only omit the words needed to test the knowledge
- Don't omit words that may cause the statement's meaning to be lost
- Be sure there is only one possible correct answer per blank
- Limit the answer to a single word or phrase
- Avoid using direct quotes from texts (to prevent memorisation)

Example:

Earthly Systems offers post-production services for organisations using _____ LMS. (Answer: SumTotal)

True or False

True or false questions require learners to answer whether a statement is true or false.

Use when: you need to know if a learner can recognize a fallacy or inconsistency in key concepts.

Advantages:

- Short questions, so more material can be covered
- Easy to create

Limitations:

- Encourage memorization
- Encourage guessing
- 50% score achievable through random answering

Tips for creating true or false questions:

- Avoid words that indicate the answer is false (like always, all, never, none) or true (like sometimes, usually, maybe, often, may)
- · Use short statements with a single concept
- Avoid using negatives and double negatives
- Use an approximately equal number of true and false statements

Example:

True or False: To ensure accurate results, learning measures should be accurate and aligned to the program learning objectives. (Answer: True)

Matching Items

Matching items questions ask learners to match a word or phrase (a descriptor) with another word or phrase (options).

Use when: you need to assess a learner's understanding of like content (i.e. in a particular category)

Advantages:

- Quick to read and respond
- Objective measure of knowledge

Limitations:

- Not useful when program objectives require more than recall or memorisation
- Answer can be guessed through process of elimination

Tips for creating matching items questions:

- Allow for options to be used more than once (to reduce cueing)
- Only use like (homogenous) content (e.g. list of programs)
- Use 10 or less matching items
- Arrange options in a logical order (e.g. alphabetically)

Multiple Choice

Multiple choice questions consist of a question stem and (typically) four possible answers.

Use when: you need to assess a learner's ability to differentiate between plausible answers

Advantages:

- Versatile
- Objective measure of knowledge
- Reduced guessing factor
- Provides diagnostic feedback

Limitations:

- Difficult/time-consuming to create
- Success dependent on learner's reading ability and developer's writing ability

Tips for creating multiple choice questions:

- Use direct questions rather than incomplete statements
- Avoid using excess or irrelevant information
- Use 4+ alternative answers, each mutually exclusive
- Offer alternative answers which may all seem plausible to a lessknowledgeable learner
- Randomly distribute the correct answer between questions
- Avoid using "all of the above" as an option, along "always" or "never"

Testing Participants' Proficiency



While knowledge-based tests are important for determining how much a participant has learned, it is equally important to determine how they might apply that knowledge in an actual work situation.

A proficiency test measures the application of concepts or behaviours learned in a simulated work setting. The most common type of proficiency test is a behavioural checklist.

Behavioural Checklists

Behavioural checklists involve comparing a learner's performance to a set of predetermined, specific, observable behaviours.

Advantages:

- · High degree of test validity
- Best way to measure (not just predict) performance based on gained knowledge

Limitations:

- Difficult/time-consuming to create
- Assessed on an individual, not group, level
- Subjective measurement

Tips for creating behavioural checklists:

- Train your observer(s) to avoid bias and inconsistent grading
- Practice using the checklist before using it in a test setting
- State the desired behaviour in clear terms
- Develop a simulated situation that closely matches the actual job requirement(s) being tested
- Describe observable behaviours only, choosing wording that avoids ambiguity or subjective interpretation

CASE STUDY

Behavioural checklists are very useful in training programs. For example, a customer service training program may involve a role-play situation where participants must interact in two simulated customer calls. A behavioural checklist can be used to score the participant as he/she conducts the call. The participant might be evaluated based on whether he/she interrupts the customer, conveys empathy through acknowledging the customer's problem(s), and communicates a solution to the customer.

Alternative Learning Measures



Action Planning

Action planning is best used in learning programs where the objective is for the learner to plan for areas of improved performance (such as in a leadership development program).

