THE POTENTIAL BENEFITS OF E-LEARNING SUPPORT FOR CORPORATE TRAINING, PART I

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SUMMARY

Every company needs to train their employees regularly. Without continuous education they cannot refresh, they cannot face the new challenges. This article gives you an introduction to the educational forms currently used by companies. Moreover it discusses both their advantages and drawbacks from the employees as well as from the company's point of view.

WHY DO WE LEARN?

Learning is an everyday activity that starts at birth and never stops until we die. In all the various stages of life, we are constantly absorbing new knowledge, sometimes consciously, sometimes instinctively, using an incredibly wide spectrum of methods and tools What particular method or tool we use at any time depends on our age, our previous knowledge, what it is we are learning and, in many cases, the time available.

At the academic level, there are various approaches to the ***concept of learning***, each with its own definition. The pedagogic approach puts the emphasis on gaining knowledge and developing skills. [1]

Psychology gives a broader interpretation, defining learning as the relatively permanent change of behaviour as the result of practice. It is also interesting to look at the reasons: why do we learn, why are we always trying to extend our knowledge? It seems obvious that adaptation to our environment is the greatest moving force in the learning process, because if we cannot learn natures unwritten but unbending laws, our time on earth is probably going to be short. This theory does seem a bit hard to believe at the first. Can that little child possibly be following his instinct to preserve his species when he tries over and again to roll off a bed carefully fenced off with pillows? On the other hand, he is obviously learning, practising, testing out the boundaries as he rolls about. The motivational approach also seems to conflict with everyday experience: why do we learn how to use the company's new CNC milling machine for next Wednesday if it is going to be delivered on Monday? (Assuming, of course, we know at least something about the old CNC machine). And why do we not learn a second or third language properly, on our own account, after we leave school?

One academic view is that ***lifelong learning*** has its basis in large-scale industrial production and the associated mobilisation of society [2]. This definition seems to bring us closer, although it somewhat narrows the other concepts of learning, being difficult to apply to the stages of learning CNC machine operation or learning our own language, not to mention the process by which people, when fitted with an artificial leg after an accident, learn to walk, ski and climb mountains even if they had never done the sport before. The examples may seem somewhat removed from our subject, but let us see what they have in common. I think there are three things:

- necessity (I have to learn because I cannot do my work, I feel I have to learn this so that I can live a full life.)
- persistence (I can do everything I need to succeed despite the adverse circumstances)
- unsatisfied curiosity.

"It so difficult to die with my curiosity unsatisfied." Beryl Markham: West with the Night.

The first two need no detailed explanation. In today's unpromising economic environment I obviously have to be persistent, because I need my job and my pay, and next Wednesday it's either me or the other guy who will work that CNC machine, and having gained these new skills to get that new job, that is my job, he is unlikely to use it to contribute to my family's wellbeing. This could be illustrated with a lot more examples, but I leave that to your imagination.

The last driving force – unsatisfied curiosity – might also seem simple at first sight, but in fact deserves consideration in slightly greater depth. Who has not noticed at various times in their lives that if something is interesting and arouses the curiosity, is much more quickly learned, almost without noticing, and with minimal effort. It is easy to see that this is the easiest way, and

the way most people – including me – would like to go. So now we have the philosopher's stone, but how can we use it in our own lives and – much more difficult – how can it be put into effect in a corporate environment? In life, you only learn what interests you. Well naturally, because its easy and makes you happy. But what are companies to do with the resulting mass of train drivers, gold diggers, clothes designers and home designers? (Sorry if this list is not exactly trendy, but they were the favourite future jobs when I went to school.) So it might help if our curiosity is directed, either consciously or unconsciously. But who is going to do that... and how?

THE MOTIVATOR

Let us digress a little, and consider the first and probably most-quoted Biblical example: Adam and Eve, and the Tree of Knowledge… The rule is simple: you can eat every fruit in Paradise except for one, the apple. (And let's face it, prohibition itself got the couple excited, especially the first member of the weaker sex, Eve.) The punishment was severe, but the fruit really was tempting. Their curiosity was stronger than their fear, and so Adam and Eve took a bite. But it was not so simple. Do not forget a very important character, the serpent, who kept whispering into Eve's ear how wonderful the apple was, all the benefits it would bring, until he convinced her, and then she convinced Adam. The rest is history. So it was a mixture of curiosity and the serpent's insinuations that caused Eva, and Adam, to block out the thought of punishment. Where was the serpent in this equation? It was not, as in the dogmatic view, an evil creepy crawly sent by the devil, but the MOTIVATOR, who helped make the leap into the empire of knowledge. Leaving aside the long-term consequences, the main lesson is that the right ***motivator*** can redirect our interest, make us change our point of view, and save us much time and energy by focusing our attention, arousing our curiosity and making learning easier and more digestible. Additional lesson: Adam and Eve learned which tree knowledge grows on…

WHAT HAS THIS TO OFFER IN THE CORPORATE ENVIRONMENT?

