"6C learning: a pragmatic framework for 2nd generation e-learning projects"

Bert De Coutere, Lut Baten, Stijn Viaene

Information and communications technologies (ICT) hold tremendous promises as deliverers and enablers of innovation in learning. While ICT is not the sole driver of this transformation, it has the potential of becoming a distraction and even an obstacle if not implemented properly.

Dr. Richard Straub - Director Learning Solutions IBM EMEA

Abstract

In 2006 we expect a large scale take-up of e-learning. In this paper we first argue that e-learning has evolved from a first to a second generation, with learning itself as the essential component. Within this second generation, we present a pragmatic framework, the 6C learning framework. There are six components, all pertaining to the question how to make e-learning work. Success in e-learning is the result of careful conceptualization, design, implementation and outcome. The framework enables reflection, sustainment and evaluation. As such, it is mainly but not solely meant for management of e-learning projects. This reference framework may thus prove its usefulness as a possible checklist.

Introduction

E-learning projects in enterprises, universities and schools have become more widespread but in the retail market, sales figures of courseware have slackened. Policy makers have freed budgets for more internet connections for all learners and to have them connected in networks. Learners and trainers have widely started to use the internet for their own communication, information, practice and testing but how much of the e-learning supply has found its way in a systematic application? E-learning finds itself at the tipping point of massively taking-up, but there is some hampering. The ICT community itself is convinced of the usefulness of ICT and so is a majority of management and end-users, but the work and study force at large apparently is not. E-learning has not yet delivered the promises made in its earlier years. We argue, though, that e-learning has matured into a next stage, beyond the initial image of silver bullet. We call this evolution a transition from first to second generation. We will first map out this evolution and indicate some pitfalls. From this comparison, we will derive the dimensions that are critical for making e-learning more successful. We will put forward that technology is only one out of six dimensions of the framework we here present, the 6C learning framework.

E-learning projects: from a first to a second generation

A dream, not come true?

Five to ten years ago 'e-learning' promised learning anytime, anywhere, anything. In 1990, O. Foelsche stated that *'for several reasons the creation of an integrated environment has proved daunting until now'* (Foelsche , 1990 p. 178). E-learning was a hype; it was technology that would thoroughly and immediately change schooling. EuroCall 1998, the international conference on language learning and information technology was called *From classroom teaching to worldwide learning*, with six hundred participants from European language centers all eager to feel the 'change in the air' as it was announced at the opening speech by the conference organisor. Later, (Sweeney, 2005) eyebrows started to frown with students, employees, trainers and managers when a likely statement about 'e-learning' is used. At first there were the luddites (Baten, Vanparys, 1995) and although teachers and learners have not been adversarial, they indeed asked the 'how and why'-questions rooted in their concern for the needs of the learners. Carol A. Chapelle (2001, p.3) stated that *' the question today is how can we best use the emerging technologies (…) that we must better understand our needs in foreign language teaching.'* On the whole, learners do not doubt

technology. The Financial Times (Anderson, 2006) blocks that business schools establish online e-learning , '*Technology leads the way as online learning comes of age*' (March 20, 2006). They realise technology can tackle wide-scale applications as it is available and ready for e-learning. But they do not take for granted that e-learning is the magic key to overall success. They put forward blended solutions.

Over the years, e-learning projects have shifted as to their major targets, their approach and objectives as it may be clear from figure 1. First, there is learning itself. Whereas before, primarily technology was emphasised, nowadays learning process and outcomes are focused. It is not the e in e-learning that is stressed, but rather the learning aspect and even more the learning benefits at a personal level (Felix 2005). How does e- learning optimize the objectives of a learner or organisation? Do we need this type of learning? If an organisation wants to conquer a position in the information society, it will have to define its learning strategy and consequently also the scope of its e-learning. So, at present e-learning projects situate themselves on the right hand on the figure whereas before they were on the left hand.

