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ADVANCED BLENDED LEARNING TECHNIQUES FOR EDUCATING CIVIL SERVANTS*

Abstract

Public management has been going through major changes due to several reasons. For instance the common interest of public and private sector in critical areas such as terrorism, climate change, or technological innovation has emphasized some new intellectual thinking about public administration which recently has been discussed under the term new public governance. Training and education of PA managers at all levels have a crucial role in facilitating these changes. Over the last couple of years these strategic and methodological thrust have been accompanied by more and more creative use of information communication technology (ICT).

In this paper I look at one methodological element which has surfaced over the last years: namely how e-learning contributes to the advancement of management training. More specifically I intend to explore two issues in this regard; firstly to describe the key elements of information communication technology (ICT) innovations and secondly to outline the importance a social constructivism for successfully implement e-learning in PA management trainings.

 Introduction

Public management has been going through major changes due to several reasons. For instance the merging interest of public and private sector in critical areas such as terrorism, climate change, or technological innovation has emphasized the need for some new intellectual thinking about public administration (PA). During the 2011 meeting of directors of public administration training institutions (DISPA) Jacek Czaputowicz

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director of the National School of Public Administration in Poland summarized these issues in the following Table 1 (Czaputowicz, 2011):

Table 1. Comparison of Public Management Approaches (Czaputowicz, 2011)

Assessment Criteria	Weberian Model of PA	New Public Management	New Public Governance
State organization	Unitary	Regulatory	Plural and fragmented
Strategies of management	Hierarchy	Market	Network
Normative base	Administrative law	Contracts	Convention
Management style	Burocratic-administering	Managerial-Managing	Partnership – Controlling
Character of relation	Domination and subordination	Competition and co-operation	Equality and interdependence
Character of activity	Procedures	Results	Needs
Aim of activity	Consolidation of order	Provoking change	Building social trust

Training and education of PA managers at all levels have a crucial role in facilitating these changes. According to the mission of most institutions of public administration development it is often clearly stated that educating and preparing men and women in public service management is essential in order to enable public administration to accommodate the accelerating changes of our environment

Norbert Kis the Director of the National Institute of Public Administration emphasized the following areas in training strategies for the public sector (Kis, 2011):

Changing mentality: centering around the performance principle for civil servants. From this point of view training programs have to be developed for personal engagement

<u>Changing attitudes</u>: entailing partnership with citizens changing the philosophy of service as it is outlined in Table 1.

<u>Changing behavior</u>: the most difficult achievements of every training is to impact the behavior of leaders in order to effectively deal with stakeholder relationships.

Similarly to general business management development programs the public sector also has to meet these requirements by adapting new methods. Both for the reasons of satisfying the above general needs and also from training efficiency point of view that is meeting the needs of managers themselves. Experience of leading institutions show that effective and efficient training programs should:
- emphasize interactive, participative discussions instead of lecture based classroom methodology,
- keep group size at a low level of 20-30 in order to easily facilitate interaction,
- create an environment where sharing of experiences and expertise becomes a key factor of learning.

Best practices show that well received training materials combine theory and practical examples coupled with exercises built on them. Active participation leading to collaborative learning is the key success factor in such training programs, technically often supported by group discussions, role playing, simulations and case studies. Successful PA management courses demonstrate personal development, self reflection and individual competency improvement of participants.

During the last couple of years these strategic and methodological thrusts have been accompanied by more and more creative use of information communication technology (ICT). Among these I can refer to the role of new devices (smart phones, tablet PCs, readers etc.), the appearance of millennium generation at schools and workplaces, the high level of internet penetration and on-line service maturity, and the key initiatives in the e-Europe 2020 program for inclusive and multi-channel public administration (Yoo, 2010).

In this paper I look at one methodological element which has surfaced over the last years: namely how e-learning contributes to the advancement of management training. More specifically I intend to explore two issues in this regard; firstly to describe the key elements of information communication technology (ICT) innovations (Yoo, 2010) and secondly to outline the importance a social constructivism for successfully implement e-learning in PA management trainings (Lee, 2004).

The objective of the paper is mainly pragmatic it intends to show how we may prepare suitable, high quality, enjoyable and interesting learning programs by the use of e-learning. At the same time it aims to point out theoretical directions as well, by drawing the readers´ attention on the relevance of social construction concepts to successfully implement the e-learning modules into training programs. I believe it is especially important because civil servants work in politically, legally and socially rich and "strong" environments where technology based solutions can only be productive if they are deployed with the proper human consideration or "social fit".

Components of e-learning

E-learning is an umbrella term covering broadly those applications, forms of teaching materials, learning management and support, which originate from three well described sources: computer aided learning, internet based learning and distance education.