A learner should be able to use what they've learned to identify behaviours on which they need to improve and/or the behaviours they need in their environment. You will know that the participant learned what was expected if they are able to communicate those behaviours in a clear and accurate way.

Facilitator-Rating

Facilitator-rating involves asking program facilitators to rate the extent to which each learner successfully learned the program material. This can be effective when done shortly after the completion of the learning program.

While these ratings are estimates (and usually subjective), they can still be helpful in measuring learning.

Self-Rating

Questionnaires, interviews or focus-groups can also be conducted to ask learners whether they believe their knowledge or skills changed after completing the program.



<u>Analyzing</u> Learning Data

Setting up the appropriate learning measures is only the beginning: it's what you do to the data you've collected that really matters.

Analysing the data collected from your learning measures is key to determining how successful your program is in meeting its learning objectives. Data analysis will help you make sense of your learning measures, draw conclusions, and make recommendations on how your program can be improved.

By creating learning measures that are directly related to your learning objectives, your data should be well organised, leading to an easy and straightforward analysis!

Know your audience



Before you start analyzing your learning data, it's important to consider who you are analyzing it for. This will help you figure out what numbers you need to present, and how best to present them.

There are typically two audiences that will be interested in your data analysis: the program designers (who want to know which learning objectives are being met and how) and the organization stakeholders (who want to know if the program is effective in meeting its objectives).

Think of some of the questions these individuals will have that you'll want to be able to easily answer:

- How did the learners do overall?
- Are the scores acceptable?
- Did some learners perform better than others? Why?

- How different were the scores?
- Do the pretest and posttest scores indicate a knowledge gain?
- How were the questions? Were there some questions that were difficult for all learners?
- What is the data telling us about the success of this learning program?

Step 1: Organizing Your Data



Luckily, most learning programs are not offered online, meaning organizing your data can be as quick and easy as clicking a button.

If you're using an LMS like SumTotal, chances are you already have individual test scores at your fingertips - no manual scoring necessary.

The one exception to watch out for is if you've decided to alter an individual question's score credit due to its criticality as related to your program's objectives. You may need to manually change the scoring of some questions if you have assigned them partial or double credit, for example.

Step 2: Describing Your Data



You don't need to be a statistician or perform any sophisticated analysis to make sense of your data. Here are some simple ways to analyze and describe your learning data to better answer the questions you have about your learning program.

For the rest of this section, we'll use the data set in the table on the next page as an example.

Describing Averages

"How did the learners do overall?"

Averages are great for explaining the central tendencies of your data, or how a group of learners performed as a whole. There are three ways to measure the average: the **mean**, the **median** and the **mode**.

The **mean**, or the arithmetic mean, is measured by combining the total sum of all scores and dividing it by the number of scores. This can be done for both raw scores and percentages.

Learner Number	Raw Score
1	80
2	82
3	85
4	90
5	89
6	88
7	100
8	93
9	98
10	98
11	81
12	83

The class average score for this set of data (according to the mean) is 88.92.

The **median** is the middle value of all scores. The easiest way to determine the median is to list all scores from lowest to highest (or vice versa) and count down until you find the middle.

When there is an odd number of scores, the single value in the middle is your median. When there is an even number of scores, the median is the average (mean) of the two middle values. This is most commonly used when there is an outlier in the data (i.e. a value that is much higher or lower than the other values).

The class average score for this set of data (according to the median) is 88.5.

The **mode** is the score that appears most often -- and sometimes there can be more than one mode.

This is not recommended with small class/program sizes. Because our data set only includes 12 scores, we will not calculate the mode.

Keep in mind that your averages may change significantly if there are outliers in your data. In these cases, you might want to take the outliers out of your data set. Be sure to analyse these learners to determine if there is something about them that should be noted for future programs (such as if the user didn't have the prerequisite skills for the course).

Describing How the Data Varies

"How different were the scores?"

Now that you know where *most* of the data is grouped, you need to be able to describe the degree to which the data varies from that average (i.e. the measure of dispersion).