Secondly, there is cost. Training projects are often the first ones that are cut in a downward economic situation. Before, it was generally expected that e-learning would cut costs. Now, increasing effectiveness throughout the value chain comes first. It may not be overlooked, however, that if e-learning is put forward as a means to create value, it needs to be architectured. Our point is that e-learning can effectively cut through the organisation layers and enhance communication across all learners in the organisation and thus create a collaborative learning environment, on condition it is thereto designed. Users and designers need to interact in more standardised ways. Also, rather than going for big bang approaches, often fraught with risk and hard to sell, we tend to move towards chaining smaller, focused projects where former achievements lay the groundworks for future projects. A phased project approach will focus on acquisition, dissemination and follow-up of new knowledge for a specific training with a clearly identified group of learners who want on the job return on their learning investments, on a shorter term basis than before. Centralization, integration, standardisation, architecture are definitely gaining importance in 2nd generation projects, as indicated in figure 1.

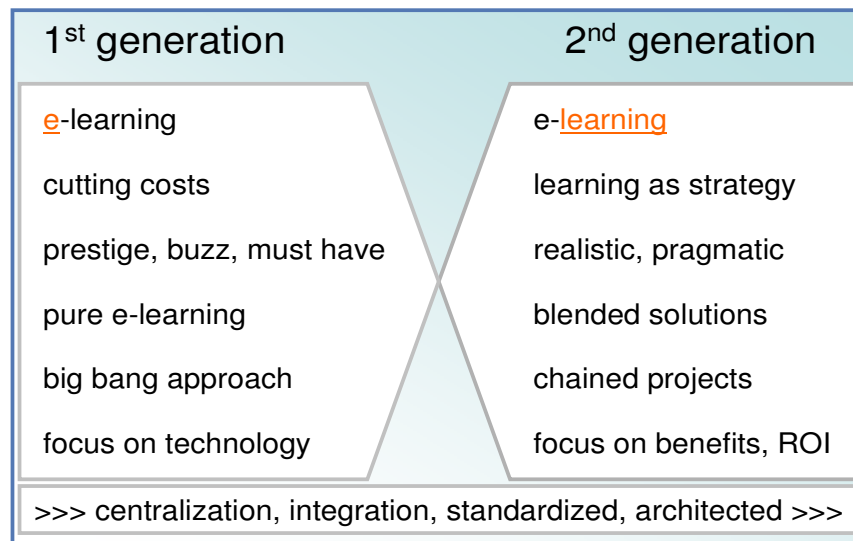E-learning projects: from first to second generation

1st generation	2nd generation
e-learning	e-learning
cutting costs	learning as strategy
prestige, buzz, must have	realistic, pragmatic
pure e-learning	blended solutions
big bang approach	chained projects
focus on technology	focus on benefits, ROI
>>> centralization, integration, standardized, architected >>>	

Figure 1: 1st and 2nd generation

Before, prestige projects were set up, now very concrete and pragmatic learning is put forward. Whereas before, pure e-learning was the magic key, organisations now realise it is 'blended' learning that will serve them better. Choices need to be made as to where, for whom, how and

which learning technology suits best to guarantee an optimum return (Felix, 2005). In fact we feel that the level of maturity of e-learning in organizations is correlated with who is driving the initiative. Who is the head of e-learning projects in companies: ICT or HR? And who is the head in schools: is it the didactic cell or the ICT cell? Or both? In a second generation we see joint accountabilities and a tendency towards HR and didactics.

The 6 dimensions of '6C learning'

