"Integrating E-Learning and Open Educational Resources into Classroom" – iOERc

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Recommendations for High Schools

Co-financed by the Erasmus + programme of the European Union

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Recommendations for *integrating e-learning and OERs (open educational resources) in the project partners' high schools*

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Key Action 2 - Cooperation for Innovation and the Exchange of Good Practices Strategic Partnerships for school education

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Content

1. Introduction

Throughout this project, informations were gathered regarding the current level of ICT implementation in the high schools, participants in the project. The acent of the information was towards the current use of e-learning and OERs (abbreviation that will be used, later in the text, for open educational resources) and the level of implementation of their correlation in the teaching process. The information gathered were presented as previous experiences at the meetings held with all the participants in the project. The UGD and TUS representatives made a detailed analyses and systematization of the findings in order to prepare reccommendations for integrating e-learning and OERs.

Therefore, the purpose of this document is to develop recommendations for integrating e-learning and OER with the help of specific measures and action plan. The recommendations will be tailored to their specific requirements (and will contain an action plan). The previously identified best practices need to be defined and a plan for implementation for all schools within the project is developed. The fact is that technology is changing rapidly, so the current technologies and the latest scientific achievements will be taken into account. This document will identify curricula that are common to the high school participants in the project and for which digital learning content should be developed (for example, mathematics, physics, and arts). Teachers will develop the digital educational content for these subjects in the final phase of the project. The recommendations will be published online and pdf publications will be available to the public. Teachers from secondary schools who are part of this project, as well as the wider scientific community will benefit from these recommendations. High school students will have the same immediate benefit from the recommendations, although their teachers will have greater competencies. Recommendations will be presented at the event, as well as at scientific gatherings that will be organized in the member countries of the project or in their neighboring countries.

2. The need for OERs and e-learning

The economic and social development requires open distance learning that quickly becomes an accepted and indispensable part of the education systems in both developed and developing countries. This growth is an incentive for teachers and their trainers to use new ways as an inseparable part of the new policies in education systems, based on Internet and multimedia technology. However, old traditional methods are not set aside, but they should be upgraded and reinforced with new innovative methods.

Normally, today's way of life and advanced technology around the world imposes the need for constant intercommunication, exchange of information, exchange of learning materials, teaching, and even research. Naturally, teachers want to use technology and the Internet for more efficient learning, and they face the lack of sufficient software resources for such learning, which often requires more funding. Therefore, teaching staff should be acquainted with the commercial and free online tools to support learning in the teaching process.

The need for using OER around the world has provoked many global initiatives for OER including an OpenCourse initiative Bep MIT and the OpenLearn Open University. OER from around the world can be found on the OER Commons website. In August 2010, the LSE received funding from the JISC (Joint Information Systems Committee) and the Higher Education Academy for the DELILA project. This project was about converting CLT's teaching resources into digital materials as a choice of information resources from the LSE library in the OER format. Thus, the way for creating a separate database, LSE, Online Learning Resources was opened, as well as for storing of these materials. As a result of this project, the team encouraged all LSE teachers to deposit their teaching materials they want to share in the new database. (Learning tehnology and inovation, n.d.)

The usage of modern technology that supports learning comes in different shapes and sizes. Numerous online tools - applications can assist learning in the classroom, as well as outside the classroom at any time and any place (e-learning). With the help of these online tools we face the challenges, how to balance the teaching needs with the students skills and how to gain the confidence of the teaching staff for this type of learning. Finally, the main need for e-learning can be the fact that this kind of learning is more than a tool and serves to get the right information at the right time.

