Nano-Learning

Our traditional education model is basically reflective of a tribal way of life. We look for naturally occurring good learners and naturally occurring good teachers and put them together in locations ranging from the Gurukul to residential Schools or Universities and now through technology mediated distance or remote learning.

But the basic model of large long duration monolithic courses and relatively short assessment periods mean that any quality assurance or maintenance of standards is fairly unreliable, and over years even reputed Institutions have doubts whether there quality is as good as in the past decades. This is in sharp contrast in manufacturing across sectors, where there are no two opinions that the goods produced now are far superior than those produced a couple of decades ago. Any system that does not have an ISO certification, a CMM level 5 in software or striving towards 6 sigma in manufacturing or services would not be considered a serious player in the industry.

An alternative approach has been in terms of re-usable learning objects, and sharable repositories of such learning objects. And then suddenly we had the emergence of blogs, podcasts and youtube permitting easy uploading of videos. Many of these products could be seen as being transacted in a couple of minutes, sometimes even smaller than the typically 8 minute capsule in a 22 minute video or TV broadcast. Since most devices for broadcasting music and video use a format of a few minutes duration, any use by the teaching-learning system of the same standards will benefit from the ipods and the iphones that are being already adopted by the youth in unprecedented numbers.

Apart from the basic philosophy of education being based in the primitive ages, at the technological level, we are stuck at the civil engineering model of education. In one of my recent visits to a reputed University I was shown around by the Vice-Chancellor a large hall they had constructed at a cost of around Rs 20 crores, which had a seating capacity of about 2500 students which would be used once a year during the ceremonial convocation. I didn't have the heart to spoil the party by suggesting that a similar amount of money might place at the hands of all undergraduates in the University hand-held devices supporting nano-learning leading to a better quality of learning, and the resulting employability of its graduates would give greater glory to the University, than having the Governor give a Convocation address with 95% unemployability for the graduating students.

So, what is nano-learning? The term is being used more to draw upon the buzz already prevailing regarding the potential of nano-technologies in many areas from medicine, drugs to materials. And now of course, the recently launched Tata nano.

It is well accepted that the actual 'teachable moment' is just that. A moment in which a cognitive conflict is resolved and clarity arises and understanding takes place. It may be the moment of enlightenment of Buddha, or the eureka moment of Archimedes or the solution of a complex chemical structural formula as in the Benzene ring or the double helix of the DNA. The recent book Blink devotes itself to this moment of realization in various contexts.

If we design for nano-learning, then these learning moments are part of a design and transaction with specially designed and created nano-learning objects. Of course passive nano-learning may lead to boring e-learning. The nano-learning objects have to be supported by learning transactions by suitable academics, coaches, professors, mentors who create the desired personalized learning environments. This may be done through e-mail, sms, forums and occasional meeting with the teacher. Content alone may be priceless or it may be worthless. It is only in the hands of an effective and enthusiastic teacher, a real guru that this would be really effective.

Special training, orientation and motivation is needed to effectively transact nano-learning.

I have written a short poem to indicate the possibilities of such a blended nano-learning model:

> "An e-mail a day
> An sms or two
> Some conversations on cell-phone
> And your learning improves;
>
> Visit the learning node
> Meet your mentor
> In face to face mode
> And your learning gets better;
>
> Make good use of the web and Internet resources
> Discussion forums and instant messaging features
> Heed the feedback and hear the discourses
> To find your learning becoming richer;
>
> They say slow and steady wins the race
> Choose your blend as well as the pace
> Soon you'll find your learning is whole
> No matter what, you reach your goal !!"

Let us elaborate further with one example of nano-learning application. As we migrate to a modern economy driven largely by creativity and innovation, all active players in the economic production processes have to acquire new knowledge and skills in an almost 'just in time' situation. It is not practical to go back to a full time learning experience at a University. Distance learning, while a possible solution also is not quite suitable in this context, because distance learning Institutions are seen as alternative degree providing Institutions and subject to parity of esteem problems and regulatory systems which draw upon the precedents from the centuries long tradition of higher education. But the needs of these learners are quite different, and their backgrounds and level of preparation would be quite different.

Let us take the MBA as an example. All MBA Institutions will have a rigorous entrance test such as the CAT,MAT,GMAT or equivalent, and although ostensibly they may be encouraging a diverse background of learners, at one level through the filtering test, they are seeking a very

filtered homogeneous group, almost like what in Mathematics is called a delta function. After the one or two year program, they create a Bell-shaped curve with a dispersion from an A to an E and sometimes an F also. On the other hand, there are large numbers of members of the workforce who have to apply managerial skills, without the possibility or need of having an MBA degree. They would like to acquire and use managerial skills as needed. A pay as you go in mobile subscriptions, in other words an 'on demand' acquisition of managerial skills and competencies.

So, how would a nano=learning MBA work? In one form of it, we could make a pool of nano-learning objects, with transaction durations of 1 hour each, similar to a regular University lecture. A closely connected set of 3 such lectures could be seen as a half-day seminar, which could be conducted face to face or e-mode. Five such seminars are the equivalent of an academic credit, which is usually 15 hours of classroom contact. In this format, we are looking at chunking of learning in chunks of 0.2 credits.

We could granularise this even further. At the next level, we could chunk the learning at 0.01 credits, that is about 9 minutes of instruction. A number of these could be strung together like a playlist to create the desired learning goals.

Elliot Masie was probably the first to realize the potential of nano-learning by reflecting upon the fact that he was himself a nano-learner. In his own words "I am a nano-learner. What does that mean? Each day, I learn several things in small chunks. Really small chunks. A 90-second conversation with an expert triggers a huge "a-ha." A few moments concentrating on learning how something works leads to a new micro-skill. What's more, I am not that unusual. Most people acquire most of their knowledge in smaller pieces.

Most instructional designers' eyes get glassy when they hear me suggest that we should have a role in the design of three-minute or shorter learning elements. Yet that is exactly what nano-learning is all about.

We have a unique opportunity to stretch our thinking about the size of our average learning project. Right now, most learning modules start at 15 minutes and often cover hours or days of involvement. But most learning moments are teachable moments. Malcolm Knowles described the perfect teachable moment as the intersection of a small question with a great small answer. That is at the heart of nano-learning.

We can apply the art, science and technologies of education to the world of nano-learning. We need to combine a better appreciation of the effective TV advertisement and the compelling movie preview. Nano-learning could allow us to build extensive and shareable libraries of small elements that can be rated and ranked for effectiveness. Most of all, nanolearning is aligned the fact that learning can and does happen every day—not just when we attend a class or take an e-learning program.

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