What do we need to achieve an effective and efficient e-learning solution? In what follows, a pragmatic framework is presented to design, implement, reflect on, sustain and evaluate the successfulness of e-learning projects (see figure 2). There are six components, all pertaining to the question how to make e-learning work. All six criteria start with a C to create a comprehensive whole and a tool that is practical. In the end, the framework is meant for helping management better manage e-learning projects.
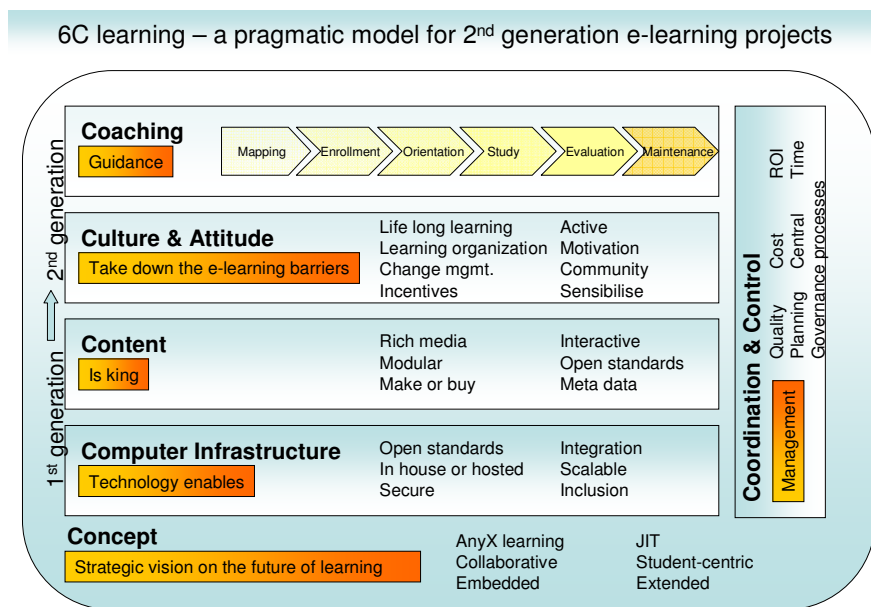

Figure 2 6C learning framework

1C Concept: strategic vision of the future of learning

The first 'C' stands for 'Concept'. All further completion will depend upon what we actually want to achieve with learning within the context of the organisation. The function of this dimension is to clearly establish the vision on learning, throughout all phased projects and for the whole organisation. For example, at present, universities in western Europe are restructuring because of the Bologna agreements of bachelor – master programs [Ref. V4] . The masterplan is not blindly filled in with *anyone can learn anywhat, anywhere* but rather attempts to the 'right' people learn the 'right' content at the 'right' time via the 'right' medium in the 'right' place, including a virtual one . Curricula and syllabi are reconsidered and redevised in view of the options taken by the learning suppliers. Learning platforms are introduced to guide students in their choices. Moreover, e-learning needs to be integrated in the daily activities of the users as individuals and as a group. Associations are made to cross the borders of the learning institutes to enable (i) increased collaboration, and (ii) better embedding in on-the-job activities, (iii) with the student as the central spill, and (iv) encompassing students, suppliers and partners over the borders of the own

organisation. Also on the shopfloor, these changes are envisioned, as a study of IBM confirms [Ref. V1]. The same ideas were shared at Universidad 2006, the fifth conference on learning for the southern hemisphere, which took place in February 2006 in Cuba.

2C Computer infrastructure: technology enables all

The second dimension in our model is the computer infrastructure. It is the basic prerequisite which needs to be adequately fulfilled as recurring breakdowns and interruptions will demotivate users. But technology as such is not the sole reason for success. For example, the road (or platform) which is mapped out for the learner in a suitable, technical way is just as important (Report by the Economist Intelligence Unit, 2003). We here think of the introduction of an LMS[1], an LCMS[2], authoring tools, virtual classrooms, chat, wiki, collaboration tools, e-labs, competence management tools and other types of software). Computer infrastructure (open, performant, scalable, secured and integrated) lays the foundation of a strong e-learning house. Also with second generation projects, technology will require more attention than we would like to. Irrespective of its advances, technology needs to remain reliable and solid. Furthermore, it has fulfill the rising demands as to flexibility, speed and integration of data from various sources and for multiple applications (Zemsky and Messy, 2004). To bridge the digital divide, a cost-controlled technology and infrastructure is a must, not only in the western world but also because developing countries step into the e-learning society immediately in this second generation. New initiatives create new opportunities. We just mention here *Close the Gap* of the University of Brussels, Belgium to refurbish older computers from companies in Belgium and deliver them quasi free to developing countries, the MIT launch of the *100$ Green laptop*, the upcoming first *Online Educa* e-learning conference in Africa (Addis Abeba, May 2006), BBC initiatives to create intranet schoolnetworks with one central server linked to the worldwide web, data delivery by bus stops, the opportunities of open source….Technology triggers off the creativity of the engineer, the designer and the content developer in a motivated learning community.