All parties involved in using OERs and e-learning benefit from this process. The benefits are as follow: (Lou McGill, 2014):

1. The students will have the following benefits
   - improved quality and flexibility of resources
   - an international dimension (a review of world-class documents and access to more courses)
   - freedom of access and better learning opportunities
   - support for self-learning and even non-formal learning
   - developing new skills in different fields
   - possibility to learn the contents of the course before the lectures and exercises begin
   - the opportunity to engage themselves in the creation of new OERs
   - share their OERs with other students and colleagues
   - be part of a scientific virtual environment

2. The creators of OERs content will have the following benefits:

- receive feedback from students / users and will be open for review
- they will become recognizable, their reputation will increase

- benefits from the common approach of lecturers and students for teaching / learning
- increasing digital literacy
- opportunities for work in different sectors, institutions and subject disciplines
- will have a large number of students

3. Other users will have the following benefits:

- availability of materials that will improve the curriculum
- access to teaching content, ie learning content
- free access to materials
- increasing communication within their organization or with other sectors and globally

4. Educational institutions will have the following benefits

- recognition and a better reputation
- greater access to their academic content, and a special focus is put on the teaching experience
- increased opportunity to support students who study from a distance
- efficiency in content creation
- new partnerships - links with other institutions and organizations outside the education sector
- increasing the exchange of ideas and practices within the institution
- keeps inherited materials
- increased understanding of intellectual property rights
- new relationships with students as they become collaborators in creating OERs, release and use.

Figure 1. presents metaphorically an open educational resource, but not with the intention to compare OERs with commercial products, but to illustrate the value when considering the different roles that exist in the production and use / reuse of OERs and to emphasize the importance of the existence of end users (McGill, Lou, 25-26 March 2009). The table describes the process of delivery of cow's milk and the frame of this process as OERs:

Milk	**Role**	**OER**
Cow	Primary manufacturer	Teacher / author
Calf	Primary Customer	Enrolled students
Farmer	Secondary manufacturer	Learning Technologist / Course leader
Milk producers	Basic supplier	Learning Technologist
Store	Secondary Supplier	Storage in an institutional repository
Family	Secondary consumers	Teacher from the institution or from outside

Families and pets	Persons who share and re-users	Enrolled students with that teacher
A person with milk, cocoa and sugar can make chocolate	Exchange and ideas	Other teachers from the institution or from outside
Chocolate in the store	Refrigerator	Store in different open repositories
Eating chocolate	Reuse / Sharing	Potential students
Chocolate added to the cake	Future Ideas	Potential teachers

