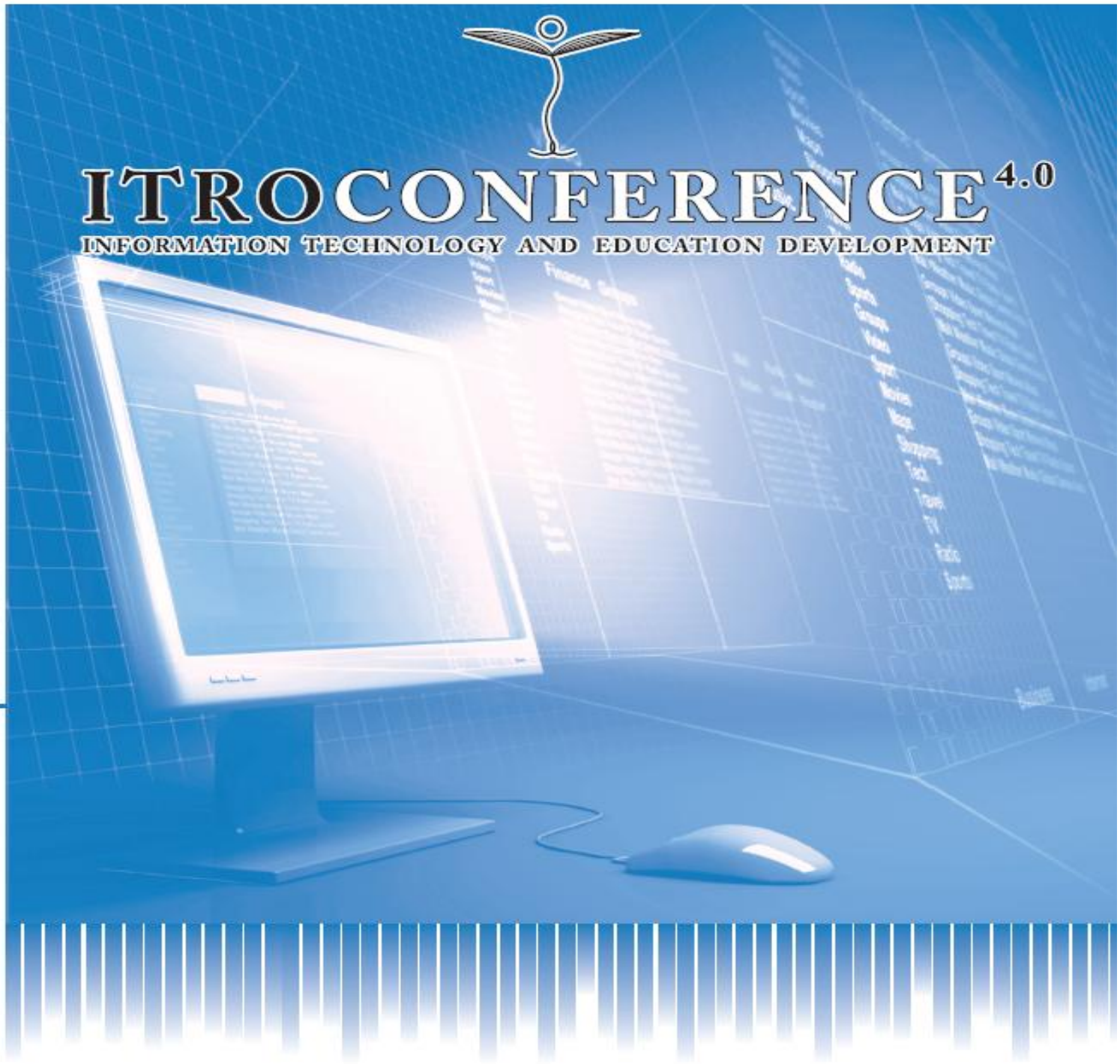
UNIVERSITY OF NOVI SAD
TECHNICAL FACULTY
"MIHAJLO PUPIN"
ZRENJANIN



ZRENJANIN, June 2013

UNIVERSITY OF NOVI SAD
TECHNICAL FACULTY "MIHAJLO PUPIN"
ZRENJANIN
REPUBLIC OF SERBIA

INTERNATIONAL CONFERENCE ON

INFORMATION TECHNOLOGY AND DEVELOPMENT OF EDUCATION ITRO 2013

PROCEEDINGS

MEĐUNARODNA KONFERENCIJA

INFORMACIONE TEHNOLOGIJE I RAZVOJ OBRAZOVANJA ITRO 2013

ZBORNIK RADOVA

ZRENJANIN, JUNE 2013

Organiser of the Conference:
University of Novi Sad, Technical Faculty „Mihajlo Pupin", Zrenjanin, Republic of Serbia

Publisher:
University of Novi Sad, Technical Faculty „Mihajlo Pupin", Djure Djakovica bb, Zrenjanin, Republic of Serbia

For publisher:
Milan Pavlovic, Ph. D, Professor, Dean of the Technical Faculty „Mihajlo Pupin", Zrenjanin

Technical treatment and design:
Ivan Tasic, Ph. D, Assistant Professor
Dijana Karuovic, Ph. D, Assistant Professor
Marjana Pardanjac, Ph. D, Assistant Professor
Snežana Jokic, Ph. D, Assistant
Erika Eleven, M.Sc, Assistant

Lecturer:
Erika Tobolka, Ph. D, Professor

Printed by:
Printing office DIGINET ProStudio, Djure Jaksica street, no. 14, Zrenjanin

Circulation: **120**
ISBN: 978-86-7672-203-7

By the resolution no. 114-451-2694/2011-02, 114-451-2390/2012-03 and 114-451-3444/2013-02 Autonomous Province of Vojvodina Provincial Secretariat For Science and Technological Development donated financial means for printing this Conference Proceedings.

The Conference is supported by the Autonomous Province of Vojvodina, and the School Administration of Zrenjanin.

CIP – Каталогизација у публикацији
Библиотека Матице српске, Нови Сад

37.01:004(082)
37.02(082)

INTERNATIONAL Conference on Information Technology and Development of Education (2013 ; Zrenjanin)