In this second generation, decision making will also pertain to the choice of the learning platform, open standards, (meta)data management, security, capacity planning, user friendliness and a transparency, for all [Ref. T2] .

3C Content: content is king

For the learner, content is the most important dimension. In this dimension, it is the organisation that decides on the training modalities (self-regulated, tutor-directed, classroom based) and upon the type and format of content offered to the learner: contact hours, web-based e-learning, Computer Based Training cd-roms, e-books, e-labs, virtual classes, discussion fora, assessment tests, training videos, interactive simulations and games, podcasts, audio books, weblectures, etc. It is obvious that the design cycle needs to be explicited in order to guarantee transparency, homogeneity and flexibility in use and has to be quality controlled (Baten, 2002). Instructional design is not a luxury. Didactic options need to be made because the user will not be able to pick and study the optimum content from this wide range of supplies, all by himself (Baten, 2004). We will later argue that the coach plays an essential role in the intake talks and tests. It goes without saying that content needs to be provided by a team specialised in subject matter, in graphical and instructional design, in the business area and in cultural issues. As to the latter, there are implicit expectations as to time, place and code which are defined by the cultures of the supplier, the organisation and the learner. E.g. which language is used for instruction and communication? At what stage in learning? Where are examples of good practice drawn from? What is re-usable? How much 'access' is given to who? These critical success factors of e-learning are rather culturally than technically bound and as such intertwined with the other Cs. An example of norm building is the recently published *Common*

European Framework of Reference (CEFR) which the Council of Europe has formulated as a taxonomy to promote language (learning) mobility in Europe. CEFR puts forward the 'can do' statements for contents [Ref. C1]. The Council offers the framework for use throughout Europe, but it is the enduser who chooses the levels and the course designer who selects the contents.

A brief checklist of decisions dealing with the content dimension may be: (i) make-or-buy, (ii) modular building and re-usability, (iii) interactivity, (iv) meta-data, (v) channels (web, PDA, GSM, PodCast,…), (vi) technical features conform to the ICT-architecture (standards, footprint, plug-ins), (vii) dependence on the choice of the learning platform.

4C Culture&Attitude: the forgotten dimension

The borderline between 1st and 2nd generation e-learning is situated in between dimension 3 and 4. It is wishful thinking to assume that if all is provided for as to concept, technology and content, the end-user will automatically show up on the assumption that *'if you build it, they will come'*. Waema (2006) stressed that if innovation values fit in a good, strong climate, there will be enthusiasm and commitment among employees for the new ICT. If the climate is weak, then the frustration among the users will be high, resulting in sporadic innovation use, especially if the ICT learning skills of the user are low. Creating a favourable climate for e-learning requires efforts that are both top-down and bottom-up.[Ref. C2]

We cannot take for granted that users will find their way to an e-learning course themselves. E-learning is so fundamentally different to most employers and employees that the platform as well as the courses need to be constantly promoted and the participants motivated. We have called this dimension 'Culture&Attitude'. 'Culture' refers to the organisation (top down) and 'attitude' to the personal attitude of the learner (bottom up) (Martin, 2005). Hence, it is a learning climate that needs to be created. In that respect it is important to have sponsorship from the highest echelons in the organisation and to create a 'champions' community throughout the organization. The latter empower the workforce with e-learning and function as beacons for other learners in the organisation. Changing the organisation into a learning organisation, with active learner-users sharing their life long learning experience in a broad learner's community is an objective that can be achieved with change management techniques if values and climate fit. Prof Taylor of the University of Liverpool comments that (Wilson, FT 2006, p5) *'It is not just study in the comfort of your own home, it is study in the security of your own job'*.