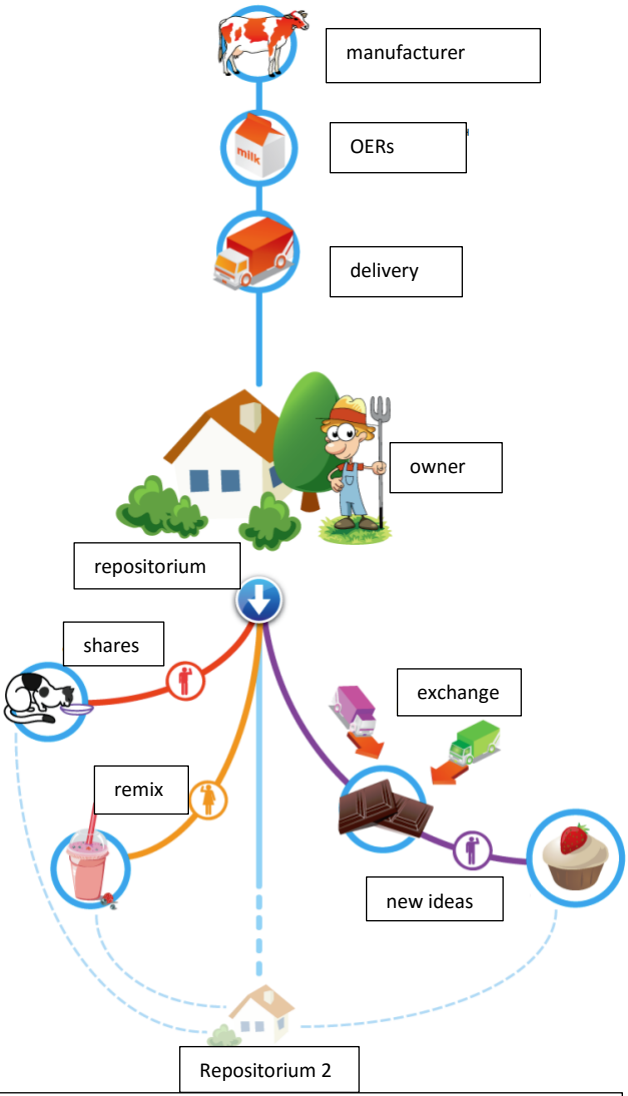

Figure 1. Metaphorical example of OERs (McGill, Lou March 2009

Previous discussions about OERs and eLearning show that in the quest for more successful teaching and better learning as a goal of each teacher, there is the interlacing and overlapping of these two tools of modern technology that is in constant development in order

to become better and more successful. This need is imposed by the reason for finding a way of integrating OERs and e-learning as a success story in teaching and its ultimate goal – learning.

3. OERs (open educational resources) and e-learning

The future of Internet is not to access different websites in order to reach certain resources, but to link the resources of those websites to each other for easier access to them. Open Educational Resources (OERs) are licensed open source materials freely available for teaching, learning and research, and allow teachers, students and self-learners to re-use and adapt to their needs and goals. (Lumen, 2014) These materials include slides, online exercises, diagrams, images, electronic books, and other materials provided by teachers and students. Free access and free exchange of materials and information for scientific and other useful research, can be added to this definition of OERs. Examples of OER are: courses, modules, programs, lectures, homework, tests, laboratory and school activities, pedagogical materials, games, simulations, and other resources contained in digital media around the world. This is in line with the UNESCO attitude that recognized OERs as a tool for providing strategic opportunities for improving the quality of education, facilitating political dialogues, exchanging knowledge and building future capacities in teaching, learning and science (UNESCO 2012) (Learning technology and innovation, n.d.)

Open educational resources are not only free but also easy to access, longlasting and usable. The term resources does not only refer to computer programs or other materials intended for education, but also teaching content, tools and their capacity.

OERs include: (Library Guides , 2016)

Learning content
- Video
- Audio
- Pictures
- Lectures
- Assignments
- Different documents (reports, articles...)
- Games
- Tests and Quizes

- Tools
  - Sofware
    - Course editing systems
    - Programs for video editing
    - Програми за едитирање на веб страници
  - Operating system
- Implementation resources
  - Document for best practices
  - Licences for intellectual property
  - Measures for interoperability

There are many types of funded models of open educational resources that differ according to who their author is, who controls the funds and resources, who shares those funds and etc. They are the following (Stephen Downes, 2009):

a. Endowment model
- Big grant
- Managed by the financiers themselves
- Funded by interest
Ex. Stanford Encyclopedia of Philosophy

b. Membership model
- The organization joins the consortium
- Members pay a membership fee
- The project is managed collectively
Ex. Sakai, Merlot, OCW consortium

c. Donations model
- Donations from the public
- Can involve participants in the project
- Project managed by the board
Ex. Wikipedia foundation, Apache foundation

d. Conversion model
- It is provided for free and then buyers without money are transformed into paying customers

e. Contributor pay
- The creators of resources pay for papers
- Resources are managed by the publisher
Ex. Public library of Science, YouTube, Blogger

f. Sponsorship model
- A public model
- Resources are sponsored by donors
Ex. MIT iCampus Outreach initiative (Microsoft), Stanford on iTunes project (Apple)

g. Institutional model
- Organizational sponsors cover the costs
- Mostly managed by the sponsors
Ex. OpenCourseWare, OPLC, Open Knowledge Initiative

h. Government funding model
- Funded by the government
- Managed by its board
- Designed to serve government facilities
Ex. OLPC, Canada SchoolNet, Universities, colleges, schools

