Multichannel Learning System at the MOD Serbia

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Abstract

This case study is based on a project generously financed by the Norwegian Ministry of Defense. The project is intended to serve as a foundation for future steps to significantly expand access to the wealth of internet-based academic education tools for all members of the Serbia Ministry of Defense.

The Serbia MOD established the following goals for the project:

- *Create qualified and professional personnel, trained to adapt quickly to modern military norms and missions under democratic control, and at a level required for engagement in a multinational peace keeping and peace support environment.*
- *Increase interoperability required to integrate into regional processes.*
- *Support cooperation of the military educational system with the civilian educational system.*
- *Deliver a powerful demonstration project in Serbia and the region[1].*

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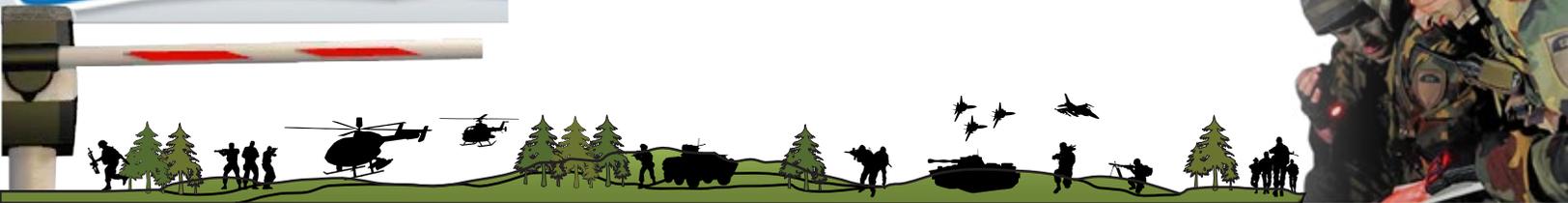
[1]   ADL Project, Ministry of Defense Serbia, 2009

Introduction

- *Why it is necessary to go online with your academic knowledge?*
- *What exactly is online education today and what is involved?*
- *What are the obstacles on your path to flexibility and productivity?*

Before 2000	**After 2000**
Old methods of courses offered to the military requiring months or years away from posts are no longer acceptable.	In a modern democratically controlled military, soldiers must continually improve throughout their careers, not only during periods of regular education.

Most of all what we learned in school is very soon forgotten, if not used. In a professional setting, a better approach would be to provide education where and when it is needed. Even though most adult education is informal[2], learning is a lifelong endeavor with intrensic value, and an interdisciplinary approach is valuable and necessary[3]. The function of education is to enable people – to the greatest extent possible – the opportunity to use their wits, skills, and passion to fulfill their life goals[4]. For a professional solder this is even more important as their early choices become their destiny with a natural wish to excel.

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[2]   Livingstone, D.W. (2001). **Adults' Informal Learning: Definitions, Findings, Gaps and Future Research.** Dostupny z: http://hdl.handle.net/1807/2735
[3]   Ainsworth, H. L. and Eaton, S., Canada, **"Formal, Non-formal and Informal Learning in the Sciences"**, Canada, ISBN 978-0-9733594-5-9, Online Press, 2010.
[4]   Bruner, Jerome, **The Culture of Education**, Cambridge, ISBN 0-674-17952-8, Harward University Press 1996.

Why it is necessary to go online with your academic knowledge?
What is the nature of online education today, and what does it involve?

The Internet and sophisticated algorithmic search engines have conducted access to information easier. Psychologists Betsy Sparrow, Jenny Liu, and Daniel Wegner made four studies[5], examining, how technology affects our memory. They concluded that because so much information now is readily available, it has become easier for people to remember how they retrieve information than to remember the information itself. Sparrow, Liu, and Wegner also found that people are less likely to remember information when they think they will have access to this information later. The Internet has become the main form of external memory where information is stored collectively.

[5]   Sparrow, B., Liu, J., Wegner, D. M. **Google Effects on Memory: Cognitive Consequences of Having Information at Our Fingertips.** Originally published in Science Express on July 14, 2011. Science, August 5, 2011: vol. 333 no. 6043 pp. 776-778.

Today's online education is a complex phenomenon, and it includes all forms of electronically supported learning where information and communication systems serve as a specific medium for the process of learning[6].

As an innovation process, the concept of online learning was best described by Rogers[7], in the theory of the deployment of breakthrough technical inventions. He said that only by achieving the highest developmental phase of adoption in online learning, can we expect a constructive approach in teaching methods[8]. In the meantime, we can follow unconventional paths hoping to stumble upon a good one (or two).