The easiest way to do this is by describing the **data range**: the difference between the largest and smallest values. In our example, the lowest score was 80 and the highest score was 100; therefore, our range is 20.

As our data is evenly distributed, this works for our example. However, if your data is impacted by outliers this would not be the best way to describe your data.

A more useful way to describe how the data varies is through the **standard deviation**, which shows how much your data deviates from the mean. The smaller your standard deviation, the closer most of your scores are to the mean. Similarly, the larger your standard deviation, the more spread out your scores are. This value is really useful for showing whether the average score is representative of the whole group of learners.

To calculate the standard deviation, you must:

- 1. Find the mean of a group of numbers. We already know that ours is 88.92
- 2. For each learner, subtract the mean from the raw score and square the result

Learner Number	Raw Score	Raw Score - Mean	Results Squared
1	80	-8.92	79.57
2	82	-6.92	47.89
3	85	-3.92	15.37
4	90	1.08	1.17
5	89	0.08	0.01
6	88	-0.92	0.85
7	100	11.08	122.77
8	93	4.08	16.65
9	98	9.08	82.45
10	98	9.08	82.45
11	81	-7.92	62.73
12	83	-5.92	35.05

3. Take the mean of those results

(79.57+47.89+15.37+1.17+0.01+0.85+122.77+16.65+82.45+62.73+35.05)/12 = 45.48

4. Take the square root of your resulting mean to get your standard deviation $\sqrt{45.58} = 6.75$

In our example, the standard deviation indicates that we can expect scores to fall about 6.75 points above or below the mean (i.e. between 82 and 95).

Step 3: Displaying Your Data



After analyzing your data, visuals are always useful for communicating your findings with others. For example, you might want to include...

- A data summary table with the calculated means
- A graph showing the difference between pre-test and post-test results
- A graph showing individual participant scores as they relate to one another
- · A graph showing each assessment question and correct response rate

"Data analysis will help you make sense of your learning measures, draw conclusions, and make recommendations on how your program can be improved."

Step 4: Reporting Your Data



Finally, now that you've analyzed and presented your data in a clear way, it is crucial that you share it with the right people within your organisation so it can be acted on.

Test scores and other learning measures that you established in chapter 1 can (and should) be shared on a monthly, quarterly or annual basis, together with analysis, conclusions and recommendations. Using learning software, like SumTotal or another LMS, can allow you to automatically group and send learning data for regular analysis.

Be sure to regularly ask the recipients of your reports if the analyses is answering all of their questions. Having an effective, regular reporting system can help you fix problems with your training as they appear. Reporting will help you continually improve your program and its effectiveness in meeting performance and business objectives.

Designing Job Performance Measures

In the first section of this ebook, we looked at measuring and analyzing learning. We examined ways to determine whether your program participants are understanding what your program is trying to teach.

The next step is measuring job performance to determine whether that knowledge is being applied in the workplace. It is important to consider the extent to which learning transfers over to day-to-day work, as this is what truly makes a difference to your organization's performance.

Before you start



Even before designing your job performance measures, it is important to plan how you will go about measuring post-program job performance. Before you being, consider...

- The purpose of the assessment and how that will guide your evaluation (e.g. do you want to prove the program's value, or do you want to check the program's impact on a certain skill?)
- Who will review the data so that the information is presented in a way that makes sense to them
- The information sources needed, which is directly influenced by the performance objectives of your program
- How the data will be compared so you can make sure the right variables are defined from the very start
- How many people should be included in the assessment so you have a representative sample
- The preferred data collection method so you are not being unnecessarily intrusive in the workplace

Based on your answers to these questions, you'll want to create a clear data collection strategy that everyone involved can agree on - the data collectors, supervisors, employees, stakeholders, etc. This strategy will hold the entire team accountable and ensure that the necessary measurement and evaluation actually takes place.

