

## ADVANCES OF eBIG3 COURSE IMPLEMENTATION AND A VISION ON THE ePORTFOLIO SYSTEM POSSIBLE INTEGRATION

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**Abstract:** The paper presents advances in implementation of so-called eBig3 approach in open education. This approach could be imagined as a synergy of three key technology-enhanced learning elements: e-learning, mobile learning and TV-learning. Authors briefly describe this innovative learning method, emphasize the sequence of learners learning activities, and introduce first results, success factors and food for thought. The main aim of this project is the offering of open courses for the wide range of public, making them available by different means of technology, as well promoting of lifelong learning in the whole country and neighbouring states. The article also calls to think over possible ways to make presented system more effective and powerful. One of such extra instruments might be found in adding of reflection stimulating ePortfolio system which would lead education into really multidimensional direction to meet the needs and expectations of the target group in the best way.

**Keywords:** eBig3, ePortfolio, information system, competences, lifelong learning.

### Introduction

Lifelong learning challenges require new approaches to enhance acquiring, developing and regaining necessary competences for sustained involvement in knowledge society and world economy. Countries governments, municipalities and educational organisations are urged to “provide lifelong learning opportunities as close to learners as possible, in their own communities and supported through ICT-based facilities wherever appropriate” (Commission of the European Communities, 2000). Labour market demands elasticity and ability to reform in a case of sudden change, such as changing of job positions and responsibilities, new career opportunities and so on.

This leads also to the shifting of existing educational paradigms. Educators are asked to reload their thinking and find new ways to make learning open, mobile, effective and sustainable. New European Commission initiative „Open Education 2030” calls for these prospective visions and the Open Educational Resources (OER), as the one of key components, are proposed. OER have two main development issues to be solved: the quality, i.e. personalization of the courses and learners’ collaboration, on the one hand, and the efficiency, i.e. learning costs to students, which ought to be equal to nil, and an access, which ought to be open for wide public (Redecker, Castano, 2013). UNESCO in its 2012 Paris OER Declaration encourages educators to find new solutions and technologies, create user-friendly tools and systems which would help in OER development, placement and retrieval (UNESCO, 2012).

Fast growing technologies, new information systems and tools bring us new possibilities to implement educational policy documents. Adoption of existing learning technologies and introducing new methods can make educational process more effective (Reilly, 2013). Besides, we ought to keep in mind an issue of how to make all learning process more convenient and useful for the learners – starting from course joining procedures, continuing by learning activities, and ending with issuing of the course completion certificate.

The synergy of e-, t- and m- learning, incorporated into common information system, as well corresponding educational methods, may resolve the problem of learners’ attraction to the courses, increase efficiency, and promote lifelong learning. Next chapters of this paper provide first observations and analysis of new system implementation.

## Methodology

Introduced eBig3 approach is based on an idea that three key components of technology-enhanced learning ought to be integrated into a common system. It represents the synergy of e-learning including broad use of electronic media, Internet, information and communication technologies, etc. (Wikipedia, 2013), t-learning including the use of telecast and TV watching, and m-learning including the use of mobile devices. The eBig3 system's implementation includes several steps as follows (Fig.1):

1. The eBig3 learning process starts with the broadcasting of t-learning objects in a form of videos on Latvian National TV channel (LTV7);
2. Promo subtitles on the screen invites video viewer to learn more about particular theme and join the course by sending a text message to the eBig3 system;
3. If the viewer is interested in the material, he/she sends joining message to the system;
4. Shortly, the eBig3 system generates a reply message with joining instructions, providing to the student unique username and password;
5. The learner enters the course, learns provided e-learning objects, takes the tests and exercises, accomplishes homework assignments;
6. The system offers a possibility to acquire learning objects both through computers and mobile devices;
7. The eBig3 system sends various types of text messages to learner on the user's mobile phone to encourage the learner, remind about course activities, etc.;
8. Face-to-face meetings and seminars are organized at the initial and final stages of the course, as well – during the course. They are provided in three cities of the country with the aim to assist learners and explain them the most sophisticated issues;
9. Course certificate, as the award for the assiduity and advancement, is issued by Distance Education Study Centre, Riga Technical University if all course activities, i.e. tests and final assignments are completed. Learner's participation in the final seminar and his/her course-work final oral presentation is sine qua non.