E-learning is the traditional basis of online learning. It is a tool for creating, updating, distributing and evaluating learning and knowledge management over the Internet. The goal is not only the transmission of the study resources, but the permanent management process of learning. It is often independent of time. There are many systems for managing educational processes, called Learning Management Systems (LMS), and the core evaluation criteria for selection are:

- communications tools
- student involvement
- creation of curriculum
- compliance with learning standards
- distribution and administration of courses and student activities
- technical specifications and requirements for the operation
- price

Some of the most common individual LMS include Moodle, JoomlaLMS, Blackboard, iTutor, Breeze-Adobe, Illias, iTrivio, and Cover.

Other forms of online learning can be added to e-learning systems or can serve as separate tools. A typical example would be Wikipedia, which summarizes the characteristics of Web 2.0[9] social participation and sharing of common intelligence.

Online education also includes some time-dependent tools like video conferencing or webinars, which eliminate some of the shortcomings of classic e-learning, such as a lack of direct contact and students' tendency topass over topics superficially.

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[6]   Tavangarian D., Leypold, M., Nölting, K., Röser, M. **Is e-learning the Solution for Individual Learning?** Journal of e-learning, 2004.

[7]   Everett, R. M. **Diffusion of innovations.** New York, ISBN 0029266718, The Free Press, 1995.

[8]   Brdička, B. **Vliv technologií na inovaci výukových metod.** Sborník konference. Informační gramotnost. Brno, s. 92-97. ISBN 80-7051-160-5. MZK,2005.

[9]   Ibid.

In the pedagogical space, current opinion in the education science community – as discussed by Oblinger[10] – favors the use of innovative methods that put the focus on the student, with the teacher serving as a guide in the learning technology applications.

There are a number of studies assessing the effectiveness of online learning that find no meaningful difference between online and face-to-face learning[11], which suggests that simply shifting old pedagogy to an online environment will not result in more effective learning.

Compelling evidence for the importance of social interaction in learning comes from a groundbreaking study by Richard Light[12] which looked at university students. Light found that one of the strongest determinants for success in higher education is to participate in a small study group. Students who studied in groups were more engaged in their studies, were better prepared,and performed significantly better than students who worked on their own.

Therefore, Web 2.0 features enable the model and power of social learning, which is ensured through the practice of distributed virtual communities in which people work together and learn from each other.

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[10]   Oblinger, D. & Oblinger, J. **Is It Age or IT: First Stepts Toward Understanding the Net Generation.** ISBN 0-9672853-2-1, EDUCAUSE, 2005.. Dostupný z: www.Educause.edu/educatingthenetgen/
[11]   Zhang,D., **Interactive multimedia-based e-learning: A study of effectiveness.** American Journal of Distance Education 19 (3): 149-62, 2005.
[12]   Light, J. R. **Making the Most of College: Students Speak Their Minds.** Cambridge, ISBN-10 0674004787, Harward University Press, 2001.

ADL MOD project background

ADVANCED DISTRIBUTED LEARNING
REPUBLIC OF SERBIA - MINISTRY OF DEFENCE

In the face of these challenges, the Serbia MOD prepared a comprehensive program for developing and implementing a distance learning platform for use by the all professional staff. This program had the clearly-set and realistic goal of building an ADL platform, slowly testing it, and then implementing it throughout the system over a period of two years.

The Norwegian Ministry of Defense supported the idea, and the Jefferson Institute led the Serbia MOD's successful implementation of a customized Moodle LMS platform as well as an aggressive schedule of course builds across multiple subject areas critical for international deployments and full membership in the elite community of US ADL Global Partnership Nations.

As the military of Serbia reduces in size, modernizes, and refocuses on democratic control, the individual soldier is its most-important scarce resource. As learning systems become increasingly virtual, the ability to participate in and produce online education becomes a critical element of reinforcing legal and ethical norms, force interoperability, and regional integration. In addition, ADL creates opportunities for Serbia's active participation in the multinational environment, achieving closer cooperation with other defense systems in the framework of Partnership for Peace, and accelerating the integration processes in the region.

All project output and activities were grouped around four basic elements which guided synergy among the larger pragmatic initiatives to support military, training, and education in Serbia.

I) Strategy

- Develop ADL Guidelines with a pedagogy and technology component by leveraging experience and networks from abroad.

