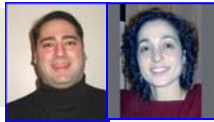




Learning as a Progression: Implications for Instructional Designers

By Gus Prestera &
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Instructional Designers



At effectPerformance, we believe that workplace learning can best be described as a progression (see Figure 1), as a series of events rather than as a single moment in time, and therefore solutions need to be designed with this progression in mind. In our model, the learner begins with knowledge and skill building. She may eventually reach skill mastery, that is, the ability to perform a task proficiently within a controlled learning setting. Once she is proficient, she may choose to transfer that skill to the workplace. With time, experience, and feedback, she will improve to the point where she can do it in her sleep, adapting to new situations without hesitation, without "thinking." At this point, she is said to have achieved skill fluency. Sounds simple, right? Well, let's take a look at an example of one individual's learning progression and

then consider where the tough spots are and where we might need to provide support.

Let's say that a salesperson, Sheila, concludes that she'll attract a larger pool of potential clients if she learns how to deliver an effective webinar. To achieve her learning goal, she seeks out resources to learn the basics of webinars. Perhaps Sheila finds a colleague from a different department, Jim, who is experienced in this area. Sheila asks Jim for some pointers, and he says he'd be glad to help and "don't worry, it's easy." Jim gives Sheila a quick run down of how

to plan a webinar, how to work the software, and how to run the session effectively. Sheila reads a few books and online articles about delivering effective webinars. She has a vendor demonstrate a web conferencing tool for her. During this time, Sheila is engaging in what we could call knowledge acquisition.

At some point, Sheila realizes that if she is going to learn how to design and deliver a webinar, she is going to need to do it, not just read about it or watch it being done. So, she decides to design a short webinar about a topic that is familiar to her now, "Webinar Best Practices." She delivers that

Continued on Page 3



Figure 1: Learning as a Progression

In This Issue:

- ◆ Learning as a Progression..... 1
- ◆ Designer's Toolbox:
In the Trenches with Alicia..... 2
- ◆ Design Tip:
Cognitive Flexibility..... 3
- ◆ New Faces..... 3

Designer's Toolbox: In the Trenches with Alicia

By Alicia Pfaff
Instructional Designer



In this installment of *Designer's Toolbox*, I describe my experience gathering content for a course that I am currently designing. Hopefully, this gives you a sense of how I put into practice the various task analysis methods I've written about in previous issues. I was recently asked to design an instructor-led troubleshooting course for technical support representatives at a nearby call center. The job essentially involves resolving cases that are unusually difficult or complex, so new hires are promoted

from other call center positions. My audience knows the basics of tech support, but they need to learn the more advanced troubleshooting aspects of their new job.

My content gathering process for this job involves five major steps:

Step 1: Collect Performance Data (the DO)

In this case, performance consists of diagnosing the cause of technical problems; verifying the problem actually exists, selecting and applying the appropriate fix; and then assessing the fix

Continued on Page 2



Design Tips

Cognitive Flexibility

In our cover article, the authors talk about the need for workers to develop skill fluency after they have overcome the challenges of skill transfer. One characteristic that is related to fluency is cognitive flexibility. Cognitive flexibility refers to a person's ability to adapt their knowledge and skills to different situations. Have you ever watched a table full of accountants struggle to calculate the tip and split at dinner? The accountants' difficulty likely has less to do with their math skills than with their ability to apply those math skills—outside the context of T-tables and financial statements—to the context of the restaurant bill.

As individuals become increasingly fluent, their ability tends to become more and more automated and context-dependent (i.e., they can do this one thing really well in this type of situation). This is fine until new situations arise or until organizational changes alter the demands of the job. To be fair to our workers, we need to help them build up their fluency while also increasing their cognitive flexibility. While developing fluency requires many hours (thousands of hours, some have estimated) of performing the same task over and over, developing cognitive flexibility requires changing the context frequently so that the worker is able to apply the skill to a wide variety of situations and is able to adapt to new, unforeseeable demands.

While cognitive flexibility is important in most jobs, it's absolutely necessary in jobs that require workers to make quick tactical decisions that are high stakes in nature. This is the case in medicine, law enforcement, combat, and emergency response, all critical in our post-911 reality.

Designer's Toolbox: Content Analysis in Action

Continued from Page 1

to see if it fully addressed the problem. I initially planned on documenting the troubleshooting procedures through observation. However, in the call center, our top performers move through the troubleshooting process too quickly for me to denote what they're doing. Their movements and thought processes are so fluid that I am unable to capture and decompose the work, and the job naturally demands that they work quickly to resolve issues. In fact, one of their metrics is call completion time. Also, they do not have a simulated environment where we can re-enact and resolve 'fake' troubleshooting issues at a more reasonable pace.

