Implementation of ePortfolios in Lower Secondary Schools. Experiences in the Framework of the Project *EUfolio. EU classroom ePortfolios* with a Focus on Teacher Training

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ABSTRACT

ePortfolios can be valuable means for documenting and assessing competency oriented learning. However, like any kind of innovation introduced to an educational system, the implementation of ePortfolios in a school context depends on thoughtful preparations. The project *EUfolio. EU classroom ePortfolios* (May 2013-April 2015) aimed at implementing ePortfolios in lower secondary schools in Cyprus, Ireland, Lithuania, Slovenia and Spain. To start the implementation, definitions and a needs analysis were carried out. Stakeholders - especially principals and teachers - had to be briefed and trained in order to understand the ePortfolio process. The consortium of the project recommended a teacher-centered implementation of ePortfolios to the pilot schools. Well prepared teachers have developed projects and/or teaching methods involving ePortfolios in the curriculum and - in turn - put the students in the center of their teaching. The fact that teachers had full support on policy, institutional, and technical level as well as ongoing CPD support helped to make the implementation successful.

INTRODUCTION

Starting with the Bologna processes, the development of competencies gets more and more important for learning and teaching. This has consequences for role of the teacher in class, for the design of learning scenarios, and also for assessment: Teaching has to include more and more the development of students' competencies. This means that that the teaching process has to be more learner-oriented with a stronger focus on the students' developing mental or physical artefacts (see Bereiter, 2002). This implicates that they have to be documented and assessed in a different way. Particularly formative assessment procedures are able to support the development aspect in a learner-centered way. ePortfolios can be seen as one way to document students' gain in competencies and therefore also as a driver for introducing competency oriented learning in the classroom. This paper can be seen as a practice report in this field. It will describe exemplarily issues for the implementation of ePortfolios in lower secondary and emphasize experiences and helpful practices made in the project *EUfolio*. Thereby, it aims to inspire teachers, principals and school authorities to

think about implementing ePortfolios in school and to support their implementation endeavors by experiences and helpful practices gained by the project EUfolio.

STEPS TO EPORTFOLIO-BASED TEACHING AND LEARNING

The aim of the project *EUfolio (EU Classroom ePortfolios,* 2013-2015) was to design and test ePortfolio models in order to inform and support the implementation of ePortfolios for competency-based teaching and learning. The project offered the possibility for lower secondary schools in Cyprus, Ireland, Lithuania, Slovenia, and Spain to work with an Open Source portfolio platform (Mahara) and an ePortfolio solution by Microsoft, basing on Office 365. However, the schools had to be made acquainted first with the ideas behind ePortfolio teaching and learning.

The project developed a functional specification (Herber & Ghoneim 2013) and a process specification (Ghoneim & Herber 2013) for ePortfolio implementation. Basing on their recommendations the partners of EUfolio decided to base the implementation of ePortfolios in lower secondary classrooms on JISCs "Six steps to e-portfolio-based learning" (JISC 2008: 36-37):

1. Definition of "ePortfolio" as well as the purpose and objectives of the ePortfolio initiative
2. Understanding common aims on the basis of a needs analysis and the impact on pedagogical and institutional practices
3. Preparation of implementation by the above mentioned specifications, a basic focus and train-the-trainer workshops.
4. Engaging of teachers and learners - as the main stakeholders of the implementation process - took place via teacher trainings as well as information meetings and by offering constant mentoring and support.
5. During the pilot implementations, evaluation took place via focus group interviews and - in a less standardised manner - via feedbacks that were obtained in mentoring sessions and discussions with key teachers at consortium's meetings
6. The review of the outcomes can be found at the EUfolio website (http://eufolio.eu) and in the *EUfolio Pilot Evaluation Results* (Avaamidou & Economou 2015). Results were presented at an "ePortfolio International Conference" in Dublin on April 22, 2015. However, this paper itself may be seen as part of the reviewing process as it reflects parts of the outcomes.

1. In the following, we will elaborate more on these six steps as they are the essence of ePortfolio implementations.

Definitions and Understanding of Common Aims

The background for the project were several policy efforts in the project partner countries. In particular, this relates to a curriculum reform planned in Cyprus, for which the ePortfolio should be tested and taken into consideration, to the Junior Cycle reform programme -

explicitly connected to ePortfolios - underway in Ireland, and to the plan of Slovenia to extend the use of a teacher's portfolio to "the use of ePortfolio in teaching as a self-regulation tool and as a tool for formative assessment" (Ghoneim & Herber 2013, p.6). Based on these efforts, the project offered the chance to a large scale implementation in different countries that facilitated the exchange of approaches and results on an international basis.

