E-Portfolios – Fostering Systematic Reflection in Social Work Education

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Abstract. Learning technologies in higher education open up new possibilities for academic professional development due to the flexibility in time and place they offer. For professional students it is important to develop a critical distance to their daily practice and a capacity for reflection. E-portfolio technology is considered to be suitable to help to develop such a reflective critical stance. In this paper we argue that in order for e-portfolios to foster reflection, a robust educational design with careful "scaffolding" is needed. We present a design in social work education that was meant to gradually develop students' ability to reflect, while using a mixture of technologies. With three exemplary e-portfolios, we re-construct how students reflected on their professional trajectories, how they used the technology and how this was fostered by the educational design. A critical discussion leads to recommendations for using e-portfolio technology for fostering reflection in other settings.

Keywords: e-portfolios, learning technologies, professional students, social work education.

1 Introduction - The Challenge of 'scaffolding' e-portfolios

The integration of learning and collaboration technologies in higher education opens up new possibilities for lifelong learning and provides non-traditional populations with access to universities. Generally, such technologies increase flexibility for students as regards time patterns for studying, choice of location, possible mobile device usage, etc. Study programs that are aimed at practitioners offer them academic professional development while meeting the demands of family commitments and continuing to work in their field. Although using learning and collaboration technologies in such programs for flexibility and virtual collaboration is valuable, a robust educational design is needed to provide a meaningful professional trajectory for students and to help them embrace a critical approach to their field. Learning and collaboration technologies have to be purposefully chosen and thoughtfully implemented so that students acquire a critical distance to their daily practice, a willingness to incorporate new perspectives and the ability to systematically reflect (cf. the notion of "digital habitat" by Wenger, White & Smith 2009). Without a capacity for reflection, students will not be able to become "reflective practitioners" (Schön,1983), a goal of many academic programs for professional students.

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In this paper we present the use of e-portfolio technology to foster reflection in students who are working professionals and study alongside their jobs. E-portfolios have been termed both an innovative method and a technology for learning, teaching and assessment. E-portfolios are digital documentations of students' work within a study program, where students use specialized e-portfolio software or a combination of other learning technologies to build the portfolio and its contents. E-portfolios include students' reflections on learning processes and products as well as instructor or peer feedback, all collected in a variety of multimedia formats and arranged in an individual fashion to suit the individual learner's situation. The process of digital documentation of growth, articulation of reflection, and exposure to peer reflections can develop students' ability to take a critical stance towards their daily practice and entrenched work routines. E-portfolios are therefore generally regarded as a valuable tool for fostering students' reflective capacities (cf. e.g. Barrett 2003, Bäcker, Cendon & Mörth 2011, Bauer & Baumgartner 2012).

On the other hand e-portfolios within educational designs are by no means a straightforward and simple issue, they are accompanied by limitations, possible risks and pitfalls (cf. Meyer et al. 2011): E-portfolios do not comprise or represent software that students or teachers use in their daily lives, therefore some introduction to the concept and the technology is needed. As with any new technology, students run a risk of "over-acting," e.g. including too many items and applying insufficient selection criteria (Reinmann & Sippel 2011). Likewise, students might "over-reflect". They might reflect only because it is required of them, resulting in only personal remarks (ibid.) or "defensive-reflect" to avoid bad grades (Häcker 2005). The assessment of e-portfolios is problematic and no processes have been documented about students' participation in the development of assessment criteria.

In this paper we argue that it is not the e-portfolio technology as such that helps students develop their capacity for professional reflection but the use of e-portfolios in a carefully constructed educational design that provides "scaffolding" for students in building up their reflective capabilities. We use the term "scaffolding" according to Brown, Collins & Duguid's (1989) cognitive apprenticeship model where it refers to a learning environment that provides carefully thought-out support for acquiring certain skills. We present an educational design in social work education in an online degree program that combines a mixture of carefully selected learning technologies (including "mahara" as specialized e-portfolio software) with explicit scaffolding within the educational design to foster reflection.

