

The Learning Continuum

Formal and Informal Learning Experiences – Enabling Learning and Creation of New Knowledge in an Organization.

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Abstract—Over the years, there has been a significant shift in the approach towards ‘learning’ in an organization. The focus of learning is no more limited to only the formal training mediums, such as classroom interventions and e-learning programs. The shift in learning paradigm is more towards the creation of new learning solution that provides formal and informal learning, information and collaboration – thereby enabling the formation of a ‘personal learning environment.’ Now, there is a shift from ‘content focus’ to ‘learner focus’ education.

This paper will suggest the appropriate use of technologies and processes to create a rich learning environment that includes a broad array of instructions, information resources, and collaborative solutions. The paper will also focus on the areas or situations where the new learning environment can be applied and the ways in which an organization can leverage the full range of its learning continuum.

Index Terms—learning continuum; e-learning; formal learning; informal learning; learning management; knowledge management; collaboration; learning organization

I. INTRODUCTION

In the fast changing business environment, learning is being seen as an individual process and an organizational process for continuous creation of new knowledge. The knowledge workers are continuously looking for newer learning opportunities, which can be quickly made available with the help of enabling technologies.

This can also be explained through the context of ‘learning organization’ as popularized by *Peter Senge*, which pertains to continuous collaboration, knowledge sharing, knowledge processing, and creating a condition for continuous invention and innovation.

Many of the attributes of a learning organization are more human than technological, yet technology offers many opportunities to capture and increase the knowledge and then make it available to more people. The principles of organizational learning are supported and enhanced by new approaches and technologies that bridge the gap between formal classroom learning and informal workplace learning and support (*Mark J. Rosenberg 2006*).

The demands of knowledge worker, business dynamics and the changing work culture and practices due to emerging technologies are leading to shifts in the learning practices. Until a few years back, formal instructor-led training and e-learning was considered as a dominant and com-

plete training solution for an organization. Now, the focus is shifting towards ‘on-demand learning,’ which alone cannot be met through classroom and online training mediums. This calls for a need to introduce other training mechanisms that are rapidly changing the training scenario and leading to a shift in the overall training paradigm.

In this paper, we would cover the following details in the coming sections: 1. Evolution of Corporate Learning Environment with description of different stages of maturity 2. Linking learning with knowledge management and collaboration practices 3. The Learning Continuum and how it is being leveraged for meeting organization’s needs.

II. EVOLUTION OF CORPORATE LEARNING ENVIRONMENT: E-LEARNING AND BEYOND

With the advent of new technology enhancements, users are being provided with multiple learning choices and learning mediums. To this effect, e-learning landscape and its definition has also been evolving by recognizing the significance of the new learning practices. These developments have led to a new definition of E-learning (*Mark J. Rosenberg 2006*): **E-learning** is the use of Internet technologies to create and deliver a rich learning environment that includes a broad array of instructions and information resources and solutions—the goal of this is to enhance individual and organizational performance.

The Corporate Learning environment has been continuously evolving and changing with the advancements in technology, business dynamics, and work practices. There are clear stages of growth and maturity in the adoption of new learning practices and this relies on the cultural patterns and the dominant work practices within an organization. In the last 10 years, we have seen major transitions in the learning environment owing to cultural and technological changes. Organizations have reached different stages of maturity as described in the maturity cycle in Figure 1.

A. Stage 1: Initial E-learning

In the initial stage, e-learning is characterized by making available instructional materials online—mainly in the form of self-paced learning. The emphasis is on increasing the availability of online courses to meet multiple training requirements across business units. Organizations develop linear and formal training programs for the Web and implement a Learning Management System (LMS) or technological infrastructure to manage and control learning.

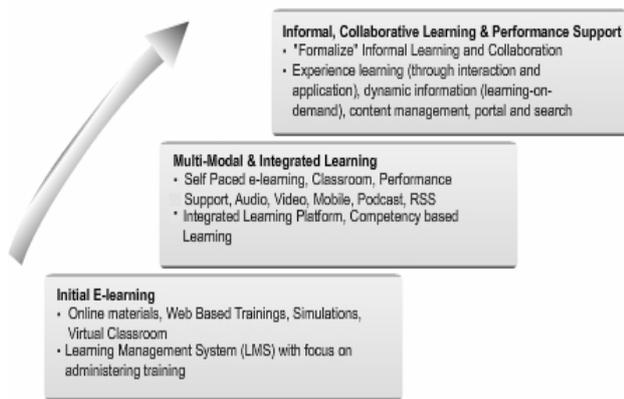


Figure 1. Stages of Maturity: Corporate Learning Environment

The key drivers are making available “anytime, anywhere” learning that provides Just-In-Time and self-learning capabilities. The goal is to implement e-learning with an ability to reach a large—often dispersed workforce—with consistent content and a minimal impact on time or travel.