Today, the impact of information and communication technology (ICT) is increasingly present in the educational process. The very presence of ICT in education contributes to major changes in the teaching and learning process. One of the benefits of using ICT in education is electronic learning or e-learning. In the beginning, the term e-learning was open distance learning in order to increase access to education, especially for some groups that were previously excluded. Recently, this concept of openness in distance learning has been defined in terms of joint collaboration, development and ownership of educational resources and

content. As Nelson and Phelps predicted in 1966 (J. Philipp Schmidt, 2009), web-based open and distance education has significant potential for sustainable development by increasing the access and quality of education in order to achieve the basic right to education for all. This type of learning can reduce the costs of higher education, reduce barriers to access and participation in higher education, increase the flexibility of education programs, and support lifelong learning. This type of learning also leads to higher levels of education, which are associated with better health, management, crime reduction and other developmental indicators. This type of learning is a need and support to the skilled workforce for a strong national economy and education that leads to growth in today's global knowledge based economy.

Today, e-learning is a key factor in the learning process. E-learning combines modern interactive learning methods with knowledge management methods and offers a better way of acquiring knowledge. There are several e-learning systems, some of which are used in the project partner schools, such as Vklass and Moodle. These e-learning systems offer tools for creating and editing courses for particular subjects, as well as for planning of those courses. The terms planning and editing involve placing course materials (scripts, presentations, images, videos, etc.), setting one or more forms of communication (forum, chat, email, etc.) as well as students' knowledge testing tools (quizzes, seminar, homework and project assignments, etc.). All these tools are offered by the e-learning system. The system also provides 24-hour collaboration between users (students, teachers) in any place and at any time.

4. Recommandations for integrating OERs and e-learning

In this section, we will provide recommendations and guidelines for integrating OER and e-learning. Once each school has an e-learning platform, courses for each subject can be created separately. As an example, a course in mathematics, a curriculum for biology, chemistry, music education, etc.

Each course should be managed by the teacher as an instructor, who will build the course content, communicate with students, assign tasks, quizzes, graphics, animations, videos, etc. Each such course should include practical information on active learning strategies, web courses, Web discussion strategies, promote student self-correction, build interactive web pages, basic HTML coding, manage web sites, use databases, provide automated testing, security and legal issues. Finally, the success of each course depends on to which extend the course helped students in mastering the teaching content of the given subject.

These courses can also be used in combination with appropriate, content-controlled and safe OERs as a source of learning materials, or created by students and teachers as part of the learning and teaching process. Integrating OER and e-learning as part of innovative teaching practices in secondary education has a significant impact on the quality of education as well as the ways in which students can be assessed.

There is a great deal of literature that combines OERs and e-learning (for example, Downs 2005, Keats and Schmidt 2007), where various strategies for supporting and assisting OERs from the perspective of teachers and students are processed.

The teacher can use OERs to set up his course with high-quality learning materials, ways, strategies, tests, etc. which are used in the educational systems of highly developed countries around the world, except for the prescribed literature and the manner of its implementation for the appropriate subject matter prescribed by the Ministries of Education (for each country separately).

A very important element is the active learning of the student mentored by the teacher. It is necessary for the student to be given the freedom to share materials: audio recordings, exam

models, sharing of answers with other students, finding appropriate free textbooks and articles in magazines with similar content, useful links and websites to libraries, etc. and offer them to the teacher as alternative solutions. (The International Association for Distance Learning, n.d.) Normally, the teacher as a mediator should look at the content, evaluate it, and approve it for use by other students. In this way, the students by using the OERs expand the useful repositories of knowledge from which other students will draw information that is relevant for the teaching unit. This activity of the student not only enhances knowledge, but also improves the overall assessment of the relevant subject. The teachers would also benefit because they would enrich their library with new literature, and at any moment they will have feedback from the student and can exchange information and discuss no matter where they are.

This way of working and easy access to educational resources improves the image and reputation of the high school and throws it to the top of attractive high schools that would be selected by future students.