2 Theoretical Framework – Schön's "Reflective Practitioner"

According to Schön (1983, 1987), a "reflective practitioner" is a professional expert who deals competently with challenging real-world situations through different forms of reflection. Schön contended that problems that are clearly defined can be resolved with technical expertise, but problems in practice are usually fuzzy, involving unstable and complex situations and conflicts of interest. He perceived a gap between "professional knowledge" and actual practice, concluding that two types of reflection could be of great significance in such situations.

Schön asserted that the "reflective practitioner" masters both "reflection-in-action" and "reflection-on-action." "Reflection-in-action" occurs during the action itself when the expert draws on a blend of prior experiences, expert knowledge, his/her feelings and intuition to deal with a challenging new professional situation. "Reflection-on-action" refers to the practitioner's analysis of his actions after they take place. The expert reflects on his/her approach to the situation, reactions and actions, and resolution of the problem with the aim of understanding his/her behavior but also possibly improving it in a similar future situation. "Reflection-on-action" often includes the documentation of actions in a given situation. Reflective practice that includes the two types of reflections helps to bridge the gap between academic knowledge and actual practice. According to Schön, reflective practice is an integral component of any study program for educating expert practitioners who aim to continuously improve their practice through reflection.

Schön's framework is particularly valuable in social work education because social workers and social educators are confronted with many ill-defined situations and problems in their practice, where a combination of academic knowledge and prior experiences could be greatly valuable to resolve difficult situations. The program that provides a context for this study therefore aims for students, who are practicing professionals, to "recapture their experience, think about it, mull it over and evaluate it. It is this working with experience that is important in learning" (Boud, Keogh & Walker 1985, 18). The educational design of the program, which is offered partially online, thus deliberately includes activities that facilitate reflection in action and reflection on action, thus providing students with opportunities for enacting a reflective practice.

The use of e-portfolios within this educational design seems particularly appropriate as e-portfolios enable a) reflection by the individual and b) reflection with the community when the individual shares with peers and reflects on issues common to all. In addition, e-portfolios are a suitable means to document one's own professional learning trajectory and the process of creating a meaningful documentation in itself "nudges" students to reflect on their learning, their actions taken, etc., thus fostering especially "reflection-on-action". E-learning technologies allow for organizing the individual documentation, individual and collective reflections as well as a general exchange of ideas and feedback concerning the professional learning trajectory, in many media formats.

3 Context – Reflection within the Online Degree Program

3.1 Online Degree Program BASA-online

The program "BASA-online" that serves as a case study in this paper enables students with professional experience in the social field to obtain a bachelor's degree in social work. As students work in the social field alongside their studies, the degree program combines online modules (75% of the study time) and face-to-face tuition (25% of the study time). Online modules are based on the communication and collaboration affordances of the learning management system OLAT, which contains learning

resources presented in a variety of multimedia formats (text, audio, video, etc.), forums for discussion as well as live classroom features to facilitate synchronous collaboration and discussion, mainly in small working groups. In all modules, students' professional experience is used as a point of departure for the inquiry into a certain topic, and for connecting theoretical concepts directly with social work practice. Interweaving academic knowledge and student's work experience is an overall design feature of the program.

3.2 Module "Scientific Theory-Practice Transfer"

The online module "Scientific Theory-Practice Transfer" (STPT) runs over four semesters and was especially designed to accompany students' personal learning trajectory, during which they integrate academic knowledge into their professional practice and, in turn, their academic research endeavors are inspired by their daily work challenges. In addition, this module provides multiple opportunities for a "reflective practice", i.e. opportunities for reflection–in-action as well as reflection-on-action. As a key part of the reflective practice students build a personal-e-portfolio to document and reflect on their personal learning trajectory and their individual "scientific theory-practice-transfer". To support students' learning processes and facilitate the attainment of these goals, a careful selection of additional learning technologies is used: the software mahara for creating the e-portfolios as well as a specialized peer-counseling platform (http://www.kokom.net) that is also used by professionals in social work organizations (for details of this platform cf. Arnold 2011). Working on the assumption that neither of these technologies fosters reflective capacities per se, an educational design was crafted that provided "scaffolding" for reflective processes as well as for building a meaningful e-portfolio by means of these different technologies.