Computer Aided Learning

Computer Aided Learning essentially means that the learning process is organized around computer use. This concept is the revival of the former "Technology Based Learning" where multimedia based interactive technology appears in the center of teaching and learning. It has also been called as CAI (Computer Aided Instruction), where the phrase refers to an early metaphor stemming from the behavioral cognitive pschicology concept of "programmed learning".

The first generation of these methods between the 1960s and 1980s and was focusing on using learning programs in education. These programs instructed the learners to respond to the coded tasks and evaluated these responses while the learner attempted to execute the tasks in solitude. A major drawback of this method was that it had not allowed the user to deter from the pre-programmed paths; everyone was progressing according to a common speed and style, the individual skills and competencies had not been taken into consideration at all.
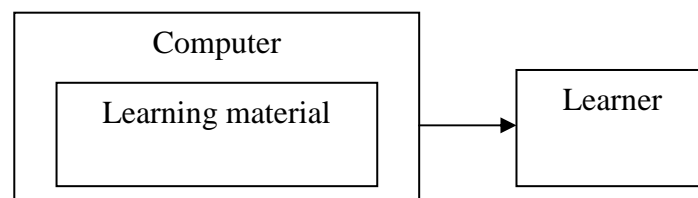

Figure 1. Schematic Description of Computer Aided Learning (Orbán, 2009)

The second generation of e-learning methods appeared when personal computers entered households and became capable of running multimedia software and solution. Such software has made the task of the learner substantially more interesting and engaging by enabling her to look at pictures, maps, articles, video clips and listen to audio files. At this phase, although great progress was made in the quality of computer supported learning materials and the learning process, fundamentally it was still rooted in the first generation paradigm, that is treating the learner as an individual actor. Emphasis with these applications is that learning happens at home, through individual activities without human help. Purchasing of CDs, and the diligent interaction with application software did not solve the two most fundamental dilemmas of studying:

adaptation to the individual learning abilities and the lack of interaction within the teacher-learner community.

Distance Learning

Historically distance learning appeared as an alternative to traditional classroom teaching. It has been essential to reach out for children and people who have serious difficulties to travel, or live in remote locations and geographically spread areas. Australia therefore has always been in the front of innovating distance learning methods using contemporary technologies of the time such as radio, television broadcasting and satellite technology. Effective distance learning needs at least three infrastructural conditions a) a well functioning telecommunication system, b) easy access to information sources and c) a new learning style from the students and from the educators.

The need for distance learning has been amplified by the growing demand for knowledge based human capital and the quick depreciation of acquired knowledge in the traditional learning institutions. Life long learning has become a part of human resource development both from an organizational development and from a personal competiveness point of view. Regardless, we should not equalize e-learning with distance learning but should be aware that some key elements of e-learning are rooted in this concepts such as independency from time and place and the increased level of individual responsibility in learning.

Internet Based Learning

Internet, or web based learning is the new horizon appeared with the global network of computers enabling us to enter into a virtual world of learning from the concrete physical one. Internet based learning is also called WBL (Web Based Learning), CSCL (Computer Supported Collaborative Learning), or most recently as DL (Distributed Learning). The expansion into the virtual horizont practically means an easy access to large capacity databases, multimedia repositories, and many faceted communication channels. Single machine computing power multiplies in the internet cloud and can be organized into a super system of processing machine also combined with hypertext technology all of which result in an environment where plentiful information available within a mouseclick.

From the mid-1990s the WEB has made it possible that the sole learner is connected with her teachers and fellow learners and may communicate with them synchronously (chat, instant messaging) or asynchronously (e-mail, web-portal). At the same time the role of the classic computer has also been transferred since newer and newer ICT gadgets appear – laptops, netbooks, e-readers, smart phones, tablet PCs,etc. – putting the emphasis on the WEB as a network. In this third generation of e-learning paradigm

therefore the notion from computer has been shifted to connection and networks (web supported learning).