We will provide a list of recommendations relevant to the international community for an open education:

- Technical accessibility - Every secondary school needs to provide technical support with full technical equipment so that teachers and students can easily use e-learning and have free access to OERs via Internet. It is necessary to ensure that the teacher works in the existing school system. It is necessary to use digital OORs, to make sure the teacher and the school are working on the e-learning platform and can be used by devices that students can use, inside and outside the school. To enable greater use of OERs, find ways to store and organize content so that it can be accessed quickly and easily, be able to be modified by students together with teachers and controlled by teachers. (Lou McGill, 2014)

1. Accessibility essentials: the complete series – four guides designed to provide anyone preparing or using electronic documents with the essential information needed to do so in a more accessible way.
2. Creation of learning content – extensive advice and guidance for staff wanting to create effective, engaging and accessible learning materials.
3. Xerte Online Toolkit – an Open Source content creation tool that enables non-technical staff to create, publish and share rich, interactive and engaging resources with high levels of accessibility built in.
4. AccessApps – Over 50 free and open source Windows applications that can run from a memory stick to provide independent reading, writing and planning support to all learners accessing materials regardless of where they are.
5. Web2Access – a toolkit designed to assist users and developers in their understanding of an approach to reviewing the accessibility of web-based applications. A useful source for practitioners and developers to check the accessibility and usability of their own resources.

- Assessment of students - Introduction of new ways of assessing students based on their activity and demonstrated knowledge by using e-learning in combination of OERs, as previously stated;

- Quality of materials, education, learning - Quality is the primary concern of the teacher for learning in open education and the use of open educational resources through the e-learning platform;

- Acceptance and support - Acceptance and support by the relevant institutions in the country, the school, the teacher and the students. The acceptance and support of the relevant institutions is reflected through the production and financing of open model projects in line with OERs through software development and easy access to the necessary resources, such as free access to electronic libraries. Adoption by schools, teachers and students is a necessity and a common way of working;

- Connection with other initiatives from the same institution - The cooperation between teachers and students from several teaching subjects on the portal for e-learning and use of open access to OERs is more than welcome. This link strengthens teamwork that always gives better results in terms of individual work, and students also see the link between materials from different subjects;

- Co-operation outside schools - Collaboration of secondary schools among themselves is also a very important link in e-learning integration and OERs. The permitted interactive approach of the active courses on the e-learning portal and the permitted use of resources from OERs between teachers and students from different secondary schools enriches the library of quality materials related to the curriculum and the curriculum of the relevant subject, enables exchange of experiences and information, development of research priorities, exchange of expertise, organizing joint events, competitions, presenting what the other do not know, knowing something new, etc.

- Appropriate teacher training - For successful implementation of the previously stated, it is necessary for teachers to tackle the challenges of computers, the Internet and new technologies. Not always and not every teacher works with new techniques and technologies. Some of them have neither the desire nor the time to learn how to operate e-learning and using OER. It is therefore necessary to organize and fund trainings for teachers who would be familiar with handling new technologies and learning new techniques. As technology is changing rapidly and developing at incredible speed, it is necessary that these trainings are carried out continuously depending on the need. Therefore, there should always be a well-experienced and quailified training team that can respond to today's technical and technological challenges and take care of the professional development of teachers.

These recommendations for integrating OER and e-learning provide a boon to the school staff, as well as more successful, faster and longer-lasting knowledge among students. This is the goal that every teacher and every serious high school strives in order to generate generations that would be rich in knowledge.

5. General recommandations for integrating OERs and e-learning for each school participant in the project

In this section we will provide some general recommendations for applying the integration of OER and e - learning in the subjects that are taught in secondary education.

Teaching subjects such as mathematics, physics and art most often cause students to be discouraged because they require continuous work, special attention and exercise. Missing a small portion of their teaching content in both mathematics and physics causes problems in mastering further content. The combination of e-learning and OER is a great tool for increasing students' interest and desire to learn these subjects.