- Support the ADL Serbia Center taking an active role in the annual NODEFCO ADL conference as well as in other international forums related to ADL.

- Develop and support an annual domestic Serbian conference on distance learning, which brings together military and non-military professionals as well as potential and current users within the MOD and Serbia, and from across the region.

- Support the ADL Serbia Center taking an active role in the NATO PfP Training Group and MoLE (Military Mobile learning) project.

II) Standards

- The international military community uses the [Sharable Content Object Reference Model](#) (SCORM) standard, which was also applied in the ADL Serbia LMS. All standard verison indepedent (generic) off-the-shelf dynamic tools are supported.

- Simple sequencing is applied as a technical and pedagogical standard, and all course modules are built from small sharable content objects (SCO's) to maximize efficency of course material.

III) Pedagogy

- We developed a system for Training Needs Analysis targeting intermediate teachers. It was followed by development of appropriate Quality Assurance metrics and Train the Trainers courses.

- We focused on a large group of teachers, helping them achieve educational goals with the introduction of easy-to-use tools.

IGNORE	Minor group of grumpy old school teachers who will be always against	NO! I don't care!
COUNT ON	Minor group of technology enthusiasts who will support everything	YES! Cool! I love it!
CARE FOR AND FOCUS ON	The major group of targeted teachers	Maybe... I don't know HOW, but I want to help to support educational and training progress in MOD of Serbia and contribute toward my country's regional leadership status.

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MANY CANDIDATES	ADL	**1. BRONZE STATUS** Could be achieved by practically anyone who attends and completes the basic e-learning training on how to use the platform and e-learning tools.
FEWER CANDIDATES	ADL	**2. SILVER STATUS** Could be achieved by those who complete the advanced training.
ONLY HANDFUL OF CANDIDATES	ADL	**3. GOLD STATUS** Could be achieved by those who, in addition to successfully completing online teacher trainings, actively cooperate with the Center for Distance learning and continue to work on content development.

Technology

- The distance learning platform for the Serbia MOD is a custimized installation of the open source Moodle (LMS) which is available for users, students, and teachers over the Internet. The LMS was designed in close cooperation with Military Academy faculty members. System development was managed by the Jefferson Institute, while system maintenance is managed in-house at the Military Academy, and Serbia's J6 handles network security and bandwidth for the LMS servers.

- Multichannel learning was achieved with the supplemental Library Archive Digitization Application (LADA) software for digitazing the Military Academy library; LADA was custimized for the Military Academy's needs and linked with the LMS platform.

- The mobile version of the Serbia MOD ADL was successfully launched. Implementation included procurement of equipment for testing on mobile devices for military personnel, customization of the Moodle mobile interface, and development of an Android mobile application with the ability to read SCORM (flash) courses.

Although the project's core beneficieay was the Military Academy of Serbia, the effort was fully backed by the Serbian MOD and other stakeholders. The Directorate of Telecommunications and Informatics of the Serbian Army (J6) provided all necessary support to ensure the full security and integrity of the ADL system within the miltiary enviornment. The Military Medical Academy took an active role in the course production process.

Multichannel Learning System Overview

Level One

The online platform http://adl.elearning.mod.gov.rs/ was envisioned as a base for multichannel learning first at the Military Academy of Serbia, and ultimately for all parts of the Ministry of Defense.

After the successful lanuch of the Serbian e-learning platform, the Norwegian Defence International Centre (NODEFIC) started permanently hosting some of the UN courses developed under the project umbrella. The NODEFIC is a unique training center offering experise and individual training on UN and NATO operations. Each year it welcomes students from all over the world to its courses in logistics and UN operations. The online portion of this instruction reduces in-person trainings by several days, and it equalizes the global partners' level of knowledge and fundamental skills required to succeed in complex Peace support operations and other missions.

