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INTERNATIONAL ARCTIC WORKSHOP

CREATIVE USE OF LMS, WIKIS AND MOBILE TECHNOLOGIES FOR LEARNING

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With Professor Rory McGreal,
Athabasca University, Canada

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The International Arctic Workshop (IAW' 2011) was held in Tromsø, Norway from the 19th to the 20th of May.

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Foreword

The University of the Arctic *Thematic Network on Distance Education and E-learning* was started in 2008 with funding received from the Norwegian Ministry of Education and Research. University of Tromsø, Department of Education, is the host institution in the network, with participating institutions from Murmansk and Canada. The University of the Arctic (UArctic) started ten years ago as a virtual university with the mission to "Empower the residents of the Circumpolar North, by building human capital through higher education." *Thematic Network on Distance Education and E-learning* has already contributed in arranging several meetings and workshops in Murmansk and Tromsø.

In 2009 the thematic network arranged a conference in Murmansk in the Russian Federation on flexible learning, together with Murmansk State Pedagogical University, with proceedings published by Murmansk State Pedagogical University.

The next conference took place in Tromsø in January 2010, and selected papers from this conference were published by the Canadian journal IRRODL: (http://www.irrodl.org/index.php/irrodl/issue/view/46).

The International Arctic Workshop of 2011 (IAW 2011) was held in Tromsø, Norway from the 19th to the 20th of May. In the present proceedings we are happy to present ten papers: one paper from Canada, five from Russia, and four from Norway. They cover a variety of interesting subjects. We hope that it may contribute and connect to sound and locally situated learning practice. The pedagogical approach

must not only be observed, but also shared and discussed, and we hope that our proceedings will contribute to the ongoing discussion.

The main aim of these conferences is to exchange knowledge and research about online learning and to host a discussion of the methodology of the field. They are centered on the learning processes, pedagogy, and appropriate information technologies necessary to deliver content to and support distant learners. Particular emphasis is placed on technology-enhanced learning, together with issues related to teacher training and digital resources from the Arctic region.

Steinar Thorvaldsen
December 5, 2011

Mobile Learning and Open Educational Resources: Challenge of the Future

Rory McGreal
UNESCO/COL Chair in Open Educational Resources
Professor, Athabasca University, Canada

ABSTRACT. This article describes new approaches and methods needed to ensure that all children and adults have an opportunity to learn throughout their lives. The article gives an overview of Open Educational Resources (OER) that constitute an important resource with the potential to facilitate the expansion of quality education and learning opportunities worldwide.

АННОТАЦИЯ. В данной статье описаны новые подходы и методы, требующиеся для обеспечения равных возможностей, как для детей, так и для взрослых, для обучения в течение всей жизни. Также дается обзор существующих Открытых Образовательных Ресурсов, которые являются важным источником для содействия распространению качественного образования и равных возможностей для его получения во всем мире.

Higher education institutions worldwide continue to face significant challenges related to providing increased access to high quality education, while containing or reducing costs. New developments in higher education all speak to the efforts on the part of the traditional higher education community, as well as more flexible providers such as open universities, to address these challenges. Such developments have the potential to increase access and flexibility in higher education. Basic education for all continues to be a goal that challenges — and will continue to challenge — many countries. Furthermore, Canada, like other countries with significantly disadvantaged indigenous or other populations, has set specific national goals aimed at addressing their needs. The current economic situation is likely to make these social goals more difficult as countries are faced with reduced budgets, as are donors. New approaches and methods are needed to ensure that all children and adults have an opportunity to learn throughout their lives.

Open Educational Resources (OER) constitute an important resource with the potential to facilitate the expansion of quality education and learning opportunities worldwide. The William and Flora Hewlett Foundation (2010), the primary donor in the OER movement, supports the use of OER "to equalize access to knowledge for teachers and students around the globe". They have defined OER as: "teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others" (Hylen, 2007). OER refers to full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge. The free and open sharing of educational resources can serve to promote the building of knowledge societies and the reduction of the knowledge divide that separates nations, as well as the divide within societies themselves.

MOBILE LEARNING

The relevance of OER is augmented by the exponential growth in online accessibility afforded by the wide range of new mobile devices. In 1999, I was driving through a small village in the Philippines, when I slammed on the brakes, staring in disbelief at what I saw. There was a farmer up to his knees in the water of a rice paddy and standing behind a plough and two oxen — he was digital messaging using SMS (Short Message Service). At that time very few if any people in Canada were digital messaging. I found out later that at that time, the Philippines led the world in digital messaging per capita. They self describe their country as the "SMS capital of the world" (Wiki@SMU, 2011).

As I stared at the farmer, I realized that the mobile phone he had in his hand was a smart computer, a computer more powerful than the one I had on my desktop only three years earlier. It is then that I developed my interest in mobile learning. How could we use these small powerful connected computers for learning in both formal and informal contexts.

Today, out of a world population of more than 6.8 billion, there are more than 2 billion internet connections. About 25% of the world's population can now access the internet and this percentage is rising rapidly

(International Telegraph Union, 2010a). Moreover, one-third of Internet users only access the network through mobile devices. There are now more than 4.5 billion mobile subscriptions, out of which, about 1.5 billion access the internet (International Telegraph Union, 2010b). More than 90% of the world's population has access to cellular networks. The world is going mobile (International Telegraph Union, 2010c).

These mobile devices come in all shapes and sizes. Is it a computer in your phone or is it a phone in your computer? Tablets, ebooks and net books are other forms of mobile devices whose popularity is exploding. You can carry them anywhere; they are always available; always connected and packed with auxiliary features. Even game players like the Playstation or the Nintendo are now available as mobile devices. The one laptop per child initiative of Negroponte's group based at MIT has opened up the market for cheap (less than $200) mobile computers that are now available (and getting cheaper) with models being produce in India, Taiwan and other places (Ricciuti, 2005). This digital convergence of mobile technologies with computers has created an environment where computing is pervasive. Your mobile device can be used not just for internet access but also for email, SMS, as a camera, an ebook, a radio, a game player, a clock and even a telephone!

Moreover, this is happening at an increasingly rapid pace. Moore's Law tells us that the cost of computing is halved every 18 months. Gilder's Law tells us that the cost of bandwidth is being reduced even faster. Storage capacity is growing so fast that one considers the cost to be approaching zero. With cloud computing, network storage has become a real option for many institutions and individuals. The Cloud supports immediate deployment, scalability, reliability, security, privacy and consistency coupled with user control.

This growing trend toward mobile computing using the power of networks has opened the door for learners and teachers to access the world's knowledge from almost anywhere, at anytime. The internet houses the world's treasure of knowledge. In this context the role of OER in providing learners and teachers with learning content, applications, games etc. is becoming increasingly more relevant. The internet is the world's intellectual commons and OER renders this knowledge accessible to all. The world's knowledge is a public good that should be made available to everyone.

UNESCO supports the use of OER stating that the "goal of developing together a universal educational resource available for the whole of humanity… hope that this open resource for the future mobilizes the whole of the worldwide community of educators" (UNESCO, 2002).

OER are important because unlike closed proprietary content, OER can be re-used in many similar courses and even re-purposed for use in different courses. For example, a psychology module can be re-used in a wide variety of psychology-related lessons or re-purposed for use in an arts or mathematics course. Localization is also important and OER can be altered to suit the learner or teacher in their regional context.

OER as learning objects have been compared to LEGO blocks that allow users to construct courses from independent blocks or modules. Others feel that the use of OER is more complex with some modules not fitting with others. They compare it to building a house where the doors and windows are standard, the plumbing units are standard but they are not the same as blocks. Others claim that it is much more complex likening the assembly to molecular and even biological systems.

The concept of granularity is also important. An OER can be a course, unit, lesson, image, Web page, exercise, multimedia clip, etc. but it must have a *specified* pedagogical purpose/context. Content instances can be assembled into a lesson. Lessons can be assembled into modules. Modules can be assembles into courses and courses can even be assembled together and become a full programme. All of these at their various levels of granularity can be OER.

The UNESCO Chair in OER initiative is led by the author and Dr Fred Mulder of the Open University of the Netherlands with partners on all continents. The goal of this Chairs initiative is to support the Millennium Development Goals of UNESCO by building an international network of OER users (United Nations, 2011). Specifically in support of these goals, the Chairs are mapping the organizations around the world who are using OER, initiating a call for OER Chairs on all continents, initiating and international PhD programme for studying OER and creating a Knowledge network online to house research, articles and other information about OER.

Another Chair supported initiative is that of the OER University, which aims to widen access and reduce the cost of tertiary study for learners

who are excluded from the formal education sector. The initiative is an international innovation partnership of accredited universities, colleges and polytechnics coordinated by the OER Foundation, an independent educational charity. It does not confer degrees, but works in partnership with accredited educational institutions, which provide assessment and credentialisation services on a fee-for-service basis. The OERU will provide pathways for students to achieve credible credentials for approved courses based solely on OER. Students choose what is of interest to them and what meets their professional development needs from the "smorgasbord" of available open courses.

One suggestion has been to support peer mentoring by awarding students only two credits for a course rather than the standard three credits in the North American system. And, then awarding the third credit only when students have mentored that course, helping new students to master the material. Another suggestion has been to award the full three credits and give an additional credit to mentors. Yet another approach would be to provide scholarships of give tuition relief to mentors to encourage their participation.

Whatever the means chosen, major changes in educations are already underway. We need to heed the words of US army General Shinseki "If you don't like change you're going to like irrelevance even less." Let's accept the challenge and go forward.

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Organization of Students Research Training Using Social Services

A.A. Cheltybashev
Ph.D., Associate Professor at TBaE,
Murmansk State Humanities University, Russia

ABSTRACT. This article describes peculiarities of social networks use in students project activity within educational process.

АННОТАЦИЯ. В статье рассматриваются особенности применения социальных сетей для реализации проектной деятельности в рамках учебного процесса в вузе.

A shift to competency approach in Education maintains a wide and comprehensive interest in active learning methods, including a project-based, which develops students' research and communication skills and teamwork skills. In 1990s organization of project activities was made possible not only to full-time training, but also in electronic way through information and communication technologies: chat rooms, forums, email, video conferencing.