Given this situation, a basic task of the EUfolio project was to find an ePortfolio definition, on which the whole consortium could base both implementation and outcomes. While in the beginning of the project a standard definition of Hornung-Prähauser et al. (2007) was used for the EUfolio Process Specification and one of Abrami & Barrett (2005, p.2) is quoted in the EUfolio Trainer's Booklet (Avraamidou & Economou, 2013), the consortium agreed after a range of discussions on using an own definition with a focus on lower secondary school teaching, basing on the one of the Irish National Council for Curriculum and Assessment (2013). The EUfolio definition reads as follows:

"ePortfolios are (student-owned) dynamic digital workspaces whereby students can capture their learning, their ideas, access their collections of work, reflect on their learning, share it, set goals, seek feedback and showcase their learning and achievements." (EUfolio. ePortfolio Process Specification. Extended Summary, 2015)

With "digital workspace" reference was given to the ePortfolio as a storage area, but it also refers to the ePortfolio as a digital environment for learning that implies active learning. It was important to point (as in most standard definitions) to the fact that the ePortfolio is owned by the student who created it - so s/he has the complete control over file management, what to share with whom, which views and/or artefacts to hand in to the teacher etc.

The discussion proved to be helpful in elaborating a common understanding, but also in order to reflect parts of the ePortfolio process. Even though ePortfolios are controlled by the owners, this doesn't mean that students would not be proud to share selected learning products and/or reflections with peers, their teacher, and/or a wider audience - even the World Wide Web.

Preparation, Trainings and Support

Preparing for the implementation meant to lay the ground for both competence-oriented teaching and learning and the changing role of the teacher within ePortfolio based teaching. To ensure a good basis for the implementation of ePortfolios, it was decided to provide special Train-the-Trainer workshops. One of these started during the EUfolio partner meeting in Krems in October 2013 and provided an environment set up on the ePortfolio platform http://mahara.eufolio.eu accompanied by a trainers' booklet (Avraamidou & Economou 2013). The train-the-trainer workshops were followed by distributed teacher trainings in each piloting country.

Developing Skills and Competences

Similar to the definition process, most of the EUfolio partners already had chosen frameworks of competences and skills which served as basis for the work at schools in their countries. However, Vogt and Roblin (2010) show that *collaboration*, *communication* and *ICT skills* as well as "*citizenship*" - a concept comprising social and cultural skills - are mentioned in all frameworks. Most frameworks also mention *creativity*, *critical thinking* and *problem solving*. A further skill of equal importance to all EUfolio partner's curricular interests is *learning to learn*, one of the key competences of the framework of the European Communities (2007) and a basis for lifelong learning. This means that the project could rely on a broad background of shared aspects of interest.

The ePortfolio Process

Based on this, the EUfolio consortium focused its efforts on the description and specification of the ePortfolio process as an application of the process model of Himpsl-Gutermann (2012, p.262). Following this model, the *context definition* is the starting point for the work with ePortfolios in the classroom. It clarifies the aim and the context of ePortfolio work, which should be elaborated by the teachers in cooperation with the students. Following this step, the learner produces and/or collects learning products (artefacts), which are selected and reflected autonomously by the student. The ePortfolio platform is the environment where the student can contextualise her/his learning products and reflections in a *design process*. A preliminary product - usually a view or a collection - can and should be *feedback*ed by peers (or by the teacher). After this, an evaluation of the feedback leads to the process of *re-design*. The result (usually an ePortfolio page or collection) can be shown in a presentation before the *final submission* to the class teacher or another assessment authority.

According to the Himpsl-Gutermann-model, the *context definition* in the beginning of the educational process and the *final submission* are the activities within the core process which are elaborated by the learner together with the teacher. The *feedback-phase* in the middle of the ePortfolio process is also an interactive activity, while the *design* and *redesign* phases are creative and/or reflective work done by the learner on her/his own (Himpsl-Gutermann 2012, p.260-268).

