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ACHIEVEMENTS ASSESSMENT**

Summary. The concept of developing e-portfolios is based on the fact that the reflective practice of creating portfolios enables students to document and track their learning; develop an integrated, coherent picture of their learning experiences; and enhance their self-understanding. This process enables the students to plan and proceed towards their future goals and allow them to showcase their skills and knowledge to prospective employers and research supervisors. An assessment tool has been developed and implemented for assessment of learning in the design and development of evidence based e-portfolios. These portfolios included students' skills and competencies in formal and non formal settings as well as their informal learning. Students can evaluate their own learning and therefore, are better prepared to pursue their future career goals. Findings of this study suggest that design and development e-portfolios provide an appropriate platform for integrative learning where students can visualize the links between the different concepts learnt throughout their course of study and beyond.

Keywords: electronic portfolios, e-Portfolios, reflection, deep learning, constructivism, assessment.

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**ЕЛЕКТРОННЕ ПОРТФОЛІО ЯК ІНСТРУМЕНТ ОЦІНЮВАННЯ АКАДЕМІЧНИХ
ДОСЯГНЕНЬ СТУДЕНТІВ**

Анотація. У статті розглянуто концепцію розробки електронних портфоліо, яка базується на тому, що рефлексивна практика створення портфоліо дозволяє студентам документувати та відстежувати своє академічне навчання, розробити інтегровану, цілісну картину свого досвіду навчання та підвищити її само-розуміння. Цей процес дає змогу студентам планувати і досягати своїх майбутніх цілей, дозволяти продемонструвати свої навички та знання потенційним роботодавцям. Висвітлено інструментарій створення епортфоліо на базі хмарних сервісів. Підбірку хмарних сервісів здійснено з урахуванням забезпечення ними достатнього функціоналу для розміщення онлайн-портфоліо та найбільш ефективної презентації власних досягнень. Результати дослідження показують, що електронні портфоліо забезпечують платформу для інтегративного навчання.

Ключові слова: електронні портфоліо, самопрезентація, професійні якості, конструктивізм, оцінювання.

Formulating the research problem. E-portfolio has been used successfully in both learning and assessment in a number of disciplines including the Arts, Humanities and Social Sciences. In last few years computer science and engineering education faculty and students have been introduced to the concept of e-portfolios. Students have found the advantages of e-portfolio to showcase their work particularly for employment purposes [7]. However e-portfolios are not without their challenges [4; 5] identify a number of issues including: the time intensive nature of development; difficulties in mastering the use of the software; and issues of privacy. Perhaps more importantly [3], assert that without a central focus on reflection, eportfolios are in danger of becoming simply a collection of information rather than a mechanism for the development of meaningful knowledge. In order to determine whether such a process has occurred criteria for the assessment of reflection within the e-portfolio context are needed [2].

Analysis of recent research and publications. In addition to student learning and identity, assessment is one of the most widely addressed issues in the literature relating to ePortfolios. Assessment in the prior literature refers to institutional

processes for measuring learning, often for accreditation purposes, curriculum reviews, or student evaluations. Institutional assessment practices have often been researched as case studies (Lowenthal, White & Cooley; Shada, Kelly, Cox & Malkik). Penny Light, Chen, and Ittelson examined assessment practices through ePortfolios, with an emphasis on documenting learning. Ring and Ramirez described how ePortfolios are used for general education requirements at one university in order to "build a mechanism through which core competencies can be both demonstrated and evaluated" [7, p. 187].

On college campuses throughout the United States, there has been a shift towards assessing a student's education through learning artifacts and outcomes, instead of traditional measures such as grades and graduation rates (Association of American Colleges and Universities). The trend is prompted in part by accreditation agencies, which are requiring more comprehensive evidence of learning, and by professional organizations that encourage institutions to document learning outcomes. Additionally, new pedagogical approaches encourage college faculty and staff to guide students in authoring their own learning [3]. These in-

fluences in higher education have fueled growth in student electronic portfolios (i.e., ePortfolios).