As general recommendations for integrating OERs and e-learning, the following can be stated:

- Apart from lectures and textbooks as teaching aids, the teacher can make presentations of the teaching contents or of parts that he considers to be problematic for the students;
- The teacher using the OERs, can find materials for its own teaching contents and attach them to the course from the e-learning platform;
- The teacher can be recorded in the process of solving specific tasks or specific explanations for some actions (for example solving math and physical problems, drawing of certain segments in different techniques or playing certain melodies, etc.), and the recordings will present all steps of solving the task or conducting a procedure followed by verbal explanations. This will save the teacher's time because he will not have to present the same thing before each class separately, but using technology he will be able to present it to the current and all future generations that would enroll that school and would attend the same subject;
- The teacher can give freedom to students to record their exercises from these subjects and share them with other students or students from other schools. These materials can be found by the students themselves using the OERs, and they can be placed on the course and exchanged with the others, of course with the approval of the teacher. In this way, the course will be enriched with new and high quality materials;
- The teacher, depending on his creativity, can produce various quizzes and tests for assessing the basic knowledge of students in these subjects.

1. For example, we can add geometry that is an integral part of mathematics and requires visualization of geometric figures. With the new technology, the old way of drawing figures on a chalk board can be left behind because taught in this way those images are not good enough for developing students' visualization and spatial representation. Today's mathematical softwares offer solid tools for excellent visualization of geometric figures. Such simulations can also be found using the OERs and can easily be placed on the course.
2. As an example, we can take the technique of creating an image. Today's documentary films that can be found in OER libraries worldwide offer a lot of material suitable to learn about this process.
3. Another example could be OERs educational films for the school subject Physics (from representing planets and stars, by linking physical terms and laws to the real world around them).

By setting up such educational content on the course, students are given the opportunity to master them and use them properly, rather than just read and look at given images in their textbooks. Today, in this way, students can learn more, remember faster and remember and use it when needed. These contents can be found and placed on the course by both the teacher and the students.

Normally, all of this is a great help, free and quick access to information that is combined with traditional learning of these subjects and only then can they produce solid results in the form of faster adoption of teaching contents, longer memory and better application of the same at the moment when it is needed.

It is necessary that all teachers, regardless of the subjects they teach at school, cooperate among them, have free access to other subjects, exchange information and experiences in order to find appropriate application of their teaching subjects within other subjects. These links between subjects should also be presented to students and at the same time encourage them to take such steps. It is very important for students to realize that no teaching subject and no science can survive and function for itself. All of them function together and intertwine in everyday life.

We will also present recommendations for using OERs available on the Internet: (Danny Mareco)

1 - OER Commons

A dynamic digital center that contains up to 73,000 types of open educational resources. It contains an OER package and tutorial tools for its use. An excellent characteristics is that it contains OERs for topics in arts, applied sciences, mathematics, etc.

2 - Open Text Book Store

Useful for mathematics, simple, efficient site that offers an extensive catalogue of high quality and freely available mathematical textbooks. The website is created by educators who want to enable other educators to find good and freely available textbooks. Their catalogue contains information and rating of the editors.

3 - Learningpod

This website is made as a partnership between OpenStax and Kaplan. Learningpod is a collection of questions and is considered the largest in the world. The good thing is that many of the issues that are offered here are also contained in the textbooks and can be used well.

4 - Lumen Learning

This website offers free use of electronic textbooks fully supported by OERs.

5 - MIT Open Courseware Online Textbooks

If you want to learn more, then this site is the real one. It offers advanced level materials in the field of construction, aeronautics, etc.

6 - Saylor.org

This web site, like the one above, offers better literature with plenty of search filters and access to the desired content.

7 - College Open Textbooks

This site was created as a result of the cooperation of 29 educational units belonging to 200 colleges. It offers a huge list of OERs grouped according to school subjects.

All these different resources are suitable for any well-organized school in sense of methodology, course curriculum and practical learning. They can integrate e-learning and become accessible not only in the classroom, but also at any time and from any place.

