Klaus Himpsl-Gutermann

A 4-phase-model for the long-term use of e-portfolios

Abstract

The paper centres on an empirical study concluding a three-year action research project, in which a digital portfolio was conceived, implemented and evaluated as an integral component of an extra-occupational continued education course. In the final study, which is based on interviews with alumni, the student's perspective was the main focus. What were the e-portfolio's and the embedded digital media's benefits during studies and beyond? Which problems arose in using them, and how did the learners cope? The case study based on Grounded Theory methodology shows that an ideal-typical development can be described in four phases, in which students orientate, position, identify and present themselves. For a better understanding of the model, the first part of the paper presents the study's context as well as the main aspects of e-portfolio implementation – a detailed description of the concept, the research design as well as empirical documentation are available in Himpsl-Gutermann's (2012) doctoral thesis.

1   Background and problem statement

Digital portfolios are an instrument promising to unite many aspects of promoting life-long learning (McAllister, Hallam, & Harper, 2010). Despite being widely used in the Anglo-Saxon world since the 1990ies, the e-portfolio was only more generally received in Europe, and in particular in the German-speaking countries, through the 2003 campaign "ePortfolio for all" (Ravet, 2007). The e-portfolio represents the digital counterpart to a portfolio file, a form of presenting academic achievement which originated in reform-pedagogic approaches and was first mentioned in a pedagogical context in 1974 (Häcker, 2008, p. 28). Because of diverging pedagogical traditions, a transfer of e-portfolio concepts to universities in German-speaking countries should be approached carefully, considering specific conditions as well as current academic-didactic developments within the Bologna reform process (Baumgartner, Himpsl & Zauchner, 2009). This is especially important as, in spite of the noble pedagogical goal of improving the culture of assessing learning and performance, implementations risk being executed at the expense of students, as for example a meta-study by Ayala (2006) states. An important objection is that, although the e-portfolio is integrated into the

curriculum, its didactic integration into teaching is neglected. Therefore, when the e-portfolio was implemented into an extra-occupational master course at the Danube University Krems, we particularly focused on its didactic integration into the blended learning concept of the degree course and on the creation of a favourable benefit-cost ratio for students.

2   Context of the case study and research method

The action research project, the e-portfolio implementation and the final case study are anchored in the academic course *eEducation*, an extra-occupational continued education course available at the *Danube University Krems* since 2007. Students are mostly working and study part-time, so they have more or less restricted resources for their studies. They deliberately chose a course of studies which deals with the possibilities of computer and internet technologies for learning and teaching, which means they usually work in a pedagogical field themselves (schools, universities, adult education, in-house continued training) and have an affinity to digital media. Here, previous technological knowledge is of less importance than a readiness to engage with digital media characterised by openness, curiosity and some scepticism. The profile of the target group directly influences the training offer, as "e-learning" is not only the subject of the course, but is also reflected in the methodology leading to a blended learning concept.

The e-portfolio concept I will outline below has been developed in several cycles during an action research project (cf. Coghlan & Brannick, 2010), the chronology overview of which I present in figure 1.
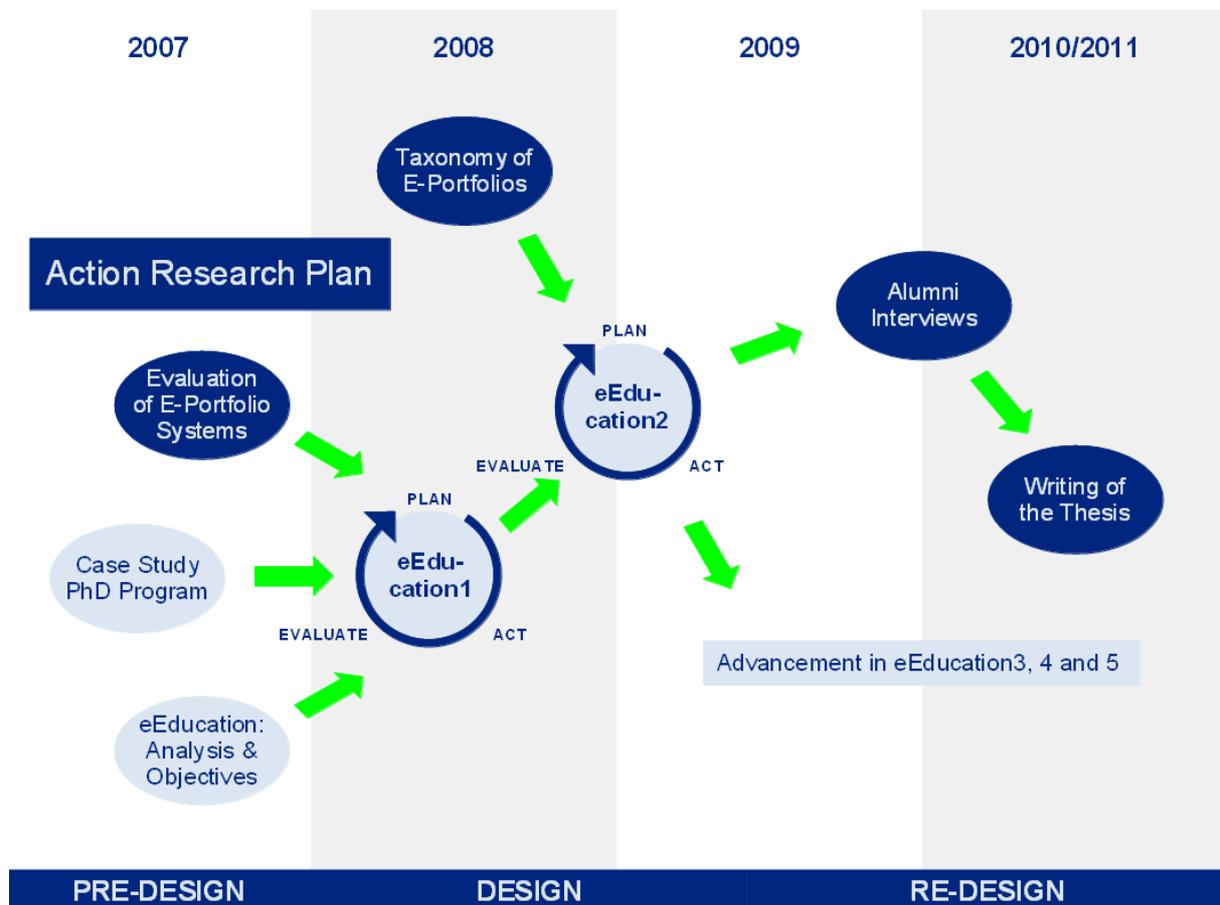
Fig. 1: Overview of the action research project on the e-portfolio implementation at the master course eEducation (Himpsl-Gutermann, 2012, p. 47)