B. Stage 2: Multi-Modal & Integrated Learning

The second stage of learning is reached when introducing e-learning is not the main goal and online courses are not the only learning medium available. At this stage, we can observe a growing emphasis on multi-modal learning, blended learning programs, and the introduction of informal learning practices. Some of the learning modes incorporated into the blended learning programs are audio, video, referenced text, online books, webinars, virtual classroom, mobile learning etc. Learners experience multiple modes of learning and knowledge or information is linked with individual development plan and competency development initiatives.

The key driver is to enable effective learning that integrates well with the business goals and the HR initiatives, such as competency development and performance management. All this can be attributed to an increased focus on training governance, measurement, and analytics.

C. Stage 3: Informal, Collaborative Learning & Performance Support

The learning environment further evolves with increased emphasis on informal knowledge sharing and learning through collaboration. Knowledge Management and the social media (Web 2.0) have provided environments that support informal knowledge creation and sharing environments.

One can observe a shift in the focus from ‘artifact-based model’ (online assets, books etc.) to ‘experience-based model’ (learning through interaction and application); from linear to multi-threaded learning; and from static to dynamic information (learning on-demand). This change can be attributed to the transition in relevance from ‘training performance’ to ‘business performance.’ More simply stated, this is the move toward providing learning solutions that focuses more prominently on the context of work. This transformation in the learning environment indicates the change from being ‘content-focused’ to now ‘learner-focused.’

Ultimately, the three-staged evolution of learning practices has created a solution environment that provides both

formal and informal learning, information and collaboration; and enables the creation of a ‘personal learning environment.’

III. THE CURRENT DOMINANT THEME: ‘PEOPLE CENTRIC’ KNOWLEDGE MANAGEMENT AND LEARNING

Knowledge is the capacity to take appropriate action (to meet the challenges of dynamically changing business environment) and learning is a mechanism that enables the continuous creation and up gradation of knowledge. The relationship between learning and knowledge management is aptly described through the term ‘learning organization’. (David Garvin, 1993) while suggesting a model of building a learning organization gave the following definition: “A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights.”

In many ways, learning organization is defined as a ‘state’ or ‘condition’ of an organization, implying certain behavior and practices in an organization. These conditions support the whole process of knowledge sharing, collaboration, knowledge processing and continuous adaptability and innovation. And the start of these processes is triggered only by the creation of a learning environment. The complete range of learning framework—instructional, informational, and collaborative—could be the learning environment which creates the conditions necessary for reaching that ‘state’ of learning organization.

In the current environment, learning has become multi-threaded and provides dynamic solution against static solutions of the past. Learning is a fostered process and not a managed process where diverse options and opportunities are required.

Traditional Knowledge Management (KM) implementation focuses on technology-based solution to capture, store, control, manage, and reuse structured and unstructured knowledge in an organization. Codification of knowledge may be useful in one context but may lose meaning in changed context.

The traditional Learning Management also followed the same static representation of knowledge and the view of getting the right information to the right person at the right time. Initially, the main focus had been to make available online courses and manage learning through central Learning management System (LMS). The traditional Course/LMS centric-model of learning had its limitations and did not cover the diverse forms of learning activities.

Learning and knowledge is to be viewed together—as a catalyst and as the resultant—beyond the static content and technology (which is just a medium). Learning and knowledge are social, personal, flexible, dynamic, distributed, ubiquitous, complex and chaotic in nature (M.A. Chatti, M. Jarke and D. Frosch-Wilke, 2007). The social aspect of learning and knowledge place a strong emphasis on knowledge networking and community building to leverage, create, sustain and share knowledge in a collaborative way, through participation, dialogue, discussion, observation and imitation. The people-centric model looks at techniques to support individual need for real-time learning.

Most of the learning today is informal and if an organization is not addressing informal learning, it’s leaving a

tremendous amount of learning to chance (Jay Cross, 2007). Outside the classroom boundaries, we use Google, communicate with peers, join online communities, and work on problems together, share learning resources, views, opinions, and ideas.

Over the past few years, the web was shifting from being a medium, in which information was transmitted and consumed, into being a platform, in which content was created, shared, remixed, repurposed and passed along (Downes, 2005). We are witnessing a new phase of Web evolution—the read-write Web. A new generation of user-centric, open, dynamic Web, with peer production, sharing, collaboration, collective intelligence, distributed content and decentralized authority in the foreground. This new web generation has been referred to as Web 2.0 (O’Reilly, 2005). Social software, a major component of the Web 2.0 movement, is being extensively used for social/collaborative learning. Some of the examples include wikis, blogs, RSS feeds, podcasts, media sharing and social tagging. Figure 2 describes the Web 2.0 components which are relevant for learning.