This is facilitated by increasing mobility of today's educational environment, through which came the need for online and offline interaction between student and teacher. For successful implementation of this task it is most convenient to use a variety of social services.

At present, rapid development of network educational resources based on Web technologies (Web 2.0) gives teachers new tools that are very popular with students, and can be used for project activities within the framework of educational process at university. We have accumulated an interesting experience with social services (social network "vkontakte", an educational portal "Continuous training of teachers of technology") in the training of research students of specialty "Technology and Entrepreneurship." The study was conducted over two semesters with the students of specialty "Technology and Entrepreneurship" at the

faculty of arts education, technology and design of the Murmansk State Humanitarian University.

These days social networks are one of the most popular services that hold attention of most online community. For Russian-speaking groups of users aged 14 to 30 years the most popular social network resource is "vkontakte". The above Internet — a survey in various social networks has shown that this social network is the leader among active users visiting the project: 45 % of registered users visit it daily, and 70 % of them more than 1 time per day. Each third user of "vkontakte" spends per visit more than half of his time.

The results obtained have led to the choice of social network "vkontakte" as the site for organization of educational research with the use of information and communication technologies.

The main advantages of using a social network over other network technologies are:

- familiar interface for students;
- methods of communication and publication of content;
- convenience of the Internet — polls.

This is facilitated by convenience and clarity of the system, as well as active and long experience (70 % of users visit the network more than 1 time per day).

A variety of forms of communication-. Wikis, forums, polls, comments, subscriptions, sending personal messages and others — provide ample opportunities to work together.

The undeniable convenience of social networks is the availability of feeds. This tool allows the user to not get lost in the variety of information flows and effective monitoring of various content updates. Students have the opportunity to keep abreast of changes in educational activity, monitor MRE classmates and teachers, who in turn oversees and coordinates the work of students.

Development of academic research by means of project was carried out in a group. After receiving the teacher's assignment the student group was divided into several microgroups. Then, each group independently worked on its project, conducting research of their part. Success in general depended on performance of each microgroup. In this model there were the following

outputs: emphasis on the role of each student in the general task, formed group consciousness, positive interdependence and communication skills.

The project manager in this case acted as a coordinator, consultant and expert on the final stage of the results. This form of learning required from a teacher particular organizational activity aimed at building the project structure, formulation of specific tasks, clear and timely diagnosis of problems arising in the course of joint work of students.

As a result, at the expense of convenience, the interface of social networks research could not only save considerable time on the receipt and processing of data, but also provide a broader sampling conducted within the framework of research surveys.

The use of virtual learning groups, technology forums and wiki allows all participants to co-create networked learning content (glossary, articles, debates, media libraries, etc.). In addition to developing skills of cooperation, it promotes self-cognitive activity, reduces the production cycle of obtaining a particular intellectual or creative result, develops critical thinking.

Communicative space of social networks provides a high degree of interaction of students with each other and the teacher. Learning activities are not confined to the classroom, but they are beyond their limits and ensure continuity of learning process. Knowledge is not only born in the chain of "student — teacher," but also in chains, "the student — a student," "student — student — teacher."

Positive evaluation of this form of organization of research and its results were acknowledged by the students themselves. One of the main positive factors was determined by ability to work at a convenient time from anywhere you have Internet access.

The results confirmed possibility of successful use of online educational resources for organization of group educational research.

Programming the iPhone, iPod and iPad

Arne K. Eidsvik
Senior Lecturer,
Department of Education, University of Tromsø, Norway

ABSTRACT. This paper introduces the basics of programming applications for Apple's iOS (iPhone Operating System). The emphasis is made on how to implement apps and what tools and requirements are needed for the iOS platform of the current iPhone 4S version.

АННОТАЦИЯ. В данной статье представлены основы программирования приложений для ОС iPhone. Акцент ставится на том, как разрабатывать приложения и какие инструменты и правила следует при этом использовать.

This is a short paper introducing the basics of programming applications for Apple's iOS (iPhone Operating System). Some of the main competitors on the market for mobile devices and software are traditional mobile industry leaders like Nokia, SonyEricsson, HTC, Samsung and RIM as well as software giants like *Google*, *Microsoft* and *Apple*. The latter are responsible for three of the leading mobile software platforms, *Android*, *Windows Mobile* and *iOS* respectively. The rapid growth of mobile smartphone market has led to a vast third party market for mobile applications (apps).

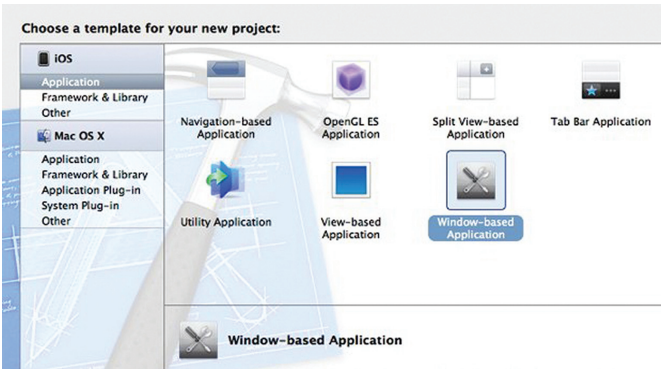
I will in this paper focus on how to implement apps for the *iOS* platform. Apple introduced the first version of iPhone in 2007 (Wikipedia1, 2011). Since then a new version has been introduced every year. The current version, iPhone 4S, includes a dual core A5 chip, an 8 megapixels camera, 16 to 64 GBytes memory, gps, accelerometer and wifi (Apple1, 2011). Apps for iPhone, iPod and iPad can be downloaded from Apple's App store. The number of Apps available through the App Store has grown rapidly from its introduction in 2008 and is by October 2011 larger than 500 000 (Apple1, 2011). In App Store the apps are categorized into 20 different types of apps, for example games, education, finance, utilities, navigation, photo and so on.

TOOLS AND REQUIREMENTS

To develop iOS apps you need to download and install *Xcode* from Apple's developer site (Apple2, 2011). Xcode is a toolset for all you need to develop iOS apps, editing and debugging source code, analyze performance and manage product development. To download the Xcode you must be a registered iOS developer. Both private persons and companies may apply for developer registration with Apple. The registration is free if you plan to test your apps using only the simulation tools in Xcode. If you wish to run your apps on an iOS device and plan to distribute your applications through the App Store you must pay an annual fee of 99 USD (Apple4, 2011).

DEVELOPING APPS

After registering with Apple, the first thing to do is to download and install Xcode. When you start Xcode for the first time you must create a new project. The following example is based on the well-known example application "Hello World".



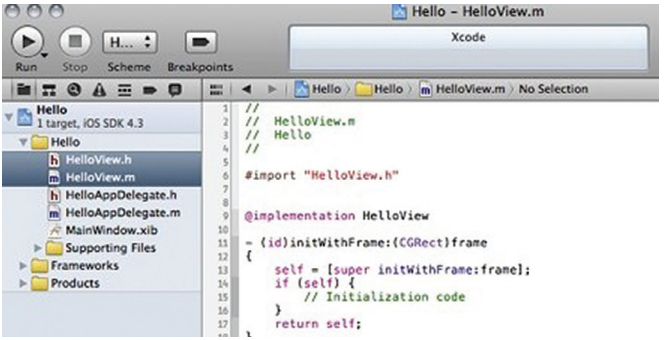
You may choose among a set of predefined application templates and Xcode will create a set of files with basic source code according to your chosen template, some examples:

- navigation-based: presents data hierarchically using multiple screens;
- split view-based: iPad applications presenting more than one onscreen view at a time;
- tab-bar: presenting an interface to choose among several screens, one at a time;

- utility application: flip-based user interface;
- windows based: general, can be used as a template for any application.

The programming environment of Xcode provides you with a framework into which the programmer may specify content, behavior and presentation. The software architectural pattern is according to the MVC model (Model — View — Controller).

When the template is chosen the programming is ready to begin. The programming language is *Objective C*, an object oriented version of C. The framework includes a set of predefined classes in Objective C, which may be used by the programmer to assure an iPhone-look for the application. Further details may be found in (Apple3, 2011).



The code may be run directly from the Xcode editor when your programming has reached the level where you need to test your application. The code may either be run on a device (iPhone, iPod or iPad) or on an onscreen simulator outlining a window of the device presenting the application:

When your application is debugged and works properly you may tune its performance using the Instruments application to analyze your app and further improve its performance.

When your application is completed you may submit it for release on the App Store. Apple will review and test the application to make sure it works according to the specifications and that it does not violate any of the rules for presenting applications on the App Store. If your application is free to the end user it will also be free for you to distribute it through the App Store. If your application costs money, Apple will keep 30 % of the sales revenue and you keep the rest (Apple5, 2011).

CONCLUDING REMARKS

I have presented a very brief introduction to the workflow of developing applications for Apple's App Store. One of the largest competitors is the Android Market with applications for mobile devices running the Android platform.

The Android Market was released in October 2008 and opened for paid applications in the US and UK early 2009, and for another 29 countries in 2010. In May 2011 the number of applications was 200 000 with 4.5 billion downloads (Google, 2011). This is a bit less than the Apple App Store, but since both stores are fairly new it is hard to predict which will grow to be the largest. One of the differences between developing for Apple App Store and Android Market is that developers for the Apple App Store are obliged to use Apple's SDK (Software Development Kit) for iOS development while developers for the Android market may user other SDKs. In general, developing for the Android is more open and less controlled than developing for Apple's App Store. Both approaches have their advantages and disadvantages. Developing for the Apple App Store is more restricted, but you get a quality check on your apps. On the other hand developing for the Android is more open, but your applications do not go through a check in the same way as for iOS applications.

The market for mobile devices has increased rapidly over the past few years and seems to attract children and young people. May be we could utilize such devices to enhance learning and motivate children for learning at school. The various App Stores already include a lot of applications categorized to be learning applications, but further research should be done on this matter.