Proceedings = Zbornik radova / International Conference on Information Technology and Development of Education, ITRO 2013, Zrenjanin, June 2013 = Međunarodna konferencija Informacione tehnologije i razvoj obrazovanja, ITRO 2013 ; [organiser] University of Novi Sad, Technical Faculty "Mihajlo Pupin", Zrenjanin. - Zrenjanin: Technical Faculty "Mihajlo Pupin", 2013 (Zrenjanin: Diginet ProStudio). – VII, 450 str. : ilustr. ; 30 cm

Tiraž 120. – Bibliografija uz svaki rad .

ISBN 978-86-7672-203-7
I. Međunarodna konferencija Informacione tehnologije i razvoj obrazovanja (2013 ; Zrenjanin) v. International Conference on Information Technology and Development of Education (2013 ; Zrenjanin). - II. ITRO 2013 (Zrenjanin) v. International Conference on Information Technology and Development of Education (2013 ; Zrenjanin)
a) Информациона технологија – Образовање – Зборници b) Образовна технологија - Зборници
COBISS.SR-ID 279384327

THE SCIENCE COMMITTEE:

Milan Pavlovic, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia – Dean

Djordje Herceg, Ph.D, Professor, Faculty of Science, Novi Sad, Republic of Serbia

Marina Cicin Sain, Ph.D, Professor, University of Rijeka, Croatia

Anton Vukelic, Ph.D, Professor, Faculty of Philosophy, Croatia

Ion Dzitac, Ph.D, Professor, Department of Mathematics - Informatics, Aurel Vlaicu University of Arad, Romania

Sashko Plachkov, Ph.D, Professor, South-West University "Neofit Rilski"/Department of Education, Blagoevgrad, Republic of Bulgaria

Sulejman Meta, Ph.D, Professor, Faculty of Applied Sciences, Tetovo, Macedonia

Marta Takacs, Ph.D, Professor, Óbuda University, John von Neumann Faculty of Informatics, Budapest, Hungary

