The Continuous Learning Environment: Surviving Learning Solution Discovery

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In my days as a learning strategy consultant, I always began my discovery discussions with the question, *"Do you have a training strategy?"* Rarely did I receive a negative answer or a quizzical look; nor did I expect any. So, why ask a question when you already know the answer? Simple – it set-up the next question that served as the real stimulus for conversation and meaningful discovery – *"Do you have a learning strategy?"* Queue the quizzical looks of silent wondering if I had not just asked that question. Without waiting for an answer, I followed that question with an immediate third question – *"More importantly, do you have a continuous learning strategy?"* At this point, I often saw the client's eyes glaze over and a few even began to blow spit bubbles – a perfect response – and a perfect set-up to incite revolutionary thinking. Thinking had to be revolutionary to consider *continuous learning* as an acceptable shift worthy of breaking the traditional mindset of training. Training still plays a role, and always will, but as subset of *continuous learning*, where the focus is on something very different – **creation of sustained human capability.**

Very often, my clients had a technology solution in mind and needed a consultant to validate their thinking…or worse…have someone to blame when it failed to deliver the desired results. This phenomenon is similar to our internal clients who have a training solution in mind *before* they contact the training department to validate their requested solution. We have perpetuated that thinking by responding as training order-takers. The age-old *hammer and nail* thinking where we throw training at every performance gap is of our own doing – and it gets worse. If your organization has a learning management system (LMS), the ultimate solution may be even more pre-disposed than ever. The techno-zealots decree, "All training must reside on the LMS!" I think not, though I am a big fan of appropriately utilizing technology. It may sound a little blasphemous for me to say this, but here goes – *"Step away from the technology!"*

That may sound extreme, but learners increasingly find the need to learn in the same *environment* where they work – their *work context.* In fact, the bulk of our learning environment continues to shift away from the classroom – away from formal training – and closer to the actual work performed. In a 2004 eLearn Magazine interview, Jonathon Levy, a leading e-learning visionary, predicted: *"Over the next 12-18 months the end game will finally begin to come into view, as traditional learning structures give way to more powerful performance support integration.*[1] Integration into what? Into the *work context!* Mr. Levy's

prediction implied we would not always be in the classroom when we learn. Instead, learning moments will increasingly confront our learners within workflows and processes. The need to learn becomes immediate, more urgent, and often encountered in a largely unstructured and uncontrolled context – a direct opposite to the stable realm of the formal classroom.

Again in 2007, Mr. Levy confirmed this trend in a larger scope when he said, *"Corporate universities will begin to question their positioning as a 'university,' and some enlightened Chief Learning Officers (CLOs) will reject the academic model and begin to reposition themselves as performance support and change management specialists."*[2] The references to *performance support* and *change management* in the same sentence denotes two major changes; equipping learners to learn within their workflow (performance support); and implementing holistic changes in learning methodologies necessary to drive sustainable capability (change management). The flow of work and the relentless demand for producing results represent key drivers of the continuous learning environment – and most of the learning is occurring outside of the classroom.

The purpose of this document is to introduce the necessity of expanded discovery essential to define critical, design-influencing attributes of a *continuous learning environment.* Forget defining knowledge and skill requirements – at least for now. The starting point – and the primary focus of this expanded discovery – is the environment where learners confront opportunities to learn. Learning opportunities span a spectrum from premeditated moments (i.e. New employee orientation, annual recertification training), to unplanned, unstructured and uncontrolled moments, often manifested in the middle of a workflow. Regardless of which end of the spectrum they arise, there are environmental attributes that can invalidate the best design efforts if not considered early in the design process. There are three categories of attributes within the learning environment:

- **Space** – *a blend of physical location, workflow, risk, and urgency*
- **Media** – *the most compelling mix of mode and venue*
- **Systems** – *the most effective and efficient application of technology*

All the attributes that fall under space, media, and systems combine to drive and/or restrain design decisions. It is essential to define these attributes to ensure the learning solution delivers on one global objective – to enable a sustained capability.

