Building Capability

THE FORGETTING CURVE

Greetings!

A recent project focused on performance support and the recent ISPI conference reminded us again about how important it is to build support into the work environment to really improve, not only **individual,** but **organizational** performance.

Training is great but with the amount of new information today, it is hard for any training organization to keep up (and it is even worse for the average employee). Tools and references become even more critical. (For that matter, it is critical that a solid architecture exist for incorporating new learning...but we covered that in our last issue.)

In this issue we explore the idea of "the forgetting curve" and how to manage against the inevitable loss of learning over time.

We've also got an article profiling a recent performance support project and information about the recent ISPI conference. (And, our new blog!)

We ran short of space for "For Fun," so I'm sneaking in an extra website here). It is called "Do It." See http://www.e-flux.com/projects/do_it/manuals/0_manual.html

Do It is a (complicated looking) collaborative space set up by a group of artists. Their idea was "instruction sets" (which is how I stumbled upon it) but the instructions are for conducting performance art and the goal is to get people to send in realizations of their instructions. We tend to want instructions to lead to the same performance but the artists value the results being different ...interesting.

I hope you enjoy this issue!

Pete

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Forget About the Learning Curve, Learn About the Forgetting Curve

The Learning Curve

It is (or should be) well understood in the training business that trying a new technique will result in an initial drop in performance. Coaches often need to encourage learners to continue using the new technique until they get up the learning curve. In other words, keep chugging and eventually your performance will exceed your previous levels.

The learning curve can be unpleasant. At the least, it is a necessary evil. Nobody enjoys the learning curve but it is a reality for anyone trying something new.

The implication though, is that once you make the trip up the learning curve, you stay at the top, that once you know something, you know it permanently. But practically speaking, we know better...we know that it is really more "use it or lose it." Researchers who have studied learning retention can confirm that the shelf life of new learning isn't very long.

As far back as 1885, a German psychologist named Hermann Ebbinghaus conducted research on memory. His focus was strictly recall—he had subjects learn lists of nonsense syllables and then tracked how well they could recall them. He would work with subjects until they learned the list and then retest them periodically. He also measured how long it took for people to relearn what they had forgotten.

Ebbinghaus' research identified things we take for granted today, such as the "primacy and recency effects" (which just means you often remember the first and last things in a list and forget the ones in the middle). His research led him

Forget About the Learning Curve...Learn About the Forgetting Curve, continued

to believe that there is no such thing as permanent memory—everything can be forgotten if not used.

Below is a diagram showing an approximate "forgetting curve." It isn't pretty if you are a professional trainer, or a business manager.

RETENTION LEVEL

Recall

During Learning

After Learning

Time
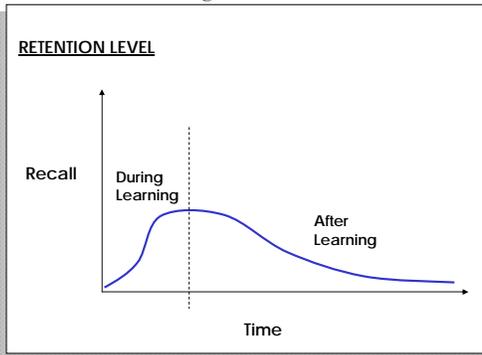
The forgetting curve helps explain

- Why people pass tests in a training class and then go back to doing what they always do when they get back on the job

- Why spending *lots* of effort refining lectures and presentations is a game of diminishing returns.

> "...spending lots of effort refining lectures and presentations is a game of diminishing returns."

If you think about this from the standpoint of a learner, this should be obvious. Think about the last meeting or presentation you attended. Can you even remember one slide?

Yet, you know that presenter thought carefully about each bullet and graphic on every slide. But, did they spend enough time thinking about how to get you to internalize their message?

For results, we need to focus on the desired performance, how to develop it as quickly as possible, and how to measure that you have actually achieved it.