Nina Bijedic, Ph.D, Professor, Applied mathematics, Bosnia and Herzegovina

Viorel Negru, Ph.D, Professor, Department of Computer Science, West University, Timisoara, Romania

Mirjana Segedinac, Ph.D, Professor, Faculty of Science, Novi Sad, Republic of Serbia

Milka Oljaca, Ph.D, Professor, Faculty of Philosophy, Novi Sad, Republic of Serbia

Dusan Starcevic, Ph.D, Professor, Faculty of Organizational Sciences, Belgrade, Republic of Serbia

Dobrivoje Mihailovic, Ph.D, Professor, Faculty of Organizational Sciences, Belgrade, Republic of Serbia

Zvonko Sajfert, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Miroslav Lambic, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Miodrag Ivkovic, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Zivoslav Adamovic, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Momcilo Bjelica, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Dragica Radosav, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Dragana Glusac, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Dijana Karuovic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Ivan Tasic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Branislav Egic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Vesna Jevtic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Marjana Pardanjac, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Vesna Srdic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Tanja Nedimovic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Erika Tobolka, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Snezana Jokic, Ph.D, Assistant, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Erika Eleven, M.Sc, Assistant, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

THE ORGANIZING COMMITTEE:

Ivan Tasic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia - Chairman

Dragana Glusac, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Dragica Radosav, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Dijana Karuovic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Branislav Egic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Vesna Jevtic, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Marjana Pardanjac, Ph.D, Assistant Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Erika Tobolka, Ph.D, Professor, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Snežana Jokic, Pd.D, Assistant,Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

Erika Eleven, M.Sc, Assistant, Technical Faculty "Mihajlo Pupin" Zrenjanin, Republic of Serbia

With this publication, the CD with all papers from the International Conference on Information Technology and Development of Education, ITRO 2013 is also published.

CONTENTS

POSSIBILITIES OF IMPLEMENTING WEB 2.0 TOOLS IN EDUCATION

Z. Namestovski[*], B. Arsovic[**]

[*]University of Novi Sad, Hungarian Language Teacher Training Faculty, Subotica, Republic of Serbia
[**]University of Kragujevac, Teacher Training Faculty of Uzice, Uzice, Republic of Serbia
namesztovszkizsolt@gmail.com, arsovic@sbb.rs

Abstract - Modern pedagogical efforts, the information society and changed mental structure of new generations require the implementation of web 2.0 tools in education. Web 2.0 services and sites allow users to interact and collaborate with each other. To implement web 2.0 services in education, it is necessary to have Internet connection and technical and methodical knowledge. Web 2.0 tools, such as online documents, social networks, wikis, blogs, social bookmarking and online presentations are interesting possibilities with interactive and multimedia support, which motivate students and fit their mentality and everyday lives.

I. INTRODUCTION

Web 1.0 was characteristic to the Internet until the middle of the first decade in the new millennium, mostly meaning passive content servicing and one-way communication. The following Web 2.0 environment – beside "content consumption" – also meant creating and sharing of contents, emergence of online applications, as well as of interactive and collaborative activities.

In the following work, we want to present – without completeness – the Web 2.0 tools that can be successfully used in education and for scientific research purposes.

II. FACEBOOK

Facebook, the most popular social networking site, which reached the number of over a billion registered users by the end of last year, is more and more frequently used for educational purposes as well (most often over creating student groups). We can experience the blurring of professional and private lives of both teachers and students, which is the result of continuous activities performed within a single system (Facebook). Though Facebook was not created for educational purposes, but the number of those, who use it in education, is growing with the utilisation of its advantages (students are registered in the system, known environment, customisable groups, easy sharing, interactive communication, possibility of implementing self-developed applications in the system). In case of students, this means the extension of their learning time and space, since there is no possibility (or only circumstantially) of registration for only learning purposes while the other registrations for different Facebook activities to be done separately, therefore notifications on new events and group activities are being clicked almost automatically. On the other hand, in case of teachers, the definition of working hours is being changed with accelerated communication and with registration to a single system. Namely, non-linear browsing determined by individual interests often results in contents relating to work (and profession). Beside that, the growing generation Z's attitude to deadlines also intensifies this "urge" of communication (if the deadline is at midnight, the papers will arrive after 11:30 p.m., however they want to get feedback from their teacher instantly). Beside their positive features, these learning groups may often experience some inadequate comments, sharing of inappropriate contents and inactivity of some members.