In detail, the scaffolding consists of four tasks that require different forms of reflection and the usage of specialized technologies. The complexity of the tasks gradually increases, and at the same time the scaffolding by design and/or technologies "fades out". The four tasks correspond to the four semesters and are described here according to the (1) task, (2) technology, and (3) scaffolding elements. The module STPT starts with a face-to-face seminar that gives students an overview of the module's aims, general structure, activities and technologies used. The rest of the module is delivered entirely online.

First Semester: (1) Students go through a "peer counseling" process. A student who is confronted with a challenge in his or her working context presents the "case" to a small group of fellow students. The group then discusses the case online, following the 10-step model of peer counselling according to the Heilsbronn model (Spangler 2012), an established model for peer-counselling in the social realm. (2) In terms of technology the specialized platform kokom.net is used where the 10-step-Heilsbronn model is mapped within the software and the software therefore "scripts" the peer-counselling process of the small working groups. (3) Scaffolding of reflective practice as well as adequate appropriation of the technology is high within

this task: The choice of a challenging problem at work is a clearly defined starting point, the counselling process follows the 10 steps and reflection-in-action and reflection–on-action are clearly supported by these concisely defined steps. In addition, students' reflection on practice is also guided by an evaluative discussion at the end of the first semester, which uses a structured feedback form, and focuses on the personal gain, the assessment of the method and the technology, as well as the potential for further usage after completion of the study program. The platform has a very intuitive "look & feel" and includes ample material on how to use it, including a video tutorial.

Second Semester: (1) Students have to choose a key theoretical concept in social work, such as "inclusion" or "empowerment", and create instructional material on the topic, aimed at practitioners in the social field, e.g. guidelines, an introductory reader, or a resource website, etc. The focus within this task is on the usefulness of the "product" for practitioners. All "products" are showcased at the end of the semester, to be peer-reviewed by the other students as regards their practical usefulness. Finally, instructors also provide feedback to the working groups. (2) Collaboration and showcasing takes place on OLAT, using synchronous and asynchronous collaboration features of the learning management system. (3) Scaffolding for reflection is less in that students have more room to make their own decisions compared to semester one where the software walks them through the 10-step process. Students find the process of choosing a topic and creating a "useful product' challenging but the task structure and examples from previous student cohorts provide support. Usage of OLAT does not need any scaffolding as it is students' "digital habitat" in the degree program.

Third Semester: The task focuses on issues of professional identity. Students first discuss articles describing professional identities and roles in social work. Then, students select a "case" from their practice, this time identifying a conflict in their own professional behavior or role that might have arisen due to their learning trajectory within the study program and discuss the "case" again using the peer counseling method from the first semester. At the end, they share a personal statement on their own concept of professional identity within their working area. (2) Again kokom.net is used as technology. (3) Students' reflection during this semester is more challenging because they have to distance themselves from their daily work practice in order to reflect on professional identity and possibly recognize role conflicts triggered by their academic studies. The three elements of the task gradually increase in difficulty. The "scripting" for the counselling process, also supported by the technology and the familiarity with the kokom.net as technology due to previous usage provides some support.

Fourth Semester: Designed as "reflection-on-action", students are asked to document and evaluate their own theory-practice-transfer process during the module (or within the overall program) in an e-portfolio. Students need to present three "learning products", giving reasons for their selection, commenting on the products in hindsight, and integrating any feedback from peers, instructors or retrospective self-evaluation. In

addition, students should comment on their overall learning trajectory, condense it with an overarching motto or narrative. (2) The e-portfolio is built with mahara, integrating texts or other material created within the module on OLAT or kokom.net. (3) The only scaffolding provided here as regards reflection is the suggestion of two sets of guiding questions for creating the e-portfolio and some examples of previous student cohorts. For mahara, standard how-to manuals are provided.