It should be stressed that the implicit expectations as to time and place (distance) play a crucial role. They are not only used as a handy excuse, they often are a real excuse. Therefore, the organisation needs to lower the threshold for e-learning and encourage it by valuing the time spent and reserve the virtual and physical space (e.g. reserving resource centers with tutoring and reference materials). Out of our personal experience (Baten, 2004), we suggest that an e-learning community finds itself in real encounters as well. A kick-off meeting at the beginning of the course and a wrap-up at the end open the doors to a lasting learning community. Also, a simple 'busy e-learning' notice on the door knob should not be mocked at, but rather respected. Online learning has become the latest iteration of 'distance learning' as it offers the opportunity to obtain a higher education without leaving the job the learner needs. Especially in developing countries people are desperate for an international-standard education, yet quality is very hard to find. The solution towards Asian online agencies that sell management and technology courses is obvious. (Barnes, FT2006, p.4). The University of Liverpool is one of the providers of an MBA programme in online learning (as distinct from distant learning). Communication with instructors or other students is essential, together with an academically sound programme and a good teaching paradigm. (Wilson, FT 2006, p. 5)

Here are a number of features of this dimension: (i) Communication plan: e-learning is still a waste land to many learners. (ii) Sensitising : Who are possible champions? How can e-learning improve efficiency and effectiveness at the personal level? How are e-learning efforts valued by management? (iii) Motivatation: Why do learners drop out? Why do they show a low commitment? An organisation needs to question the reasons and take measures for a favourable climate and well-defined values. (iv) Learning strategies: how does a passive learner become an autonomous and responsible e-learner ?

5C Coaching: the sage not on the stage, but the guide by the side

E-learning of the 2nd generation is not synonymous to self-study as such. The function of 'coaching' is to identify the specific needs of the learner, selecting the proper learning materials, offer them in a coherent way and build competences and skills that help the learner to make the transition from 'knowing' to 'can do' and finally to 'can adjust and adopt'. The proof of the pudding is not only in a certificate but in the actual integration of the output of learning into the task on hand. Formal learning up till now has primarily been based on courses. With new frameworks as the above mentioned CEFR, standard taxonomies can be consulted for drawing up profiles of learners of whom the performance is clearly described. It is up to the learners to select from the range of objectives and improve these skills and competences. Portfolios may practically translate learning paths and outcomes of a learner (Little and Perclova, 2001). In portfolios (e.g. the European Language Portfolio ELP), learners keep track of their identity (passport), their learning process (biography) and their achievements (dossier with stocktaking) (Frath, 2005).

The expertise of the coach lies in a well-considered selection of options for a specific (group of) learner(s), to organize the input and to systematise the output. We can summarise it in an SOS approach (Select, Organise, Systematise), containing the following steps:

- **Mapping**: based on a needs analyses, training modules are suggested The personal learning style of a learner is considered and learning strategies are acquired to improve the efficiency and effeciveness of learning. Examples of mapping are placement tests, roadmaps, info sessions, personalised learning paths, schooling options, a transparent cataloguing, etc. Vice versa, the typical learner is guided to standard and customized contents.
- **Enrollment**: once the student has been allocated the proper contents, a formal registration takes place. Registration happens on line and automatically with the necessary checking and red tape which might hamper a swift transition. Approvals from management, budgets, payment and profile controls, accounts and passwords are indeed part of the game.
- **Orientation**: orientation should not be overlooked in e-learning. It is the mental script of learning. The expectations on the part of the student vis a vis the course, the e-learningplatform, the ease of learning, the coaching should be compliant with the offer to ensure a smooth and swift progress. Coaching needs to be pro-active and thus the first step needs to be taken by the coach. An example of orientation is mailing 'step-by-step' documents, organise a kick-off session, show examples of good practice and demos, give tips as to timing, provide extra references, inform about 'learning how to learn', etc.
- **Study**: the obvious part of coaching is the follow-up and feedback, partially by asking and answering questions but here collaborative learning should be stimulated, It is the group that should perform and that should sustain the learning community. Coaching and interaction will evoke involvement and comitment. Examples are: moderated discussion for a, e-mail support, walk-in question sessions, FAQ-sessions, extra exercises, quizes and games with reward.
- **Evaluation**: the traditional evaluation upon completion of the course will measure the level of satisfaction of the different course contents and features as well as the learning results.