When to measure



Determining when to measure performance following a learning program completion is never easy, as there is no clear rule to follow. The best thing that you can do is to get in touch with the individual(s) who designed the program. Ask them when you should expect to see the anticipated changes in skills or behaviours and use that as a guide for when you will measure the post-program performance.

Evaluation Designs

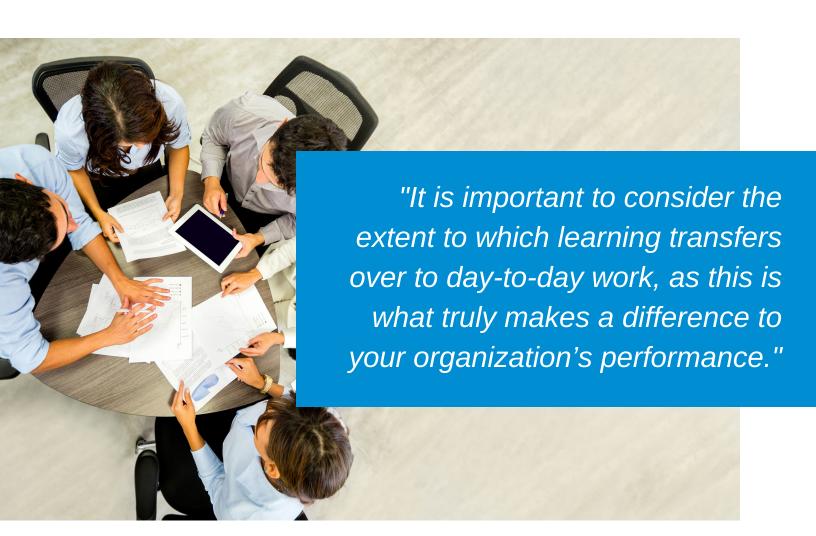
There are three main experimental designs for measuring job performance.

A **one-shot program evaluation** only involves measurement following the completion of the learning program. This is best used when you assume

the learner had little to no skills prior to the program (like in a training situation).

A **before-and-after evaluation** (like a pre-test and post-test) involves the same measurement of performance both before and after the completion of the learning program. This is best used when you want to measure a change in a behaviour as a direct result of the program.

Finally, a **control versus experiment evaluation** is the gold standard in job performance measurement. This involves either the one-shot or before-and-after evaluation design that compares a group who did complete the program (i.e. the experiment group) with a group who did not complete the program (i.e. the control group). This is the best way to isolate the program's effectiveness from any other factors that might influence a learner's performance.



How to measure

Here are just some of the useful ways in which you can collect data to measure job performance.

Follow-Up Questionnaires

Useful for: getting perceptions of the effectiveness of your program from participants (or peers, supervisors, stakeholders, etc.)

This is the most popular job performance measure, even though it provides 'perception data' rather than 'hard' data. These indicator measures are still useful, however, particularly when used in combination with other data collection methods.

Questionnaires can often provide the 'why' behind the trends seen in hard data.

Tips for designing follow-up questionnaires:

- Make sure the questions are tied directly to your performance objectives
- Closed-ended questions are best they're objective, force the respondent to consider the question, and are easiest to analyze
- If using open-ended questions, offer an "other" option whenever you're not sure of all the possible answers
- Make sure your questionnaire is audience appropriate check the reading level of those being questioned and test it beforehand
- · Keep the questionnaires as brief as possible

Observations on the Job

Useful for: determining the extent to which the intended behaviours are taking place, correctly

On-the-job observations are particularly useful when your performance

objectives can be clearly observed - and separated from other aspects of your learner's job. A well-designed observation data collection method should follow many of the same considerations outlined in chapter 1 for proficiency tests. However, unlike proficiency tests, these observations are happening in real-world scenarios, not simulations.