Table 1. Overview Module "Scientific -Theory-Practice-Transfer

#	Task	Technology	Scaffolding
1	Peer-counselling on workbench case	OLAT & kokom.net	• Individual reflection on practice • Collective reflection on practice • Sharing reflection with learning community • Video tutorials and personal support
2	Creating guidelines on key theoretical concepts	OLAT	• Individual reflection on theory • Collective reflection on theory • Giving and receiving feedback
3	Peer-counselling on professional identity	OLAT & kokom.net	• Social worker statements on professional identity • Individual reflection on professionalization • Collective reflection on professionalization
4	Creating e-portfolio on learning trajectory	OLAT, kokom.net & Mahara	• Providing guiding questions and e-portfolio examples • How-to manuals for mahara

4 E-Portfolios – Re-Constructing Reflection

In this section we present three e-portfolios as products of the final task in semester four of our educational design. The three e-portfolios vary greatly in the approach adopted by the student for reflecting on the learning trajectory and compiling this reflection as a visible and sharable product on mahara. In the following section we proceed to discuss how they used the technologies in their portfolios, and how their final product might have been influenced by the scaffolding in our design as well as by the different technologies used.

4.1 E-Portfolio A – "All in Flux"

Student A titles her e-portfolio "all in flux" and presents herself as a student with three adult children for whom obtaining an academic degree is an import part of her aspirations in life. Her portfolio starts with a longer personal intro containing her motivation for study, her general experience and philosophy in life. As her first product she presents her BA thesis and reflects on the study program. Using strong visual clues she argues that studying does not mean creating "heaps" of knowledge but rather building a growing network of knowledge. She highlights the most valuable insight gained from her studies for her professional future by using a strong visual of

a train buffer. This visual is accompanied by a statement that she refuses to "act as a buffer zone" as a social worker in the future. In her second product, she presents and reflects on the group work from the second semester where her group created a product for institutions in early childhood education. Her part in the project was to find an appropriate language for communicating research results that would strike a balance between insider scientific language and daily life imprecision. Thirdly, she presents notes taken during the peer-to-peer counselling process and reflects on her initial assessment of the usefulness of the tool and method based on her current perspective. The closing remark summarizes how her overall behavior has changed due to her academic studies: she now adopts a critical stance everywhere and e.g. requests sources for information, even in small talk conversations.

4.2 E-Portfolio B – Scientific Theory-Practice-Transfer

Student B is a comparatively young student, working as a nurse in early childhood education. For the title of her e-portfolio she adopts the module name: "STPT by B". For documentation and reflection she selects the key study products within the module, albeit in a different order: (1) Her understanding of her professional identity as a future social worker, (2) the peer counselling process she was involved in and (3) the group work on a theoretical concept in social work, presented to practitioners. She produced a video as supporting documentation in which she explains her changing views on professional identity, indicating that her statement on professional identity was the most important part of her module. However, she does not explicitly explain her chosen order of products. Overall, her e-portfolio is structured by three elements: (1) a personal intro und a future perspective, (2) the description of the three study products and a commentary on each from her current perspective and (3) supplemental resources to support her documentation and reflection (the study products as such, descriptions of the peer counselling method or other relevant texts as well as the video).The common thread that runs through the different parts of the e-portfolio is the theme of how important it is to intertwine theory and practice: For example, in her personal closing remarks she emphasizes how much she appreciated being able to study alongside her job as she could repeatedly apply newly acquired academic knowledge into her practice.

4.3 E-Portfolio C – Autoethnographic Reflection

Student C has adult children and works in a Montessori school. Her e-portfolio contains a variety of elements: (1) a summary of her personal history, (2) a variety of quotes that guide her through life, (3) a vivid image that supports colorfully her praise of "the great diversity of opportunities in life" as well as (4) a playful section with the text capture "Space" and an empty space created in the portfolio by spreading the single letters out over many lines. In addition, she (5) declares her passion for writing. As *study products* she creates two separate mahara *views*[1], one titled "My encounter

[1] Technical term in mahara denoting a subset of the e-portolio, in which certain artifacts are arranged with comments in a particular layout. Access rights can be granted particularly for each view in mahara.

with autoethnography", referring to a qualitative research method she used for her BA thesis and a second *view*, titled " Task: creating an e-portfolio" where she documents and reflects on the process of working on this task of creating an e-portfolio itself[2]. In the first *view* she comments on the method of autoethnography from her current standpoint and weaves in a diary entry from when she was actually working with the method and deeply enjoying it. Supporting documentation includes her thesis, her favorite text on the method and scans of handwritten notes taken while reading through the literature to understand this special method. The second view takes the form of a small autoethnographic study of the task at hand, creating the e-portfolio. It comprises an introspection of her first initial resistance to yet another task and tool, a scan of handwritten notes taken when the task was introduced, quotes by instructors explaining the task which resonated immediately with her ("to look back on traces of a study program"), a text and a self-created image of how she gradually understood what a portfolio means as well as an excerpt of a documentation where she and a fellow student "played" with mahara to come to terms with this new tool. At the end she reports how she inwardly smiled when she suddenly realized how her own conclusion statement in her BA thesis "reflection and introspection are important for any educational process" matched the task of the portfolio creation.