Changing Role of Teacher and Learner

The introduction of ePortfolios has also consequences for the role of the teachers: the traditional role of the teacher was to transfer knowledge and to motivate (or force) the students to know and to remember what was transferred to him her by memorization and rehearsal. In contemporary teaching, this role of the teacher already has been - at least partially - replaced by the role of the teacher as a tutor. The tutoring teacher trains the student to acquire procedural knowledge ("know-how") and helps the learner to develop skills and abilities by doing and practicing. The tutor's main role is besides helping to observe the learning process and to demonstrate the students the tasks s/he should carry out. When working with ePortfolios towards 21st century skills, the teacher becomes a coach (or rather: mentor) as well. As such s/he supports the student in acquiring practice in complex and social situations. By realising adequate action strategies, the student

cooperates with the teacher with the goal of mastering collaboratively developed learning targets. (Baumgartner 2004, p.6)

As this means for the teacher on the one hand a loss of control over the students' activities and on the other hand a change in the teaching preparations s/he needs support in order to get acquainted with her/his new role.

Review of Outcomes

The review of outcomes was done by data collection, basing on a toolkit (Avraamidou & Economou, 2015b), including pre- and post-questionnaires and focus group interviews with project stakeholders. The documentation of project results led the project consortium to identify 10 steps to the successful ePortfolio implementation, which are published in EUfolio's ePortfolio Implementation Guide for Policymakers and Practitioners (2015, p. 22 and 26f). The 10 steps are basically detailing the abovementioned 6-steps-model of JISC. In the following, we will describe some core aspects and experiences.

EUFOLIO EXPERIENCES

Training and Mentoring as Basis for Implementation

After having participated in a series of core training activities (see above), the EUfolio partner countries followed a training and support scheme basing on their teachers' needs.

In order to constantly optimise the way ePortfolios are implemented, an ongoing monitoring process took place. At the end of the pilot implementation results were reviewed. The results of this review will inform future implementations. They are documented in EUfolio's ePortfolio Implementation Guide for Policymakers and Practitioners (2015).

In the reviews, teachers emphasized the importance of "appropriate preparation for teachers and students through practical professional development and training prior to implementation, and sound ongoing pedagogical and technological support during the implementation process." (EUfolio. ePortfolio Implementation Guide 2015, p. 24)

Impact of ePortfolio(s) on Teaching and Learning

Anastasia Economou reports in a workshop on EUfolio experiences of Cyprus that the ePortfolio implementations had an impact on the teachers' learning design process resulting in modifications of the learning designs with a shift in the distribution of activities and on students' engagement and motivation. Among the keys to success was the setting of learning goals and the individual students' assessment. The ePortfolio also has facilitated new ways of feedback and reflection. (Economou 2014, 17:45ff)

Indeed,

"teachers who participated in the EUfolio project reported a change in the way they planned and designed their lessons. Although some teachers stated the integration of a platform to accommodate their students' ePortfolio development did not require them to change their teaching methodologies, the majority of the teachers needed to take several factors that affected their teaching into consideration. These factors include:

• learning design modifications

• planning and design of their lessons

• providing feedback out-of-school time

• multimedia management

• interactivity and clarity

• sharing of learning goals with students."

(EUfolio ePortfolio Implementation Guide 2015)

EUfolio partners from Cyprus, Slovenia and Ireland also placed a focus on their trainings on formative assessment (assessment for learning). In order to make assessment for learning more visible in the ePortfolios, a plugin, "My Learning" was used at the Mahara platform. This plugin, developed by Gregor Anzelj, was used by a range of teachers themselves first for their developmental ePortfolios. (Rupnik Vec & Novak 2015)

It helps students to learn in a self-regulated way, starting with analysing their prior knowledge, plan their learning goals, plan strategies to reach these goals (assisted by their teacher), collect learning evidence and evaluate the outcomes by reflection and self-evaluation. A student's testimonial shows, that he is convinced that this assessment methods does not only help him in his studies, but also will help him further on, whenever he is facing a challenge (Makriyiannis 2015, 2:38ff).

The pilot evaluation shows that ePortfolios did not only considerably enhance student's ICT skills, they also contributed to their abilities in creative and critical thinking (including information literacy), their reflexive activities in learning, their skills in organization and self-assessment and a range of related skills. (Avraamidou & Economou 2015a, p.6f and Economou & Avraamidou 2015, p.6-10, cf. also Ertl & Ghoneim 2015)

A CASE STUDY

As the EUfolio partner countries had different previous knowledge/skills before the start of the pilot, they followed individual training and support schmenes for their teachers. All implementations are summarized in Country Reports, called "Case Studies", available online at http://eufolio-resources.eu/school-unit/case-studies/. The varied approaches can serve as examples for schools/teachers interested in implementing ePortfolio teaching in their classrooms.

