

Linking Learning to Performance

By Paul H. Elliott, Ph.D

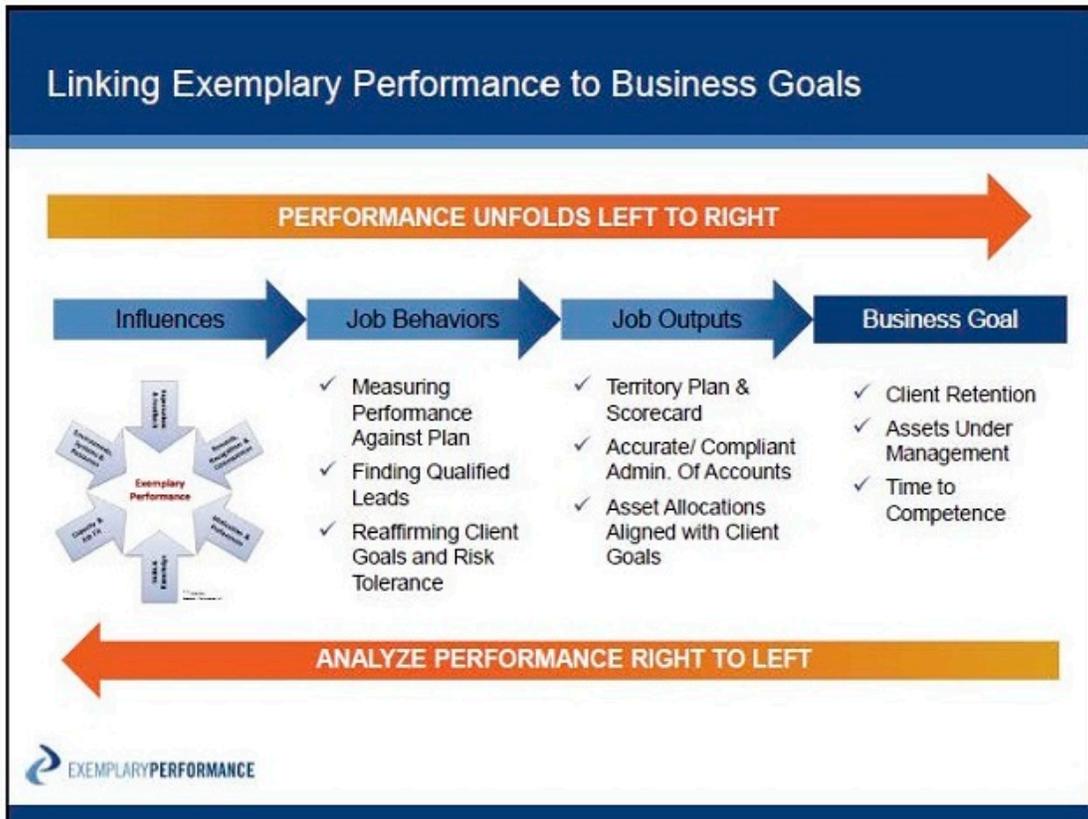
An underlying assumption held by the majority of learning professionals is that it is difficult, if not impossible, to demonstrate a definitive link between learning and performance. The problem is that most efforts to show the relationship attempt to do it retroactively. The training is designed, perhaps even developed, and then people ask the question – “How can we demonstrate the impact of this program on key business metrics?” The fallacy with this approach is that **the link between knowledge and performance can never be demonstrated retroactively.**

Learning versus Accomplishment

Thomas Gilbert (Thomas F. Gilbert, Human Competence, Amherst, Massachusetts: HRD Press, 1996) argued for a shift in focus in order to produce effective performance improvement; focus on what people **produce** in the work environment, not simply on what they **know or do**. Helping workers perform tasks more efficiently that don't produce the desired accomplishments won't improve a company's business results. Instead, you need to focus on and identify what a worker's major accomplishments are up front and then determine how those accomplishments contribute to the company's business goals. Once you have this information, you can determine the tasks and support systems needed for workers to produce those accomplishments with a high level of competence and confidence.

Figure 1 illustrates Gilbert's point. The arrows that form the star on the left (the first column) represent what the organization provides to support an individual or team in their

performance. The next column represents the actions or tasks that individuals execute based on those influences. The third column represents the accomplishments or results that are produced as a result of the actions. The column on the far right represents the goals that are supported by those accomplishments or results. When we think about performance, we see the process unfolding from left to right.



However, if the purpose of your training is to improve performance, the analysis must proceed from right to left. By starting with the goals or strategy of the organization, you begin the process with a focus on which accomplishments are most critical to produce in order to achieve the organization’s strategy and goals. This knowledge enables you to capture the critical tasks required to produce those accomplishments as well as identify those actions and activities which are not contributing directly to the desired results.