Typical questionnaires with a Likert-scale are a good starting point to improve the project. Also exams and formal certificates belong here.
- **Maintenance**: More and more organisations wonder what happens after the training. How is knowledge shared? How will innovation be sustained and quality improved? Sustainability is therefore essential for 2nd generation e-learning. Here again, it is not the e in the e-learning that will be crucial but the effect of the learning, how people learn to adopt and adapt the new information. Examples of maintenance are updating courses, membership of a community concerning the topic or open access to discussion fora and the course.

Sweeney (2005, p.35) concludes his overview of 'e-school' seen through technology as follows:
The most recent opportunities for technologically enhanced learning clearly support more leanrer-centred learning. Teachers can only be supportive, though they may need reassurance on an old point: far from being replaced by technology, they have an important say in whether it is ultimately successful. Further technical and specialist advances are certaintly needed, but without new pedagogic approaches and models derived from reflective practice, models of learning will not move forward effectively. Irrespective of how classroom-bound the future of learning may or may not turn out to be, teachers have an undeniable role.

6C Coordination&control: management

Last but not least there is the management dimension, which includes 'coordination & control'. The obvious functions are planning, process definition, program and project management, quality control, measuring tools, budget control, risk management, etc. In this dimension, the interaction between e-learning and the rest of the organisation should be reflected upon. For example, e-learning needs to align with the company strategy, calculations and reports on the Return-On-Learning (see ROI in figure 1) need to be made, not to forget the search for sponsoring new development of e-learning units. In a nutshell, it is the task of 'Coordination&Control' to effectively implement the operational and management processes for e-learning.

We firmly believe that e-learning projects are more demanding than traditional educational offerings. Since contemporary organizations are still in search of best practices for effectively managing e-learning, we emphasize the role of a review board with the different stakeholders to guide and steer when and where necessary. The '6C learning' framework may be used to survey the different components or function as the starting point of a scorecard. Next to the development and contrasts between 1st and 2nd generation, there are other growing tendencies a review board needs to take into account. A first one is a far reaching standardisation. Technically speaking, we here refer to the emerging SCORM-standard, which guarantees the interoperability of developmental instruments, learning platforms and courseware. Also the didactic and pedagogical standards need to be translated in a standardised design cycle. Accreditation is the by-word for quality for many traditional schools, but the criteria might show inappropriate for online learning (Bradshow, FT 2006 p 6). A second tendency is architecture. People, systems and processes of e-learning need to be mapped in an accurate way. Schools such as Warwick and Bradford in the UK that also run full-time and executive MBA programmes allow students to transfer between modes of study. As an example of an encompassing framework of e-learning architecture, we refer to the ELF (e-learning framework)   [Ref. M1]   .

Conclusion

Second generation e-learning will have to prove that there is indeed a return on investment on the part of the learner and on the part of the organisation if e-learning wants to deliver as it has promised. At this moment the learning community is realistic enough to know that learning is a blend and that for better managing learning we need to map out better how personal styles, group contexts and learning actually interact. The internet may rather be used to foster interaction between the faculty and the students and among the students themselves, in a global context, rather than for content delivery. It is not because bandwith allows for ever-richer content that learners and workers will have the ability to work in a global business environment. Content, interaction and networking are the keyterms of success. What is important in creating an enduring programme, according to professor Fenton-O'Creevy (Manchester Business School Worldwide) is the educational factor. '*Technology is no substitute for experience*.'(Anderson, 2006 p.2).

The '6C learning' framework aimed at giving a high-level overview of the conditions that need to be met to guarantee a successful e-learning. It may serve as a means of communication, an 'e-learning speak' to reflect upon the conceptualization, design, implementation and outcome. As such it should also help in defining the sustainability of an e-learning investment.

As the proof of the pudding is in the eating, examples of good practice should serve the reader to better envisage what these six dimensions in reality mean. To that end, we refer to the website **www.6Clearning.org**. Further research and case studies will help along to establish the usefulness of 6C learning.

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Lut.Baten@ilt.kuleuven.be