Let us assume that the company has got beyond the slightly old-fashioned attitude that workers can do everything, there is no need to train them, it's just a waste of money, or if they can't do something they should be dismissed and replaced by somebody who can. In my department at SZÁMALK, we do examine the applicant's qualifications and skills, but of much greater importance is how flexible he or she is, how quickly he can be taught, how he will fit into the team, and his resilience to stress. My colleagues and I find that a "good" recruit can quickly be taught to do the special, difficult-to-learn things and soon becomes an integral part of the team, whereas brilliant previous qualifications cannot make up for deficiencies in learning skills or inability to work in the team under pressure. Company HR managers are usually aware of the skills that render workers able to work more professionally, and more effectively. But training needs money, which must be found within the company. After being convinced of how useful the training will be, the management, before handing over the money, is almost bound to ask, in trepidation: how much working time will be lost? An interesting question, if not a new one. Medieval warfare suffered from the great problem that when the knight went to war, he had to abandon his "core business" of farming, on which his life and status depended, and so he strove to keep his military duties to a minimum. Unless he had great and heroic ambitions, he would not even consider sending his serfs on team-building exercises or sharpening up their soldiering skills in working time. Not everyone saw it that way, and the occasional king, sparing no expense, raised an army of professional soldiers who did no farming at all. The chronicles relate the success of such armies against those less sophisticated in team-building, communication, and archery. But the general attitude even then was: don't train if you don't have to, because ***the work not done in the lost time is a cost*** (if done by somebody else, i.e. paid for) or a **loss (if nobody does it)**. The tempting alternative is not to train, or send on training, and save all the expense. But what happens if the business equivalent of King Matthias' highly-motivated army turns up? The lesson is: train as much as is absolutely necessary, even if it has indirect costs.

Real cost of training workers = cost of training + cost of lost working time

Then of course there are the administration costs, organisational costs (scribes, parchment, wagons, horses, etc.), but these two elements make up the principal outlay. It is interesting that for the most common types of corporate training, these costs divide about 50-50% for courses of 40-160 hours. With longer courses, lost working time constitutes a bigger percentage. For a course of several hundred hours, the proportions tend towards 1/3 training cost and 2/3 lost work costs. But the greatest danger in lost work is that

the work not done in company time is not just a cost, but it becomes loss in time.

The answer is clear: training should be compressed into the shortest possible period. That is what makes the greatest savings. On the other hand, there are usually good reasons why a long course is long. How can it be compressed without reducing effectiveness? Only one way: if the workers learn more quickly. But how can that be arranged, and how can they be persuaded?

If the CEO takes my advice, he will do three things:

1. Persuade them, if possible, that the training will be important and useful to us even in the short term. Tell them what they will get from the training. A classic example, much mentioned in training courses, is that a woodchopper only has to be shown how to sharpen his axe once. Otherwise he does not understand the company's mission.
2. Arouse their curiosity by new methods and tools (this is most important, because it reduces learning time!)
3. Try to adjust it to individual working patterns, using up idle time. This is very difficult, but from the company's point of view it is best if a worker trains during "dead time".

These principles are trivial in themselves, but are difficult to put into practice. The methods for realising them make up a science in itself. One possible solution, however, is worth looking at in detail.

The solution is e-learning, or rather blended learning.

WHAT IS E-LEARNING-SUPPORTED TRAINING?

The concept of e-learning has entered the public consciousness as a synonym for distance learning. Distance learning is not a new method, having long been used by universities and colleges. Distance learning is a way of breaking down the separation of teacher and student, which may be physically great or small, but constitutes a basic problem. E-learning is none other than a form of distance learning supported by computer technology. [3]

This is a precise definition of the subject, but very academic. Let us look at practical examples illustrating the three forms of learning considered here. The first is traditional (classroom) teaching with a teacher, desks and presentation; the second is e-learning (involving all kinds of computer wizardry, but effectively doing away with the teacher in person); and the third, "blended learning" is an attempt to combine the benefits of the first two.