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Learn from My Typos! Linearizing Characters in Misspelled Words

Ciprian-Virgil Gerstenberger
Giellatekno, Center for Sámi Language Technology,
Department of Language and Linguistics, University of Tromsø, Norway,

ABSTRACT. This article is a short description on how to better the presentation of Oahpa!, a set of Computer-Assisted Language Learning (CALL) web-based programs for Sámi, by "worsening" the system output. Oahpa! is a very good example of how to use Computational Linguistics and Language Technology for CALL purposes. These language-learning games become more and more popular both for other Sámi languages than North Sámi (e.g., South Sámi, Kildin Sámi) and for different groups of users: school children, university students (both native speakers and learners of Sámi as second language), even grown-ups native speakers of Sámi who want to improve their writing skills.

In order to make Oahpa! even more appealing for a wide range of users, I propose to model the system output presentation along the line of mimicking real-world writing phenomena: letting users learn from the "spelling errors" of the system by emulating humans' typos in the system's output, yet having the system correcting itself right away.

АННОТАЦИЯ. В данной статье описывается способ использования приложения Oahpa!, набора программ для изучения саамского языка с помощью компьютера. Oahpa! Служит примером использования вычислительной лингвистики и языковых технологий для целей компьютерного изучения иностранного языка. Игры по изучению иностранного языка становятся все популярнее как для северных, так и других саамских языков, а также для разных групп пользователей: учащихся школы и университетов (носителей языка и изучающих язык), даже взрослые носители языка, которые хотят улучшить свои письменные навыки.

Для повышения привлекательности приложения Oahpa! пользователям предлагается изучать иностранный язык на примере орфографических ошибок, которые системы сама будет порождать, а потом самостоятельно исправлять.

BACKGROUND: WRITING TO SURVIVE THE DIGITAL ERA

A living language is a language that is in use by a speaker community, and natural languages are primarily spoken and secondarily written: this is a fact that can be observed both ontogenetically — while developing, a human learns to speak before learning to write–, and phylogenetically — in any language community, speech develops before a writing systems. There is no doubt about the importance of speaking for a language to survive, yet looking at the rapid development of digital communication devices and channels, writing is becoming more and more prominent in the daily communication.

(*Rønningsbakk, 2011*) *points at problems related to* the use of social media on the development of communications skills of today's youth. For minority languages, there are even more issues on using writing and social media. They range from trivial, technical problems — such as having a well-designed, well-integrated keyboard for a specific alphabet working with different Operating Systems and different editing tools — to extremely complex sociolinguistic problems — such as the grade of unanimity of community members upon correct spelling, orthography, lexicon, etc., recognizing authorities and institutions that regulate, survey and control the proper use of language. In the end, it is the sociolinguistic issue that would be crucial for the efficacity of some specific language revitalization project — on this topic, see, for instance, (Dorian, 1994; Todal, 2007). It is then obvious that working with minority languages means not only language documentation and analysis per se, but for the sake of keeping them alive or even revitalize them.

Giellatekno, the *Sámi Center for Language Technology* at *University of Tromsø*, is devoted to working with and for Sámi languages. By using advanced language technology, a wide range of resources and tools are developed: collecting and linguistically annotating text corpora, developing special tools for language analysis both at word level — morphology-, and at sentence level — syntax-, compiling dictionaries and spellcheckers, as well as building even more complex language tools such as for Machine Translation (MT), Computer- Assisted Translation (CAT), and CALL.

SYSTEM: LEARNING UNITS IN *OAHPA!*

The CALL program suite developed at ***Giellatekno***, ***Oahpa!*** (which, by the way, means "*Learn!*" in North Sámi), has been initially implemented for North Sámi, the biggest group among the Sámi-speaking minority groups in North Europe. As reported in (Antonsen et al., 2009a), the aim of the project was to build a language teaching system beyond simple multiple-choice exercises. A lot of effort and a huge amount of language and pedagogical knowledge have been put into the sophisticated learning units. The popularity of the programs has attracted the attention of other institutions that are starting now to cooperate with ***Giellatekno***. This is why the programs are steadily improved and extended. Accessible at *http://oahpa.uit.no*, the CALL suite for North Sámi contains six individual learning units with different grades of difficulty and complexity.

Numra is the easiest learning unit, a game for exercising numbers. Exercises are both from numeral to string representation and vice-versa. Recently, this game has been extended with a unit for exercising time and date expressions. The second unit, ***Leksa***, is a vocabulary trainer that can be used both from Sámi to Norwegian or Finnish and vice-versa. There are different options to configure the set of words to train: thematic domains (e.g., *family*, *nature*, *food*) or teaching books used for teaching North Sámi (e.g., Davvin, Álgu). With ***MorfaS***, the third unit, users can train word forms, i.e., inflected words. The options to choose from are teaching book, word class (e.g., noun, verb, adjective) and, depending on this choice, features to practice (e.g., stem, case, tempus). ***MorfaC***, the fourth unit, is a game for practicing word forms, too. However, the word forms required are embedded in sentences so that the choice of a correct form would render the sentence grammatical.

The fifth learning unit, ***Vasta***, is a game in which the user is supposed to build natural language sentences as reasonable answers to given questions. Finally, ***Sahka***, the last language-learning unit, is the most elaborated program. It consists of a set of dialogue games on specific topics. As with other ***Oahpa!*** units, users get context-sensitive corrective feedback if needed.

The word-level games ***Numra***, ***MorfaS***, and ***MorfaC*** are based on Finite-State Morphology (Beesley et al., 2003) for word form generation, while ***Leksa*** is implemented by use of a relational database. The syntax analysis of the free natural language input in the sentence-level games ***Vasta*** and ***Sahka*** is carried out by means of rule-based dependency parsing with Constraint

Grammar (VISL-Group, 2008). To trigger topic navigation in the dialogue play ***Sahka***, grammar rules for parsing individual sentences are enriched for dialogue analysis with special rules for topic recognition of users' answers. For a more detailed description of the CALL programs, see (Antonsen et al., 2009a; Antonsen et al., 2009b).

The ***Sahka*** dialogues are carefully designed and give the user a feeling of natural dialogues, yet presenting the system output at once — a whole bunch of sometimes very long text — doesn't contribute too much to the naturalness of dialogues: it is too rigid, too sterile. In the following, I will present how ideas stemming from a linearization model for Natural Language Generation would make the ***Sahka*** dialogue games more natural. But perhaps not only that, the presentation model proposed here might even add to the plans on improving the system's contextual feedback wrt. spelling errors, as described in (Antonsen, 2010).

IMPROVEMENT: EMULATING A SYNCHRONOUS TEXT CHAT

The most successful Internet communication is the text-based communication via channels of different types:

- *asynchronous channels*: email, newsgroups, discussion boards;
- *quasi-synchronous channels*: Internet Relay Chat (IRC), Instant Messaging (IM), Text Chat (TC).

According to (Lai et at., 2006), the term "*quasi-synchronous*" was coined because of the difference between face-to-face communication, where message production is synchronous with message transmission, and IRC, IM, or TC, where this is not the case: the message is sent when the message producer decides to do so.

My proposal is a very modest but, as I hope, an effective one: the idea is to present the system output in form of a **synchronous text chat**. That means that the user would see the system output string evolving on the screen, character after character. What is the reason behind that? Well, different thoughts lead to this idea:

- As research in psychology suggests, humans are visual animals (Weiten, 2008).

- Message production and message transmission in face-to-face communication proceeds incrementally (Stone, 1995).
- Due to incrementality, while hearing we are not totally passive, we often guess, or better said, infer the next item to come in the utterance we are listening at.
- Depending on various factors (e.g., amount of knowledge of the language to learn, who is correcting the learner, how is the correction done, etc.), both L1 and L2 learners might experience grammar corrections as something negative, unpleasant, embarrassing — on the controversial topic whether correcting feedback has an effect at all, see, for example, (Truscott, 1996; Gómez Martínez, 2006; El Tatawy, 2002; Dodigovic, 2005).
- Nobody is perfect: humans make mistakes very often, for example, while typing.
- Unlike for humans, one of the biggest problems for a human-machine dialogue system is to cope with malformed input, i.e., to humans' mistakes — see, e.g., (Antonsen, 2010).
- Depending on its purpose, the output of a text generation system should be flexible enough (Gerstenberger, 2007).

Putting all together, the goal of my proposal, a "synchronous text-chat" —like presentation of system output, is twofold:

1. to let users **become more aware of their own typos** and perhaps also **learn from the system's spelling errors** while they are looking at how the system output evolves on the screen: typing, deleting typos, retyping corrections;
2. to let users **think about what is being presented**, about the next word to come, hence, having them training syntax, too. Due to incrementality of the output string presented, this type of word order training can be extended in a similarly subtle way as with the mistyped characters: in the evolving string, one would write a perfectly spelled word, however, in the wrong position, then delete it and correct the output right away. However, modeling this phenomenon would have to proceed carefully because waiting for the whole correct output too long might bore users.

From the perspective of Natural Language Generation (NLG), the question whether this is linearization at all is quite legitimate. As argued in (Gerstenberger, 2007), a general model for linearization should account for

all linearizable items. According to the General Linearization Model (GLM) I proposed, characters are linear order parts (ibid.), and the granularity of "atomic" items as input for linearization depends on the purpose: if low-level phenomena are to be modeled — such as spelling errors made by dyslectic persons or, as in this case, typos made by L1/L2 students learning Sámi — then linearization has to occur also at an even more surfacy level than the word level, at the level of characters. This is perfectly in line with my suggestions for an NLG closer to reality, or as I put it, for a **bioengineering way** in modeling surface realization phenomena in NLG: first, an accurate analysis of humans' utterance production, then, a faithful reproduction of it (Gerstenberger, 2010).

Does the proposal of presenting output this way contradict the plans to improve the system's feedback wrt. user's typos by using methods for spellchecking as described in (Antonsen, 2010)? No, quite the contrary: it would probably just add to the method. This is even more the case because modeling the output typos have to be based on exactly the same error analysis used to get the ranking model for giving feedback in case of misspelling detection.

The process of modeling system typos should be carefully designed by taking into account various observations:

- To avoid students getting bored while waiting for the next character, the speed of typing should resemble that of an experienced PC user.
- The typos have to be modeled according to frequency distribution in real texts.
- Given enough corpus data to learn from, typos for different kinds of users could be modeled (e.g., L1 vs. L2 learners).
- Any kind of abbreviation or formulation in the style of *Network Informal Language* should be avoided — about *NIL,* see (Xia et al., 2005).