Level Two

A sub-project digitized the 600 most important and most commonly used books and created a digital library for teacher and student online access.
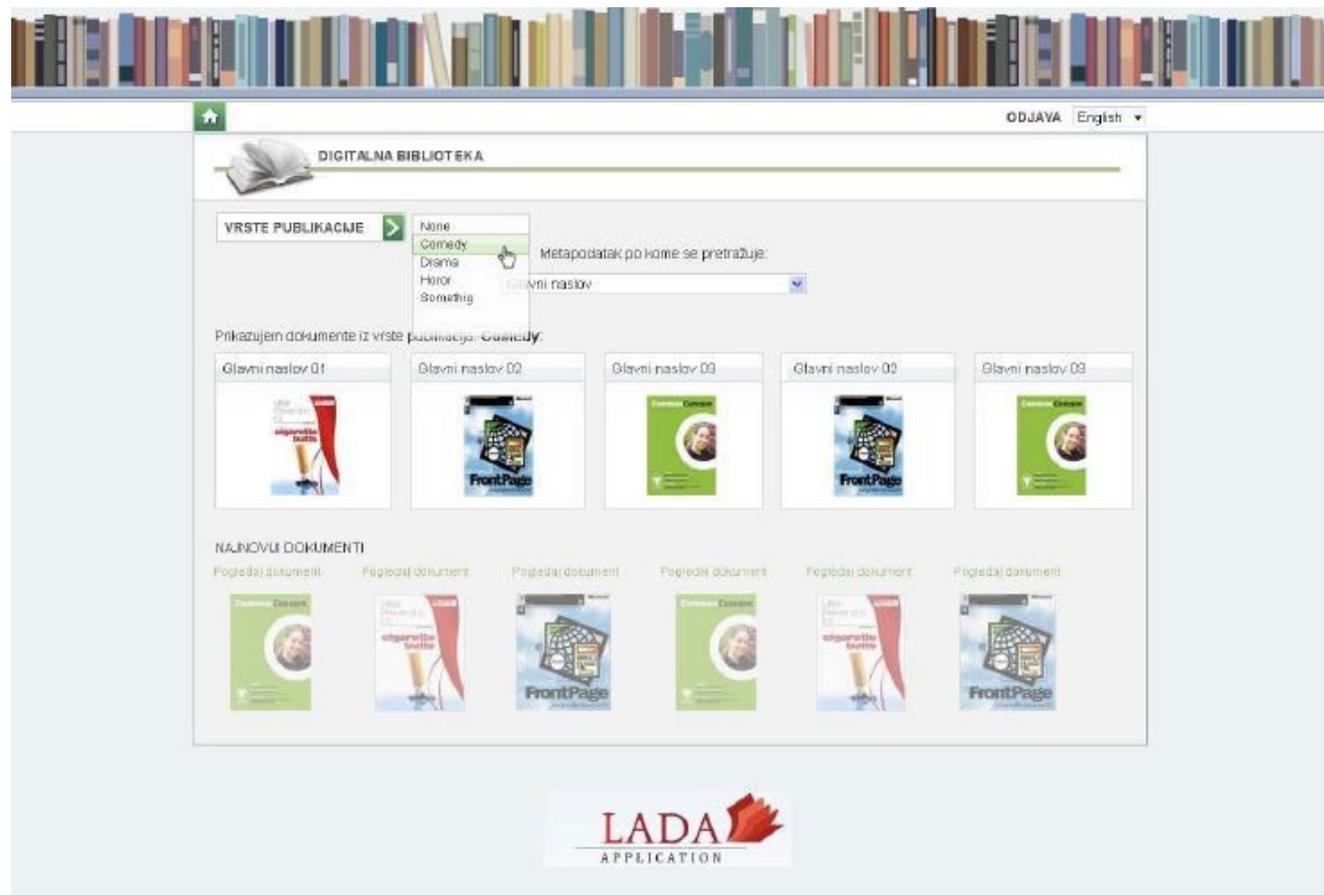
The digital library included three levels of access for teachers and students based on their location:
- in the library
- within the military facility
- from anywhere by Internet

Custom developed in Java and adapted for the Military Academy library, the LADA software includes international standards for library meta data entry.

Level Three

We developed a mobile application for easy-to-access courses for learning in no-Internet access conditions (specifically during UN Peacekeeping Missions).

The Moodle platform automatically detects a mobile device and responds by adapting its design to the format of the device. Although customized, it cannot run SCORM flash courses, only Moodle-originated content. Thus, we have developed the ADL Serbia mobile app for Android mobile devices to offer access to SCORM courses on those platforms.

This mobile app is an Android application to reach the widest range of smartphone users within the Serbian MOD. User access rights are driven by the Moodle platform and inherited from the courses.

The app is NOT available on Google Play and resides only on the secure local server of the MOD Serbia.