Figure 2. Application of Social Web to Learning

All these developments point out that learning must be re-invented. With a strong base of formal learning setting, it should move on to include informal workplace learning and support. We need to design solutions for learning that is based on new developments and support effective knowledge management, content management, e-learning and collaboration.

IV. THE LEARNING CONTINUUM

Traditional training has typically focused on the design, delivery, and management of structured learning programs. However, the modern learning framework pertains to providing a learning environments that support formal-informal knowledge creation and sharing environments. This combination of formal learning and information & collaboration creates a learning continuum, which is represented in the figure 3.

The framework for the full range of learning continuum incorporates elements of learning tools and technology, processes, and culture that facilitate various learning approaches. This setup addresses the need of a varied range of audience profiles for meeting their learning needs.

The evolution of the learning continuum leads to changes in the technology model. Through the advancements and changes in the learning model, the Learning Management System (LMS) is now becoming a “back office” system and organizations are using content management system to build an integrated “learning portal”. This portal provides learning, information, collaboration, social networking and more. There is a paradigm shift in the cultural practices with shift from ‘content focus’ to ‘learner focus’ education. Processes and procedures enable the creation of a ‘learning organization’ with conditions for continuous learning and innovation.

We see a shift of focus in the learning framework with respect to services and technologies to facilitate the multiple forms of learning across the complete learning continuum. Table 1 describes the services and technology framework for the new learning practices.

ASTD (American Society for Training and Development) conducted a poll of major organizations across Industry and published the following (Table II) as the learning tools/technology landscape usage for year 2011:

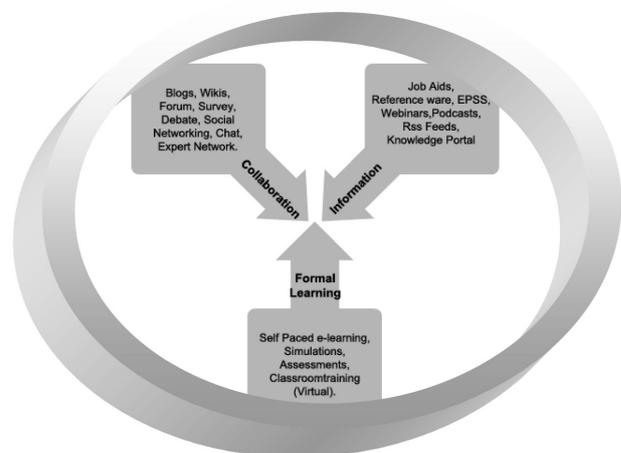


Figure 3. The Learning Continuum

TABLE I.
THE NEW LEARNING FRAMEWORK

	Traditional learning framework	New components
Services	Instructional Design Content development Program Management Administrative Reporting	Learning Architecture Content Management Knowledge Management Community Management Performance Support Business Intelligence
Technology	LMS, LCMS Assessment Content Authoring Virtual classroom Rich Media Reporting and Analytics	Learning Portal Search, Tagging Web 2.0, Collaboration Communities, Social Networking Performance Support Mobile, Virtual World

TABLE II.
LEARNING TOOLS LANDSCAPE

- Learning management systems	55.0%
- Assessment/testing tools	48.8%
- Learning content management systems	12.5%
- Authoring tools	45.0%
- Off-the-shelf courseware/libraries	26.3%
- Audio conferencing	43.8%
- Web conferencing	40.0%
- Virtual classrooms	35.0%
- Video conferencing	32.5%
- Blogs	20.0%
- Content Integration tools	18.8%
- Online mentoring/coaching	15.0%
- Social networking tools	13.8%
- Games	13.8%
- Podcasting	12.5%
- Mobile learning	8.8%
- Simulations/Serious games	7.5%
- 3D Virtual worlds	6.3%
- eLabs	6.3%

The new learning framework and tools/technology landscape is enabling the set up and further evolution of complete range of learning continuum. However, leveraging this learning continuum in the most appropriate manner is the current focus of the learning practitioners. How the learning continuum is used and where emphasis is to be placed, clearly depends on the job role, tasks, individual profile, preferences, learning objectives, performance issues, content requirements, organizational culture, etc.