Tips for designing observations:

- Observe a representative group of learners, such as a mix of low-, mediumand high-performers (based on their current, pre-program performance)
- Choose the observer wisely it is easier to train an unbiased observer than try
 to remove the bias of an experienced observer (such as a supervisor or
 program facilitator)
- Be as unobtrusive as you can do not interfere with the employee's work
- Make sure you are measuring behaviours that are directly related to your performance objectives
- Reassure participants of their concerns before observing

Follow-up Focus Groups

Useful for: gathering constructive data, such as recommendations for how to improve a learning program

While focus groups may not offer as much useful data when it comes to measuring actual performance as some of the other methods mentioned here, they still have their uses. Focus groups are particularly great if you are looking for program feedback, as participants interacting in a group setting often feed off each others' answers and deliver some valuable insights.

Tips for designing focus groups:

- Train your focus group facilitator so he/she can actively listen and guide the conversation when necessary
- Plan your leading and follow-up questions in advance so you get all the data you need
- Use a small but representative group of program participants

CASE STUDY

In chapter 1, we introduced a case study where behaviour checklists were used to measure the success of learning in customer service training.

Using the before-and-after experimental design, we can elaborate on this case to evaluate the training program participants' job performance. This can be done by slightly modifying the observation checklist originally used.

Because customer service calls in a real work environment may not involve every behaviour seen and tested in the simulated call, a "Non-Applicable / NA" option is added to the checklist.

After ensuring for inter-rater reliability, evaluation specialists observe these newly trained customer service representatives as they engage in customer calls (with the learner's permission). Their observed performance scores are then compared with the scores on their original observation checklists to determine how much knowledge was actually transferred to the work environment.

Interviews

Useful for: collecting a wide-range of data that covers all your performance-related questions

Interviews can be conducted with program participants, but also with supervisors, peers or even stakeholders to gain a better understanding of how your learning program contributed to performance. In-person interviews tend to deliver the best results, but phone or online interviews are also possible.

Tips for designing interviews:

- Combine a structured and unstructured process: have your leading and follow-up questions prepared, but be ready to actively listen and go where the conversation leads
- Treat your interviewee with respect and assure them their answers will be kept confidential
- Take a conversational approach to your interview

Performance Monitoring

Useful for: collecting 'hard' data

While many of the other data collection methods mentioned here involve some sort of 'perceived' or 'predicted' outcomes, performance monitoring is a key method if you want to collect hard facts as they relate to job performance.

Performance monitoring involves measuring job performance based on data like output, time, quality, costs, and customer satisfaction. It is best used in organizations that have existing databases with this type of data (particularly when that data is traceable to individuals) so you can compare pre-program data with post-program data. However, this isn't always necessary and temporary performance monitoring systems can also be used.

Action Planning

Useful for: getting participants involved in their own performance evaluation

Action planning involves asking participants to establish their own goals they wish to attain after completing the learning program. The goals should be specific and measurable in that they are (1) clearly stated, (2) have a timeline/date associated with them, and (3) are assigned to a specific individual.

Action plans are great for getting participants actively involved in their own learning and has been shown to lead to greater learning transfer.

Analyzing Job Performance Data

The final step is to analyze the job performance data you collected. This essential step helps you determine how effective your program is in achieving its goals, and whether program participants are actually applying what they've learned to the job. It can also (hopefully) also explain why or why not.

The questions you want to answer



Like with your learning data in chapter 2, before you sit down with your performance data and begin analyzing, it is important to ask yourself a few questions:

- Does the performance data show that program objectives were met? To what extent?
- What about business objectives?
- Does performance vary between participants? Why? What variables are influencing that variation?
- What is helping or inhibiting performance?

Through the proper analysis of your data, you should be able to reach reasonable conclusions for each of these questions.

Step 1: Organizing Your Data

Organizing your performance data may not be as simple as organizing your learning data - it will depend on how you collected it. If you collected your data electronically, such as through SumTotal LMS, you may merely have to transfer it into an appropriate data summary table.

However, the way you organize your data will depend on your evaluation design used. For example, in a control vs. experiment situation, you'll have to organize your data in a way that allows for group comparisons. In a one-shot evaluation situation, no such organization is needed.