Traditional design practices do not typically consider these elements during discovery (a.k.a., training needs assessment). In many cases, the ability to accomplish this degree of discovery represents a competency gap within the training organization. Recall Jonathon Levy's 2007 prediction that describes the shift to *performance support*. That shift centers around one thing – the learner – in their work context with the focus zeroed in on sustainable performance and outcomes.

To produce an outcome, the learner must "do" something, not just "know" something. Once more, we exceed the tenets of knowledge and skills found at the root of traditional training design. It may sound as though the ISD methodology is getting a bad rap. Far from it! My team uses it daily to design solutions to improve performance. The difference now is the starting point of our discovery efforts:

- Identify the performance outcomes to be produced, and
- The *work context* where the learner produces them.

It is within the *work context* where the moments of learning need take shape. Keep in mind, individualized learning moments reflect upon the level of knowledge, skill, and capability of the learner. Permit me to add some contextual definition around some of the jargon I have thrown your way, and then we can dig into the discovery components. Let us begin with the moments of learning need.

The Five Moments of Learning Need

Learning moments are those snippets in time where capability and competency must simultaneously co-exist to produce sustainable outcomes. Unfortunately, my learning moments will be different from yours, as will yours be different from the next learner's moment. Safe to say then, *individualized learning moments* make a one-size-fits-all learning solution obsolete. Not only are learning solutions impacted by the environment, they are impacted by the capability of the learner. The concept of individualized needs alone takes us well beyond the limits of traditional, linear training design models.

Individualized learning moments are as continuous as the work performed. As such, we face a non-standard set of variables that drive training design decisions. Where the learner stands on their path from novice to mastery-level competency influences the frequency and depth of learning support required to complete a task. Likewise, their degree of competency

affects which learning moment will arise…and when. Consider these five moments of learning need[3]:

1. Learning something new or for the first time
2. Learning more of something
3. Trying to remember something
4. Adjusting performance/behavior because something has changed
5. Figuring out what to do when something goes wrong or fails

Any learning solution we create must consider the work environment within which the learner confronts their moment(s) of learning need. Additionally, since continuous learning is an on-going process, the learner could transition through several, if not all, of the five moments of need on their path to competency. Odds are increasingly good that several of those moments are going to occur in the middle of a workflow – not a classroom.

Different learning solutions will likely be required to satisfy the variability of learning moments. It follows then that our design, development, and delivery methodology must be holistic enough to anticipate that variability. Based on *when* and *where* learning moments arise, the mix of attributes related to *space, media,* and *systems* may also differ. The simple fact that *when* and *where* now matters, implies existence of timelines, which makes sense when we parallel time with the learner's path to competency, or, if you will, their *learning continuum*. Hence, accurate discovery must include both the *space, media,* and *systems* attributes of learning environment – and – the learner's location along the *learning continuum.*

Let us dissect the *learning continuum* first. You will see why shortly.

The Learning Continuum & Iterative PD&R Model

Learning moments are as unique as the learners who must overcome them as they progress along the learning curve from novice to mastery levels of competency. Since work is continuous, why would learning to perform that work not be continuous as well? In a continuous learning environment, each learner will follow an individualized learning path (a learning continuum) that matches up with the actual work/tasks accomplished. This learning continuum is discrete for each individual user since no two learners take the same path at the

same pace to reach mastery level competency. In fact, the learning path a learner follows – a path that spans both formal learning *(training)* and informal learning *(job aids, collaboration, coaching, etc)* must fit individual timing and individual needs. That is a tall order for our traditional design models.