Selection of previously unsettled parts of the general problem. Recognizing the significant contribution of scientists and a large number of scientific publications on the development of ePortfolio models, which emphasize the relevance of the study, directions of organizational and economic operation.

The purpose of the article. In this article we address two basic aims of the project: (1) to design ePortfolio models for teaching, learning and assessment use, and (2) to apply valuable real-life lessons for integrating the use of ICT (specifically the portfolio approach) in teaching, learning and assessment processes.

Presenting main material. The project is designed to have several benefits:

1) Allowing both faculty and students to evaluate student growth and progression towards learning goals.

2) Encouraging students to reflect on their own growth and development.

3) Serving as a tool to guide the student in their academic and professional planning.

4) Helping students to see how course work relates to real world practice.

5) Helping students to see the interrelatedness of course learning as well as how course learning translates into their own development towards learning goals.

6) Providing a flexible assessment measure that gives students both more control and more opportunities to succeed.

7) Offering a student centered way to measure student mastery of learning goals that encourages deep learning.

8) Helping to serve as an empowerment tool by providing a mechanism for primarily first generation, low income, academically underprepared, minority learners to engage in a dialogue about their learning and accomplishments.

9) Providing a mechanism by which students can showcase their talent which can be used by students for professional promotion when looking for internships and/or permanent employment [4].

Generally, ePortfolio is as a web-based file system where users can upload files of any type, organize them and then reference, and share them. Over the last years, around the world, the prominence of, and interest in, e-portfolios in all sectors of higher education has grown, driven in part by national policy and lifelong and personalised learning initiatives. The Joint Information Systems Committee (JISC) in UK funds a national services ePortfolio; according to this organization, the picture has often been a complex one, with confusion over what an 'e-portfolio' is. There is no 'universal' definition in the literature. Different authors see it as a tool or a system to save assignments to demonstrate work, to track accreditation or as assessing academic success (Hewitt; Santos; Wolf & Siu-Runyun), or as a way for people to tell stories about their life (Hellen Barret). An educational portfolio is a purposeful collection of student work that exhibits the students' efforts, progress, and achievements in one or more areas (Paulson, Paulson & Meyers). According to JISC web site, fundamentally an 'e-portfolio' is the product created by learners, a collection of digital artefacts articulat-

ing experiences, achievements and learning. Coterill states that in general, an ePortfolio is a purposeful collection of information and digital artifacts that demonstrates development or evidences learning outcomes, skills, or competencies. The process of producing an ePortfolio (writing, typing, recording etc.) usually requires the synthesis of ideas, reflection on achievements, self-awareness, and forward planning; with the potential for educational, developmental, or other benefits. Specific types of ePortfolios can be defined in part by their purpose (such as presentation, application, reflection, assessment, and personal development planning), pedagogic design, level of structure (intrinsic or extrinsic), duration (episodic or life-long), and other factors.

An ePortfolio can be created and used by individuals, communities and/or organizations to archive and share learning and culture acquired from informal, non-formal and formal learning environments; provide evidence or verification of learning in a dynamic, multimedia fashion; manage personal and collective learning to maximize usage and to plan; and showcase or promote particular assets as required. Looking at the history of the ePortfolio, as sweeping generalizations, it has been used in [5]:

- primary and secondary education as a tool for demonstration of learning;

- in higher and post-secondary education for the assessment of learning;

- lifelong learning to enable continuous "reflective" learning and to inventory all types of learning;

- the workplace for the recognition of work experience and workplace training, for recruitment and targeted training, and for career advancement;

- eLearning for Learning Management Systems and Knowledge Management through both online tools and web-based services; and

- organizational and/ or economic development through asset mapping and quality assurance.