Teacher CPD and ePortfolio Implementation in Slovenia

In Slovenia, schools and teacher trainers of the National Educational Institute (NEI) were able to base their trainings on a preceding national project, named eSchooling. In the framework of this project, a first CPD Seminar was developed, named "E-Portfolio of a Teacher". (EUfolio - Slovenia Report 2015, p.1f)

Slovenia started the initial training for teachers and schools participating in the EUfolio pilot already in May 2013. Implementations were done in school years 2013/2014 (phase 1) and 2014/15 (phase 2).

"During second and third phase NEI staff continuously supported EUfolio teachers with centrally or regionally organized workshops and so-called reflective meetings (with NEI counselor on particular school).

In sum, NEI staff organized:
- Seminars and workshops: 21 (different themes: 1) ePortfolio as a tool for supporting skills (creativity, working with resources, critical thinking, communication and cooperation); 2) ePortfolio and formative assessment; 3) ePortfolio as a tool – different functions)
- Reflective meetings (NEI counselor visits PT on school): 105 (7/school)
- Central meetings (including middle and final conference): 5"

2. (EUfolio - Slovenia Report 2015, p.3)

In a pre-implementation seminar, one of the aims was to help teachers to create a developmental ePortfolio. "this initial seminar was based on the assumption that teacher's experience in creating his or her own e-portfolio would be very helpful in his grasping the essence of the developmental e-portfolio as well as some other background theoretical concepts (for example, assessment for learning, self- reflection and self-regulation skills), and, later on, in planning, teaching and designing learning activities for their students." (EUfolio - Slovenia Report 2015, p.3). The duration of the seminar was 24 hours, half of which were on site, while the other half was done online. (ibid.)

During this seminar, teachers got acquainted to different concepts of ePortfolio, including the developmental ePortfolio. The platform Mahara was the other focus of the seminar. As the learning design for the seminar shows, building the ePortfolio was focusing on a self-reflection phase, followed by the articulation of visions and goals. Via a Forum (also on Mahara) teachers had the chance to learn from each other. Then, teachers went into planning the use of ePortfolios in their classrooms. Finally a collaborative reflection phase was used for "Exchange of experiences in creating a personal e- portfolio, exchange of ideas about using e-portfolio as a teaching/self-assessment/self-reflection tool for children, mutual critical friendship and discussion about students' e-portfolio implementation plans." (EUfolio - Slovenia Report 2015, p.4f)

Learning Design and Teaching Portfolio for "Writing a Book Review"

As ePortfolios are owned by their creators, it is up to the one who made it to determine the level of privacy. Only few ePortfolios or parts thereof were made accessible to the public. One of these examples is a view of the teaching ePortfolio of Petra Mikeln, an English teacher at the school Polje in Ljubljana. (Mikeln 2014) She did first a learning design as

proposed in the EUfolio trainer booklet (Avraamidou & Economou 2013) for one cycle of lessons around the task "Writing a book review", mainly for English as a foreign language teaching (Mikeln 2015, see also Fig. 1.)

Subject	English
Learning Design Title	WRITING A BOOK REVIEW
Year group	Grade 9 (average age: 14–15 years)
Language	English + mother tongue
Duration	1 cycle (6–8 45-minute lessons: 2–3 in the computer room, others in the classroom + home study - reading a book and writing a review) – lessons should not be consecutive, enough time should be allowed for students to read a book and write a review.
Goals	Students: · develop reading skills and improve their reading comprehension; · know the characteristics of a good book review and can write one; · develop the skill of planning and evaluating their own work.
Concise description of the content	The aim of the cycle: each student reads a book in English and then writes a review, thus improving their reading and writing skills, while at the same time constantly reflecting on their work. After a lead-in into the cycle (a questionnaire about reading habits and creating memes), students discuss success criteria for writing a book review. Having set the criteria, students then set their goals and write their learning plans (*'my learning'* tab in Mahara). Then they start to read the book each of them has chosen, and at the same time fill out a reading diary and regulate their work and improvement. In the meantime they get familiarized with the structure of a book review and learn useful phrases and vocabulary during English lessons. When they finish reading, they write their book reviews, create a cover or an ad for it and publish both as a page/view in Mahara. At the end they reflect on their work by filling out a questionnaire.
Keywords	reading skills, writing skills, book review
Methodology	Students worked as a group and individually.