The most appropriate learning solution would incorporate the blend of learning across formal and informal settings. There are situations (like foundation skills or understanding of concepts, processes and systems) where people, with common learning needs, learn a skill in a pre-

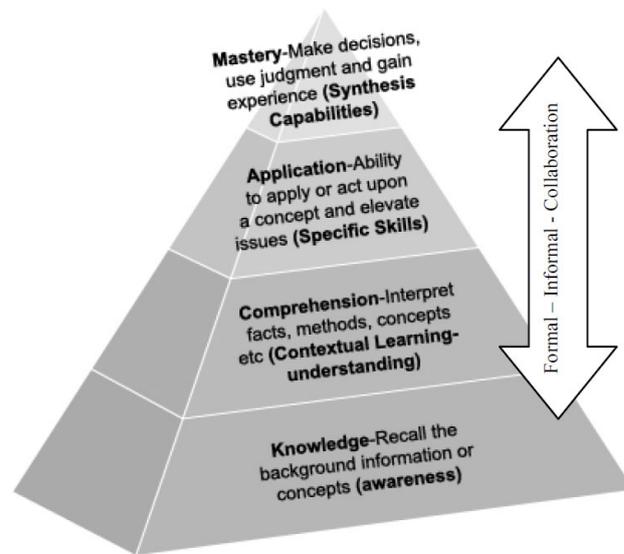


Figure 4. Learning Objectives, Proficiency Criteria hierarchy

cise and predictable way through a formal and structured learning programs. In other situations, where the learning needs are of different level of complexities or where the knowledge base or content repository is continuously evolving—there is a need of more flexible, real-time learning culture. Moreover, as the learner progress towards the master level, there is a greater emphasis on informal learning, knowledge management, collaboration, and performance support.

As indicated in the figure 4 above, the higher the level of tiered objectives or proficiency criteria i.e. Mastery, the greater the elements of informal learning compared to the lower levels of objectives. We would notice that the most formal training courses (both e-learning and instructor led training), which are role-based are set up to meet the comprehension and application objectives.

It is normally observed that organizations use formal training to prepare employees for a job or tasks. Further, the informal learning structures are used to build organizational capability and provide continual learning opportunities.

It is ultimately about taking conscious decisions that deliver an intentional mix of the formal and informal, of the yin and the yang (*Allison Rossett, Frank Nguyen, 2012*).

V. CONCLUSION

The future of corporate learning in the second decade of 21st century is suggested to have the theme of ‘self-service learning model’ (*Kevin Wheeler, 2011*). The learners would have the materials, references, coaches available to help them learn whatever they need to learn. This ‘learner controlled’ and ‘learner driven’ learning environment would be possible through establishment of a continuum of formal learning, informal learning, information, knowledge management and collaboration.

However, the learning designers and architects would also need to intervene to suggest ways to leverage the learning continuum as per the needs of the job role and individual profiles and preferences. Ultimately, we need to use the continuum to create programs and services to build requisite knowledge & skills, create continual learning

opportunities and improve organizational dynamics and its capacity to continuously adapt to the changing business environment.

REFERENCES

- [1] Senge, Peter, *Fifth Discipline: The Art and Practice of Learning Organization*, Currency, 1990
- [2] Garvin, David, *Building a learning organization*, Harvard Business Review, 1993
- [3] Downes, S. 'E-learning 2.0', ACM eLearn Magazine, Article, 2005.
- [4] O'Reilly, T, 'What Is Web 2.0', O'Reilly Network, Article, 2005.
- [5] Rosenberg Mark J., *Beyond E-learning: Approaches and Technologies to Enhance Organizational Knowledge, Learning, and Performance*, Pfeiffer, 2006.
- [6] Siemens G., *Knowing Knowledge*, www.elearnspace.org, 2006.
- [7] M.A. Chatti, M. Jarke and D. Frosch-Wilke, *The future of e-learning: a shift to knowledge networking and social software*, Int. J. Knowledge and Learning, Vol. 3, Nos. 4/5, 2007.
- [8] Cross Jay, *Informal Learning: Rediscovering the natural pathways that inspire*, John Wiley & Sons, 2007.
- [9] Chris Howard, *Integrating Learning into the Enterprise: A Look at the IBM Enterprise Learning Portal*, Bersin & Associates, 2008.
- [10] Tom Gram, *Leveraging the Full Learning Continuum*, Gramconsulting.com, 2009.
- [11] Josh Bersin, *Modernize Corporate Training: The Enterprise Learning Framework*, Bersin & Associates, 2009
- [12] Clark Quinn, *Social Networking: Bridging Formal and Informal Learning*, Learning Solutions Magazine, E-Learning Guild.com, 2009.
- [13] ASTD Staff, *E-learning Trends 2011*, ASTD.ORG, Jan 2011
- [14] Wheeler, Kevin, *Thoughts on Future of Corporate Learning*, YouTube Video, May 2011
- [15] Allison Rossett, Frank Nguyen, *The Yin and Yang of Formal +Informal Learning*, T+D Magazine, ASTD, 2012

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