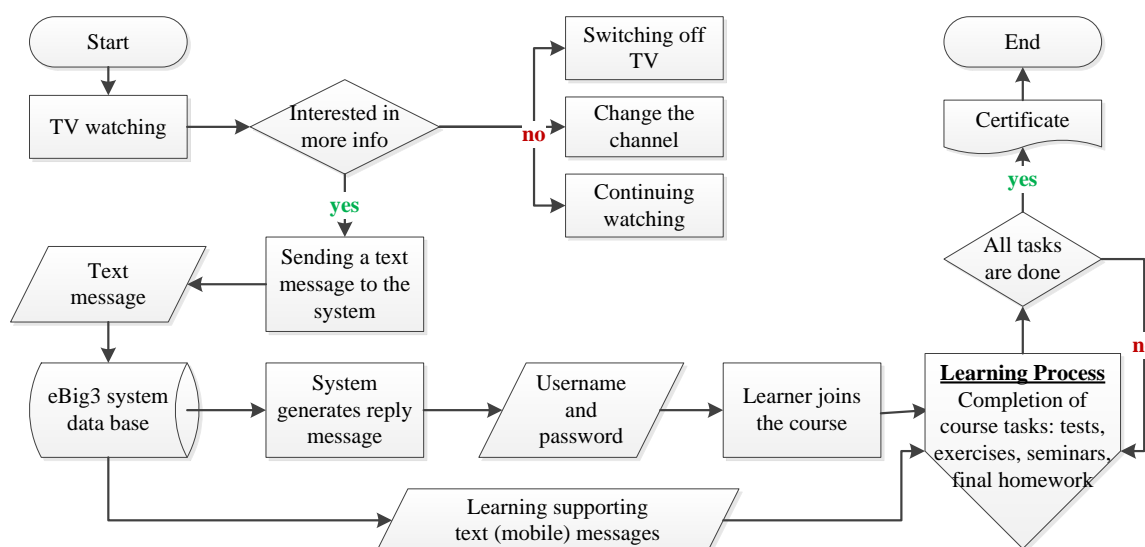


Figure 1. eBig3 system model

The system provides wide range of study support by means of onsite workshops, face-to-face meetings and consulting, where our intent is to give their participants as much useful information as we are able to do so in the most convenient and understandable way. Motivating, encouraging and reminding text

messaging instrument is integrated into the eBig3 system which allows maintaining students' interest in course themes and actions. Besides, communication tools are provided to make easier study group members communication within the course, for instance, e-mailing, discussion and topicality forums.

For an additional, questionnaire forms are developed to find out learners attitudes and thoughts about their learning experience, satisfaction level with eBig3 learning approach, and eBig3 system components' impact on study process and results. System users' activities are measured by the number of their log-files, mouse clicks, acquired themes, accomplished tasks, exercises, tests and final course work, as well attended onsite workshops.

## Results and discussion

The eBig3 course modules in Latvian and Lithuanian languages were published on the eBig3 study portal (<http://ebig3.eu/v2/>) in February, 2013 with first courses in Latvian: the course no.1 "Professional communication", no.3 "Business essentials" and no.5 "Information society and telework". Several other courses in both noted languages were offered in next months in March and April. Totally 20 courses in Latvian and Lithuanian were introduced by the end of May, 2013. All courses within the project were offered to everybody free of charge. This condition also applies on an issuance of the course certificate.

The telecast of eBig3 course themes on Latvian National Television was started in December, 2012, and consistently continued twice a month. During TV watching potential learners, interested in particular theme, were sending corresponding text messages to the system. After a while they received the course registration data and joining instructions on their mobile phones.