Figure 1:   Part of Learning Design of Petra Mikeln for "writing a book review" (Mikeln 2015)

Following the design phase, Mikeln set up a teaching portfolio view on Mahara (Mikeln 2014, see also Fig.2):
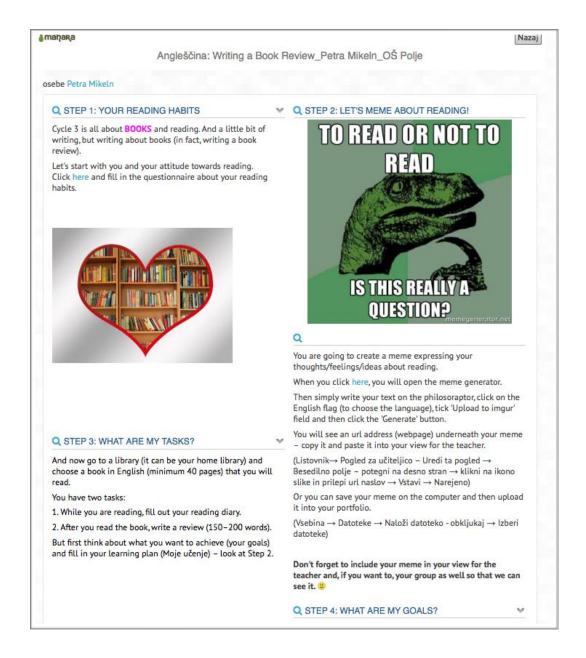
Figure 2: Teaching Portfolio view for "Writing a book review", addressing the students (Mikeln 2014)

In the view, partly shown above, Mikeln invites the students to follow 7 steps to read a book and arrive at writing a review and showcase it in an ePortfolio view.

She starts and finishes the teaching cycle with questionaires in order to help students to self-reflect. Questionnaires were set up in Google docs and are also available publicly, clicking on the links provided in the portfolio view shown above. (Mikeln 2014)

In order to exploit the possibility to include artefacts in the ePortfolios that are created with different online tools, Mikeln places a Meme in her teaching Portfolio view and encouages the students to make one, as well (step 2, ibid.). In step 4, students are guided through the Mahara Plugin "My Learning" (ibid. + Fig. 3).
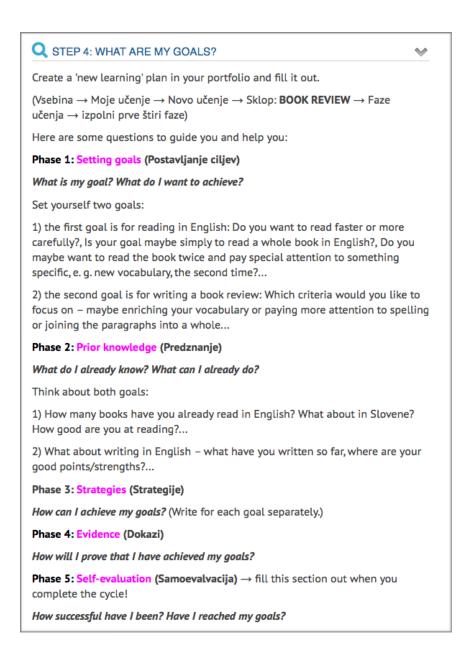

Q STEP 4: WHAT ARE MY GOALS?   ⌄

Create a 'new learning' plan in your portfolio and fill it out.

(Vsebina → Moje učenje → Novo učenje → Sklop: **BOOK REVIEW** → Faze učenja → izpolni prve štiri faze)

Here are some questions to guide you and help you:

Phase 1: Setting goals (Postavljanje ciljev)

What is my goal? What do I want to achieve?

Set yourself two goals:

1) the first goal is for reading in English: Do you want to read faster or more carefully?, Is your goal maybe simply to read a whole book in English?, Do you maybe want to read the book twice and pay special attention to something specific, e. g. new vocabulary, the second time?...

2) the second goal is for writing a book review: Which criteria would you like to focus on – maybe enriching your vocabulary or paying more attention to spelling or joining the paragraphs into a whole...

Phase 2: Prior knowledge (Predznanje)

What do I already know? What can I already do?

Think about both goals:

1) How many books have you already read in English? What about in Slovene? How good are you at reading?...

2) What about writing in English – what have you written so far, where are your good points/strengths?...

Phase 3: Strategies (Strategije)

How can I achieve my goals? (Write for each goal separately.)

Phase 4: Evidence (Dokazi)

How will I prove that I have achieved my goals?

Phase 5: Self-evaluation (Samoevalvacija) → fill this section out when you complete the cycle!

How successful have I been? Have I reached my goals?