Given the server-side architecture of ***Oahpa!*** and several realization possibilities it this respect (for instance, using Javascript), implementing the proposed emulation of system output as synchronous text chat should not pose too big technical problems. A much expensive improvement would be to model all other language games in form of small locally bound dialogues so that the whole CALL suite would become even more attractive. One possible way to model such dialogues is by using templates, as is the case

with dialogue game modeling for websites offered by the Russian company *Nanosemantics.* The free use of template-based dialogue-modeling services is provided via the following sites: http://www.iii.ru and http://www.nanosemantics.ru (I owe this information to Roman Polikarpov).

CONCLUSIONS

In this article, I proposed a simple, low-level improvement of presenting the output of the one of the CALL programs for learning Sámi languages. The improvement consists in presenting the ***Sahka*** dialogues as *synchronous text-chat*, a presentation way that would make the games more appealing, more fun, and would increase users' satisfaction and perhaps also the efficiency of learning to spell better.

However, whether such emulation of a text-based online chat affects the progress of L1/L2 learners at all is an issue that has to be researched along the line of research on the capacity of a real text chat to promote learners' noticing of their problematic language productions, and "[f]ew studies have explored the cognitive effects of text-based online chat" (Lai et at., 2006). Moreover, as (Rønningsbakk, 2011) points out, testing the effects of new technologies in learning situation is not a trivial task.

All in all, the output presentation proposed in this article would at least not undermine "the system's authority" in giving corrective feedback to the user when necessary. On the contrary, replacing the sterile, ready-made dialogue output by a real-time text chat simulation would make the games more friendly, more human by kind of saying to the user: "Look at me, I also make spelling errors, but I always correct myself because I know how. Learn from my typos!"

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Creative Use of Information and Communication Technologies in Education

Eeya Konovalova
Ph. D. in Pedagogy, Associate Professor

Nikolai Pavlov
Senior Lecturer,
Department of Physics, Mathematics, Computer Science and Programming,
Murmansk State Humanities University, Russia

ABSTRACT. The article describes experience and possibilities of ICT use in the process of university learning, in particular stepwise students activity: natural physical experiment, experiment with the use of laboratory facilities connected to computer, modeling of physical processes/phenomena.

АННОТАЦИЯ. В статье приводится описание опыта и возможностей использования компьютерных технологий при обучении студентов вуза, в частности поэтапная деятельность студентов: натурный физический эксперимент, эксперимент на лабораторной установке, сопряженной с компьютером, моделирование физических процессов/явлений.

Each year information technologies, in particular — computer technologies, develop more rapidly than ever before. This situation shows the need for qualified and creative specialists. Obviously, the implementation of technology in education is not reduced only to the installation of computers at schools and connecting to the Internet, but also a qualitative change in the content of forms, and methods of work and training in the subject area.

Using of a computer and information technologies in the sphere of education put the row of problems: How to prepare/adapt a training course for its "computerization" (using computer technologies)? Which part of educational material and in what type/form to present and realize with the use of computer? As well as what means can be used to carry out control

of knowledge, how to estimate the level of fixing of skills and abilities of students? What information technologies to apply for realization of the put pedagogical and didactic tasks?

Using computer technologies in teaching. Creation of conditions for their approbation and introduction. Search of an optimal combination of new and traditional teaching. All of these methods demand the solution of the following tasks: 1) To produce (to make) united complex scientific-methodical approach. 2) To develop the methods of the use of computer technologies in teaching. 3) To prepare pedagogical personnel. 4) To prepare students to the using computer technologies. 5) To modernize (to upgrade) the material and technical equipment of educational institution.

For course development, with using computer technologies of training, the teacher should know subject well, be master of training techniques, and also to be well informed about possibilities of information technologies, to know, with what means of computer support is reached to necessary didactic reception. He should know possibilities of technical means and the software. In practice, the available software and equipment is not enough to realize the put teacher's purposes of training. That's why he has to develop as software as hardware by himself. It is obvious, that one person can't do this. Normally it is teamwork of several experts. One group of experts work for software creation, others — develop the hardware support, the third ones — are responsible for the general design and project ergonomics. The teacher makes the adaptation of computer support of course, ensures an information, didactic and methodical component of course. The purpose of small creative group of teachers' work is to make the computerized courses for each student.

The great attention in the world community is given to discussing the ways of solution of these problems. Conferences, seminars and other actions for an exchange of experience (sharing know-how) in using computer technology of training in educational process, where we can estimate all positive and negative sides of information technology in education (in particular Workshop in Tromso "Creative use of LMS, wikis and mobile technologies for learning", May, 19-20, 2011). For experts from Russia such conferences are useful. Different results of educational and learning projects with using of various possibilities of information technologies are

discussed and submitted to them. It is impossible to organize great number of educational and training experiments, and to estimate their results just in only one, separate, educational system.

The analysis of forms and methods of using computers in educational process showed us the necessary ways of using computer technologies, for example, computer simulation of physical processes, which are too difficult for students' understanding. It allows us to show them in dynamics of proceeding and in dialogue with the user, or using of computer for automation of physical experiment and its control. Besides, using computer technologies in researches became one of the main methods of the modern science.

Accordingly, it is necessary to introduce the new educational experiment on the basis of the modern computer technologies into training. The main directions of using computer technologies for automation of physical experiment and its control are measurement, control over physical processes or object's behavior, control of physical experiment or object, handling of experiment's results.

It follows, that there is a contradiction between the necessity of introducing physics training in the use of new educational experiments based on modern computer technologies and the lack of preparedness of the school teacher to do this.

The computer model fulfills illustrative and интерпретационную functions. With the help (by means) of real experiment the sense of the dependence which was received analytically is uncovered. Changing of conditions of process course in real experiment is often complicated. Computer model allow us to analyze all variants of experiment. Sharing of real experiment and its computer model, forms the fuller интерпретационную picture of a process.

The overuse of computer models in physics has led to a reduction in the role of traditional experiments. The Physics Workshop has been moved into the category of optional elements of training.

Using of computers allows us to make possible the demonstration of physical values and the phenomena which cannot be shown traditionally. For example, wave processes, the gas phenomena, the phenomenon of a variable electromagnetic field and so forth.

The teacher to be should know all development cycles of similar computer models. To make all process, from planning stage, to concluding work on realization of project by means of various work benches. Obtaining of skills of computer simulation promotes its professional growth as versatile expert, develops creative and research, designer/engineering abilities.

At Murmansk State Humanitarian University, on Physics and Math Department, Department of Computer Science and Programming, students can be educated in many directions, such as — "Physics and Computer Science in additional" and "Computer Science and Physics in additional". Students of the first profession — study physics deeply, and more motivated on its learning, and the second ones — study computer science deeply. To intensify the motivation of learning the additional profession and to develop creative abilities of students, "step-by-step" approach and complex approach to research the physical phenomena is offered to them in high school.

The first stage. After learning of the main content of subject matters, students fulfill a laboratory practical work under the direction of teachers of Chair of Physics and Technique of Physics Training where they can get to know real (full-scale) physical experiment. Students formed their practical skills and the generalized experimental abilities in the course of performance of physical experiment. Abilities become generalized only after their forming on the basis of understanding of scientific bases and activity structure, if students use them not only in specific experimental activity, but also transfer it to new conditions.

The experimental activity lets motivate students to study physics and computer science, stimulate their intellectual activity, prepare them for use of practical knowledge, use into practice differentiated approach to training and development of students. Stimulation of students' activity can be strengthened with taking into account their personal interests, involving them into the active independent experimental activity. The most effective method is using of — full-scale physical experiment with using of computer technologies.

The second stage is — research of the physical phenomena/processes by means of laboratory setting connected to the computer. Students' knowledge in co-ordinate the computer with real physical setting, the abilities to control the experiment, the analysis of results are necessary

here. At performance of full-scale physical experiment on setting where the computer — is its component, the second component of computer technologies of training is shown actively — hardware. As real physical experiment not always allows to present essence (reasons) of some physical processes/phenomena in an evident type, the computer — is the general-purpose tool of research.

Join of specific possibilities of physical experiment with possibilities of computer technologies of training makes the big space for research uncovered. Usage of a laboratory complex "setting-computer" allows students to find new applications of the computer. It improves their skills of usage of computer hardware, (including non-standard), and also forms their abilities in software development, constructing of physical models.

The third stage is — development of computer models of the physical phenomena/processes under the direction of teachers of Chair of Computer Science and general technical disciplines. At this stage students show abilities of programming and visualization of the physical phenomena/processes in the computer environment.

We must take into account that practical abilities of students and the level of Physics and Computer Science knowledge are different. In realization of such tasks, students' knowledge and abilities in physics and computer science are added and aligned mutually.

Complex approach has one more of advantages — visualization of the difficult physical phenomena, more detailed and full learning of their reasons and the nature, the full and independent learning of the content of training courses of the general physics and computer science. As computer programs realize the idea of "switched on" training , when the student receive the new information, works out and fixes new skills during his solution of even game and entertaining tasks.

Videoclips, "step by step" animations, interactive models allow us to show the objects in moving, in changing, in development, therefore it is great means for illustration of the phenomena/processes. With their help we can show such phenomena/experiments which are inaccessible for immediate observation, for example, star evolution, nuclear transformations, a principle of operation of a nuclear reactor, quantization of electronic orbits, etc.

For example, during his working with interactive model "Driving of companions" the student can simulate the moving of companions in the field of gravitation of the Earth; he has a possibility to change the unit and a direction of speed of the companion $\vec{v}$, and distance r from a point of start of the companion to a surface of the Earth, and to watch different orbits of the companion's moving; to define in computer experiment the first space speed v_1 of the companion; to trace the changing of the companion's speed in a circle orbit during the changing of radius of an orbit; to define minimum companion's speed v_2 at the moment of start near the Earth at which it abandons (leaves) the Earth (the second space speed) forever.

To solve the problem of visualizing physical phenomena we must use: natural or laboratory experiments; computer models of physical phenomena and processes observed; laboratory facilities that provide for computer interface.