The mobile app provides
- Access to SCORM courses on the platform.
- Access to certain content WITHOUT Internet connection.
- Compatibility with existing LMS access and login.
- Capability to incorporate other parts of military learning channels (digital library and other content).
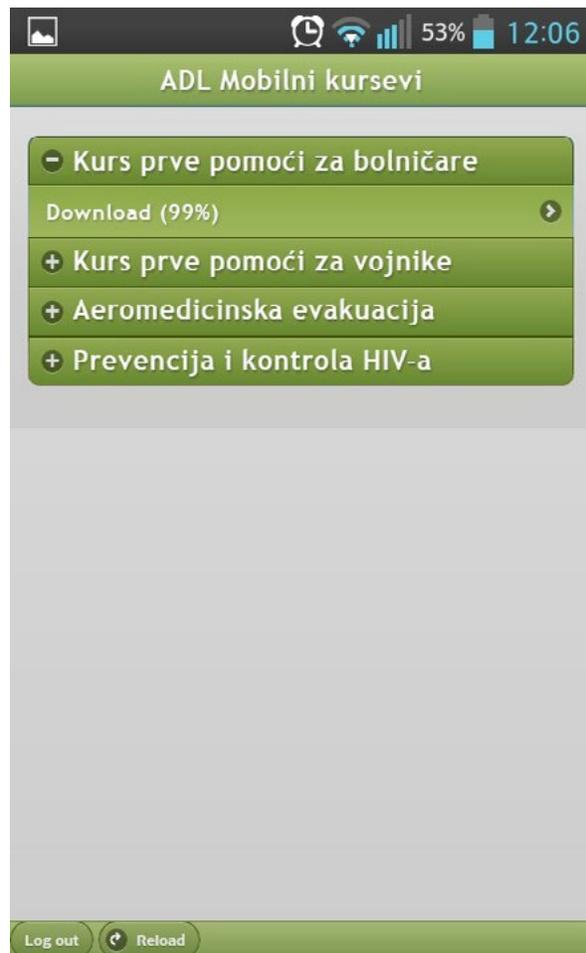
Distance Learning Courses

The development of the electronic courses for distance learning was based on a formal Training Needs Analysis and carried out in collaboration with relevant stakeholders. The following courses were identified as priorities for development:

- Basic courses for training teachers for intermediate and advanced use of the platform for distance learning
- Courses in the medical field for Serbian participation in peacekeeping operations:
    o First aid for doctors
    o First aid for medical technicians
    o HIV Protection
    o Medical transportation
- Courses for wider medical purposes, which are aimed at other members of the MOD
    o Prevention and Protection against infectious diseases
    o Toxicology courses covering chemical, biological, and nuclear weapons
- Training courses for noncommissioned officers in the field of nuclear, chemical biological protection at the request of the training of staff of the Center for NBCD in Krusevac
- Courses designed for the education of students of security studies at the High Military Academy
    o Strategic defense planning
    o Defense management
    o International security organizations
    o Geo-strategic characteristics of regions in the world

International cooperation

Extending cooperation with foreign partners and monitoring current trends and development in the field of online learning was a major element of the project.,It was achieved by enabling active participation of the Serbia Center for Distance Learning in international conferences and activities, primarily with the NODEFCO and US ADL initiative. The goal is not only to follow the latest developments and adopting new content, but also to contribute to and share the content of the Serbian military education worldwide.

The Serbia Center for Distance Leaning participates in annual ADL conferences and meetings at the NATO Training Task Group on Individual Training and Education Developments (NTGTGIT&ED), and organizes an annual distance learning conference in Belgrade. These events were opened by the Assistant Minister and multiple flag officers, which significantly elevated the profile of e-learning in the Serbian Armed Forces and MOD. The participants include a wide range of senior and rising officers from across the Serbian armed forces, as well as a number of guests from militaries across southeast Europe.

During the Nordic ADL conference in Norway on Monday, May 13, 2013, the Serbian ADL Center received an official invitation to become a full member of the Initiative for Advanced Distributed Learning.

Continuing Professional Development

The project organized continuing professional development of the staff at the Center for Distance Learning in accordance with new requirements and needs, including attending advanced courses for the processing of multimedia content (video editing, web design, sound processing, Adobe Flash, and Adobe Photoshop).

Continued staff training also included targeted trainings for J6, such as Linux L300 and Linux Expert level courses L400 for J6 personnel, security training of SF3D 360 Bundle training and certification exam, and SF3D System training. These trainings provided a base for the real-time network and user awareness. They also represented a foundation for fine-tuning performance and making network intelligence better suited for the multichannel learning system of a modern army.

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