Figure 2. eBig3 learning portal

After that learners came to the eBig3 portal and started the studies by pushing the entering button (in Fig.2 – "IEIET KURSĀ") where afterwards system user's authentication and identification process was finalised. The eBig3 portal main page offers also to look at the full list of offered courses (in Fig.2 – "KURSU SARAKSTS"), application procedures for the courses (in Fig.2 – "KĀ PIETEIKTIES EBIG3 KURSĀ?"), frequently asked questions (in Fig.2 – "BIEŽĀK UZDOTIE JAUTĀJUMI"), information about the project and project partners (in Fig.2 – "PAR PROJEKTU" and "PROJECT PARTNERS"), as well contacts list (in Fig.2 – "KONTAKTI"). Introduction video is provided on the portal's main page. Course materials are available in m-learning form by integrating QR codes within course modules.

To examine an issue of the eBig3 system learners' engagement into learning process, students' course attendance data, by means of log-files, and their learning activities, by means of mouse clicks, were recorded and analysed. Table 1 shows learners activities in the first two of three opened courses starting from early February, 2013. The influence of just viewed videos, as well colleagues' and

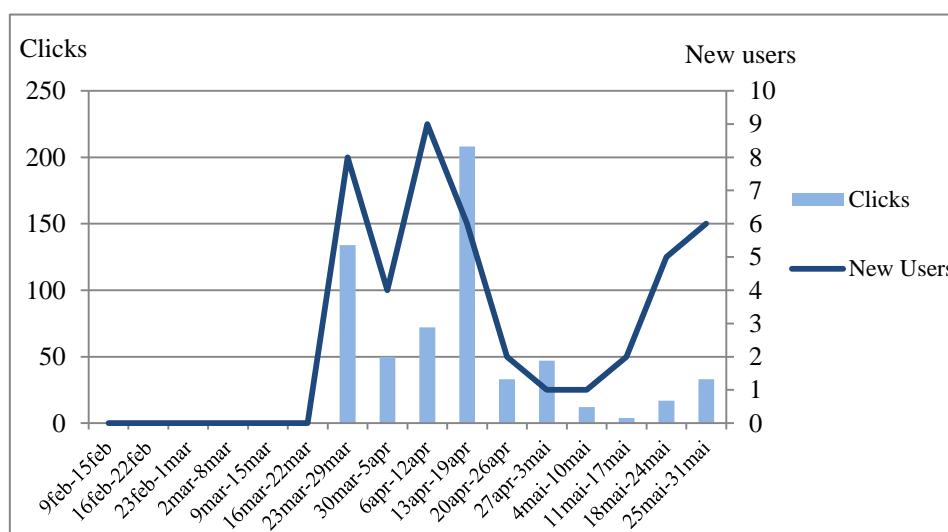
friends' suggestions has led to rather high learners activities within direct after-telecast period, advertising campaign and publicity measures in different organisations. In addition to all the foregoing, the text-messaging tool, embedded into the system, allowed retaining students' interest in their studied topics. This might be an essential issue which is also proved by system users' responses on the system's call for activities and students' answers in filled-in questionnaires.