There are different terms and definitions of an ePortfolio in educational and scientific literature. It can be described as a means of collecting (formal and informal) evidence of achieved knowledge and skills for the purpose of self-presentation (career ePortfolio or showcase ePortfolio). Grant shows how definitions of an ePortfolio stretch between 11 ePortfolio as a tool for formative assessment of knowledge and skills more traditional and more contemporary views. In earlier cases ePortfolio used to be defined as a means of collecting formal proofs of learning. Contemporary definitions conceptualise an ePortfolio as a description/demonstration of learning paths, career, experiences and achievements. The basic aim of such an ePortfolio is to improve student's learning through the processes of selfreflection of his/her own learning and interaction with others [5].

Barrett distinguishes between three basic aims of the ePortfolio in education – learning, assessment and presentation. A learning ePortfolio is formative in nature and is directed towards personal development of students through self-reflection and self-evaluation. An assessment ePortfolio includes students' reflection on their school experiences, activities and a selection of evidences, which demonstrate their skills development with the purpose of assessment. According to Barrett, the third aim of ePortfolio is self-presentation for the purpose of searching employment [1].

Baumgartner formed a taxonomy which distinguishes between 12 types of ePortfolios. The highest level of his taxonomy is represented by a reflection, development and presentation portfolio. Each type can be further subdivided, depending on who owns it (depending on its author). The two types of the reflection ePortfolio are a) personal portfolio (learning ePortfolio), with the basic aim of knowledge and competences acquisition and b) the organizational ePortfolio (assessment ePortfolio), focusing on evaluation of knowledge and competences. The two types of the developmental portfolio are a personal developmental portfolio (it supports development of student's personality) and a career portfolio (it is organizational and supports professional career) [2].

A growing number and variety of ePortfolio tools and services are available online, categorized broadly as either education based or employment based. In the education and training realm, some institutions are choosing to build bespoke ePortfolio tools, while others choose from among some of the following samples [6].

- Avenet's efolio3 is a Web-based portfolio management system that enables students, professionals, educators and others to organize, manage and display career and educational information to advance educational and career objectives. Membership in the Learning Innovations Forum d'Innovations d'Apprentissage (LIIFA)⁴ includes access to a career ePortfolio through Avenet, and FuturEd will be conducting research on this international ePortfolio initiative⁵ as it relates to the ePortfolio 2010 initiative.

- Epsilon Portfolios⁶ is a comprehensive Electronic Portfolios Management System designed and developed at the Indiana University UPUI CyberLab. Epsilon Portfolios offers a Web environment for students, faculty, alumni, and professional individuals to build personal portfolios. While it is designed for the academic environment, it is adaptable to the workplace.

- Nuventive's iWebfolio is a flexible, Web-based personalized portfolio with the power to store and present a lifetime's worth of experience. Individuals can use iWebfolio to easily create an unlimited number of customized portfolios for school, job applications, or any use imaginable, while controlling who sees specific portfolio information. Because iWebfolio is viewable with any standard browser, authorized users can access portfolios anytime, anywhere in the world [7].

ELGG⁷, a social networking platform developed out of the University of Edinburgh. ELGG is an open source learning platform quite different from the portfolio tools listed above; it is similar to MSN My Space⁸ in that it is a place where a person establishes his/her identity, then reaches out to share with others. As such, it is linked to social capital rather than human capital management.

A highly significant feature of any system is of course the people within it. All will come with their own attitude towards new technology and this can work both for and against e-portfolios. Some have found that the 'e' nature of the tool actually inspires and encourages people to engage with it (Lebedeva and Shilova); on the other hand, negative past experience with technology or a feeling of insufficient previous experience can work against it. Level of

initial technological expertise and access to technology cannot be assumed. This is equally true for both those who are building their e-portfolio and those involved in supporting them within the institution.