With these constraints in mind, I change my tactics, relying more on off-line interviews and less on real-time observations. Interviewing takes longer. Because my top performers are removed from the context in which they DO their work and because, being experts, they have difficulty thinking about what they DO and how they DO it, the conversation tends to swing from discussing tasks to discussing bits of information that they feel learners need to know. Therefore, throughout our interviews, I continuously re-focus my SMEs on the DO and away from the KNOW. What is it that they do when problem X arises? What options go through their heads? How do they determine which option is best? How do they determine which potential root cause to address first, second, etc.? These are some of the questions I ask to help them remain focused on real-life performance rather than drifting into the abstract.

Step 2: Organize the Data

With every new project, I need to determine how best to organize the vast amounts of data I collect during content gathering. Troubleshooting is in part a procedural skill and in part a decision making skill. Both types of skills tend to lend themselves well to being visually represented through flowcharts and concept maps. As I collect information about the troubleshooting process, I construct a flowchart depicting my understanding of the inputs, processes, and outputs. So, for example, if the symptoms (inputs) are XYZ, then go through this troubleshooting process to isolate the root cause and apply the appropriate solution (output). Among academics in our field, this if-then flowchart is known as a behavioral algorithm. I then document additional details, including specific steps, tips, cautions, exceptions, etc. in outline form.

Step 3: Confirm My Understanding

As any qualitative researcher knows, "member checking" is critical when gathering data through interviews and observations. Having organized the data into flowcharts and outlines, I send the content to my SMEs,

Continued on Page 4



Congratulations, Hal!

Hal Medrano, eP instructional designer and multimedia developer, recently completed his M.Ed. at Penn State University. **WE ARE...PENN STATE!**



NEW FACES



Diane



Ryan



Belen



Epi

Welcome some new additions to the eP Team

Our growth continues to fuel our need for talent. This quarter, we've added several new members to the team. Diane Darling, an instructional designer, comes to us from Towers Perrin. Ryan Goldman is a professional photographer, graphic artist, and multimedia developer. Belen Bilgic Schneider brings her 10+ years of graphic art experience and specializes in look & feel design. ♦

Learning as a Progression

Continued from Page 1



Phase	Learning Need	Design Strategies
Knowledge Building	Awareness need – Learner gathers tips, best practices, and other factual information related to the task at hand	Provide information resources and knowledge transfer opportunities
Skill Building	Understanding Need – Learner needs to understand both knowledge and skill aspects of the job (the what and the how)	Demonstrate knowledge and skills in action and provide practice opportunities
Skill Mastery	Proficiency Need – Learner needs practice and coaching feedback to reach some required level of mastery	Provide practice opportunities with feedback through increasingly realistic and difficult scenarios
Skill Transfer	Performance Need – Learner needs support from peer, mentor, or coach to bolster motivation and self-efficacy in overcoming obstacles related to transferring skills	Provide opportunities to perform on-the-job with coaching support or use authentic simulations when OTJ is not feasible
Skill Fluency	Fluency Need – Learner needs to get better, faster, more efficient, and more flexible in using the skill	Provide opportunities to get diverse experiences and timely feedback on performance

Figure 2: Table describing needs and strategies associated with the various phases of learning

webinar to colleagues within her department and gets their feedback afterwards. Though Sheila continues to acquire knowledge, her learning experience has graduated from mere knowledge acquisition to skill acquisition. By engaging in the tasks of designing and delivering a webinar, even a simple one to her colleagues, Sheila is beginning to realize what it really takes to perform this task effectively. She incorporates her lessons learned and the feedback from her colleagues and mentally rehearses how she would do things differently next time. She is developing proficiency, or skill mastery. The training industry standard for skill mastery is 80% accuracy (Six Sigma folks, please don't laugh).

Sheila could continue to practice with her colleagues and improve her proficiency, but eventually she will need to transfer her skills and knowledge to a real-life work setting. She realizes that there is a big difference between delivering a webinar to her colleagues and delivering a webinar to prospective clients. It's at this point that many workers do not bother going through the trials and tribulations of transfer; rather, they avoid transfer activities and instead return to their normal patterns. In other words, other salespeople would find some excuses for never delivering the webinar to their prospects.

But Sheila presses on with her odyssey. She designs and delivers a webinar for her sales prospects. Her first session is less than stellar. Three prospects drop out of the session early and the feedback from those who stay is less than encouraging. Sheila is

upset and considers abandoning the webinar idea. After a few days, Sheila picks herself back up and decides to try again. She knows she can get this right.

Once Sheila achieves skill mastery and successfully transfers her skills to the workplace, her learning reaches a new high point. She may learn a few new things from time to time, prompting subtle changes in how she performs, but the steep side of the learning curve is behind her.

With much repetition and feedback over time, Sheila will progress from skill mastery/transfer to skill fluency. Designing and delivering webinars will become second-nature to her. She will anticipate questions and quickly adapt to changing conditions within her sessions. People will say she makes it look so easy. She will become the webinar expert within her department. Sheila will have by then forgotten how difficult it was in the beginning. And when a new hire comes to her and asks her for tips on conducting webinars, she will start by saying, "don't worry, it's easy."