Table 1

**eBig3 users activities in courses No.1 and 3 till end of May, 2013**

Week	Dates	Course No.1				Course No.3			
		Clicks	Previous cumulative clicks	New Users	Total Users	Clicks	Previous cumulative clicks	New Users	Total Users
1	9feb-15feb	214	214	29	29	1307	1307	30	30
2	16feb-22feb	104	318	24	53	1172	2479	34	64
3	23feb-1mar	145	463	16	69	841	3320	15	79
4	2mar-8mar	56	519	5	74	1480	4800	10	89
5	9mar-15mar	34	553	5	79	703	5503	6	95
6	16mar-22mar	159	712	13	92	1008	6511	10	105
7	23mar-29mar	149	861	2	94	317	6828	5	110
8	30mar-5apr	128	989	7	101	486	7314	6	116
9	6apr-12apr	588	1577	16	117	497	7811	17	133
10	13apr-19apr	826	2403	10	127	1221	9032	3	136
11	20apr-26apr	395	2798	5	132	881	9913	2	138
12	27apr-3mai	181	2979	3	135	66	9979	2	140
13	4mai-10mai	154	3133	3	138	62	10041	2	142
14	11mai-17mai	345	3478	3	141	288	10329	2	144
15	18mai-24mai	256	3734	9	150	424	10753	9	153
16	25mai-31mai	318	4052	3	153	144	10897	3	156
	Total	4052		153		10897		156	

Totally 153 students have joined the course no.1, 156 students – course no.3 and 54 students – course no.5. In later period courses learners' activities vary and the number of enlisted course participants differs from 39 to 116 depending on course attraction, telecast recurrence and other factors.

Figure 3. New users and their clicks per week in the 17<sup>th</sup> course

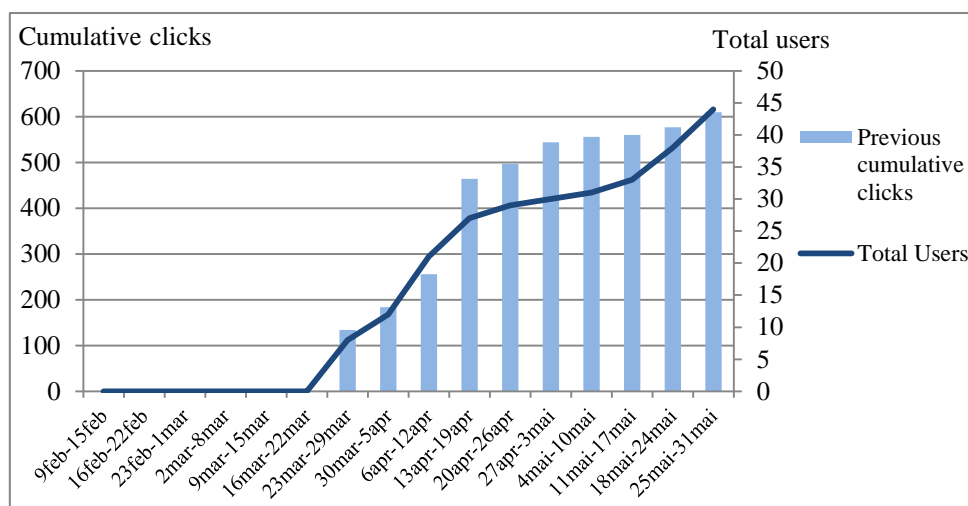


Figure 4. Cumulative clicks and total users of the 17th course

For example, in the 17th course “23 Things for Business Beginners” we can observe abovementioned tendency with new learners’ involvement (Fig.3) and all students’ engagement (Fig.4) during period of first ten weeks. We have direct positive correlations between mouse clicks and new users’ enrolment, on the one hand, and previous cumulative mouse clicks and total number of engaged users, on the other hand. System’s SMSs warned users about upcoming onsite workshops and activities, encouraged students to acquire new course themes. This stimulated the growth of the number of course participants. It might be said that system’s text messaging tool has also had an important role in users’ retention.

Regarding noted the 17<sup>th</sup> course it ought to be marked that this course was opened for learners at the end of March, 2013. Till the end of May, 2013, totally we have had 79 system registered users, including 16 project and teaching staff members – thus, in reality we have got 63 non-project involved members data. From them in the first five weeks period there were 26 registered users and in the 2nd one – 37 registered users, i.e. despite on some relative decrease we had about 42 per cent growth in the last observed period. These numbers are related to all registered participants, even those who never made any click within the system. They do not match with the numbers in Fig.3 and Fig.4 which, in their turn, display only those users who have made at least one click within the course. 18 registered applicants had never accessed the course activities. Therefore, only 45 participants’ data should be considered as valid ones. These characteristics push us to analyse what ought to be done to stimulate learners activities and achieve better engaging results.