Figure 3: Guiding Students through the "Learning Plan", done with the Mahara plugin "My Learning" (Mikeln 2014)

Documentation and Analysis of the Teaching and Learning Experience

Step 8 of Mikeln's learning cycle is the self-evaluation in order to reflect and to evaluate, whether and how learning goals have been met. In Mikeln (2015) an example of "My learning", filled in by a student, is given (Fig. 4):

APPENDIX 2

Example of a student's learning plan – Book review

Postavljanje ciljev
What is my goal? What do I want to achieve?
  My goal is to read faster and understeand more.
  I want to write a good book review. I don't want to tell too much in it and really focus
  on the content..

Predznanje
What do I already know? What can I already do?
  I don't read much in Slovene. I have read a couple of books in English but they were not
  as long as that one. But I do read news aboutShowjumping in English every day.
  I'm not writing in English a lot. I only write in English iat school.

Strategije
How can I achieve my goals?
  I can achive them by reading a book carefully and by considering what I have said to
  myself to do.
  I can read some other book reviews to see how to do it and then do my best at writting.

Dokazi
How will I prove that I have achieved my goals?
  By knowing some new words and understeanding the story.
  By getting a good grade and being satisfied with my work.

Samoevalvacija
How successful have I been? Have I reached my goals?
  I did understeand a story and get to knew few words.
  I don't know yet.

Figure 4: Student's learning plan, done with the "My Learning" plugin in Mahara (Mikeln 2015)

Analyzing her experience with ePortfolio based teaching, Mikeln states: "Most of the students liked the creative aspects of the cycle and enjoyed creating memes about reading and covers for their books." (Mikeln, 2015). However, she emphasized that discussion and setting of success criteria by the students themselves proved time consuming, as they "needed a lot of encouragement and a lot of help" in order to get used to take over "control of their own learning". The lessons learnt were also that students like to express their opinions in creative ways. (ibid.)

In spite of the time consuming work behind setting goals and self-evaluation, through these activities students learn to be more autonomous in their learning and thus can arrive at self-regulated learning, once they do such activities a couple of times. As mentioned above, a student from Cyprus has stated that this way of setting his own goals and developing a strategy how to reach it will help him "each time I'm faced with callenge" (Makriyiannis 2015, 3:24, quoted basing on the video subtitles).

A further learning/teaching approach from Spain was analyzed in Ertl & Ghoneim (2014), discussing a learning scenario around the writer Charles Dickens and his time. Learning was based on a webquest. The collections of the assignments as well as self-evaluation were organized in ePortfolios. The Spanish Students used a rubric for evaluating their learning, in which 21st century skills like "Learning to Learn", "Critical Thinking", "Creative Thinking" and "Processing Information" were clustered according to can-do-statements. An example of a student's ePortfolio view is open for the public (García 2015).

An analysis of all EUfolio country reports "indicates that teachers were of the view that they had successfully achieved the cognitive goals that they had set in their lesson plans and that they helped their students developing their 21st century skills through the pilot phase." (Economou & Avraamidou 2015, p.6) In focus group interviews, many teachers claimed that "ePortfolios certainly go a long way in assisting critical thinking, problem solving, independent learning, working collaboratively and most importantly ICT" (a statement of an Irish teacher, as quoted in Economou & Avraamidou 2015, p.7). Ireland also carried out a teacher's survey to evaluate the implementation, in which "47% of teachers strongly agreed that the ePortfolio supported student reflections and 80% agreed or strongly agreed that their students were more autonomous in their learning". (ibid.) Even though the results of surveys and focus group interviews vary from country to country, everywhere at least 50% of the teachers "agreed or strongly agreed that their students were more autonomous in their learning" (ibid.). Unfortunately, lacking examples of student's ePortfolios, no quantitative conclusion can be taken on how ePortfolios impact student's learning regarding 21st century skills. (ibid. p.6)

CONCLUSIONS

This paper aimed at showing exemplarily the implementation process of ePortfolios. We have seen that they can facilitate competency oriented learning by providing means for collecting, reflecting and assessing students' learning learning processes and artefacts. Yet, this has consequences for the role of the teachers and means that the implementation of ePortfolios also has to be accompanied by appropriate support and materials. This initial effort seems to pay off, as we can see, for example, in a video on Lithuania's experiences. There, the teacher Dziulieta Jonikiene summarises: "This is a great tool for a student, teaching her/him to represent her-/himself in a good way [and] to criticize without offending others and accept the criticism. This project encourages students […]" (ITC 2015, 6:39ff).

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