"This essential step helps you determine how effective your program is in achieving its goals"

Step 2: Analyzing Your Data

Once again, the way you analyze your performance data will depend heavily on the design you used to collect it.

In a one-shot evaluation design, you'll want to analyze your data against the standards set in your performance objectives.

In a control vs. experiment evaluation design, your analysis will revolve around comparing one group's data with the other's.

In a before-and-after evaluation design, your analysis will revolve around comparing the pre-program data to the post-program data.

CASE STUDY

As you can see, job performance data analysis is unique to each situation. You'll want to use many of the same analysis techniques used for analysing learning data, as discussed in chapter 2.

Perhaps the best way to talk you through analyzing job performance data is to give you an example via the case we've seen throughout this e-book.

Performance objective: to improve participants' customer relations skills

Through this customer service training program, the goal was to train customer service representatives & generate better customer satisfaction.

A before-and-after evaluation design was used to analyze their job performance. As described in chapter 3, each participant was scored using observation checklists and given an overall percent rating.

Just by glancing at the data table on the following page, we can see that performance appears to have improved, with the mean score jumping from 41 to 79.

To get a better idea of which areas of the program were the most effective, we need to analyze each individual item on the behaviour checklists. Let's compare the percentage of "yes", "no", and "NA" checks on 'after' checklist, so we can draw conclusions about what areas of the program need improving and which are fine as is.

CASE STUDY (CONTINUED)

Representative	Before Training Score After Training Sc		
1	40	62	
2	25	80	
3	50	90	
4	33	75	
5	42	82	
6	60	85	
7	42	88	
8	28	75	
9	44	62	
10	32 85		
11	55	68	
12	26	56	
13	35 75		
14	45 89		
15	52 90		
16	40	100	
Mean scores	41	79	

Behaviour Area	Yes	No	NA
Opening the call	98	2	0
Diagnosing problems & identifying needs	80	10	10
Assessing progress and updating the plan	60	45	151
Recommending approaches for results	55	35	20
Closing the call	98	2	0
Overall listening skills	75	25	0

There are areas where performance is stronger (opening and closing the call) and where it is weaker (recommending approaches for results). This gives us a much clearer analysis of job performance; but, we would need to consult the learning analysis before making any sound recommendations. Otherwise, we can't be sure whether negative performance is related to lack of application or learning.

Step 3: Presenting Your Results

Once your analysis of the performance data is completed, you should consider how you are going to present your findings to the organization. Presentation is key to telling the right story and making a convincing argument.

Implement visual techniques to make your results as clear as possible. Use shading, colour and bolding when necessary, and be sure to make use of tables and graphs. Avoiding using jargon-filled language that someone outside your department (or without your experience) might not understand.



Linking Results to Recommendations

You've collected all the data you need. You know whether participants are learning from your program and whether they're applying that knowledge on the job. It's time to put that information to use and make recommendations.

As the program evaluator, it's your responsibility to take your stakeholders on a journey through your findings. It's not enough to simply present your findings: you need to back them up with numbers, facts and results. Every conclusion and recommendation should be presented in a clear, logical way; just as obvious to the reader as they are to you.

Before reaching a conclusion, double and triple check your findings. You don't want to make a recommendation based on faulty or inaccurately interpreted data. Make sure your data isn't being influenced by other variables (like learners' location), and don't be afraid to go back to program designers, planners and other members of your team for feedback.

Your conclusions are more than just your results - more than the numbers that come out of your analyses. Presenting conclusions and always involves some degree of judgement and interpretation of those numbers. For each and every conclusion you make, connect it to a concrete result (at least one).

Deliver your conclusions and recommendations in a way that makes sense to your intended audience. Realise that that audience may not have the same knowledge, background or expertise as you and try to make allowances for that.

The conclusions you draw and recommendations you make, when supported by the right measurement tools and analyses, will have a direct influence on your organisation's learning programs. Above all else, ensure your recommendations are substantiated, unbiased, clearly stated, and reasonable.



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