III. CLOUD-BASED DOCUMENT EDITING

With the spreading of online contents and the expansion of the Internet, there has evolved a growing need for online, cloud-based document editing. Just as it was experienced with the expansion of webmail, the most important aspect is continuous accessibility. Moreover, collaborative (common) document editing is more effective than it has been in the traditional, offline (Microsoft Office) environment. A further advantage is the possibility of determining the constraints of sharing (which users have access to read, to edit etc.), as well as the automatic saving provided by the surface. The most popular such environments are Google Drive (www.drive.google.com) and Microsoft SkyDrive (www.skydrive.live.com). In order to enter these surfaces, it is necessary to have an electronic mailbox of the given firm, which also involves this

service. Within these environments, it is also possible to edit documents similarly to doing it in Microsoft Office (in a simplified form): word processing, spreadsheets, presentations, and preparation of questionnaires in addition.

These tools should be presented in parallel with the Microsoft Office environment, to call attention to their advantages and deficiencies. For the experience of collaborative document editing and the possibility of exact definition of the constraints of sharing, cloud-based systems must be involved in educational processes anyway. Furthermore, teacher candidates often have to perform some surveys with questionnaires. This task is much easier to perform using the Google Form application, which enables filling out questionnaires online and processing the data.

IV. MOODLE

MOOLDE (Modular Object-Oriented Dynamic Learning Environment) is a free source e-learning system shell (LMS - Learning Management System), written in PHP.

It is an important tool for e-learning and blended learning, which provides a framework for preparing courses and for learning over it. There are the following levels of permissions in the system: system administrator (highest level of permissions), course creator (permission to create courses), teacher (may teach in the assigned course – create contents and score), student (learns and performs tasks within the chosen course). Users may define the permissions of other users below their level (the course creator assigns teachers to the course; the teacher registers students to the course).

Various content is provided over this system shell (texts, pictures, optional files, links, multimedia etc.), but the tasks related to them that can be scored are also important (assigning tasks in the form of online text, file, varied types of tests, offline tasks etc.).

This system unifies and presents in a single surface all the services that are otherwise applied by teachers on parallel surfaces, often offline (sharing documents and information, sending messages, evaluation etc.).

It is important that teacher candidates get acquainted with and have experience in learning with these systems, as well as to possibly prepare their own courses within a seminar work, which enables them to meet the other side of the "virtual teacher's desk" as well.

V. PREZI

Just as many other activities, the creation of presentations is also moving towards online, cloud-based services. Prezi (www.prezi.com) is an application developed in Hungary that has opened new horizons to creating presentations. The biggest advantage of this application is its cloud-based operation, which means that the presentations can be edited at any time and they can also be shared online with sharing a link. In case of an entirely online application, it is much easier to show images or video files (YouTube) from the Web, in comparison to offline presentations.

The ready presentation can be downloaded in a form of a compatible structure, so that it can be presented even in an environment with no or unsecure internet connection.

With the help of Prezi, our students can get acquainted with one more surface for creating presentations, beside PowerPoint. They can try its functioning, they can compare it with the already known software, they can utilise those online features that are not available in offline programmes for creating presentations.

VI. SOCIAL BOOKMARKS

The biggest advantage of social bookmarks, among which Delicious (www.delicious.com) is the best-known, is their cloud-based and browser-independent appearance. It supports retrieving links, while tagging links enables more effective retrieving and grouping. Beside individual work, the forms of collaborative work are also very important in this surface.

With the help of social bookmarking, students can share and save the sources that they have used for their researches or seminar works, so that a whole group or the entire generation may be involved in editing this "database".

VII. ONLINE MIND MAPPING

Online mind maps provide a surface that can be edited jointly, and they map a concept and the connecting concepts. These applications are well-suited for processing new topics, classification, revision, but also for planning new topics/activities, as well as in research.

One of the most famous such surfaces in MindMeister (www.mindmeister.com).