For some, attitudes towards e-portfolios or the PDP/CPD framework in which they are placed within the institution or profession can determine where or not an individual wishes to engage with the process. Positive support and encouragement from an institution, professional body or peers can do much to aid success (Lippert, Woodward and Nanlohy) but likewise it is difficult for a venture to succeed when those involved are already 'convinced' of its likelihood to fail. It is generally agreed that the way the project is initially introduced has a significant impact on how the project is accepted (Jorgensen and Hansen). This is why thorough preparation before the e-portfolio is launched is so important [7].

Development of an electronic template is essential for individuals and institutions new to the electronic portfolio development process. Technological support is essential for the multimedia formatting and housing of the portfolio. Initially, faculty should evaluate students' computer competency and facilitate remediation as necessary. This will empower students to actively and comfortably participate in the portfolio construction and development process. Access to digital tools (hardware, software, and networking) and a technologically successful mentor are integral to the successful construction of the electronic portfolio. As faculty become more experienced with this portion of the process, they may feel greater empowerment to directly assist students in the technical development of the multimedia portion of the portfolio. Some authors suggest the use of a decision matrix to identify feasible human and financial resources available to facilitate integration of portfolios into a curriculum. Barrett further suggests that identification of supporting technologies to manage the "digitalizing" process is necessary to "make sure the electronic portfolio process works as intended."

Conclusions and future research. Electronic portfolios (e-portfolios) are a paradigm in constructivist e-learning. They are capable of involving students in deep learning while serving as a meaningful way for both students and faculty to engage in outcomes-based assessment. E-portfolios have been shown to be a valid way to document student progress, encourage greater student involvement in the learning process, showcase work samples, and provide a method of learning outcomes assessment and curriculum evaluation [4].

The potential of e-portfolio design and development are far reaching. Students once engaged in the creation of e-portfolios continue to work on their portfolios and create communities of learners through exchange of ideas, sharing and online discussions. In the next phase of our study we intend to incorporate blogs, wikis, podcasts and other powerful web tools to enrich students learning experience. Beyond the rubric's use as an assessment tool in the eportfolio context, other potential uses include: as a guide for teachers to assist students in learning what constitutes quality reflection thereby encouraging them to become reflective thinkers; as a summative instrument for evaluating student work; and as an aid to assist teachers in supporting student learning particularly in diverse environments.

References:

1. Barrett H. Electronic portfolios as digital stories of deep learning. URL: <http://electronicportfolios.org/digistory/epstory.html> (дата звернення: 08.04.2019).
2. Baumgartner P. Educational Scenarios with E-portfolios. A Taxonomy of Application Patterns. URL: <http://www.peter-baumgartner.at/material/article/SCO2001-eportfolio-taxonomy.pdf/view> (дата звернення: 08.04.2019).
3. Boes L., Baxter Magolda B.M., Buckley L. Foundational assumptions and constructive-developmental theory: Self-authorship narratives. Baxter Magolda, E. Creamer, P. Meszaros (Eds.). *Development and assessment of self-authorship*. Sterling, VA : Stylus. 2010, pp. 3–24.
4. Buzzetto-More N. Using electronic portfolios to build information literacy. *Global Digital Business Review*. 1(1). 2006. P. 6–11.
5. Giannandrea L. Different types of ePortfolios to support reflection and learning in post degree courses. *Papers for publication at the ePortfolio 2006*. International conference in Oxford, UK, 11–13 October 2006. URL: <http://www.epforum.eu/proceedings/2006> (дата звернення: 08.04.2019).
6. Lambert S. ePortfolio tool as change-agent in Graduate Attribute and Professional Skills arena: An Australian University implementation. *Papers for publication at the ePortfolio 2006*. International conference in Oxford, UK, 11-13 October 2006. URL: <http://www.epforum.eu/proceedings/2006> (дата звернення: 08.04.2019).
7. Ring G., Ramirez B. Implementing ePortfolios for the assessment of general education competencies. *International Journal of ePortfolio*. 2(1). 2012. P. 87–95. URL: <http://www.theijep.com/pdf/IJEP62.pdf> (дата звернення: 08.04.2019).