Leveraging your Star Performers

When linking learning to performance, whose performance do you want to replicate? Which individual or teams are consistently producing valued outputs at or above standard? The most effective and efficient way to capture expertise is to work with your existing accomplished performers – **your internal benchmarks**. These are the individuals who have established approaches to their work that produce the desired accomplishments at a consistently high level. They are often unconsciously competent and so you will need to capture their expertise in a way to make it explicit and transferable to other team members.

The process we use for capturing the exemplar's expertise is based on our work with hundreds of clients across multiple industries; the process must be **context-intensive** and **case-based**. For example, if you're working with a sales team that consistently wins competitive displacements, it's best to ask them to walk you through several recent wins in a detailed and methodical way. The questioning should address every step in the process, from the identification of the opportunity to closing the sale to full implementation of the product or service.

Capturing the expertise of high performers in your organization provides a rich repository of information that describes optimal work performance. We call this the Profile of Exemplary Performance (PEP). The information in the PEP is useful to design and implement a wide range of performance interventions. You can think of the PEP as the DNA of your exemplars.

The PEP data includes such information as the accomplishments produced by the particular role or team, the success criteria for those accomplishments, the key activities or tasks that produce the accomplishments, and system facilitators and barriers that the stars have discovered.

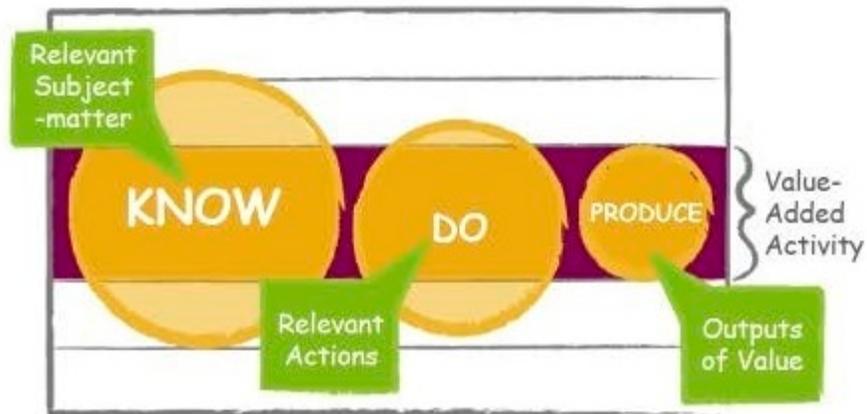
Begin With the End in Mind

You can never link learning to performance unless you begin with the end in mind. You must take an accomplishment-based approach in defining the outcomes that will reflect business impact before beginning any other part of the analysis to determine the need for training.

- Generic training simply doesn't transfer.
- Context-intensive design is essential.
- There is always a transfer of training to performance when the training is linked directly to the job results for which the participants are accountable. Why? There is high relevancy.
- And quite frankly, you will never be given credit for having a business impact after the fact if it wasn't defined before the initiation of the project.

Beginning with the end goal provides you with the information needed to analyze what intervention is required in order to impact performance. Well-designed training is an effective and efficient tool for transferring the requisite skills, knowledge, and information in order to add value to the organization's critical business metrics.

Driving Performance Through “LEAN” Training



Teach only the knowledge (KNOW) and skills (DO) needed for people to produce valued results. Teaching anything outside the value-added band is potentially a waste of time and money.

Linking Learning to Performance: Performance Support

When analysis determines that performance is deficient, due to lack of skills or knowledge, you can ensure a strong and visible link to performance through the appropriate use of performance support. But first, you must decide which alternative for storing information is most effective for producing results. The options are to store the information in the memory of the performers or to store the information externally in what is referred to as performance support.

Performance support is a class of tools that provide requisite knowledge and information, just in time at point of need. Imagine visiting your local automated teller machine (ATM) to withdraw cash. But instead of finding the usual visual cues to help you select an account and indicate an amount, you had to attend a bank-sponsored training program until you could punch in a series of numerical commands from memory. Or to further illustrate the concept, imagine this familiar scenario **with** performance support that we all rely on nearly every day; leaving a voice mail message. Just imagine trying to leave an urgent message on a voice mail system without audio prompts to direct you and your only option was to guess which numerical command was required.

Performance support is a storage place for information, other than memory, that is used **while** performing a task. It provides a signal to the performer on when to carry out increments of a task, which reduces the amount of recall necessary and minimizes error. Performance support can appear as simple instructions to assemble equipment or complex algorithms to analyze systems. This includes tools such as checklists, decision tables, performance-centric user interfaces, embedded help systems (such as the telephone example), job aids, etc.