A key characteristic of a *learning continuum* is reinforcing an important thread of continuity between the learning methodology and the work/tasks performed. The *learning continuum* serves as a foundational design tenet that can be best described using a three-phase model – *Prepare, Deploy & Reinforce (PD&R).*

- **Preparation Phase** – establishes a state of readiness in learners prior to participation in formal learning interventions. Preparation could be as minimal as sharing an agenda in advance of the formal learning event, or more complex where completion of a related work activity or an on-line course are required as pre-requisites. Emphasis in the *preparation* phase addresses, defines, and/or delivers *theory* to the learner for maximum impact in the next phase in the learning continuum.
- **Deployment Phase** – represents the *application* (delivery/consumption) of the actual learning intervention. The event could include a formal learning program that utilizes instructor-led classroom training, self-paced, on-line learning, live distance (synchronous) learning, webinar to a remote audience, a collaborative event, or a blend of all of the above. Surprisingly, an effective *preparation* phase can dramatically enhance the *deployment* phase. Adequate *preparation* can reduce formal training time. Handling the theory during preparation enables redeployment of time and activity in classroom training events. The learners spend more time on *application* where they engage in interactivity, collaboration exercises, role-plays, use of job aids in scenario-based simulations, etc. Emphasis shifts heavily toward demonstrating ability to *"do"* rather than validating their ability to *"remember"*.
- **Reinforcement Phase** – represents the most critical component of the three phases of the *learning continuum* – and the most extended over time. Reinforcement promotes implementation. Reinforcement extends knowledge retention necessary for effective execution that drives sustainability. The

reinforcement phase often includes the use of Performer Support (job aids, quick reference materials, coaching guides, help-desk support tools, etc) and other methods of follow-up. The r*einforcement phase* also serves as fertile ground for instructional designers to harvest feedback that indicate the need for follow-up programs or improved content/object design.

In order for these three phases to represent a continuum, there should be a feedback loop somewhere in the mix. The feedback loop originates in the reinforcement phase through observation of performance or direct solicitation of feedback. Lingering performance gaps offer valuable opportunities for timely remediation. User feedback on the effectiveness of job aids offer the insight necessary modify or redesign of performer support learning assets.

Attributes Affecting Design in a Continuous Learning Environment

So far, we have added several new considerations into our discovery efforts that compound our challenges as authors of learning solutions:

- The variability, and unpredictability of the five learning moments of need
- When and where those moments occur along the *learning continuum*
- To whom they occur
- And their individual level of competency at the time

These variables complicate our ability to design effective, traditional training that can sustain capability. However, there is more to consider.

With learning moments surfacing closer to, if not within, the context of our work, it is essential that we now include the attributes of the learning environment – ***Space, Media & Systems*** in our discovery efforts. Including these attributes defines a composite environment that encourages expanded design of a holistic learning solution. The attributes have degrees of dependency – attributes of *space* impacts *media* decisions – the composite of *space/media* influence the mix of *systems*.

Where is the learner in the *learning continuum*? Could the activities for each of the three phases of PD&R take place in different locations – using different content – delivered by different methods? Absolutely! Therefore, when we design holistic solutions the different phases of PD&R require us to consider the combined attributes of *Space, Media, and System* iteratively. Permit me to put some definition around these three attributes.

Attributes of Space

The attributes of *space* are inclusive of physical, geographical, and operational aspects of the learner's environment – and – are not limited only to the learner. When we consider *space* we must include those who deliver and/or provide support along the *continuum* as well as the individual learner. To that end, attributes of *space* and the variability of learning moment(s) should include:

- **Learning Stakeholders**
  - Who are the stakeholders involved in satisfying the learner's moment of need in the phases of P, D & R? *(i.e. the learner, the trainer, the manager, the SME, etc)*
  - What are the job roles or performance requirements of the learning stakeholders specific to their work or learning context? *(i.e. the learner's role/function in their workflow, the trainer facilitating a virtual classroom session, the subject matter expert answering a question, the course designer, the manager, the mentor, the Help Desk, etc)*
- **Physical Location**
  - Where are the learning stakeholders physically located during the learner's moment(s) of learning need? *(i.e. at their desk, in a classroom, at home, mobile, at the bedside, in a hotel, at a conference, etc)*
- **Work Flow**
  - Where is the learner within the context of their workflow or work process when confronted with their moment(s) of need? *(i.e. using an on-line system while providing care @ bed-side, seeking (re-)certification through an on-line training program, participating in a live classroom event, participating remotely in a webinar or distance learning venue, etc)*
- **Level of Urgency and Risk**
  - What is the level of urgency associated with flawless execution at the learning moment of need? *(i.e. planning a certification class event 90-days in the future, or accessing a job-aid "just-in-time" for completing a critical work flow task)*