Now consider the problem, in other words, the training demand.

We want some of our workers to learn the basics of configuring, operating and maintaining Cisco Adaptive Security Appliances (ASA). For those less well versed in Cisco Pix and ASAs – and I am one – I will go back to the more accessible medieval example.

The task is to train some serfs to reinforce the castle wall. Those chosen all have the basic skills (trench digging, building work, etc.) but are not familiar with modern trends in military architecture (arrow-headed bastions, infantry assault protection). How can we apply the three training models to this?

TRADITIONAL (CLASSROOM) TRAINING

The traditional training timetable is quite simple: a one-week course, usually Monday-Friday, 40 contact hours on the castle wall or at its base (in a group, with the teacher). The training consists of lectures by the trainer (an expert in castle wall construction), demonstrations of how to build a strong wall, and discussion of questions (why Déva castle fell down). The students have almost nothing to do at home or anywhere else, because the course goes on all day. If we want to set a test on what was learned, some home or workplace study and practice is essential, because five days is seldom enough to fix knowledge in the long term, and the course cannot cover every subject in the kind of detail demanded by a strict examination comprising simulations of castle wall construction. This kind of training is very good from the student's point of view, because everything is given: the environment, the material (here literally), the time, and the teacher – in this case the *motivator* – who has a wealth of positive examples (the reconstruction of Eger Castle) of the wonders of castle building. For the client, the training means the loss of a whole week of working time, workers only being available for last minute actions during the breaks. So 90-95% of the training takes place during useful working time and 5% in otherwise-idle time. The cost of lost work is enormous, but the master mason (motivator) has guaranteed that at the end of the course the serfs will have all the knowledge and skills they

need to build fine, strong castle walls. How do things turn out with e-learning?

E-LEARNING

Unfortunately, in the difficult economic climate and the increasing burdens imposed by the king (property tax, gate tax, chimney tax, etc.), and under pressure from our HR manager, we decide not to resist the trend and attempt to make savings with e-learning. As a first step, the workers to be trained connect their computers to an e-learning system, something rather unfamiliar in the Middle Ages and posing some tricky questions. Can our trainees use a computer properly, and are they familiar with the Oraculum 2.1 framework system? This, unfortunately, is not just a problem for medieval workers, but the HR man has assured us they can read, and all they have to do in case of difficult is press the help button. So from that moment, the multimedia presentation-studded castle-building learning aids are opened up to everyone. They can watch videos of major castle wall construction projects in Hungary. They can chat with the defenders in recent border castle battles, perhaps even with the attackers. They can read current forums and practise the art of castle building and reinforcement on their home or work computer, in a virtual environment (customised virtual Lego with extra elements). They study when they have time, or feel like it. There is no teacher to support the work, but they can register on several forums where students studying towards the same examination help each other. They only see a teacher on videos, although they can put questions at on-line presentations and, at pre-arranged times, discuss the finer points of castle construction in a virtual classroom. The key difference in this form of training is that *the teacher can only to a limited extent fill the role of motivator.* For the student, this kind of course is only fair to middling. The material is there, but there is no time set aside (the farm stables need building), and the biggest problem is the lack of a motivator, which will probably mean studies will drag out and not be nearly as successful as the "traditional" course in castle wall construction. The client (knight/company) loses much less of the workers' useful time, because the worker should be studying in idle time. The worker is practically always available to the "company". So 20-25% of the training took place during working time useful to the company (given appropriate workplace discipline) and 75-80% in otherwise idle time. The cost of lost time is negligible compared to the traditional course.

A few weeks after the examination at the "internationally recognised" examination centre, which incidentally issues qualifications in lots of useful things, we realise that our new "graduates" are not producing the work we expected. (The wall turned out squint, failed the ladder test, is already crumbling, is likely to burn down, etc.) What could have happened? They passed the exam, why can't they do the job?