In web supported learning the previously unsuccessful use of phone operators as help desk have become unnecessary and conceptually replaced by the platforms offered by the internet. Solitude has been effectively adjusted by studying in communities. These communities thanks to the broadband internet can be geographically spread just like the physical place of mentors. The seamless web of mentors, materials, students and ICT network is depicted in Figure 2.
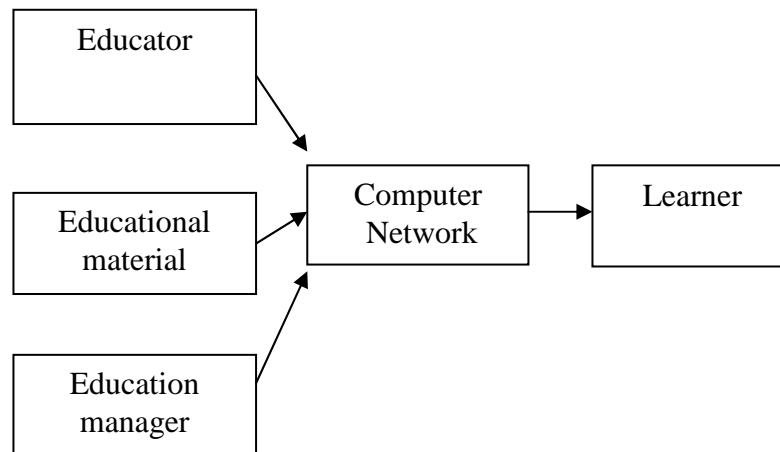

Figure 2. Schematic Description of Web Based Learning (Orbán, 2009)

Most recently – in the last 5-6 years – web based learning is being supplemented by approaches, tools and methods which we call Web 2.0 (Danó, 2008). In my opinion the Web 2.0 paradigm has three main contributions to the evolution of e-learning:

a) user contribution to learning,

b) the wide use of open source platforms and tools,

c) enabling innovative virtual representation of learners, trainers and the subject material itself.

User contribution is an extension of the community discussions going beyond tutoring, collaborative study of the pre-set topics and through all of these basically jointly creating the knowledge and substance of the learning domain by the use of technologies such as wikis, social bookmarking, forums, blogs and glossaries. In the Web 2.0 world knowledge sharing, joint editing and networked learning is key principle.

Open source tools are typical manifestations of the Web 2.0 philosophy where not only information is shared free but products and applications are also available at no purchase cost. Users contribute to these developments with their experience and accumulated knowledge related to the product. Moodle, Illias, are e-learning platforms, such as the many small and large modules to develop and use multimedia content, knowledge bases, tests, interactive exercises, simulations and many more.

The third major stream of Web 2.0 developments shaping e-learning is the wide range of innovative virtual representation of stakeholders. Originating from on-line games, the creative use of avatars, virtual classrooms, remote video sessions and simulations enable an entirely new era for learning: students explore digital replicas of situations, systems and environments and can exercise and develop skills just like airplane pilots in the cabin simulators.

The evolution of e-learning is summarized in Figure 3 showing how it blends into the broad information society environment as a more and more natural use of technology. Learning concepts become embedded in our lives just like the way we use technology at work and home.
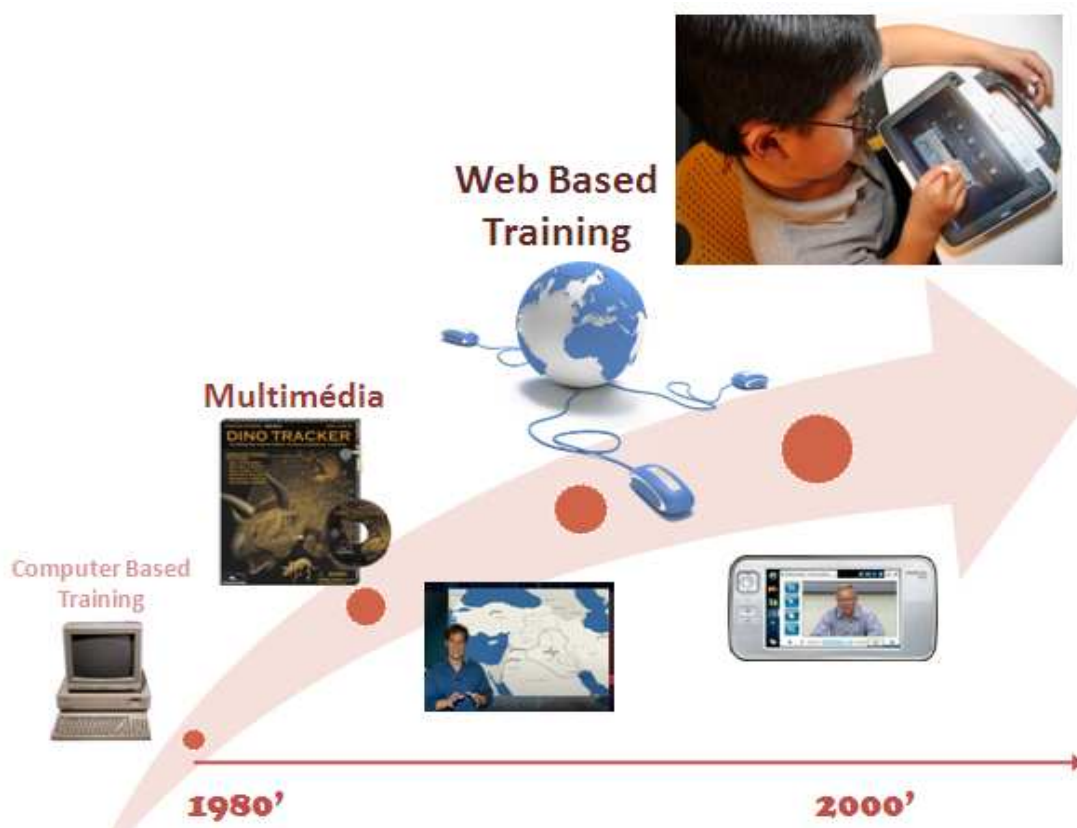