- What is the level of risk if performance is not effective? *(i.e. death or injury of a patient, excessive material waste, loss of business continuity, incurring unnecessary costs/expense, etc)*

Attributes of Media

The concept of *media* addresses format (modes and venues) that contribute to a compelling transfer of information and/or knowledge. There are dependencies within the *space* attributes to consider that can influence the viability of whatever *media* options represent the optimal blend. Consider this common example:

- There is a high level of urgency to perform, and
- The learner is untethered from the corporate network (a.k.a. smart phone)

The two attributes of *space* shown above preclude consumption of learning designed for a classroom setting. Therefore, **urgency** and **mobility** influence the *media* blend to serve this learner's moment. Do not forget – the blend may change – depending upon what stage of the *learning continuum* (P, D or R) the learner is in at the time. Sitting in a classroom versus standing at the bedside illustrate two completely different venues – two completely different design considerations influenced solely by attributes of the learner's environment.

The scenario above is a simple example of a learning moment experienced in the context of actual work – also the *reinforcement phase* of the continuum. It is entirely possible to emulate this work task in a classroom-based simulation – the *deployment phase.* In the classroom environment there is absolutely no real-world urgency or risk attached – but there is full audio-visual support – and an instructor facilitates the scenario face-to-face – and there is wireless access to the corporate network.

Can you see why integrating attributes of *space* and *media* into the design are a meaningful consideration? *Space* attributes in the *deployment phase* of the learning continuum were radically different from those in the *reinforcement phase* and the choices for *media* varied as a result. Can you also see why the iterative nature of this approach matters? Without iteration, the *media* selection for the *deployment phase* would not have supported the work context encountered in *reinforcement phase* of the learning continuum.

Media selections made to serve a *continuum* will be a blend and may include any combinations of the following:

Modes

- **Verbal**
  - Will the learning moment require live/recorded facilitation, collaboration, or delivery?
- **Written**
  - Will content be textual and reside on electronic or hard copy documents? *(i.e. Word, Excel, PDFs, PowerPoint, etc.)*
- **Visual**
  - What manner of graphics or images will be required to make the message compelling? *(i.e., photographic images, graphs, charts, video clips, 3-D animations, etc)*

Venues

- **Web-based**
  - Will content be accessed through on-line links? *(i.e. Intranet, LMS, Electronic Performance Support System – EPSS, LCMS, SharePoint, etc)*
- **CD/DVD**
  - Will content reside on CD/DVD or other portable media?
- **Video**
  - Will the learning moment be served by live and/or archived video content?
- **Audio**
  - Will the learning moment be served by live and/or archived audio content?

Iterative Design Process

Developing stand-alone, linear training courses often follow a popular instructional design methodology known as ADDIE (Analyze, Design, Develop, Implement, and Evaluate). Given ADDIE has been around since the 60s, it has become popular to call it “old school” in its approach. Some tout their belief that ADDIE has out-lived its usefulness. I do not buy into that line of thinking. ADDIE is actually not old school; however, our application

of the model can be limited by old school thinking. ADDIE remains intact as a logical guideline that still works – *if used iteratively*. Since we need to develop learning to align with multiple phases and multiple environments along a *continuum*, we must adapt our application of the ADDIE model to a new approach where we address the design criteria three times – *prepare, deploy, and reinforce.* Keep in mind, each continuum phase may have a different blend of attributes across *space, media & systems.* By ignoring the environmental implications that may be radically different across the *continuum*, our design, development and delivery decisions are rife with potential to generate redundant effort – or worse – a one-size-that-does-not-fit-all solution that will not render a sustainable capability. Holistic discovery is the key and must be expanded before ADDIE can be utilized for its intended purpose. And no, I did NOT toss in a new acronym called DADDIE, but you have to admit it was going through your head.