Performance Support vs. Long-Term Memory

The decision whether to use performance support or long-term memory is a trade-off because each has advantages and disadvantages. Advantages of long-term memory include the following:

- Long-term memory allows performers to act quickly (within seconds) and this usually translates into higher productivity.

- The performer's hands and eyes are unencumbered.
- Performers are likely to be given more credit by other people (bosses, peers, customers) if they can respond without external aid. Often these people equate competence with speed and memory, rather than just the quality of the performance.
- In rare cases, memory-storage is mandated by regulations.

The disadvantages of long-term memory storage include the following:

- Despite good teaching tactics, decline in retention begins within seconds and can be serious within hours. When the interval between learning and on-job practice is long, loss of retention often wipes out any performance improvement, unless performance support is used.
- There is greater variability of performance for memory-based activities.
- Variables such as task interference, personal problems, and prior learning can hinder job performers from accessing long-term memory.
- The instructional design and development of training materials takes much longer to produce than performance support, resulting in higher development costs.
- Training time for long-term memory storage is greater, resulting in higher delivery costs. The delivery cost of training typically exceeds all other costs combined.
- Higher retraining costs occur when there is a change in the work process. Unlearning then relearning is one of the more expensive problems faced by trainers and educators.

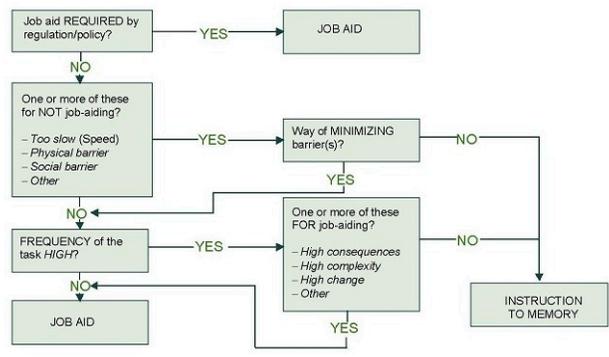
The following types of tasks are ideal for performance support:

- A task performed with relatively low frequency.

- A highly complex task. A task is complex if fine discrimination of stimuli is involved, such as a fighter pilot determining if an on-coming aircraft is friend or foe; or if there is a series of binary discriminations, such as inspecting or troubleshooting a complex electronic system.
- A task with criteria which, if not met, results in high consequence of error, such as high financial loss, injury or loss of life (such as an engineer designing chemical a plant).
- A task with a high probability of change in the future. That is, the way in which the task is being currently performed is likely to change because of changes in technology, policy or equipment. In such cases, other variables being equal, it is often not worth devoting time and other resources in the costly, time-consuming process of training. It is far more cost-efficient to update a performance support tool than to retrain a portion of the workforce.
- Characteristics of the task do not rule out the use of performance support. Some tasks have severe time requirements in which even seconds matter. For example, the initial actions of a pilot during an in-flight emergency must be immediate rather than guided by performance support. Note that pilots are trained to shift to performance support (flight procedures) immediately after taking the initial corrective actions. Why? These actions are infrequently performed, are highly complex and could have devastating consequences.
- Another inhibiting factor might be the performance environment. For example, a surgeon might face the problem of how to ensure that a performance support tool is kept sterile. Social barriers might be another inhibiting factor in the use of performance support. For example, if more credit is given by bosses, peers, and customers for the use of long-term memory storage (i.e. knowing all product prices or order numbers), the job performer might not use performance support no matter how complex the task.

Figure 3 provides the logic for making the decision between performance support and training to memory. We have been using this tool for decades and find that it produces consistently valid results. The most interesting aspect of this tool is the conclusion that performance support is the preferred option over training. This is the reverse of all the assumptions that most managers and training organizations have in regards to the most effective and efficient way to provide skills and knowledge to performers. We believe, however, that it is always preferable to provide performance support over training, when you have reached the conclusion to not use training based on data about the actual nature of the work. If this seems counterintuitive to you, remember that the costs of developing performance support are significantly less and delivered in much less time than the equivalent training.