Importance of Repetition

Most of the researchers focus on strategies for improving recall. Though the specifics vary, in general they all involve repetition (or review). There are different formulae for how frequently and for how long the repetition needs to happen but they all agree on the need for it.

Unfortunately, repetition is a hard sell in the business training world. For one thing, it requires time. For another, it seems like something people should be held responsible for "doing on their own" rather than using training time, which could instead be used for learning new information.

Maybe the biggest problem with relying on repetition is that it doesn't *feel* like a strategy to use with adults. It feels demeaning—sort of a "brute force" approach to learning. Learning "by rote" has a negative connotation.

In fact, repetition may be the right strategy in some cases, such as salespeople learning product features. But before you take the plunge, it is important to be certain that straight recall of facts or information is really the desired performance. Often information that is conveyed through lecture or presentation could really have been distilled into a tool (e.g., reference document) which would negate the need for the high effort, high cost work of memorization.

Importance of Reinforcement on The Job

The forgetting curve should also make us think twice about investing in training without at least consideration of the post-training environment.

Beyond recall, is transfer. Transfer is using the new learning in the job setting. There are a number of factors that impact how well transfer happens but immediate use and reinforcement are key.

In the learning model shown at the right, you should be spending the majority of your energy on the boxes outlined in blue.

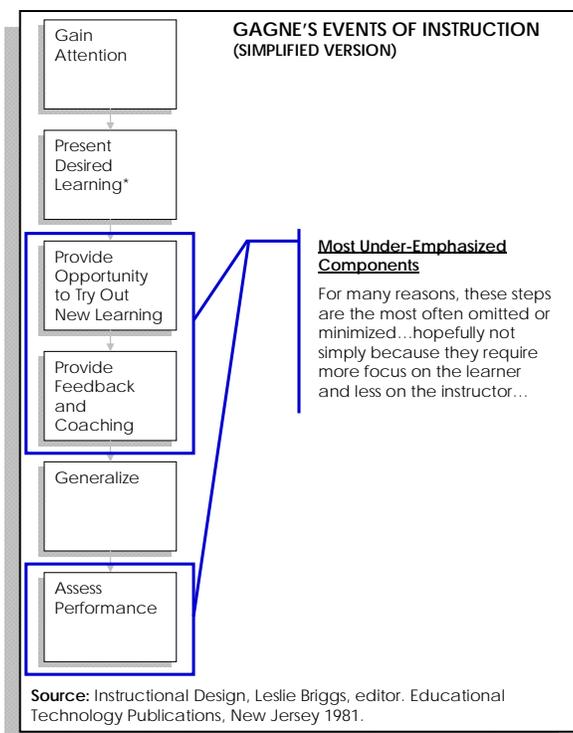This is why it is important that trainers do not create content in a vacuum—we need master performers to ensure we teach what the learners will be doing on the job.

Still, there are times where all field settings are not using the "best practice." Embedding best practices in process information, tools (e.g., software), metrics, etc. helps build a stronger set of reinforcement and increases the likelihood that performers will do the work the way you trained them to.

The Best Solutions are Always Systems

Ultimately, all performance solutions reside in an environment of training, information, process, coaching, tools, incentives, and culture. It is always more effective to address more than a single element. The iPod is a great innovation...but without digital music (and the iTunes online store) it wouldn't have been successful. In the same way, great training won't make any difference without the rest of the performance environment.

To go even further, training addresses individual performers but the performance environment affects all performers. Interventions that improve the performance environment are likely to deliver a broader and more lasting impact than even excellent training can.

GAGNE'S EVENTS OF INSTRUCTION
(SIMPLIFIED VERSION)

Gain Attention

Present Desired Learning*

Provide Opportunity to Try Out New Learning

Provide Feedback and Coaching

Generalize

Assess Performance

Most Under-Emphasized Components

For many reasons, these steps are the most often omitted or minimized...hopefully not simply because they require more focus on the learner and less on the instructor...