To solve the problem of visualizing physical phenomena we must use: natural or laboratory experiments; computer models of physical phenomena and processes observed; laboratory facilities that provide for computer interface. For a solution of a problem of visualization of the physical phenomena it is necessary to use mandatory in a complex: natural or laboratory experiment; visual (computer) models of the physical phenomena and processes; the laboratory complexes connected to the computer.

However, any computer model (of physical experiment, of physical phenomenon/process) demands practical acknowledgement to be convincing. Its results are necessary to compare with the full-scale experiment. When the obtained data will be identical, we can speak about reliability of the constructed computer model. So, the virtual and computer experiments should add each other and be shared.

The decision of the given problem is to connect computer in mode on line to physical setting, in which traditional full-scale physical experiment is made. The combination of full-scale and virtual experiment is an optimal variant of using computer technologies in Physics training, because in this case the students do not doubt reliability of experience.

Using a computer in conjunction with provides the following benefits experimental facilities: captures the experimental data; automates the management of the experiment; provides a visualization of experimental

results in real time; automated mathematical calculations; captures and stores the results in digital form.

Using a computer in conjunction with provides the following benefits experimental facilities: captures the experimental data; automates the management of the experiment; provides a visualization of experimental results in real time; automated mathematical calculations; captures and stores the results in digital form.

Computer usage in connection with the experimental setting offers following advantages: reduces time for preparation and experiment carrying out, accelerates the collection and information processing process, fixes experimental data; automates measurements and control of experiment; provides visualization of results of experiment in real time; automates and gives split-hair accuracy of mathematical calculations; allows to complicate mathematical models, fixes and saves results in a type numeral and in the most convenient for the researcher.

It allows the students to see how individual parameters affect the outcomes visually? Not just on paper graphs. Properly programmed computer models, which will accept the data from actual experiments, can then display the graphs and results in a manner that is easier to comprehend.

This is an effective tool of teaching physics because it allows the students to see how individual parameters affect the outcomes — visually, not just on paper graphs.

Certainly, the most important experience for students is to work with our experimental setting which is connected to the computer (the Experimental complex — laboratory setting interfaced to the computer). The first experimental complexes for students of our faculty were developed by Professor Mataev G.G. Later, the computer laboratory where our students continue to work under the direction of Senior lecturer Pavlov N.A. has been created.

The advantage of the laboratory complex — is a universal educational environment for learning (training): the level of cognitive motivation of learners increased; get new research knowledge and skills; familiarity with modern methods of experimental studies; formation of visual images of the objects; stable storage of the phenomena.

In computer laboratory our students develop the experimental complexes

which represent as a join of hardware and the software. For example, one of them are intended for learning of processes of automation of "the numeral house", the others — are for modeling of the physical phenomena (processes). Laboratory complexes are formed by students independently, under the direction of teachers.

Advantage of a laboratory complex is the universal educational environment for training. It raises the level of informative motivation of trainees (students); it forms new research skills and abilities; at this time the acquaintance of our students to the modern methods of experimental researches is realized; it forms evident images of difficult objects; it helps to good memorizing.

For example, Use of the model, Laboratory complex "Inclined Plane", "Atwood machine" allows: Introduction of the concept of instant speed; Demonstration of the laws of kinematics using an air cushion; Determines instantaneous velocity. *Checks:* relational paths traversed in equal intervals of uniformly accelerated motion; Laws of ways and speeds of uniform motion; acceleration versus driving force (t = const); dependence of acceleration of the moving body from its weight (F = const); conservation of momentum; law of energy conservation. Students can program their own models to display the results of their own experiments.

For example, use of a laboratory complex "Oblique(Inclined) plane" allows: to Enter the term "the instant speed", "acceleration" visually; to Demonstrate kinematics laws using an air cushion; to Define the instant speed. To check up: a ratio of the ways transited for equal time intervals at uniformly accelerated moving; the law of ways and speeds of uniform and motions; dependence of acceleration on a motive power (t = const); dependence of acceleration of a moving body on its mass (F = const); the law of saving of pulse; the law of conservation of energy. Thus all calculations and creation of schedules of dependence of physical values are fulfilled by the computer.

First students need to connect setting to the computer, and to produce measurements of details.

Then — the performance of the virtual experiment — to enter experiment parameters, for example, plane slope angle. Then — to produce the virtual start of a full-sphere on a plane. The computer calculates results of experiment, makes schedules. We can make experiment many times using

another parameters. In the information window, in the uniform table, there will be all calculations and schedules of all attempts.

In the end is — (work) operation with physical model. The fixation of results of performance of actions to full-scale model is realized. All results are analyzed and displayed in the convenient form by the computer.

It is through the use of models that the students can understand how to use the models. Then they can program their own models to display the results of their own experiments.

Through the usage of the models, which the students can understand how to use, they can program their own models to display the results of their own experiments.

Advanced technologies include integrated experiments of modern information systems, and minimal preparation time experience, guarantee the necessary accuracy, the results from the first attempt, entertainment and a dynamic experiment, the expressiveness of the results, the availability of interpretation for students.

Advanced technologies of experiment include complex modern information systems, the minimum time for experience preparation, guarantee of necessary accuracy, the result from the first attempt, staginess and dynamism of experiment, expressiveness of results, availability of their interpretation to trainees (students).

Operation with the educational computer setting allows students to develop an optimal variant for the given conditions of the full-scale experiment to be (to lay down the aim of activity and to define the model of significant conditions). The independent planning of research operation makes it more significant for students. Their actions become more realized (to make the activity plan, to implement it, to collect setting, to develop the program, to create computer model, to introduce corrective amendments if needed). Just these very circumstances promote the development of students' motivation and their skills of independent experimental research activity.

Using computer technologies in Physics training allowed us to enlarge the circle of educational tasks. Computing experiment, modeling of physical processes and the phenomena on the computer give us the possibility to learn a subject through the interactive connection with the object of research.

Thus the student can easily return to the previous component at any stage of operation. The computer provides us all methods and ways of presenting of the information, (unifying them) in a digital form. It (computer) allows uniting the training -and-methodical support of all components of educational process.

Besides, an active interaction with educational computer model and computer setting leads to the formation of skills and abilities of interaction with the computer. Later they become the appropriate generalized skills which are necessary not only for performance of physical experiments, but also for the active and realized usage of computer technologies in different types of the activity, and in the future operation (work).

Certainly, computer technologies cannot replace completely, neither full-scale experiment, nor laboratory operations, and the teacher, but their usage in reasonable limits and in a good combination, raise the interest to a subject and give us the higher quality of training.

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Experiences of modules development for Learning Management System Moodle

Oleg Lyash
Associate Professor, Ph. D.
Faculty of Education in Physics and Mathematics,
Computer Science and Programming,
Murmansk State Humanities University, Russia

ABSTRACT. This is a short paper about our first steps in the development/integration of modules for the Learning Management System (LMS) Moodle. It shows general information about structure of educational environment of the faculty and shows how we can organize educational activity in programming through universities needs.

АННОТАЦИЯ. Данная статья описывает наши первые шаги в разработке и интеграции модулей для системы управления обучением "Moodle". Представлена общая информация о структуре обучающей оболочки и как можно ее использовать при организации учебной деятельности по программированию за счет потребностей университета.

Our department began using learning management system to support the educational process not so long ago. And now we use it only like a tool for traditional lessons with elements of distance education. Structure of courses arrangement in the LMS reflects the peculiarity of the current state of Russian higher education — transition to a two-level (European) system. And at the moment it includes:

- levels of training (bachelor's degree, master degree);
- areas of training (profiles, specialty, training);
- relevant curriculum subjects.

At our faculty we train future teachers in computer science as in primary and secondary speciality. Our students learn a lot of different IT and pedagogical subjects. They study basics of LMS in such disciplines

and elective courses as: *Computer Software, Programming, Computer networks, Network Operating Systems, Technology design and administration of educational computer networks, Pedagogical technologies for informational and educational training systems*.

Skills of LMS use for future teacher of computer science include different aspects: teaching, creating content, user management, design, etc. So, every student has to play different roles (teacher, administrator or sometimes programmer).

Each student in one and the same course takes over the role of teacher. In this role, he needs to learn how to plan a course for a discipline, fill it with content, teach this course, make analysis of the results, etc. It's easy to organize working in LMS. We just need to arrange for the students something like "sandbox" in which they can act as a teacher. Within this sandbox student takes the role of a teacher.

As an administrator every student has to set up working environment. It includes: installing operating system, setup, setup of additional modules, programming or modification of additional modules, integration of online university services. It needs a special personal environment for each student. And we can organize it with a machine. So we can give to each student a personal virtual machine to form administrating skills.

In forming the tasks for the students, we try to focus on the requirements of our institution so that students could have an idea of practical application of the results of their work. It should be noted that development of additional modules is a rather time-consuming task, therefore, it is implemented as a graduation project.

For example due to peculiarity of educational process arrangements at our university every teacher must regularly view files with the schedule in order to fill-in a work plan for next week at the end of the week.

We decided to address this problem as a training task and started to make this process automatically. This task involves several stages:

- development of stand-alone program for the collection schedule for teachers from separate schedule files of different departments into a single document;
- launch of the program from LMS (module for LMS);
- export teacher schedule in their online calendar.

We have chosen the programming language Python. This choice was made only by the fact that students have studied it in the current semester.

The application consists of several parts: a module download scheduling, analysis module, the module forming the composite schedule for teachers, e-mail module.

Currently, the application is being tested and further developed

In the future we plan to continue introducing students to the possibilities of developing modules for the LMS and begin addressing such practical issues as:

- implementing module for interactive display of free computers in the educational segment of the university computer network;
- module for generation of examination questions in subjects (from the database of questions) as approved by MSHU form.

In a long-term prospect we plan to solve such an issue as integration of the module to check programming tasks using programming languages studied by the students. As a result of the work on practical task the students get invaluable experience in developing the final product, as well as experience of customer interaction and experience of teaching because as a part of their research papers they need to teach other students how to develop such programs.