Till the end of May, 2013, there were nine onsite workshops / face-to-face seminars for courses in Latvian in three cities: Riga, Liepaja and Daugavpils, and three more – in June, 2013. Course participants’ geographical belonging was rather wide, although, the majority of learners came from Riga, the capital of Latvian Republic. For instance, in the 17<sup>th</sup> course 70 registered users were Riga citizens, and only 9 others represented 6 other cities of Latvia.

During the first visiting session in Daugavpils University there was organised learners inquiry about their thoughts, feelings and satisfaction level of eBig3 learning experience. Fifteen respondents filled in their questionnaires. In some questionnaires’ items learners did not mark their choice. However, majority of them underlined (Fig.5) that they did like the synergy of technology enhanced learning and the way, in which they were able to join the course and were informed about course activities.

First months of eBig3 system implementation and preliminary data analysis shows excellent results. People are ready to adapt introduced new learning method in the mode of synergy of e-, t-, and m-learning. This approach ensures mobility and links up persons hobbies and leisure in own lounge with personal competence development. The system promotes lifelong learning and makes available it to anybody, anytime, anywhere.

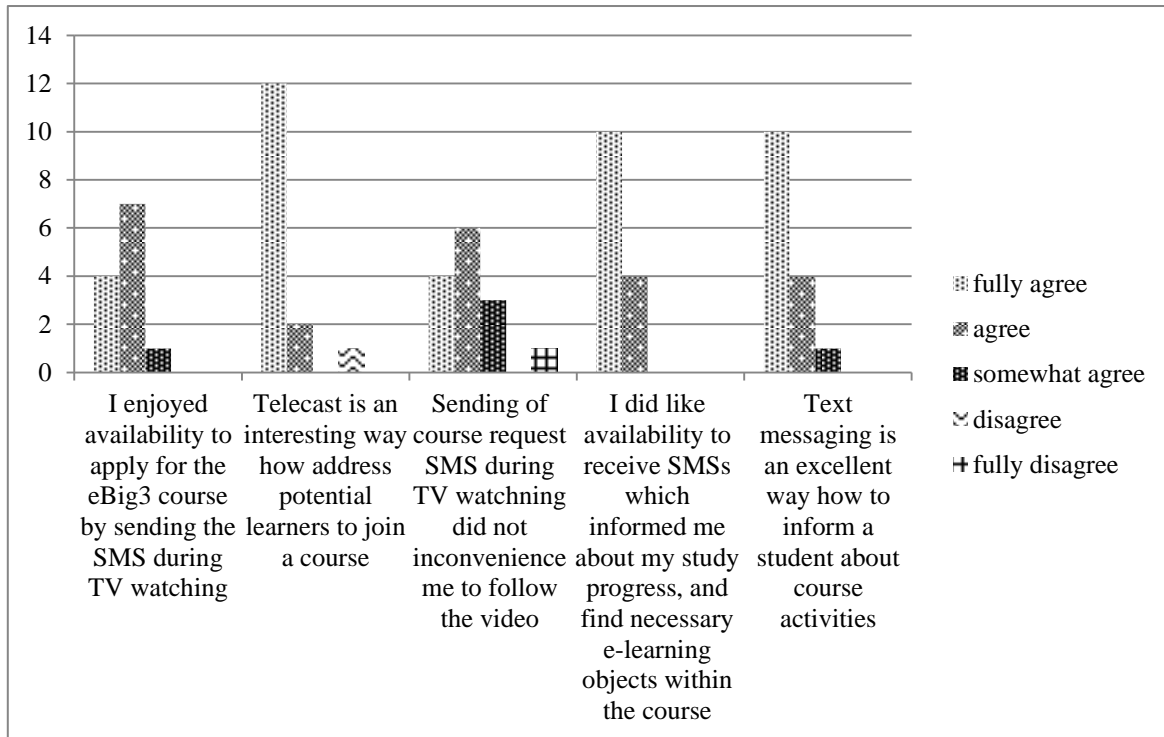


Figure 5. Users' eBig3 learning experience survey

At the same time, despite shown success, we ought to think about necessary improvements to make the system more effective. As a possible further solution the integration into eBig3 system of collaborative and reflection stimulating tools in the form of ePortfolios might be considered. Testing of experimental ePortfolio system in Living Lab conditions at the Riga Technical University in years 2011-2013 (Gorbunovs & Kapenieks, 2012, 2013) showed direct positive correlations between learners' activities