The expansion of discovery and the iterative approach do not translate into slogging through the entire ADDIE model three times; however, it does require consideration of the three stages of the *continuum* within the design phase. Ultimately, development may vary too. The results of iteration encourage us to now consider reusability, making our expanded design objective to include identifying relevant elements of content (also called objects) that can be re-used across the P, D & R *continuum*.

Create once – use many times becomes an essential consideration for any design and development effort if for no other reason than to minimize redundant development efforts. How many times have we storyboarded ourselves into a coma only to then turn around and build job aids as a separate effort? If we had considered the work context along with the learning environment, the *"create once – use many times"* approach would permit use of the same content object multiple times. This re-use concept drives that important thread of continuity between work and learning I mentioned earlier.

Example of Continuity:

- Insertion of a job aid (object) into a *prepare phase* e-learning course to introduce a tool that will be used in classroom simulations coming later in the *deploy phase*.
- The same job aid (object) would then be reused in a scenario-based simulation during the classroom component of the *deploy phase.*

- And then once again, the same job aid (object) would be embedded in the *reinforce phase* as just-in-time Performer Support *(i.e. Downloadable job aid, or a source file for a developer to produce a laminated quick reference card for use by the learner on the job.)*

All design and development decisions should be tested against the potential for re-use efficiencies inherent in the use of the PD&R model. The attributes of the work context, the PD&R *continuum*, and where the moments of learning need occur, may have a decided impact on what the ultimate design and development decisions should be – but not without an iterative design mindset.

Design Variables

- **Creation**
  - What authoring application(s) will be utilized? *(Not every authoring tool renders output that is easily reusable outside of its native state or intended venue)*
  - Will the authoring tool of choice be appropriate for all three stages of the continuum (PD&R)?
- **Re-Purposing**
  - Does the content already exist in some other format?
  - Is it copyright protected?
  - If not, can it be edited and/or reformatting to be re-utilized all or in part?
- **Re-Use**
  - Will new content developed for/used in the program have a life after the event?
  - Can all or portions of that content support all three stages of the learning continuum? *(i.e. Insertion of job aids or other reference materials into pre-work, classroom exercises/simulations, and/or serve as coaching guides for managers/supervisors, etc)*

- **Granularity**
  - What content should be objectized, and how granular should it be? *(i.e. re-use at the module level, re-use of a single graphic, re-use of a job aid, etc)*

Attributes of Blended Systems

Understanding the *media* mix that will be delivered within the context of the learner's work environment *(space)*, we have now added a second layer of dependency, forcing us to combine both as influencers on the third set of attributes – the *systems* technology required to deliver or provide access to the solution. In reality, a different technology mix may be required to within each phase of the PD&R *continuum* to satisfy the learner who is in three different *"spaces"* and consuming three different *"media"* blends. Therefore, technology cannot be treated as a one-size-fits-all proposition to effectively get *continuous learning* into the hands of the learner. Obviously, additional peripheral *systems* criteria must be considered when building a holistic technology solution. Consider the following examples:

- **End-user Devices**
  - What technology is in the hands of, or is accessible to, the learner when confronted with their learning moment(s) of need? *(i.e. individually assigned computer, shared workstation, DVD player, smart phone, etc)*
  - What technology is available to the other learning stakeholders? *(i.e. the trainer, the manager, the Help Desk, etc)*
  - Keep in mind that more than one device may be employed at different points on the P, D & R continuum. *(i.e. DVD player for prepare pre-work – computer used to deploy in the classroom – smart phone access to job-aid reinforcement back on the unit)*
- **Internet Access**
  - Is access to the internet required to serve the learning moment(s), and if so, what bandwidth requirements must be available (in the aggregate) to accommodate anticipated content transfer rates? *(i.e. are all users on-net or*

are there non-employees participating using non-company computers – are there 10 participants or 200...and did you say broadcast quality video to all?)

- Once again the different learning continuum stages may require different levels/type of internet access…or none at all.