5 Discussion – Scaffolding for Reflection

The three e-portfolios selected for this paper represent the diversity of the e-portfolios in the cohort and the different elements and levels of reflection present in all the e-portfolios. Based on the three sample e-portfolios presented above, this discussion focuses on the ways in which the educational design and scaffolding provided within it influenced the final products, students' e-portfolios and students' demonstrated reflection in those portfolios. The actual processes of reflection and technology appropriation that led to the final product were not part of a formal investigation as this educational design was not developed for research purposes but to facilitate reflection within a study program for professionals in social work education. We also discuss students' usage of the different technologies OLAT, kokom.net and mahara in the module as well as any supplemental technology they might have used to reflect and to present their reflections.

5.1 Students' Reflection and E-portfolios

Reflecting the diversity of adult professional students in BASA-online and corresponding to prior research on the capabilities of e-portfolios for students to customize and individualize their learning (e.g. Bauer & Baumgartner 2012), the e-portfolios that resulted from the educational design of the STPT module varied. Nevertheless, all the students achieved some level of reflection as demonstrated in their e-portfolios (for more details cf. Arnold & Kumar in press) - these ranged from those that closely followed the scaffolding guidelines and structure provided to those

[2] In her cohort the number of study products to be contained in the portfolio was not specified.

who absorbed those guidelines, making them their own and rising to reflect on their actions and their growth during the study program. The three e-portfolios presented in this paper mirror this spectrum of student reflection in the e-portfolio products at the end of the STPT module.

Student B responded to the guiding questions ("which are the study products and what do I think of them now") for constructing an e-portfolio in a very literal way, while using all the reflective elements from the first three parts of the STPT module. The scaffolding clearly helped her reach a basic level of reflection and build the e-portfolio. However, with the exception of her video on her professional identity development, she did not add any retrospective reflection or commentaries to her portfolio in addition to the elements previously produced in the educational design. It is possible that she chose to adhere to the structure provided, and that the scaffolding prevented her from exploring new dimensions, or, that she lacked the time to do so as a busy working professional. In contrast, Student A loosely used the set of guiding questions provided for structuring the e-portfolio, and included reflective statements written during the different parts of the STPT module, but incorporated them into a bigger narrative, with a focus on the perceived impact of the study program on her personal and professional development. Further, she went beyond just including elements from the other parts of the module (Student B) by reflecting back on her earlier work from her current perspective. She appears to have benefited from the scaffolding in this respect because she integrates earlier individual reflections into her personal narrative "all in flux" that, according to her, is her main takeaway from the study program in a nutshell.

Student C's e-portfolio reflects the other end of the spectrum, in that she did not explicitly follow the guidelines or structure provided, but used the many degrees of freedom inherent in the previous tasks in the module and had the confidence to take the task to another level. The structure of her portfolio is only vaguely guided by the questions provided. She adopted an autoethnographic approach to the task at hand, demonstrating her learning from the study program, and expanding the required reflection-on-action on her learning trajectory by documenting her reflection-in-action to create the e-portfolio. In her case, the scaffolding appears to have provided her with structures that resulted in reflection and to have also instilled in her the confidence that any creative solution of the assignment would be appraised if it was well argued and convincingly presented. This student interwove the collective dimension with her individual reflection, presenting notes from the shared playful "sandbox" session that she and a fellow student used for coming to terms with mahara.