Source: Instructional Design, Leslie Briggs, editor. Educational Technology Publications, New Jersey 1981.

Top 5 aka "The List"— Misconceptions About Training

Working with clients in different industries and roles, we have noticed that there are several common misconceptions about performance and learning. Here are our Top 5…

☑ **Training can deliver with unrealistic deadlines.** Products take forever to design and build but, at the tail end of the process, training is expected to emerge instantaneously. The best way to get training done faster is to start earlier.

☑ **Training can deliver outputs without key inputs**, such as decisions about how a process will work or time with master performers to capture critical know-how. Sometimes the gap is funding. Training requires time from skilled people—if it is going to be any good, it won't be cheap. If decisions aren't made or if the development process is conducted inefficiently, it will be even more expensive (and, in this case, with no added benefit).

☑ **Everyone is an expert in training**, presumably because they went to school. Unfortunately school (which relies on instructor-centric one-way information delivery with limited application) is the wrong model for most business settings.

☑ **Trainers can jump directly to development** without any analysis or design first. Maybe because the end result includes a document or presentation, many people think "how hard can it be? Just write it!" Nobody would expect an engineer to "just draw it" without understanding the technical and customer issues first.

☑ **Only content accuracy and completeness matter.** Reviews focus on specific content details or, occasionally, the "look and feel" of the materials. Of course these things are important. But they can eclipse even more critical dimensions, such as targeting the correct performance and providing sufficient practice and feedback to effectively develop capability.

Don't get the wrong idea though, there are lots of great things about being in the human performance improvement business—maybe next month we'll list our five favorites!

Project Profile: Shifting Know-How to the Point of Performance

The Business Situation

This was a rare situation—a client wanted to take a fresh look at how to provide information to process operators. In particular, they wanted to reduce training by increasing the support available at the point of performance. (Of course, they expected other benefits as well, such as more consistent performance and quality.)

Our client also felt that we would be best served, not by identifying general principles (though we did) but by starting with tangible examples that could serve as models for future projects.

The area we selected for the prototyping effort was gearing up for the launch of a new product. The new process would be similar to an existing process but would be different enough to require new support materials. Management was supportive, even enthusiastic. Any improvements we identified had an excellent chance of being incorporated into the final *work process*, not just the support deliverables.

Analysis

Due to audience size and our detailed focus, instead of a group analysis meeting we used observation. We spent the better part of a week gowning up and watching operators assemble, operate, and clean equipment. We paid close attention to the work environment our solution would need to work within. We took lots of notes and digital photos.

We consolidated the observation data into our normal formats to make the results easier to communicate and to fit our design process. The graphical format also made it clear where potential performance problems could occur and where point-of-performance support could help.

In addition to several specific issues, the analysis yielded some overall insights as well. For one thing, we found that experienced operators rarely reference information...but they keep a lot in their heads. We knew that this could not be the long-term strategy—the business was changing. In many areas, they were moving to smaller batches, meaning an operator would need to be "reload" information on a new product every few weeks. Memory alone would not be good enough.

Another insight was in how performance support could be used in this environment. Our model included use as

- Prompts
- Decision support
- Reference information, primarily for "how to's"

Specific process details, such as machine settings or operating parameters, change too much to embed in support. Instead, they were provided in the manufacturing ticket.

Of course, the solution would need to work inside the actual environment. There would be dust and operators would be wearing gowns and hoods that would limit their ability to use certain types of tools. Paper wasn't ideal because of contamination and because of the risk of being out of date. Using touchscreens to access server-based data would yield up-to-date content of all kinds...if we could get large enough monitors in the area.

Handheld or "PDA-like" tools were less ideal as the hoods and gloves, along with the small screen size, made them too hard to use. Our favorite idea was audio headsets for communicating with operators on other floors or rooms. We never did figure out why the operators vetoed this idea...but they did.