Figure 3. Summary of e-learning phases (Orbán, 2009)

E-learning conceptually has been built up and evolved from these innovations. It aims to improve the effectiveness and efficiency of learning by systematically organizing ICT into the process of knowledge creation, dissemination and control. By doing so, it is not only limited to support the existing methods of learning and teaching but also to explore what type of new and improved methods can be deployed, how education and training can be re-engineered thanks to the ICT innovations. In order to see these opportunities in the next section I will go through the relevant ICT elements, or components of e-learning from communication platforms through different applications tapping into Web 2.0 social computing solutions.

Learning Management Systems (LMS)

In order to describe the core technologies of e-learning systems, I start with the concepts of platforms or as they call in e-learning the learning management systems (LMS).

Learning management systems provide the main functional support for educators and learners:
-   supporting content creation and management, and
-   supporting the administration of the learning process.

Learning materials are created, stored and managed according standards, basically applying the logic of modular, object driven structures. I discuss these concepts in the next section.

Administration in LMS usually focuses on the following areas:
-   authentication of stakeholders and management of their user rights by mapping the organization of courses and institutions
-   management of assessments, scheduling task and keeping track of activities,
-   providing opportunities for exercises and practicing,
-   managing communication between students and teachers,
-   helping to ensure the quality control of courses by managing student evaluation and feedback.

There is always a grey area between LMSs and central administrative systems which support institutions educational administration like course portfolios and programs, enrollments, budgeting, credits and grading etc. Traditionally, these systems had been deployed earlier then LMSs into the learning organizations, training institutions and universities so we can see a gradual approach and slow integration process between these two systems presently with frequent duplication of functions.

At the Corvinus University of Budapest (CUB) for instance NEPTUN is the central educational administration system and MOODLE is the most widely used (but not exclusive) LMS. NEPTUN is responsible for controlling program and course design and student enrollment, while MOODLE is responsible for the learning process. Course and registration data is uploaded from NEPTUN into MOODLE. When the courses are finished then students´grades are loaded from MOODLE back into NEPTUN – technically through a manual process.

We can also find other combination of LMS and administrative systems. At the ELTE University of Budapest for instance ETR (Electronic Education System) and COOSPACE (Collaboration Space) are deployed as administrative and LMS solutions. The advantage of this approach is that both systems are developed by one software firm which provides a smooth integration, a clear separation of functions and a unified interface with similar workenvironment for the users. Disadvantages are on the otherhand that such solutions are generally create lock-in situation for institutions resulting in high licence costs, and reliance on supplier development strategies.

In the Hungarian Public Administration Institute training and learning is supported by KIWI as the administrative system and ILIAS as the institutions LMS.

ILIAS and MOODLE are open source LMS solutions offering different management and cost models than COOSPACE. For instance opensource naturally has no licence costs but potentially higher personal costs, development time and higher expertise is required. On the otherhand, this is coupled with a relatively low exit barrier in case of strategic change, since there is no supplier lock-in in e-learning concepts.