Using of free operating system LINUX at special boarding school № 4 for children with disabilities in Monchegorsk city

Lyudmila Morozova
Principal of special boarding school № 4
for children with disabilities,
Monchegorsk, Russia

ABSTRACT. This article sums up experience of Monchegorsk special (correctional) secondary boarding school #4 in use of free operational system Linux that is currently the only alternative to Windows OS from Microsoft.

АННОТАЦИЯ. В статье обобщен опыт работы специальной (коррекционной) общеобразовательной школы — интерната № 4 г. Мончегорска по использованию свободно распространяемой операционной системы Linux, которая на сегодняшний день является фактически единственной альтернативной заменой ОС Windows от Microsoft.

Last year was a turning point for the Russian LINUX community. The reason is the largest project of introduction of free software in school education.

The government of the Russian Federation have decided to equip all schools with software to support school process. In 2009 our school got the main package of free software for teaching computer studies and new technologies in operating system LINUX.

At the same time in 2009 the teachers began to learn how to use this free software.

The teacher (system administrator) of our school was taught free of charge how to set and use the free software in operating system LINUX and got the qualification certificate.

In January 2010 the operating system LINUX was set up on two PC and in September on 70 % of all school computers.

LINUX nowadays is the only one alternative operating system to Windows and Microsoft. LINUX is rather easy in using. Nevertheless some of our teachers at first thought that LINUX is very difficult in using.

Teachers have given the following mark to operating system LINUX:

— "excellent" 24 %;
— "good" 42 %;
— "satisfactory" 18 %;
— "unsatisfactory" 16 %.

So, most of the teachers have given the operating system LINUX rather high rating.

So, the adoption of free software is fulfilled and it is done as painlessly as possible. Also, consultations and seminars are constantly held at school.

The operating system LINUX and most programs for it have very important good qualities:

— It is free of charge. To set up LINUX we got extra thousands of programs free of charge. Although Windows programs are more usual, LINUX programs are absolutely functional.
— It is reliable. LINUX works without reboot and PC freezes.
— It is safe. It has practically no viruses. The building of operating system excludes working of malware.
— It has open source. It gives opportunity to use and modify the source. One can correct mistakes in the system and enlarge its functionality.

Nevertheless, at the beginning we have some problems. The main of them were:

— There was not enough supporting documentation.
— Teaching of great deal of school staff.
— Some program mistakes. We had to set up distribution disks very often.
— Some problems connected with computer equipment and new operating system. There were no drivers in the main package for installation of prints, interactive whiteboards and scanners.
— Most teachers had to get used to new graphic interface. For this reason we installed at first Open Office and then LINUX to maintain smoother transition.
— There were some problems with downloading of certain educational programs that require multimedia technologies.

Another important problems connected with LINUX are lack of teacher`s books and textbooks for students, lack of office suites and support of external equipment.

Our system administrator has close links with developers of LINUX and new distribution disks.

It must be admitted that transition from Windows to LINUX is not so bad.

In future we are going to continue using LINUX in educational process which doesn't require license funding but we understand the necessity of additional funding for modernization of computer equipment.

Experience of LMS Use at Murmansk State Humanities University

Roman Polikarpov
Senior Lecturer,
Department of Computer Science and Technical Disciplines,
Murmansk State Humanities University, Russia

ABSTRACT. This article contains abstracts of presentations at a workshop held in Tromsø in May 2011. It describes the experience of implementation of LMS in the learning process at Murmansk State Humanities University.

АННОТАЦИЯ. В данной статье представлены тезисы выступления на семинаре, проводимом в Мае 2011 в университете Тромсе, Норвегия. Описывается опыт использования Системы Управления Обучением в учебном процессе Мурманского государственного гуманитарного университета.

In this article we hope to show our way of using LMS. This is our experience, may be not perfect, but still the experience of implementation and use. Firstly we should start with the background.

Our department is engaged in the teaching of future mathematicians and computer scientists, mathematicians and physicists and computer scientists with extra qualification in educational network administrating. These professionals must be equally competent in the IT field, and in the field of pedagogy. In this sense, we stand at the crossroads of two sciences.

Murmansk, and Russia as a whole, is actively involved in development of distance learning technologies in education. There are a lot of successful examples of this implementation around, and we feel more and more demand for specialists in this field. Our university and our department have to train skilled professionals and therefore we are very interested in distance learning itself and as a concept.

The first experiments in our university started about 5 years ago. Firstly our department prepared IT-structure for organizing the educational process. For example, we organized the local educational network, storage servers for users, authorization services and other IT-surround. To create, in fact, distance

learning it has been organized a special department named "Department of educational technologies". It was specially for the development of LMS and inclusion it to the overall infrastructure of the university.

The first one system was "Competentum Magister". The system was made by Russian company from Moscow. It is a commercial software and at the time of installation it seemed to be quite powerful and well-functional with all necessary tools.

Several groups of students were involved into experimental using of this LMS. They did there workshops, attended lectures, was talking on the forum. In the same time it was training teachers to work in the "Competentum Magister" LMS, and generally in the LMS ever.

But, the exploitation of the system has shown many disadvantages. Because the system was paid, after a year of using the new version it was required to pay for upgrade, but the changed situation and approach to the issue, not allowed to do it for financial reasons.

The current version was not very user friendly and was difficult to expand. It was impossible to write additional modules or extend the functionality some other way. Even trivial problems we have met led us to waste time. Students complained for the convenience of the interface and speed of working. Teachers were not satisfied with functions, possibilities of using various media content and flexibility of the system. This problems was hard to solve, and this caused dissatisfaction both teachers and students and, in the result, decreased motivation to learn. In addition, the architecture of the system did not allow teachers to put materials to the LMS without technical stuff directly.

It became clear that this system not only allows developing, but generally is braking the formation of technology.

Further steps is the understanding that the LMS at the university must meet the following requirements:

1) the technical reliability and scalability
2) configurationable space — from the interface to the structure
3) coverage of all phases of work, including how to store teaching materials, how to build the hierarchy of access and copyrights management system too.

However, there we were searching for good decision for efficient allocation of electronic educational and methodical documents for specialties,

mainly for correspondence courses. For example, it was created the server for learning materials in the official website (based on "Joomla" CMS) and approximately 900 materials was published for all correspondence courses. Many of them are duplicated in University Study network on the information server for easier access.

Also, with coming of Baccalaureate into our educational process, an internal portal for teachers was created. There we can publish learning materials, standards, timetables, studying roadmaps and other methodological support of educational process. This portal is built on MS SharePoint Technology.

It took a lot of time and finding the suitable solution has been quite extensive and we have tried many available variants.

On the basis of all our needs, which were formed as a result of the experiments, Moodle was chosen as basic LMS. This is an opensource system, one of the most popular in the world, with lots of additional modules and features. Freeware status also played a role in the choice of LMS, it unnecessarily increases the cost-effectiveness of education.

Now we have about 30 teachers working in it currently and students about 15 specialties and Bachelor's direction, and placed more than 50 courses.

Changing LMS successfully coincided with transition to Bachelor's studying, so that the new system is filled mostly materials for an Bachelor's degree. This mean we are doing it for the future. This is a priority aim of development: creation a virtual environment for teaching bachelors, especially as the functionality of Moodle allows you to implement technological maps, the Bologna system of assessment, student-centered learning, a method of portfolio and project method. In short, everything that seems interesting and relevant for the development of the educational level of our university.

It is important that we teach our students on full-time education and it imposes some specifics to our use of distance learning technologies. Distance learning is designed not to replace but to help to traditional teaching.

Modern lifestyles often imposes specificity on the learning process. Students often begin to work on a part-time after 2-3 years of studying and it sometimes prevents them from learning. On the one hand, the university encourages this, on the other, the quality of education at the same time may suffer. Distance learning you can find a way out of this contradiction.

Another important factor is the geography and climate of our region. Up to a third part of our students come to study from the suburbs, spending several hours for the road. Sometimes a snowstorm or difficult traffic situation does not allow them to comfortably and safely get to school. Possibility of distance learning to pick up more convenient time for lessons and the opportunity to do some tasks at home significantly increases the efficiency of studying.

If a student is ill and missed some classes or missed by all for some reason, then it also becomes possible to reduce the backlog and to avoid problems with obtaining tests and examinations.

These results do not end our work. About year ago our department has been created our own LMS, also based on Moodle. We did it, unnecessarily like to get more opportunities for experimentation. The basic system of the university is not quite the right place for experimentation, and we don't have rapid and full access to it. Department of educational technologies develops distance learning as a whole, and we, as mentioned above, focus on the selection of those distance learning elements to which will help increase the efficiency of traditional teaching is through the use of info-communicative technologies.

Now we are trying some new elements: online student's visiting history, full automatic system of assessment according to the Bologna system, "contester" module as the way of automatic contests for programmers, exams by games and quizes and many more. We hope that LMS Moodle will be good platform to build modern educational process in our university.

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Using Digital Tools and Social Media for Learning and Writing in Formal Education

Lisbet Rønningsbakk
Assistant Professor,
Department of Education, University of Tromsø, , Norway

ABSTRACT. In this article the author will present a few theoretical perspectives on learning using social media, focusing in particular on digital writing and networking. It will also be argued that we need new perspectives on learning that can capture the new dimensions of learning using social media and digital tools, and suggest some new approaches to educational research.

АННОТАЦИЯ. В данной статье будут рассмотрены некоторые теоретические аспекты обучения с использованием Интернет ресурсов, при этом акцент будет сделан на письмо с использованием компьютера и его роль в социализации учеников. Также будет поставлен вопрос о том, что требуются новые перспективы, которые могут охватить новые измерения обучения с использованием Интернет ресурсов и цифровых инструментов, а также будут предложены новые подходы к проведению исследований в образовании.

Today's youth are becoming more and more writing in their social practices and spend much time on social media. At the same time most students meet fairly traditional teaching methods when entering higher education. In a time when we are concerned about the quality of learning in schools, it is a paradox that students' have to adapt to an academic tradition where their everyday communication tools are not welcome. We need knowledge of the impact of new technologies for future students and higher education, and new insight in using social media for learning in higher education. In this article I will present a few theoretical perspectives on learning, focusing in particular on digital writing and networking, which can give some guidelines for further developing of a theoretical concept of learning in social media. I will also argue that we need new perspectives on learning that can capture

the new dimensions of learning using social media and digital tools, and suggest some new approaches to educational research.