5.1. Recommandations for the school in Sweden

The school in Sweden uses Vklass - the e-learning system; it has a license for all Adobe softwares (Premier Pro, Photoshop, audition and effects) and has the best hardware support. In addition, this school uses ISO - INTRO technologies and performs theoretical presentation of curricula. With the help of Skolfederation, an infrastructure is provided for collaboration between the school and the internet providers and an access to digital resources is facilitated, the privacy of users is protected and members are provided with best service. The open source software LMS Prezi is also used. SmartBoard software as a system for voting and moving and connecting words and images, as well as ABB Rob Studio, pascosystem is used in medical laboratories, robots are also used. Simulations are performed through Robotstudio, Programming PLC Logosoft, Simatic and Easyveep, Festo Fliudsim, Computer Based Machine Programming. The school uses CAD 3D animation software. (Стоянова Л., март 2016)

We came to the conclusion that the school in Sweden uses more technology than all the other members in the project, but they use the technology independently, each professor uses different technologies in the process of teaching and creating the OERs and thus does not share his knowledge and work with other colleagues.

Here it is recommended to systematize all good practices and to create a document or a wikipedia (website) with teachers' best experiences. Another recommendation is that the e-learning system should be used by all teachers in the school, their mutual cooperation in the system should be their priority and that they should share their OERs among them.

5.2. Recommandations for the school in Skopje

The school in Skopje for chat (chat tools) with the members and for sharing educational materials uses the social network (facebook.com), it also uses the Knowledge Management System (LMS) Moodle. In addition, it uses the SuperTeacherTools online game available at https: // www. superteachertools.us. A popular learning activity is Wikipedia. They use Autodesk, Autocad and Archicad computer design programs. (Стоянова Л., март 2016)

In this school, the Moodle platform is not sufficiently used and works mainly with PowerPoint presentations. There are blogs for specific subjects, but they are personally created by one or two teachers / professors. For the subject Macedonian language the teacher has created videos. According to the presentation, there is no evidence of using software in the educational process, but only a visual demonstration. However, some professors use some softwares such as Auto Cad for the subjects architecture, construction, and geodesy. There is a cooperation with national institutions such as the State Agency for Education and Professors from the University "Ss. Cyril and Methodius".

5.3. Recommandations for the school in Kavadarci

The school in Kavadarci uses the Moodle e-learning system (discussions, testing, forum), uses e-diary, e-testing system (with external testing questions), e-archive of data, e-library and provides Internet team work on Dropbox. Simulation is implemented through accounting software and YouTube. They use Prezi, GIMP and iTALC (for monitoring students' activities) during the course. Learning through games is implemented through troubleshooting games and online games. Popular learning activity is Wikipedia. (Стоянова Л., март 2016)

5.4. Recommandations for the school in Sofia, Bulgaria

The school in Sofia, Bulgaria uses Google Drive to share educational materials and also uses many other activities related to learning and assessment such as: playing games, simulation of life processes, virtual guide, tests / quizzes, problem solving projects, tasks and assessment. They use the e-learning platform to share materials with students, Prezi to present teaching materials, GeoGebra and WolframAlpha as mathematical softwares. (Стоянова Л., март 2016)

General impression by the school in Sofia is that the school has a variety of technologies that are not sufficiently used.

5.5. Action plan

During the third workshop in Shtip, the participants in this project discussed the use of OERs and e-learning in the education process, as well as the shortcomings they have. For this purpose, besides the given recommendations for each of them separately, a tabular overview with an action plan is made, which gives recommendations that should be applied in all the schools participating in the project.