We should be aware that the LMS market is proliferating just like other ICT markets. According to E-learning Age at www.elearningage.co.uk at the time of writing this paper there are 150 suppiers of LMS solutions.
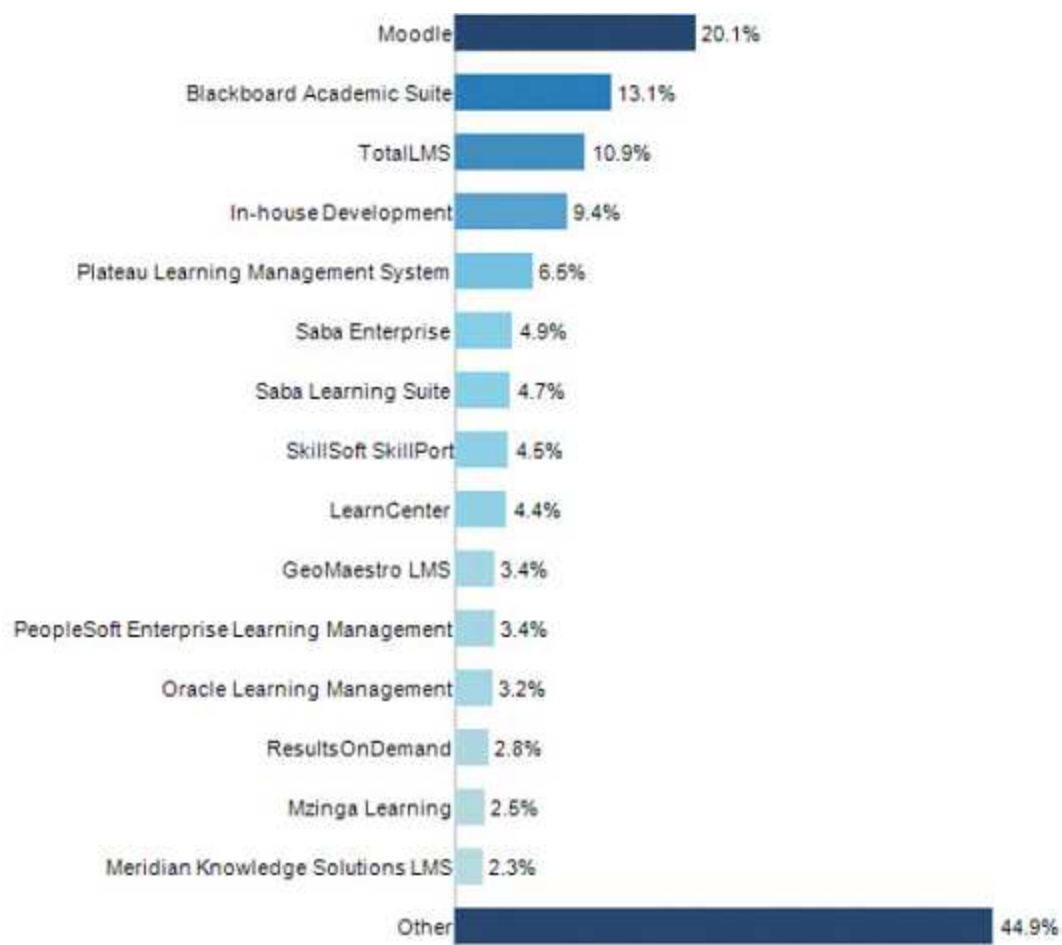

Figure 4. Share of most popular Learning Management Systems Source: www.elearningage.co.uk downloaded 2011. February. 10.

As a summary we can say that LMS focuses on individual competencies and on the learning process but it is not intended to deal with the creation and design of the teaching materials themselves. This is what I discuss in the next section.

Building blocks of the teaching materials

Teaching materials or the content of learning is organized into learning objects. Learning objects are such building blocks which cannot be divided into smaller parts and treated as elementary units during the learning process. Essentially, creating the learning material means to produce all the learning objects of the particular course. After they prepared they usually tagged with meta-data such as authors, keywords, title etc. and by this objects can be searched and measured how they have been utilized.

Text and pictures

The most fundamental content object is text. Text may contain the main body of the transferable knowledge and information but thanks to hypertext technology and its networked form even the primary text can be dynamic, colorful and more easily readable than its paper form relatives. Appart from classic primary learning text, it also can be so called secondary text: manuals, instructions, helps, summaries and small tag clouds.

   The other type of learning object which is also well known in traditional paper based environment is picture. Pictures can be illustrations, explanatory figures, but in the digital world even a simple photo can be filled with life with the help of interactive solutions, simple animation and in such a way become a really useful and even more attractive tool for learning.

Video content

Video content in learning materials has a really wide variety. The most convenient solution is to embed an already existing and available video from the internet, assuming that from legal (copyright) point it is cleared. Typically these are the linking or embedding of Youtube clips, TED broadcasts or content from other videosharing portals. Embedding is a preferred solution to linking mainly because content from a non-controlled site can easily disappear and in that case it remains unnoticed. Software to show these clips, the players, can also be very different and if the user´s version is not able to play the file it creates frustration and bad user experience.