WRITING IN SOCIAL MEDIA = BLOGGING

To participate actively in digital social networks can be regarded as typical of today's young students. The typical writing activity within social media can be characterized as blogging. Blog is short for weblog, (first mentioned in 1997), originally a log on the web (Blood, 2000). The blog can be characterized as a collection of consecutive statements which are organized in the time sequence they are presented in (Tømte, 2009). The texts vary in expression from personal diary to more professional and objective texts, and can express reflections and thoughts of an immediate and unsorted manner, made possible by the opportunity of instant publishing. The blog has a personal style that brings the reader closer to the writer. The blog can also build networks through linking to other relevant material from the Internet. Today's platforms have a number of sharing capabilities that enable the readers to both comment on new posts and share them in their own networks. Automatic notifications (track-backs) make it easy to follow up new posts in the network and ensure that the exchange of information is dynamic.

In Norway, blogs have gained more status as significant expressions of opinion about both trivial and academic issues in recent years. Media have become aware of blogs and several have achieved high status and a lot of attention. There has been much focus what we call "pink blogs" and "mommy blogs" in Norway, as there are many. But blogging as a trend is in rapid expansion and development. In 2011 we see new participants in the "blogosphere" (Haugseth, 2011; Gamkinn, 2011). The tendency is that people start to blog under their own name while it was previously common to blog anonymously (ibid.). There are blogs about "everything", and some can be regarded as academic texts that can be referred to in academic writing.

WRITING FOR LEARNING

The importance of language for learning is well illustrated in the socio-cultural theory. Vygotskij (2001) based his entire theory of development

and learning on language as a social tool. Vygotskij distinguishes between spontaneous and scientific concepts, and points out that reflection on scientific concept by using spontaneous concepts support the learning process (ibid.). Also writing develops cognition, according to Vygotskij (2001). Vygotskij believed that inner speech has a "draft" function in relation to both the written speech and external speech (Vygotskij, 2001, s. 209).

To Dysthe, Hertzberg and Løkensgard Hoel (2010) it is fundamental that students acquire academic writing skills for success both in study and future professional work (ibid.). Dysthe et al (ibid.) operates with two different types of writing: thinking writing and presentation writing. While presentation writing aims to convey a complete message, thinking writing is a looser form of text that can reflect thought processes, emotions and impulses during the writing. Rettberg means that blogging for learning in higher education involves a mixture of thinking writing and presentation writing since the text is immediate and reflexive as the thought, but to some extent influenced by being addressed to an external reader (Rettberg, 2009). There are many who have pointed to the positive learning outcomes of writing blogs in connection with research or professional studies, like greater professional confidence, developing of an own voice, and the establishment of professional networks (Rettberg, 2009, Halverson, 2011).

LEARNING AND NETWORKING

Writing in social media also gives a new dimension to the learning process; publishing and interacting with others in an ongoing discussion (Rettberg, 2009). Writing in social media actually addresses a real-world audience, and that publishing in itself have positive impact on students' writing (Lowe and Williams, 2004). As a learning activity in the study, writing in social media abolish the boundaries between campus and the rest of the world, and increase students' access to expertise and learning resources in an almost limitless room for professional networking. Students can actively invite contacts in their networks to obtain guidance and input to their own professional development from a variety of sources outside campus (Rettberg, 2009). Blogging in formal education can be regarded as an important preparation for a digitized professional life (Aaberge, 2011)

as well as giving chances on the job market. The award-winning blogger Ida Jackson recently got a job at the Norwegian online encyclopedia, an online edition of the Great Norwegian Encyclopedia, because of her online activity (Jackson, 2011). Blogging has been a way for individuals to draw attention to themselves. Some bloggers have achieved great success in recent years, not least financially, because their advertising revenue on blogs. This shows that blogging is a way to increase one's visibility in the public sector and supports the assumption that blogging as network activity will be more important in the future.

THE "DIGITAL NATIVES" OR "NEW MILLENNIUM LEARNERS"

Today's young adults are digital natives (Palfrey and Gasser 2008), that handle digital technology and digital media in ways we have not seen before. They are new millennium learners, always online with their social networks (ibid). Tømte and Søby (2009) argue that the new generation represents a new culture of sharing that must have consequences for how we think about learning. They have the ability to use digital media to communicate and create relationships with creativity in their methods of expression that transcends the generations before (Palfrey and Gasser 2008). Developing good study of the use of ICT, both on and off campus, must be based on the fact that the digital natives have new social tools they use in learning activities.

Despite the fact that today's young students are accustomed to using digital tools, it is a challenge to find good ways to use digital technology in education. It is clear that the technological optimism that characterized the first investment in information and communication technology or ICT in Norwegian education, need replacement by a more realistic perspective on the use of digital tools (Rambøll Management, 2008). All experience so far suggests that the introduction of digital technology does not automatically lead to a new pedagogy.

The Danish media professor Lars Qvortrup (2002) has been concerned that the use of digital tools for learning must be justified outside the technology, and warns against believing too strongly that the use of a digital tool in itself will lead to learning:

"If we link our ideas about learning — what are we and what can we — too close to ICT, we risk ending up with an ICT-focused paradigm, which is either over-imaginative or under-imaginative: ICT paradigm is over-imaginative, if it is controlled by the fact that what we can do with ICT, we should do with ICT. Instead of identifying what we want to be and how ICT can contribute, you end up in technocratic and ICT futuristic ideas. ICT paradigm is under-imaginative, if it is so devoid of educational vision, to think that everything is fine, as long as we continue to do what we've always done, speeded up with new technology" (Qvortrup, 2002, p. 10, my translation from Danish). It is, in other words, a danger that the use of digital tools automatically adapts a traditional pedagogy. This can be interpreted as support to explore new ways of understanding learning in light of digital tools.

A COMPLEXITY PERSPECTIVE AS CONTEXT

In order to open up to new perspectives, it is important to study the use of digital tools in the context of a perspective that looks ahead. Lars Qvortrup, build such a base for a future society that is hyper-complex:

"The fact that society is" hyper-complex" is not just a term that boosts the level of complexity. That something is complex means that it contains more options than you as observer can handle. But that a system is hyper complex denotes that it relates to the arbitrariness of its own descriptions of the outside world. It is not just uncertain of its surroundings, but it is uncertain of its own insecurities" (Qvortrup 2002, p. 11, my translation from Danish).

Complexity principles represent new challenges because the complexity makes it difficult to look ahead and predict development. The lack of predictability creates a fundamental uncertainty. The complexity perspective emphasizes communication and relationships as the only principle that is possible to understand the future challenges from. The need to be flexible and able to change things in pace with the challenges at any time, also requires a new perspective on learning and competences, Qvortrup argues and refers to three competences that should characterize the future of society in a complexity perspective; reflection competence, relational competence and opinion competence (ibid.). Reflection competence

(learning skills) is the ability of self-observation. One can no longer rely on certain standards as a guideline, but have to interpret their own ways to assess their own observation, communication and action (ibid.). Relational competence is the ability of other-observation, an ability to understand others on their merits (ibid.). Opinion competence involves observation of observation, or the ability to see similarities and values in the context one is in (ibid.). The three concepts are part of what Qvortrup believes are necessary skills for the future. This perspective involves a change of view on learning and may be a fruitful starting point in order to develop a theoretical understanding of learning outcomes using social media. Reflection competence or learning skills are developed through writing academic texts in the study. Such reflection can take place in "traditional" academic genres, but writing in social media or blogging also has room to convey the sense of wonder, reflection, ambivalence and contradictions that illuminate the learning process. One can also expect that relational competence will be stimulated through interaction with responding readers. Opinion expertise can probably be stimulated through networking since the network will provide an opportunity to explore knowledge cultures with various common values.

A METHODOLOGICAL AND A PARADIGMATIC CHALLENGE

Based on what has been outlined above, I see some methodological and paradigmatic problems associated with understanding how using ICT tools can contribute to learning. Research shows only marginal benefits to learning outcomes, using digital tools (Salomon and Perkins, 1996, Salomon 2009). Hattie's (2009) large meta-analysis of studies of learning effect, confirms the same tendency. At the same time, it appears difficult to introduce new and "innovative" ways of working in traditional learning cultures (Greenhow, 2011; Halverson, 2011, Walker, 2005).

The methods used to investigate the educational benefits of using digital tools are also a challenge. We measure learning outcomes of new tools based on a traditional approach to teaching and learning (Salomon, 2009; Overland, 2011). Traditional education is based on a belief that knowledge

can be considered a fixed size that can be transmitted directly from teacher to student (Haugerud and Sand, 2002). Illeris claims that even though today we really know better, it has become such that one both in everyday life and in education has accepted the convenient short-circuit to equate what is taught and what is learned (Illeris, 2000, p. 13). The perspectives that can capture the new aspects of learning using digital tools are missing, which also means that it is difficult to use traditional research methods to investigate them.

Halverson (2011) relates the use of social media and tools to a new understanding of "literacy", or expertise, grounded in "the shift from thinking about literacy as a print-based, consumptive practice to a multi-modal, productive practice, known as 'The New Literacies' " (ibid., p. 63). This new practice requires a new definition of reading and writing as "understanding and competent control of the representation forms that are becoming increasingly significant in the overall communications environment" (ibid., p. 63). There is a change from viewing learning as reproduction to production of knowledge (ibid.). A consequence of this, considered the new participatory cultures, is that social networks that exploit the new technology should be recognized as legitimate learning resources (ibid.). These perspectives can be significant, constructing an understanding of how digital tools can contribute to learning.

Finally, experimenting with writing in social media in education shows that it is difficult and that it is necessary to provide good support through teaching to succeed (Rettberg, 2009; Walker 2005). Rettberg refers to her own experiences, claiming that the activities must be related to the study, for example as obligatory work or exams (digital portfolios). It must also be decided on technological solutions for using social media, for instance if blogs should be open or closed for other than fellow students and teachers, in light of copyright issues, etc. (Greenhow, 2011).