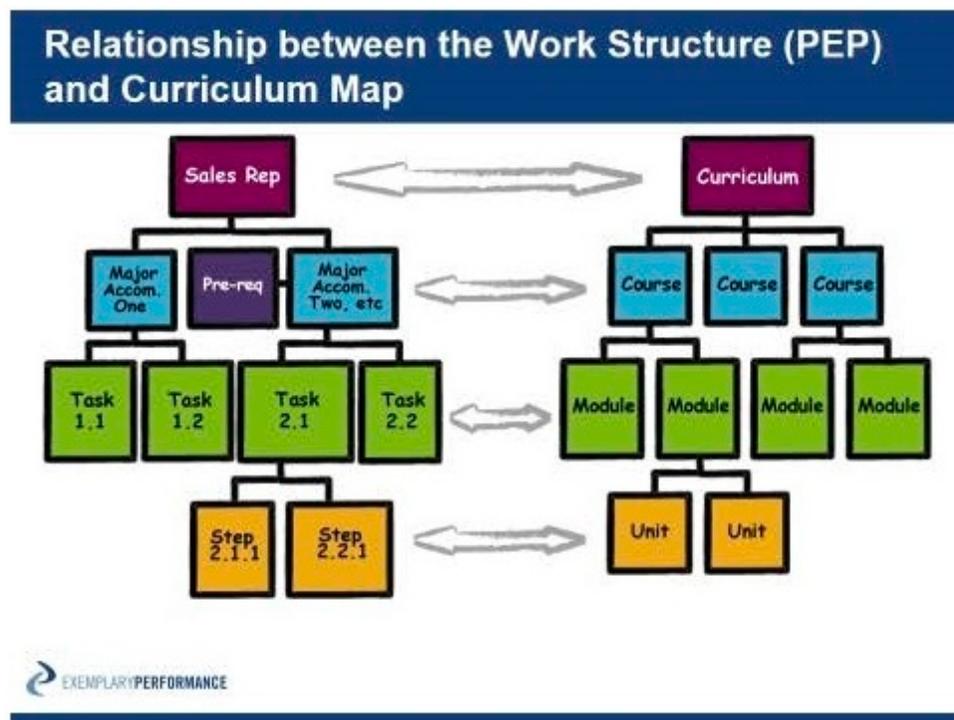
Job Aid vs Memory Decision



How to Link Training to Performance (When Training to Memory Storage is Required)

When training to memory is required, we are strong advocates for context-intensive training. The structure of the training is analogous to the actual work structure/process captured

in the Profile of Exemplary Performance (PEP). The examples and practices are role specific and include the current best approaches captured from exemplary performers and teams. Figure 4 shows the structure of a sales role on the left derived from the PEP and the corresponding curriculum model on the right. If one of the accomplishments for the role is ‘Accurate Forecast’, the corresponding course on the right would be entitled ‘How to Produce an Accurate Forecast.’ If a key task for producing accurate forecasts is ‘Analyze Competitive Landscape,’ you would need a module entitled ‘How to Analyze the Competitive Landscape. Since participants never have to ask how the training relates to their work, **this design model drives measures of relevance and training transfer off scale!**



In effect, this means you should provide instruction and practice only in those skills and tasks not yet mastered and only as much training as is needed to produce the level of competence

required for the role. This context-intensive model will enhance the trainees' **motivation to apply what was learned to his or her world of work.**

Profiles of Exemplary Performers (PEP)

The training should also guarantee to produce graduates able to perform to the level as described in the PEP and yet be flexible enough to avoid the enormous waste associated with a 'one size fits all' design approach.

Why do we stress the importance of designing the training based on the information captured from your exemplary performers? To do this requires a little background information as to the difference between **declarative knowledge** and **procedural knowledge**. Declarative knowledge is often described as 'knowing what' and procedural knowledge is described as 'knowing how'.

If you know how to use a copier, you have procedural knowledge. If you know the underlying principles concerning how a copier works, you have declarative knowledge. There is significant evidence that declarative knowledge is different from procedural knowledge. You can learn everything there is to know about a subject, but still not be able to use that knowledge to do anything. For example, learning the rules of grammar may help you learn the Italian language, but being able to state the rules does not mean you can speak the language. Speaking requires procedural knowledge.

Experts aren't just faster and more accurate than novices or incumbents who are performing at a lower level, they know more and different things about the problem and they have insights that the novice cannot yet fully understand. In fact, six major differences exist between experts and non-experts that are important to consider in the design of instruction.

1. In general, experts have more specific declarative knowledge. They have more principles in their mental models and those principles operate more automatically. This allows them to synthesize their declarative knowledge and apply it more systematically to the procedures that require it.
2. Experts have better links between their declarative knowledge (mental models) and their procedural structures. These links allow them to bring principles and procedures together to solve problems more efficiently.
3. Experts are really exceptional at organizing their mental models. Solving a new problem involves constructing and manipulating that mental model and by making more associations among the declarative and procedural knowledge structures. This ability provides them with mental shortcuts that make the experts highly efficient.
4. Experts categorize and group problems differently from less experienced performers. They are able to extract the abstract problem features from the surface symptoms they encounter and categorize those features based on their deep mental models.
5. Experts frequently generate heuristics (strategies) for solving problems by working forward from the initial condition or problem, generating an hypotheses for a solution, and then applying the new solution to see if it leads to the desired goal.
6. And finally, experts are more likely to persist if the first strategy doesn't work. A novice may give up after an initial failure.