5.2 Students' Use of Technology for Reflection

The educational design of the program scaffolded not just reflection, but also the integration of specific technologies for specific activities to help students become comfortable with those technologies while becoming reflective practitioners. Although student A successfully reflected on her learning trajectory in the study program, she used the basic features of mahara, writing linear text, using text sections with headlines, incorporating documents for download as documentation and inserting images for illustration of her statements. Her strongest design elements were

"snappy" photos that provided strong visual clues for her statements as well as different text colors to differentiate statements from different points in time. The educational design appears to have succeeded in that she used mahara to convey her reflective statements and to emphasize them with visual clues. Going beyond how Student A used mahara, Student C adopted basic features of mahara in an authentic personal fashion, by using basic features of text sections, images and files for download but additionally adding a layer of creativity. She represented "space for introspection" in her e-portfolio by emphasizing space and using single letters in paragraphs, or inserting special characters in the headlines like symbols for musical notes. The educational design appears to have influenced her learning trajectory in a similar way to the reflective stance she adopted: it helped her to gain confidence, adopt a playful attitude, and to allow herself creativity in her solutions.

Although Student B's e-portfolio was found to most closely following the scaffolds or structures provided in the module, and did not transcend to reflection on the learning trajectory in the study program, she demonstrated the maximum reflection on her technology usage and advanced usage of mahara. Although the other parts of her e-portfolio lacked an explicit explanation of why she did what she did, she eloquently explained why she "dared" to produce a video herself, that after having dealt with many different technologies in the course of her study program, this seemed a doable task. She reported initial difficulties handling both OLAT and kokom.net but attributed her increased media competency, i.e. venturing into the new territory of producing a video on her own, to the study program. Her growing confidence in dealing with technology was a subject in her reflections on her learning trajectory. Additionally, she situated her thoughts within a definition of media design, thus connecting her video well with her e-portfolio theme of combination of theory and practice. In general, student B used more advanced features of mahara for her e-portfolio, mapping her internal structure of (1) personal information, (2) study products, (3) supporting documentation into a three-row-layout. In addition, with her homemade video on her professional identity development, she made use of mahara's multimedia features, and thereby adds a lot of authenticity to her documentation and reflection.

6 Conclusions

In this paper we investigated how e-portfolio technology can help students to develop reflective capacities. We argued that in order for the technology to support students' reflection, an educational design that scaffolds individual and collective reflection as well as technology use is needed. We presented such a design in social work education, using mahara as e-portfolio software, kokom.net for peer-counselling processes and OLAT as a standard learning management system. We then used three resulting e-portfolios to re-construct how students reflected on their professional trajectories and how the e-portfolio task, the software used as well as the scaffolding in the design interacted to support students' reflection.

Generally, the educational design with its in-built scaffolding seemed to have worked in this setting. The portfolios clearly showed reflection-on-action with respect

to students' learning trajectory to become qualified social workers, albeit in different forms, on different levels and with different interaction as regards the technologies. The diversity does not come as a surprise as all students in BASA-online were adult learners and working professionals in the social field who bring a wide range of experiences to the program. Based on their individual learning and personalities, students adopted the processes of reflection scaffolded in the educational design and made them their own. Furthermore, the educational use of e-portfolios is regarded as a means for personalization of educational processes. This personalization was apparent because students interacted with the technologies provided in different ways and chose to present their reflections using supplemental technologies, or not, based on their acquired comfort level with technology in the study program. Likewise, students' responses to the scaffolding varied: whereas some "clung" to the structure provided and do not go much beyond it, while others used it as a "trampoline" to reach a completely different level of reflection. Some students demonstrated basic use of technology but were very creative in the way they represented their reflection, while others' intensive use of technology provided them with new ways of expressing themselves and spurred them on to reflect in ways that they would not have done so otherwise. Although the use of technology played a role in the level of reflection reached, the scaffolding in the educational design appears to have been more important for the reflective processes that folded into the e-portfolios.

Despite the success of the current educational design for e-portfolio production, we would like to provide additional scaffolding in the future for the production of multimedia elements, thereby enabling a more intensive use of the multimedia features the e-portfolio software affords. It would also be interesting to explore whether increasing students' ability to use multimedia would deepen their reflection. In terms of research design, in this study we focused on the educational design to facilitate reflection-on-action and the creation of e-portfolio products, analyzing the e-portfolios at hindsight. If expanding our research to multimedia effects, we would use a different research design, additionally studying the reflection processes, capturing some reflection-in-action elements, and considering factors such as students' inclination to write, gender issues, etc.

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