Our action plan consists of two parts:

5.5.1.In the first part we define the main goals for successful implementation of the recommendations given for each school project participant

5.5.2. In the second part, we define the actions and initiatives that will help us achieve our goals

5.5.1. Main goals

Goal	Target group	Time frame	Recommendations
Имплементирање на препораките дадени за секое училиште учесник во проектот	School in Sweden	2 months	- systematization of all good practices and creation of a document or wikipedia with the best experiences of the professors. - teachers in the school should use the e-learning system more intensively in a joint work - teachers should get more engaged in the process of creating the OER and to involve the students in it - integrate resources from e-learning and OER in the classroom learning process - greater communication and cooperation between professors with related subjects
	School in Skopje	4 months	-e - learning platform should be used more intensively - intensive use of the courses created on the e-learning platform. - all teachers should be obliged to create electronic courses (at the same time training for professors and associates should be organized)
	School in Kavadarci	3 months	-intensifying of the process of creating OERs and their usage by both teachers and students; - integration of e-learning and OERs in the classroom learning process -cooperation with other schools; - cooperation with local and national institutions. - training for the teaching staff for creating e-resources and e-courses.
	School in Sofia	4 months	- this school has a large number of technologies that are not sufficiently used;

			- creating an e-learning platform; - creating courses on the e-learning platform; - intensifying of the process of creating OERs and their usage by both teachers and students; - integration of e-learning and OERs in the classroom learning process -cooperation with other schools; - cooperation with local and national institutions.

5.5.2. Actions and initiatives

Set action	Important tasks that are needed to accomplish the set action	Person in charge	Partner for consultations	Time frame	Control if the action is successfully completed
Implementation of the reccommendations in the school in Sweden	**Systematization of all good practices and creation of a document or wikipedia with the best experiences of the professors**. 1. analysis 2. creating a wikipedia 3. test phase and editing 4. release of official wikipedia and its maintenance **E-learning system, teachers in the school should use it more intensively and cooperate among them:** 1.intensive cooperation among professors and exchange of experiences 2. integration of the existing e-learning platform with existing world platforms for better communication with all national and regional schools and institutions.	Anders Sodergren	UGD – Zoran Zdravev	2 weeks 2 weeks 3 weeks 1 week	Third coordinative meeting
Implementation of the reccommendations in the school in Skopje	**The Moodle platform should be used intensively**: 1. creating courses for subjects that have not yet been created 2. more regular posting of teaching materials by professors	Dragica Kostadinovska	UGD – Zoran Zdravev	4 months	Fourth coordinative meeting

	3. regular checks by appointed person for setting appropriate and quality materials on the courses 4. carrying out surveys on the level of use of the platform by students 5. general evaluations after the implementation of 1,2,3 and 4. **Use of more softwares in the educational process** 1. installing the necessary educational software 2. training teachers to work with them 3. test phase and description of the results 4. implementation in the teaching process				
Implementation of the reccommendations in the school in Kavadarci	**It is recommended that they use several independent but useful learning tools**: 1. access to the tools listed 2. guidelines for teachers to use the indicated tools 3. implementation in the teaching process 4. international collaboration among professors at the level of experience exchange 5. adaptation of the already created – existing courses to the level of professional preparation (practice)	Nevenka Pop-Angelova	UGD – Zoran Zdravev	3 months	Fourth coordinative meeting
Implementation of the reccommendations in the school in Sofia	**Utilization of existing technologies :** 1. training of teachers to use the new technology that the school has 2. intensive use of technology in the teaching process by professors 3. evaluation of professors and students	Veselina Ivanova	UGD – Zoran Zdravev	4 months	Fourth coordinative meeting

	4. improvment of the existing e-learning courses (unification of content)				

6. Conclusion

One of the biggest advantages of using OERs is that it is represented in different formats, which allows personalization of the educational experience of each student. SoIn fact, they offer a variety of options for teachers and students, including quality of resources, videos, simulations, collaborations and developing project ideas, and many other possibilities. OERs offers a large number of materials with plenty of information in different forms, which can be tailored to each student depending on their needs, habits and ways of thinking.

The general conclusion that is obtained from this analysis for all school project participants is that they do not follow the new trends and technologies. Therefore, a general recommendation for all of them is to carry out continuous refreshment of the teachers with knowledge through various trainings, courses, independent upgrades, etc. The most important thing in the process of education and science is that there is no lag because the world goes on a daily basis and rapidly towards better future.

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