Based on this research, the challenge for training is to assist learners to categorize problems the way experts do and to build an appropriate mental model of the work that contains all the correct components in the right relationships with the right operating principles. This is the logic behind a context-intensive approach to training design.

How to Link Training to Performance (When Using On-The-Job Training)

Structured on-the-job training (SOJT) is an approach to training design and implementation that produces a rich, context-intensive approach. This is an approach we often recommend. But first, it is important to differentiate between **SOJT** and **unstructured on-the-job training (OJT)**.

In North America, on-the-job training is most commonly used to refer to a haphazard and ineffective approach of pairing a novice with a more experienced performer. The hope is that through osmosis, the right information will pass at the right time from the more experienced performer to the less experienced performer. It is typically not systematic, replicable, scalable, or dependable. Unstructured OJT leads to trainees acquiring skills through the following means:

- Impromptu explanations and demonstrations by others, whether or not those providing the information are qualified performers. **The research shows that when subject matter experts serve as ad hoc coaches, they leave out 70% of process steps that the novice requires to be successful.**
- Self-initiated trial and error efforts.
- Random imitation of others' behavior, regardless of whether they are qualified to serve as examples.

In contrast, SOJT is defined as the planned process of developing task-level expertise by pairing an experienced employee with a less experienced employee, at or near the actual work setting. The discrete job tasks that are documented and observed serve as the basis for the training content and objectives.

SOJT is only as effective as the experienced and knowledgeable employees who serve as the trainers. These SOJT trainers should demonstrate adequate competence in the work being presented and in the skills required to present that work to others. Therefore, in SOJT the development of trainers is often a formal, extensive process in and of itself.

Regardless of the delivery method, context-intensive training provides multiple benefits.

Summary: Optimizing the Link between Learning and Performance

Training **with** the following characteristics has been shown over and over again to have a direct and measurable impact on performance:

- The training structure should precisely mirror how your stars produce exemplary results.
- The content should align with actual work practices.
- Rich, role-specific examples and practices should be included.
- Sufficient practice is provided to support skills transfer to the work setting.
- An explicit decision must be made between storing the information in the memory of the performer or making it available through performance support.
- The training concludes with a simulation of the critical work processes at the highest level of fidelity that is practical.

When new hire training is designed and developed based on a Profile of Exemplary Performance captured from your star performers, we consistently see impressive results. For example, ramp-up times for new hires are reduced by 30% or more. Concurrently, training design, development, and delivery times are all shortened by 20 to 40%. The combination of

faster ramp-up times and reduced training cycles has a significant impact on the value that new hires produce in the early months of their employment.

Well-designed training is an effective and efficient tool for transferring the requisite skills, knowledge, and information to the organization's goal. When analysis determines that performance is deficient due to lack of skills or knowledge, you must look inside your organization for that star performer who consistently produces above standard. Then decide which alternative for storing information is most effective for producing the desired results. The options are to store the information in the memory of the performers or to store the information externally, in what we refer to as performance support.

When training to memory is required, we are strong advocates for context-intensive training. Context-intensive training is designed directly from the Profile of Exemplary Performance. The structure of the training is analogous to the work structure/process. The purpose of designing the instruction is to prescribe instruction that will teach the learner to perform as the role requires and, at the same time, to adjust to the needs of the individual.

Structured on-the-job training (SOJT) is a highly recommended approach to training design and implementation that produces a rich, context-intensive approach and is defined by its use of experienced and knowledgeable employees with the right skills who serve as the trainers. Regardless of the delivery method, context-intensive training is a relevant, efficient, lean, and effective approach to shifting your stars' expertise to the solid performers, thereby impacting the bottom line of the organization and shifting the performance curve.

Finally, performance support yields more accurate and reliable job performance, is less expensive to develop than instruction and dramatically reduces formal training time. It should be considered in every project in which prior analysis shows a need for information.

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Further Reading:

Elliott, P. & Folsom, A. (2013) *Exemplary Performance: Driving Business Results by Benchmarking Your Star Performers*. San Francisco, CA: Jossey-Bass/Wiley Imprint.

Rossett, A & Schafer, L. (2007) *Job Aids & Performance Support*. San Francisco, CA: Bass/Pfeiffer/Wiley Publishing.