   Appart form existing videos sometime it provides an excellent learning experience if we produce our own videos. Naturally, these can be films of all sorts (lectures, clips, stories, etc.) which might have a very wide range in quality and associated costs. We can see professionally edited and cut videos about lectures but sometime just a simple

amateur camera shot about a situation which is posted in the LMS also serves the purpose. More and more universities for instance record lectures and post them for students who could not attend the session or exactly for those who have attended to provide more opportunities for careful, second listening.

Another, more recently spreading method of creating high impact learning videos is the technology of screencasting or screencapture. Similarly to the widely used "print screen" function to capture a particular computer screen we may use screencasting software which records screenshots as animations together with the narration of the instructor. Such recorded videos, screencasts as they are called, are especially useful when students have to learn the usage of a software application or develop skills in modell building. Screencasts are excellent to teach on-line applications and familiarize students with websites and their functionalites. The videocasts can be played over and over again, can be stopped at difficult or complex positions and also fast forwarded at parts which are known to the particular student.

The third type of video content is what we might call animations as a general term. There are several tools available on the net which can be used to create simple and very complex animations. Probably the simplest is when a Power Point animation is played on the screen and captured by a screencast tool which produces a videofile ready for publication.

Interactive content

Interactive modules require some sort of input from the learner not only "passive" consumption or eyeball focus. These interactions have also several variations from complex exercises to uploading materials and selecting options from alternatives.

Testing: a special form of interactive content

A major advantage of virtual learning is that effectiveness of the learning can be tested basically real time during the study sessions. On one hand this provides good opportunity to repeat difficult materials or deepen a certain knowledge area and on the otherhand gives a feedback to the learner herself. Since modules carry information about the student´s position in the learning material with these solutions we can ensure that she only steps to a next level if acquires the required knowledge at the preceeding stages. So testing does not only make the learning more colorful, but offer an adaptive type of learning accordning to each and every student independently.

On-line examination module

Naturally testing is not only useable during the learning process but also applicable at the closing for assessment and grading of students´ final performance. These modules have functions to set the time, length, IP address limitations, number of attempts,

feedback mechanism and lots of other features providing transparent evaluation and grading.

Questions can be organized into test banks and by the use of LMS they can be mixed, imported/exported, randomized and naturally autocorrected. As an example MOODLE enables the creation of the following type of tests:

- Caculations
- Descriptions
- Essay
- Matching
- Embedded answer
- Multiple choice
- Short answer
- Numerical
- True/False

As with many easily available content in the web, we have to draw the attention on the importance of copyright and protection. In practice there is such an overabundance of media content and most recently also of e-learning modules that it is easy to overlook this obstacle. We suggest that both for creating and for downloading e-learning module "Creative Commons" licences prove to be an excellent and clear guideline for the re-use of such content.

Standardization

A major spread in use of e-learning modules started to happen after standards have become accepted. Standardization enables the users to transfer learning objects from one system to another, ensure that the creation of such elements are supported by wide range of compatible applications and finally they operate as transparent systems for the users.

The most important standard in e-learning is the Shareable Content Object Reference Model (SCORM) which is the structural model for web based content and it incorporates the guidelines of other standards as well:

- Dublincore – metadata description
- AICC – material transfer and web based plarforms
- IEEE – general parts, standards describing the learning objects, mapping of students

SCORM therefore is the essential standard of networked based e-learing solutions in order to support access, transparency and reuseability for networked learning in the academic, business and public administration sectors. The basic units of SCORM are those learning objects (LO) which we described above.

It is important to note that LOs and SCORM by themselves do not satisfy the needs of real collaboration and networked based learning. On top of these users of ICT gradually have got used to instant communication, social networking applications, and advanced

search techniques. This is especially true in the case with the Facebook generation who use ICT media as a natural habitatat of existence. E-learning for them is only adaptable if it incorporates these de-facto standards of the web community and makes it natural that students and teachers can work together in such an environment. Therefore LMSs have to support these options and designers of e-learning programs should consider these applications and interfaces.

Web 2.0 type building blocks

Web 2.0 as a phenomenon covers the notion of collaboration, participation and the importance of user generated content. Since 2006 when Time Magazine chose the person of the year the average user – YOU – it has become the drive of several innovations in the web ecosphere. The basic e-learing content has also been adjusted by Web 2.0 type of solution which further enhanced the learning process. In this section I review those typical applications which extend the "static" content into a dynamic, collaborative, virtual learning environment.

RSS

The traditional way of following the content of known portals and websites has been to visit them from time to time (with our favorite news site we do that more times every day) and check our area of interest. With the data explosion over the last couple of years the need to automate this process has become very important, since it would be time consuming to re-visit all relevant sources. RSS – really simple syndication – aims to solve exactly this problem situating in the heart of these channels. The RSS feeder is installed on the content server, the portal which stores the content and periodically checks the status of its update. When the content is updated transmits an aggregate message to the client program, that is to the user, signaling that the content has changed. The user does not have to visit her favorite sites, news is delivered – fed – to her automatically.