VIII. URL SHORTENING

It is often a problem when printing out Internet links that the address is too long. For example, we get the following URL after a simple search with Google (for the "oktatásinformatika" keyword):

https://www.google.hu/#q=oktat%C3%A1sinformatika&safe=off&ei=58KIUZDEEMmO4ATp8YA4&start=0&sa=N&bav=on.2,or.r_qf.&fp=397bd23770057352&biw=1920&bih=989

It is extremely hard and time-consuming to retype such links. Another actual problem is the limitation of the number of characters with some communication channels (140 characters with Twitter).

Applications that shorten Web addresses provide solution for such problems, among which bitly (www.bitly.com) is one of the most popular. With this application, the URL shown above will be shortened to: http://bit.ly/15mpoFy.

After registering to bitly, we will have the option to use this application as a collection of links, a bookmark and to share our links.

IX. MAKING WEBSITES AND BLOGGING

User-friendly Web 2.0 applications enable users with average knowledge to prepare websites on their own.

WordPress is one of the most popular and best-known surface of this kind, which is also available in Hungarian and it can be uploaded to any location (to download: http://hu.wordpress.org/releases/#latest). Beside the downloadable version, we can also use the online surface after registering to the site www.wordpress.com.

WordPress was originally created as an environment for preparing blogs (series of entries and the responses to them, lined up in chronological order), but nowadays the contents developed here (thanks to numerous add-ons and flexible content management) meet the requirements of modern websites.

Another popular surface for blogging is run by Google, called Blogger (http://www.blogger.com). The blogs created over this system are published on the Internet with the blogspot.com ending.

Websites and blogs enrich contents on the Internet, especially if they are created with a specific content. Following professional websites and blogs may be an important element of self-education, or even of the process of formal education. Preparing websites or writing blogs could be an interesting task and exciting challenge to students. A class or a group may edit an entire website or some parts of an institutional site, as well as they may publish their research results over such surfaces.

X. WIKIPEDIA

Wikipedia is a multilingual (in Hungarian: www. hu. wikipedia. org), world wide encyclopaedia.

Although it is often criticized, mainly because of the inaccuracy of some articles, this surface is one of the most frequently used online information resources (which fact is also proven by Google search results' order where most keywords get the Wikipedia article in the first place). In addition, the sources contain only a small percentage of inaccurate information, and a precondition of all activities in the information society is to verify the authenticity of information found in online space.

It is also not much welcome among some teachers because (beside its inaccuracy) students often copy texts for accomplishing their tasks. However, this problem could be resolved with giving out more specific tasks (for example: instead of "utilisation of computers in schools", it should say "utilisation of computers in your school"), individually customised tasks or the task of editing the articles (creating information instead of retrieving it).

REFERENCES

[1] J. Ollé. A. Papp-Danka, D. Lévai, Sz. Tóth-Mózer, A. Virányi: Oktatásinformatikai módszerek – Tanítás és tanulás az információs társadalomban, ELTE Eötvös Kiadó, Budapest, 2013.

[2] Zs. Námesztovszki: Analysis of Teacher Candidates' attitude to Web 1.0 and Web 2.0 Learning Environments. Collegium Talentum, Budapest, in press.

[3] Zs. Námesztovszki: Oktatásinformatika, Újvidéki Egyetem, Magyar Tannyelvű Tanítóképző Kar, Szabadka, in press.

[4] www.bitly.com - bitly | ♥ your bitmarks (2013)

[5] www.blogger.com - Blogger: Create your free Blog (2013)

[6] www.delicious.com - Capture the web you've been missing – Delicious (2013)

[7] www.drive.google.com - Google Drive (2013)

[8] www.prezi.com - Prezi - Ideas matter.

[9] www.mindmeister.com - Mind Mapping Software - Create Mind Maps online (2013)

[10] www.moodle.org - Moodle.org: open-source community-based tools for learning (2013)

[11] www.skydrive.live.com – SkyDrive (2013)

[12] www.wikipedia.org – Wikipedia (2013)

[13] www.wordpress.com - WordPress.com - Get a Free Blog Here (2013)