One cause of failure is the lack of time set aside for trainees to do the course. The idle time at work may not be sufficient or is so fragmented that the trainees cannot engage in study at sufficient depth. Quite simply, they never have time to read the material, and are too tired for the heavy outdoor practice work. It requires above-average motivation for somebody, after a week's labour, to spend their weekend or evening free time learning to build castle walls. The other major factor is human nature: face-to-face learning, i.e. the interaction and cooperation of teacher and student, is most effective and leaves every other method far behind. Next most effective is small-group training, and effectiveness declines in direct proportion to the number of students per trainer. The third major factor is that if the e-learning teaching material is unsatisfactory, it does not arouse interest or curiosity, and if the multimedia elements are not appropriate, or the virtual castle builder is not lifelike, then success is in doubt. In many cases, e-learning has involved adaptation of traditional textbooks, which is at best a compromise, and at worst completely useless, resulting in no castle wall at all. What is the solution? Why is e-learning nonetheless working in more and more places? The solution is "blended learning", which more and more companies are using as an alternative to e-learning.

BLENDED LEARNING

Blended learning has come about as a combination of traditional course attendance with distance learning (by computer). Each element has about an equal presence. [4]

How does our castle building example fit in here? The tired reader will respond right away: since this is just a mixture of the two, then we will have one week of e-learning (structural theory, etc.), one week on site, or Monday on site, Tuesday e-learning, etc. The situation is actually a bit more complicated. It is slightly reminiscent of the beautiful lady offering herself as the ideal

wife to Nobel Prize-winning scientist, suggesting that their offspring would be both beautiful and clever, but failing to consider the possibility that nature might not share her ideas and endow the unfortunate child with her intellectual capabilities and the scientist's looks. Combining the two training models in this way might result in the side-effects being more marked than the main outcome. Crucial to this form of training are the proportions and preparing for all circumstances, or the cumulative benefit will count for nothing. What does this mean? Since the master will not always be present, everything must be done to ensure that home learning helps, and does not obstruct, the trainees. E-learning should be used for what can be efficiently learned alone, and practical training used where it provides the greatest benefits – such as motivation.

Now see how this model works in the castle wall example. The training starts the same way as the traditional course, i.e. in the classroom, or the base of the castle wall, where first of all (and most importantly), the trainees are taught to use the e-learning material. This is essential, because they will have to prepare for the next class, and if they cannot find their way through the complex e-learning structure to the chapter on mixing mortar, then the stone-laying exercise will not go so smoothly. They are shown the details of the Oraculum 2.1 framework system they will be working in. Then they are shown the full range of tools (virtual laboratory, Skype, on-line test system, all the tools and tricks to help study at home) so that they do not waste their study time on this. Since we would like them to be sufficiently motivated even when at home, we put into the framework system a castle-building game in which, after they have successfully completed the module, they can practice the endless cycle of castle building and destruction, via the internet. Then we discuss the schedule, what is to be studied and when, the parts to be worked on together in the classroom (on the castle wall), and those to be done individually. This is followed by the first real lesson. Before everybody goes home, the master gives out the homework: "Find out the masonry materials approved for castle building in the EU, where they can be obtained, and what accident prevention regulations apply on the castle building site. The next lesson will be stone-laying. Everybody should come appropriately dressed. If you have a question, I will be available by chat on Monday and Wednesday between 4 and 8 pm." And so it goes until the written, and then the practical examinations. If we have done everything right, the trainees learn both the theory and practice of the art of castle building perfectly, without becoming too tired from clicking the mouse.

What are the advantages for the trainees (workers)? They effectively have a continuous *mentor or motivator* – almost as in the traditional form. They also, at the pre-scheduled contact hours, get to discuss their problems with the master mason. They have time for their newly-acquired knowledge to settle, an aspect that puts the effectiveness of blended learning in the good or excellent categories. How does the employer find it? Blended training currently comes at about the same price as a traditional course, so the key difference is with lost working time. The advantage is obvious: lost useful working time is about a half or a third of traditional training, because the e-learning material can be studied in time that is otherwise idle, rainy days when our fine workers have less to do outside.

As I hope this example has made clear, a well-constructed blended learning course is about equally effective as a traditional course. Since much depends on the proportions, the material and the teacher, a company should make a detailed examination of the above factors before launching a major training project. It is also essential that the blended model be tried out in small groups in the specific corporate environment, perhaps with a control group on a traditional course, so as to fine-tune the proportions. If we get everything right, the company will have its cake and eat it too. So you will have fine, smart and highly-motivated workers (capable of building very nice castles) without overstretching the modest training budget.

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