- **Collaboration/Connectivity**
  - Will the event be on-net, off-net or a blend?
  - Will it be a broadcast (one-to-many)?
  - Will there be a need for interactivity? *(i.e. polling, Q&A, participant surveys, application sharing, interactive discussion, etc)*
- **Access to Content**
  - Will the system "push" the content to the learner, or will the learner download or "pull" the content on demand?
  - Will the learner have to remain connected to the network to complete the use of the learning asset?
  - How will the learning content be retrieved?
  - Will it be searchable?
  - Who will have access?
  - Are there access rights/ restrictions to be considered?
- **Content Repositories**
  - Will the program proceedings be recorded?
  - Given the nature of the content (static, streamed etc), how/where will it be archived?
  - Who will be accountable for content management and currency?
  - Are there access rights/ restrictions to be considered?
  - How will version control be managed?
- **Tracking**
  - Will consumption of the learning asset or participation in the event require a record of participation/completion?
  - If so, describe acceptable recording format. *(i.e. Training history in the LMS, printed certificate of completion, registration record is sufficient, etc.)*

- **Evaluation/Testing**
  - Will consumption of a learning asset or participation in an event require evaluation or testing? If so, describe format *(i.e. hard-copy instrument or on-line access)*
  - What is a reasonable expectation for time-to-impact? *(i.e. should evaluation be captured immediately or after "x" months post-event, etc)*
- **Help/Escalation**
  - Who do the learners turn to if they need help? *(i.e. Help Desk, content owner, subject-matter-expert, etc)*

Closing Thoughts

Remember Dr. Levy's 2001 prediction? Well…it's 2009, and when you match up the parallels of *"in the context of our jobs"* with the PD&R model, the lion's share of learning is happening in the "R stage" – *reinforcement* – the post-training environment – outside of the classroom– where our work flows and task execution are taking place. Effective learning for the worker, and where we as learning professionals must deliver our most effective solutions, have shifted (are shifting) away from the classroom. If our design mentality is rooted in a linear design model that renders a single learning transaction (course) at a time, we could be falling short on up to 85% of our opportunity to impact performance.

Our solution requires that we shift to an iterative methodology to align with the PD&R stages of the *learning continuum* and embrace the environmental attributes of *space, media and systems*. This implies that our approach to discovery cannot be limited to the "A" in ADDIE and assess only training needs. We need to add a "D" for *discovery* in front of ADDIE where the "D" is focused on the performance required by the worker and the *work context* in which any or all of the moments of learning need may surface.

Training will never die, but it must evolve to meet the demands of a new *continuous learning environment,* as well as new learners who are faced with the prospects of a shrinking window to satisfy a learning curve and protect their time on task. Our solutions must be designed to facilitate a seamless, frictionless and ubiquitous capability to get the

right learning into the right hands at the right time in the right amount in the right format to/from the right devices.

When you consider all of these "right" things, it is important to recognize they all represent what is "right" for us to build into our holistic learning solutions so that the learner is effective *in the context of their job*. If we can move the performance needle in a positive direction and sustain measurable results, we will protect precious budget dollars and may have a good shot at sustaining another important *continuum* important to us all – continuous employment!

Good luck and keep living in learning!

End Notes:

[1] Jonathon Levy, Senior Learning Strategist, The Monitor Company Group LP, "Predictions for 2004: E-learning Visionaries Look to the Future", Interview by Lisa Neal, Editor in Chief, eLearn Magazine, Accessed June 29, 2009 at http://elearnmag.org/subpage.cfm?section=opinion&article=39-1

[2] Jonathon Levy, Senior Learning Strategist, The Monitor Company Group LP, "Predictions for 2007, Interview by Lisa Neal, Editor in Chief, eLearn Magazine, Accessed June 29, 2009 at http://elearnmag.org/subpage.cfm?article=42-1&section=articles

[3] Gottfredson, C. "A Beginning Discussion: What is Performance Support?" PERFORMER Support: Learning @ the Moment of Need (weblog), November 1, 2007. Accessed June 26, 2009 at http://performancesupport.blogspot.com/2007/11/beginning-discussion.html