The article has tried to present some perspectives on using social media for learning in higher education. Writing in social media is different from traditional writing, because of the immediate publishing features and the responses from others in the network. Further I have pointed at the importance of investigating learning outcomes using new learning tools, within a future perspective on society involving a new understanding of

reading and writing, learning and knowledge to meet the need of future students to use their social competences and tools in formal educational learning.

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Easy Transfer of PowerPoint Slides to YouTube Lectures

Steinar Thorvaldsen
Associate Professor, Dr. Sc.
Department of Education, University of Tromsø, Norway

ABSTRACT. This is a short paper on how to convert your PowerPoint (PPT) slides over to YouTube lectures using just standard equipment and programs. It describes how to add narration to your slides and post them on YouTube as an online lecture. As for motivation and reflection, the paper also presents some theoretical background from Allan Paivio's Dual coding theory on how visual and verbal information act as two distinctive systems for the human mind.

АННОТАЦИЯ. В данной статье рассматривается способ передачи слайдов презентации, выполненной в PowerPoint (PPT) на YouTube, используя только стандартные программы и оборудование. Описывается как можно добавить звуковую запись к слайдам и прикрепить к лекции, выложенной на YouTube. В качестве теоретического обоснования в статье рассмотрены некоторые аспекты дуальной кодовой теории Алана Пайвио, в частности, как визуальная и вербальная информация взаимодействуют как две раздельные системы человеческого мозга.

In our university lectures we often use PowerPoint for illustrations and visuals. I have for a long time been looking for an easy and rapid way to make some of this material available to online students, I wanted to combine visual effects with narration. With the new version of PowerPoint (2010 or later) the whole process has become very simple — basically, plug in a mic and speak. PowerPoint saves the slide timings, and we can change the narration for individual slides if we make a mistake. And at the end we may save the complete lecture directly as a video-file that may be uploaded to a video server like YouTube. This method is very easy compared to earlier solutions.

TOOLS

The equipment we need to be able to produce this type of online lectures is quite simple. We need a PC or Mac with microphone. And we must be able to run Microsoft PowerPoint 2010 or later, and we must have a YouTube account that we may obtain for free. By this equipment we may easily export a standard PowerPoint lecture to an online version. All work may be done in house by yourself. There is no need to go to a special studio to do the recording, and there will be no need for support by technical personnel. You will simply be your own producer.

There exist several types of microphones with different sound characteristics, often called polar patterns: omnidirectional, unidirectional, cardioid and bi-directional (number of 8). It will be useful to know what kind of microphone you have and to use it according to its characteristic.

A few other things may also be remembered when sound quality is to be considered:

- Keep the microphone near the source;
- Avoid background noise;
- Be aware that sound level may shift in the transitions;
- A good microphone will record high quality;
- Remember to configure your microphone for optimal results.

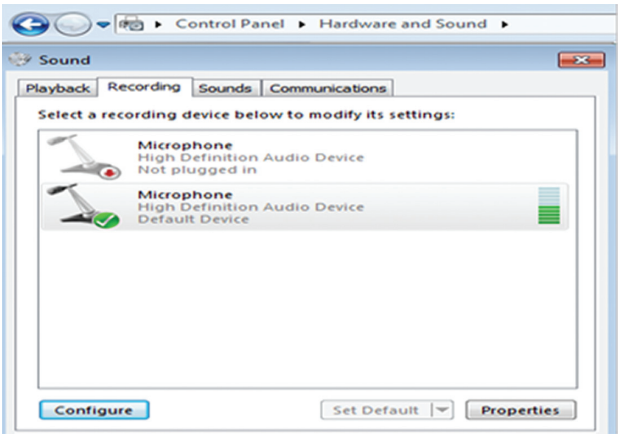

Fig. 1. Windows may configure our microphone for optimal results in the Control panel> Hardware and Sounds> Manage audio devices

SOME THEORETICAL BACKGROUND: DUAL CODING THEORY

Before we describe the production pipeline, we will give some theoretical background on how multimedia learning works. Classical lectures have, as we know, survived at our universities for hundreds of years. This kind of observation that items presented both visually and verbally are better remembered, gave among other things rise to the so called dual coding theory, first proposed in the 1960s by professor Allan Paivio at the University of Western Ontario in Canada. The theory postulated that the human mind operates with two distinct classes of mental representation (or "codes"), verbal representations and mental images. And that verbal and visual information are processed in different ways, and along distinct and separate channels with the human mind. As Paivio (1986, p. 53) points out:

> *Human cognition is unique in that it has become specialized for dealing simultaneously with language and with nonverbal objects and events. Moreover, the language system is peculiar in that it deals directly with linguistic input and output (in the form of speech or writing) while at the same time serving a symbolic function with respect to nonverbal objects, events, and behaviors. Any representational theory must accommodate this dual functionality.*

This denotes that the human memory involves two functionally independent (although interacting) systems or stores, verbal memory and image memory. While the two subsystems can be activated independently, the interrelations and interactions of the two systems allow the dual coding of information. Both verbal and visual codes for representing information are used to organize incoming information into knowledge that can be acted upon, stored, and recapitulated for later use. Dual-coding theory also pretends that visual and verbal information are stored separately in long term memory, and is complemented by the theory of Alan Baddeley, in which working memory is divided into a phonological loop and a visuospatial sketchpad (Baddeley 2007).

The dual coding theory was tested in a series of studies by Richard Mayer and colleges at the University of California, Santa Barbara. They also applied the theory to multimedia. Mayer and his associates has documented that students are better able to transfer their learning given multimodal

instruction. In one of their studies from 2002 they presented some principles on How multimedia learning works (Mayer and Moreno 2002):

- **Multimedia principle.** Use narration and animation rather than narration alone;
- **Contiguity principle** Present corresponding narration and animation simultaneously rather than successively;
- **Spatial contiguity principle.** Show text as near to the animation as possible;
- **Coherence principle.** Eliminate unneeded words and sounds;
- **Modality principle.** Present words as narration rather than as on-screen text;
- **Redundancy principle.** Present narration and animation rather than narration, animation, and on-screen text;
- **Personalization principle.** Students learn better when words are presented in conversational style than in formal style.

Based on current research it appears that Paivio's dual coding theory is a reasonable explanation for the results of a large number of studies of multimedia learning. Students appear to learn better when related information is presented simultaneously via verbal and visual media than when information is presented via verbal or visual media alone. This result may occur because connections between verbal and visual concepts provide the learner with more cognitive pathways that can be followed to retrieve the object of study. This support for dual coding theory shows that online teachers ought to consider supplementing on-screen information with closely related verbal information.

THE PRACTICAL PRODUCTION PROCESS

The three steps described in the production process are not complicated. We start with a normal PPT-presentation with all text, pictures and animations we want to present in the lecture. Then we have to add the audio, and this is done as the first step.

A. Record audio narration in PPT

We start with a typical PPT-file and need to add audio to it. To do this we use PowerPoint to attach narration to the slides.

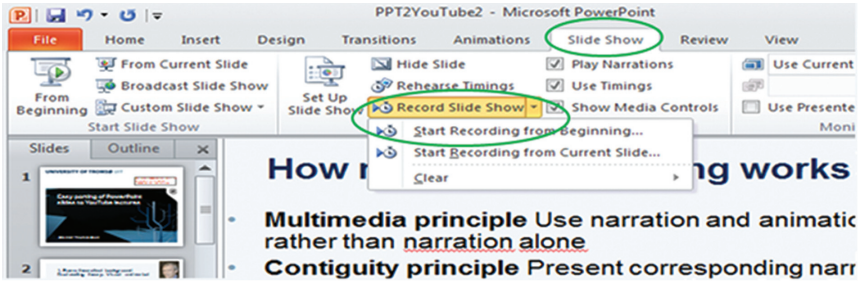

Fig. 2. PowerPoint may be used to add audio to our slides

Select *Slide Show> Record Slide Show* in the PPT menu:

We may choose to narrate a complete PPT presentation from the beginning to the end, or each individual slide. You must expect to train a bit on this process, but the best way to do it is by trial and error. Richard Mayer's principles on how multimedia learning works may be helpful.

B. Save the PPT as WMV-file

Save the PPT presentation with the recorded audio in a standard PPT-file. *But* also save the file as type Windows Media Video (*.wmv-file) which is available in PowerPoint 2010 and newer. This may take a fairly long time. In PowerPoint we outputs to wmv-format in this way: Choose *File> Save and Send> Create a Video*. Then choose from a couple of options. We can use existing timings for each slide or assign a timing. The video output will include sounds and narration, and even embedded videos!

This file format is compatible with the YouTube requirements. The wmv-file may be uploaded to YouTube, and YouTube will convert and store the file as a Flash-format that will be fully accessible on Internet as streaming video.

C. Upload the video file to YouTube

We upload the video for Internet via an easy welcome screen provided by YoTube at youtube.com where we sign in. Videos can be:

- High Definition;
- Up to 2 GByte in size for a single file;
- Up to 15 minutes in length.

There also exists support for bigger files than this. Then just click on *My account* and *Upload new video*

When we upload the file to YouTube we will be asked for file name and description, any tags we want to add to the video so that people may easily identify it, and the category under which it should be placed. We may also select the video to be public or more hidden and available only to those who know the direct link to it. Wait till YouTube have finished the upload process of the file and given it an Internet link. This may take some time. But then the lecture is available online.

CONCLUDING REMARKS

The production of online learning material may be conducted in three steps. A: Create your PowerPoint slides and add narration. B: Save the presentation as a video file (*.wmv-file) and C: Upload the wmv-file to YouTube.

Then we may share the link YouTube provides for us with your students so they may listen to our presentation. The result may be viewed by any type of PCs or mobile devices. You will find more on the didactic theory of producing good multimedia in the references listed below. Dual coding theory is the theoretical framework of several e-learning institutions.

Of course there exist other tools and methods to do much of the same as described in this short presentation. Techsmith *Camtasia Studio* may be used for longer presentations, and when we want editing capabilities. Camtasia has a lot of features. It is video-recording software, and we just run through the presentation and Camtasia creates a video. The voice is recorded as we proceeds. There also exist many alternatives to the YouTube video hosting server i.e. SchoolTube and RuTube (Russian). A list may be found at Wikipedia.

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