If you were an instructional designer charged with supporting Sheila's learning progression, what instructional experiences and resources would you provide her? Figure 2 summarizes the learner's needs during each phase and suggests some design strategies that you might employ.

When you look at learning as a progression, suddenly the scope of the instructional designer's work expands

considerably. A novice designer might view the scope of his or her responsibilities as beginning and ending with knowledge and/or skill acquisition. However, where Sheila needed help the most was in transferring her skills and eventually reaching skill fluency. Without transfer, learning is merely an academic exercise. It has little impact on performance, and therefore, has little impact on the worker's or the organization's success. Therefore, to the extent that instructional designers exist to support the growth performance improvement within an organization, they should also consider ways to promote skill transfer and skill fluency over time. A single learning event cannot achieve this kind of performance outcome. Rather, the instructional designer should work to develop a phased, blended approach to learning, supporting the needs of workers during their entire learning progression.

EDITOR'S NOTE: This article is an excerpt of a white paper written by Gus Prestera and Karen Marker, titled *Phased Blended Solutions*. You can download this paper from

www.effectperformance.com

to learn how phased blended learning can address learning progression needs over time.

Designer's Toolbox: Content Analysis in Action

Continued from Page 2

asking them to review and comment on it. Their initial reaction tends to be, "Wow, you've taken our ramblings and turned them into a simplified description of what we do every day!" If I hear something like that from my SMEs, then I know I'm on the right track. My SMEs and I will go through several informal rounds of steps 1, 2, and 3 until we get the process right. Most SMEs are surprised by the amount of work involved in building good content from nothing, despite my warnings upfront.

Step 4: Collect Examples, Cases, and Stories (the CONTEXT)

As Gus would say, it's critical that we 'contextualize the content.' We do this by taking our somewhat empirical content (procedures, rules, and facts) and immersing them in examples of good and bad performance; anecdotes and stories that depict the organization's cultural norms; real-life use cases and scenarios; and other contextual details that give the learner a sense of what it's really like to do this job in real life. This is probably the most challenging aspect of any instructional design project, because those contextual details tend to be invisible to the people in the organization. Consider for a moment how you would respond if I asked you to tell me a story that captured the essence of your organization's culture. You might be able to do it, but it would probably be challenging and require you to think about things that you normally take for granted.

This project is no exception: we are struggling to get the contextual details we need. Initially, I asked my SMEs to complete critical incident reports (see the V3, N2 issue of *Live & Learn* for more on the Critical Incident Method). However, the reps simply did not have time to complete the reports and also meet with me for interviews and observations. Again, I changed my tactics. In a compromise, the SMEs agreed to send me audio recordings of real tech support calls. The calls give me an insight into what those conversations sound like from both sides of the phone line. After reviewing the calls, I meet with the rep who took the calls to ask follow-up questions about his thought processes and the reasons behind his actions. This helps me contextualize the content by providing real-life scenarios and by helping define practice exercises that are situated in real-life work activities.

Step 5: Collect Additional Information (the KNOW)

After the more important process information and context information are collected, I ask the SMEs to go back and fill in the cracks of the content with those little bits of information that would be helpful to someone performing the job. Throughout content gathering, the SMEs provide me with tips, cautions, exceptions, alternative ways of doing things, tricks, shortcuts, and other information that while not absolutely necessary to complete a task can be helpful to the learner in rounding out their understanding of the job. Since they are less critical, these extra bits of information get sprinkled into the margins of the training materials. Before including these knowledge points they must still pass the relevancy test. I ask my SMEs, "Is this knowledge necessary and/or helpful to the

learner when performing this task on the job?"

In addition, I need to round out my understanding of certain things before I can develop the training materials; in this case, the slides, facilitator guide, participant guide, and job aids. For example, what are the consequences of performing or not performing these tasks in the manner we've specified? What are some common errors that "newbies" commonly make on the job and how do these affect them? What prerequisite knowledge would a new hire need to have? The answers to these questions help me answer the WIFM (What's in it for me?) questions and other common questions that learners have as I introduce the course and transition from procedure to procedure. Now that I have tackled the more difficult aspects of content gathering, getting this information is relatively easy.

Conclusion

Building content from scratch is the most challenging and time-consuming aspect of designing courses and, at the same time, is the part of the process where instructional designers can add the most value. By structuring the content gathering in way that privileges critical performance and contextual information over factual nice-to-know information and by organizing content in a way that is meaningful and helps SMEs think about their jobs in terms of the Dos, we can add tremendous value to the finished product. These things help us ensure that the finished course contains content and practice exercises that are relevant to the workplace, to the workers, and to the work.



In this issue of Live & Learn...

- Explore the notion that learning is a progression and consider what that could mean for training
- Join Alicia as she works with her SMEs to analyze and develop new content
- Cognitive flexibility is critical to most jobs...do you know what it is?



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