Folksonomy and social tagging

The traditional way to organize data is to create a classification system. Classification hierarchies which are also called as taxonomies such as the directory trees in our computer help us to find things as quickly as possible. Internet culture, user participation and technology has brought another way of structuring information, by attaching keywords – tags – to informational objects. Tags are simple variables like the famous "like" or "dislike" variable on Facebook but might also be phrases and words such as the tags on Youtube clips, Flicker pictures or blog entries in aggregation portals. Tags are often aggregated in tag clouds, different sizes of words with large ones being frequent and little ones as rare attachements to the imformational objects. Since tags can be attached

by many users this kind of classification is also called social tagging or the internet′s folksonomy from the refrased taxsonomy created by the crowd using the web.

Social networking and social media

After Google the unquestionable second most relevant and influential application of the Web 20 is Facebook the main symbol of social media. By storing social connection, information, microblogs, multimedia content these application really create extra value by allowing collaboration of users. Sharing, communicating, posting, linking, inviting have created such invaluable portals as Youtube, Wikipedia, Blogspot, Delicious. In education wikis are unavoidable sources of community knowledge, thesis projects, homeworks, reports, presentation almost without exeptions these sources are actually the products of internet community.

Virtual games

Computer supported simulation and turn based management games have been part of training programs for a long time. Broadband and fast speed internet has improved this experience over the last 10 years by the growth of the on-line versions of these games providing superior 3D graphics, complex and enjoyable gameplay, collaboration with other remote individuals and ultimately by creating virtual worlds sometimes similar to our real environment sometimes creating a fantasy version of it. Massively multiplayer oriented role playing games (MMORPG) such as World of Warcraft, Second Life are not only platforms for teenagers they are used by corporations as training and simulation systems, communication channels and also bridging distances for creating global team cohesion (Castranova, 2005), (Castranova, 2001).

Games in public administration training: a Dutch example

A very successful illustration of computer game usage in public administration training is a simulation called "Shrink City". It was designed and developed to illustrate the complexity of decisions and their impact in managing a city with decreasing population, and declining ecosystem. In the game six stakeholders have determine policies of the city: the representatives of the province, the municipality, institutions, such as schools, housing corporation and industry. The task of these decision makers is to make the city as livable as possible within a range of time period. Participants′ action is measured with performance indicators such as physical life, social development and economic viability.

Figure 5. Playing the virtual game of Shrink City

The simulation is played in teams as we can see in Figure 5. Participants use their laptops connected on-line to the game server, discuss their decisions and interact with the simulation platform. Each player´s decision is impacting the others, therefore have a series of consequences which partly depend on city "economics" and the measure of decisions participants make. Decisions are made in a number of rounds played. After each round, a review is followed in which the trainer discusses with the participants the logic and reasons of the choices they have made. As a result of these discussions team members can understand the impact of their decisions and compare those with other competing teams´. The game can be played with competing teams (around 10 individuals in a team), but its modified version might be practiced individually as well just like the popular commercial simulation games like SIMCITY.

Blended learning – the social constructivism manifestation of e-learning

The implication of technology development is that we frequently have to rethink how our institutions work. Processes of work (Hammer & Champy, 1993), (Davenport, 1993) and social relations (Winner, 1999) are very much determined by the state of the art technology or at least strongly influenced by them. Science Technology Studies (STS) is a multidisciplinary field exploring how does this "influencing" work and how we can learn from the duality of technology and society interactions (Hackett, Amsterdamska, Lynch, & Wajcman, 2008). Withouth going into complex details of STS theories I would like to refer to its three main belief systems which determine how techonology is adopted in social settings.

The first is the technology deterministic approach, stating that technology development happens independently from social influences and the important notion of social change is adoption which is the underlying theory for social adaptation to the potential use of technology. Stories and research findings in this stream aim to prove that outcome of social performance is eventually determined by the success of this adoption process. During the industrial revolution and the post world war expansion eras this type of positivist attitude characterized technology development (Howcroft, Mitev, & Wilson, 2004).

Contrary to the first approach, social shaping states the opposite, namely, technology innovation is strongly tied to interest and politics of social relations, therefore, we cannot really say that it is politically independent, progressive, effective and always good. There are several examples of the strong policy implications of technology development (Wajcman & MacKenzie, 1999), most recently such dilemmas surfaced with nuclear technology but the concept of digital divide also draws the attention of the potential increase in difference between the economic development between rich and poor (Dorneanu, 2007), (Howcroft, Mitev, & Wilson, 2004).