Prototyping

We created a number of small conceptual prototypes and then a more focused, larger prototype for progressive reviews by performers, management, and technical experts. The "winning solution" was essentially a "portal" that provided access to all process-related information. The favorite feature was actually something simple...focusing the information on a single process so that the operators didn't have to search through every procedure

> **"All performance solutions reside in an environment of training, information, process, coaching, tools, incentives, and culture."**

Project Profile, continued

for the building but could use a graphical interface to tunnel into specific sections of this process or locate details on their specific equipment instead.

Conclusions

It is great fun to innovate. But, always understand the business drivers that underlie the situation. The ultimate reasons for emphasizing performance support were business reasons. Capturing and externalizing know-how was only valuable because it would reduce the learning curve and help transfer capability to new operators. It would support the business shift to multiple products requiring rapid and effective changeover.

And, when innovating, never underestimate how hard it is to change the way people and organizations thing about their work. Often we would spend time re-explaining ideas because we hadn't realized an underlying assumption (such as what "job aid" meant to a particular manager.) We think it just takes time and continued effort. Without a solid need plus the determined effort, even great ideas will never get off the ground.

Finally, innovating is really more about listening and observing than it is about being brilliant. The obstacles are out there. Almost everyone has suggestions. An innovation can be as simple as pulling it all together and then asking "why not do it?" We think this is good news.

News and Events...

We've been pretty busy with the ISPI conference, held the first week of May. We participated in three presentations (and previewed one at the Chicago Chapter's "Conference Preview" meeting in April.)

If you missed the conference, you can find all of our presentations and handouts available for download from our website.

Performance Testing

Speaking of ISPI, during the conference we found there is a great deal of interest in performance testing. In fact, after his session, Pete was asked to contribute an article to a book being compiled on the subject. As a result of this interest, we've decided to focus our next newsletter on performance testing...we hope you find it useful.

Check Out Our Blog!

As usual we are jumping on a trend a little bit late...but being on the cutting edge can be painful sometimes...

If you navigate to www.prhconsulting.com/blog you can find periodically updated information, ideas, and occasional "rants" related to training and human performance. We invite you to browse, subscribe, or even join in by adding comments.

Right now our categories include

- Pete's Blog
- Qualification and Testing
- Capabilities and Competencies
- Performance System Design
- What's New?

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For Fun—Wasting Time on the Web

If nothing else, the web offers more ways to waste time than anything mankind has yet invented. Here are some of our favorite time hogs.

NASA: www.nasa.gov

If you like the movie Apollo 13, and who wouldn't, you will like this site. Plenty of outer space images for screensavers. (As an aside, Pete just happens to have James Lovell's autograph.)

Lifehacker: www.lifehacker.com

Their mission is to share "hacks" (as in simple, practical tips) for anything and everything. You can tell they are techies at heart though, because many of the hacks are things no normal PC user would try

(extreme example, a calendar program made of ASCII characters!! Why? Because they can.) Still plenty of good ideas, from menu (as in food) planning to how to avoid sore muscles when you work out.

Line Rider: www.linerider.com

Line Rider is like an Etch-a-Sketch where you can create "linescapes" that a little character on a sled rides through. If you don't have the patience to create your own, go to You Tube and search for "line rider."

Rocketboom: www.rocketboom.com

Rocketboom is modeled after a news program but their stories come from the web. There was some contro-

versy when the original host left but we think it survived OK, though they still sometimes try too hard to be "zany."

Homestar Runner:

www.everybodyeverybody.com

This is a very quirky, funny, and animated cartoon on the web. It started from a children's book but we know a lot of adults that check it out regularly. View a couple of Strongbad's emails for a quick orientation. (Our favorite...probably "Looking at a Thing in a Bag".)

It's Jerry Time: www.itsjerrytime.com/

Another animation site...from the director of the movie "Airplane!" Odd and amusing.

Visit "the library" on our website for past presentation hand-outs and related articles!