within ePortfolio system and achieved competence levels. ePortfolio system group participants were asked to assess their group members accomplishments and make appropriate suggestions for improvement. Working in groups and gradually developing their course works, system users gained useful support and made better progress. Those learners, who took part in all group-working activities within ePortfolios, achieved 1,45 times better exam results rather than students who ignored collaborative ePortfolio system environment. The most active ePortfolio system users made 9,13 times more improvements in comparison with students who did not use the system. Figure 6 illustrates the impact of ePortfolio system on students' learning outcomes, their critical thinking and reflection abilities (Gorbunovs, Kapenieks & Kudina, 2013).

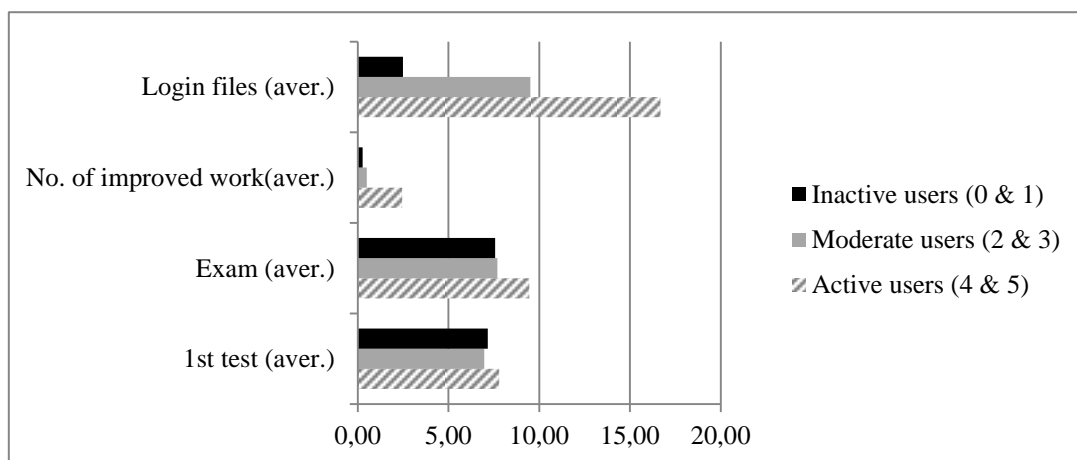


Figure 6. Users' achievements depending on their activities within ePortfolio system

Proposed learning method might be enriched by adding to the eBig3 system of extra potentialities what can render collaborative and assessment instruments in a form of ePortfolio system. In that case ePortfolio group formation issue will have to be solved – as we stand for broad range of potential learners living in different districts of the country, the group formation by territorial principle looks tempting one; on the other hand, we declare learning anywhere principle which could be implemented by active participation in group-working remotely, despite the distance between group members. Web 2.0 tools might help there.

Activities within ePortfolio system are inwrought also with action research. Learners within established groups are encouraged to work in close cooperation with other group members, “act creatively in in the face of practical and often pressing issues” (Reason, Bradbury, 2011). This means that engaging critical thinking and reflection stimulating instruments further might improve overall eBig3 system’s efficiency.