The third stream of theories are the constuctivist theories combining the two extremest approaches by stating that innovation of technology and its organizational adaption are determined by relevant social groups, technology frameworks, interpretive flexibility, networks, inscription and on-going translation (Orlikowsky W. , 1992), (Orlikowsky & Barley, 2001), (Latour, 2005), (Bijker, 1995).

Both of the institutions of learning and of public administration are socially strong constructs. Relationships, processes are determined by many years of traditions, strong human values, influences of power distances, respect and especially in PA - politics, social transparency and special "art of living". That is why in this section I would like to highlight the importance of the social constructivist approach without which the implementation of ICT into learning institutions would not be possible.

Some of the key issues of the constructivism in learning are the followings (Illich, 1971) quoted by (Orbán, 2009):

solitude – from the oceans of information available everybody collects and stores the relevant experiences according her own judgement and values,

subjective – everybody considers the priorites according to their skills, background, life style and perspectives,

informal – most of learning happens within non-controlled environments,

knowledge is created as a side product of other activities – everyday life determines the accumulated knowledge we gain and also the access to information,

bounderless network – knowledge is accessible to everyone in a broad space and time.

In order to match the social characteristics of learning we need well designed e-learning and appropriate exploitation of ICT enabled training, which in return will reinforce the social ties and compensate the productivity gaps in the entire construct of learning (Orbán, 2009):

solitude – thanks to the information stored in the LMS everone can focus on those exercises which are the most relevant to them,

subjective – everybody considers the priorites according to their skills, background, life style and perspectives,

informal – learning can occur anywhere, outside of school, on the road, at home, any time,

knowledge is created as a side product of other activities – gaming is an execellent innovation to enhance this phenomena or the other standard activities using the web,

bounderless network – web based learning is a supportive environment for strengthening the network effect.

The pragmatic solution of social constructivism in e-learing which actually combines the traditions of learner-teacher institutions and ICT is what best describes the term blended learning.

Blended learning or with other words mixed learning covers the joint application of traditional (off-line) and networked based (on–line) teaching and learning methods. We may look at this concept by combining e-learning with classroom (face-to-face) teaching. This combined method provides opportunities to successfully utilize the advantages of both approaches.

Table 2. Blended learning combining classroom and e-learning (Orbán, 2009)

Components of traditional education (offline or class room based)	Components of networked based education (electronic, on-line, e-learning)
Class room modules (presentations, seminars, student presentations, groupwork, discussions,	On-line content (interactive, personalized, simulations, etc.)

Components of traditional education (offline or class room based)	Components of networked based education (electronic, on-line, e-learning)
roleplays etc.)	
Workplace modules (participation in projects, learning from others, action learning, visiting tours, etc.)	Syncron and asyncron on-line collaboration (electronic communication, social learning with forums, chat, video conferencing, e-mail messages etc.)
Tutoring, mentoring, coaching (educational process controlled by external peers and supporters – top management, HR leadership, etc.)	E-tutoring, e-mentoring, e-coaching (Effective use of digital channels, learning diaries, progress reports etc.)
Acquiring knowledge from print media (books, newspapers, magazines, reports, etc.)	Mobile learning (mobilphones, laptops, PDAs, etc.)
Non-interactive electronic media (audio – and video content, CDs, DVDs, TV, radio, etc.)	Web platforms (internet portals, electronic teaching materials, tests, exercises, etc.)

Conclusions

In this paper I reviewed the historical development of e-learning, its key elements, and state-of-the-art. E-learning innovations have a great potential in PA training because present state of ICT development and patterns of use have a natural fit with some concepts and challenges of public administration such as the drive for service quality, collaborative behavior, need for innovation, expectation of citizens´reach, and the appearance of Facebook generation in the workplaces.

In the center of state of the art e-learning solutions there are the Learning Management Systems which supporting content creation, management, learning material control and support the administration of the learning process.

Learning materials are created, stored and managed according standards, basically applying the logic of modular, object driven structures. They creation is determined by standards of which the most important and accepted guideline is SCORM.

Social networking additions are key to successful e-learning systems, communication, social tagging, collaboration, and user generated content are essential for bringing closer the learning objects to the users and to improve networked learning.

Finally, I argued that social constructivism is a suitable theoretical framework to describe the complexity of e-learning adaption, how blended learning combines the traditional and ICT based learning concepts. This is, in my opinion, especially important because the institutions of public administration are also very strong socially due to history, tradition and the embeddness in the micro and macro policy.

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