## Conclusions

Course distribution through eBig3 system shows good results in learners’ engagement into knowledge acquisition process and achievement of lifelong learning goals. Majority of involved learners emphasized successful synergy of different kinds of technology, useful tools and overall expedient implementation of this system.

An availability of joining the course, which is taken a shine exactly at the moment of TV watching, looks great. Potential learners can apply for the course just by sending the text message on the phone number shown on the TV screen.

Course application procedures’ simplicity and their openness for wide public make the courses placed within the eBig3 system as the real MOOCs (Massive Open Online Courses). Thousands of people can use the system simultaneously from different locations. Although, the system’s text-messaging tool should be improved to tide over the business of sending reply messages with the course registration instructions if the system receives hundreds and thousands joining requests in concurrent, almost the same, time.

Provision of onsite workshops and face-to-face meetings is still controversial. On the one hand, this helps tutors to stay maintain contact with learners, and students – to receive the answers on unclear course topics and necessary assistance, on the other hand, we ought to consider Web 2.0 tools to solve a problem and reduce project expenses.

Further eBig3 system enrichment by other tools may make its work more effective. This issue will be considered in later studies which could lead in development and adding to the system of reflective ePortfolio instrument to improve learning outcomes and enhance system users’ competence development. Such ePortfolios ought to be considered also as the helpful tool which could allow tutors to give more attention to the most complicated problems, sophisticated issues and individual consulting.

## Bibliography

1. Commission of the European Communities. (2000). *A Memorandum on Lifelong Learning*. Brussels, 30.10.2000 SEC(2000) 1832, pp.36.
2. Gorbunovs A., Kapenieks A. (2012). Competences Development Process Recording for Multi-Competence e-Course. *Proceedings of the International Scientific Conference “Society, Integration, Education.”. Volume I: School Pedagogy, Higher Educational Institutions Pedagogy, Lifelong Learning*. 25-26 May, 2012, Rezekne, pp. 261-272, ISSN: 1691-5887.
3. Gorbunovs A., Kapenieks A. (2013). An Effect of ePortfolio System on Competence Improvement at the Different Stages of the Course. *Proceedings of the 6-th International Scientific Conference REEP-2013: „Rural Environment. Education. Personality”*, Volume 6. 20-21 March, 2013. Jelgava: LLU, Institute of Education and Home Economics, pp. 200-206, ISBN: 978-9984-48-079-4, ISSN: 2255-8071.

4. Gorbunovs A., Kapenieks A., Kudina I. (2013). Advancement of e-portfolio system to improve competence levels. *Proceedings of the International Scientific Conference "Society, Integration, Education."* Volume I, 24-25 May, 2013, Rezekne, pp. 61-72, ISSN: 1691-5887.
5. Kapenieks K. (2013). *eBig3 system portal*. [online] [07.06.2013]. Available at: <http://ebig3.eu/v2/>
6. Redecker C., Castano J. (2013). *European Commission Call for Visionary Papers on the Future of Open Education*. [online] [25.03.2013]. Available at <http://blogs.ec.europa.eu/openeducation2030/>
7. Reason P., Bradbury H. (2011). *The SAGE Handbook of Action Research: Introduction*. Daugavpils University: Sage Publications, Inc., pp.16.
8. Reilly, R. (2013). What Is: Pedagogy, Education, Intelligence, Knowledge, Learning, Teaching, Information, etc. and Why Do We Care about What They Are, and How Do They Interact? *Keynote at the 5th International Conference on Computer Supported Education CSEDU-2013*, Aachen, Germany.
9. UNESCO. (2012). *2012 Paris OER Declaration*. [online] [19.07.2013]. Available at [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/English\\_Paris\\_OER\\_Declaration.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/English_Paris_OER_Declaration.pdf)
10. Wikipedia. (2013). *E-learning definition*. [online] [13.07.2013]. Available at <http://en.wikipedia.org/wiki/E-learning>