After preparations in 2007 (cf. Baumgartner, 2008; Zwiauer & Kopp, 2008; Himpsl & Baumgartner, 2009), the implementation was planned in two main cycles:

1. *First Cycle*: In the first class, *eEducation1*, the e-portfolio was introduced within a single course on „advanced education technologies" at the end of the second term. In the following courses, when writing their master theses and outside their studies, students were able to continue using the e-portfolio *on a voluntary basis*.
2. *Second Cycle:* Based on the positive evaluation of the first cycle, the e-portfolio was introduced as an obligatory element in the next class, *eEducation2,* from the start, and integrated into the blended learning mode in such a way that it was an *inherent part* of the virtual learning environment *in all modules* and embedded into individual lecturers' didactic scenarios.

For the evaluation of the project, I chose a combination of formative and summative approaches. While in formative evaluation, different individual methods were used, the final summative evaluation was based on interviews with students

which were analysed with qualitative methodology. Following Grounded Theory methodology, sampling, data collection, encoding and analysis were conducted in a cyclical altercating procedure (Przyborski & Wohlrab-Sahr, 2008, p. 194). Within the action research project, the course director of eEducation had multiple roles as a course director, lecturer, examiner, interviewer and researcher. The interviews were held about one year after the students had finished their degree course in order to avoid a possible conflict of roles, but also to allow for a distanced view on e-portfolio use. This was directly confirmed in one interview (s3, paragraph 88).

3 Concept of the e-portfolio solution

For a better understanding of the final case study, this section gives an overview on the e-portfolio implementation – further details on the concept are available in Himpsl-Gutermann (2012).

3.1 Goal of the modular curriculum: Reflective Practitioners

The curriculum of the course *eEducation* has a modular structure, in which individual modules cover between three and six ECTS points. While the modules are self-contained units, they cannot be completed in an arbitrary order, but are coordinated with each other. Some modules refer to each other and some are based on others. There is a common theme which runs through the modular organisation and which has several lines of development. The central theme of the course is teaching and learning with new media. As it is an extra-occupational further training, transfer of newly acquired knowledge to the students' own professional praxis is paramount. Students should have the possibility to use new knowledge and new competencies in their professional lives as directly as possible. Inversely, they are asked to contribute their practical expert knowledge to the course. This presupposes a certain readiness and openness to question and to reflect upon one's own knowledge which is based on tradition and experience in order to create a feedback between praxis and theory. This refers to the image of "reflective practitioners" according to Schön (1983), with the focus on "reflection on action" rather than "reflection in action", i.e. reflection *after* the act. The e-portfolio's aim is not least to promote an ability for reflection which is important in two respects: firstly regarding one's own ability to learn in the form of meta-cognitive skills, and secondly regarding one's knowledge gained from experience in a professional field which should be expanded, but also critically challenged and transformed if necessary (Mezirow, 1991).

3.2 The design of the virtual learning environment

One important line of development within our master course is the use of diverse education technologies. These are not only examined in content, but also tested – according to individually suitable application scenarios - across all modules. Different individual methods and software types like e.g. online mind mapping, social bookmarking or reference management software are integrated into the virtual learning environment of the course, which consists of three main pillars, the *triple M* (see figure 2).
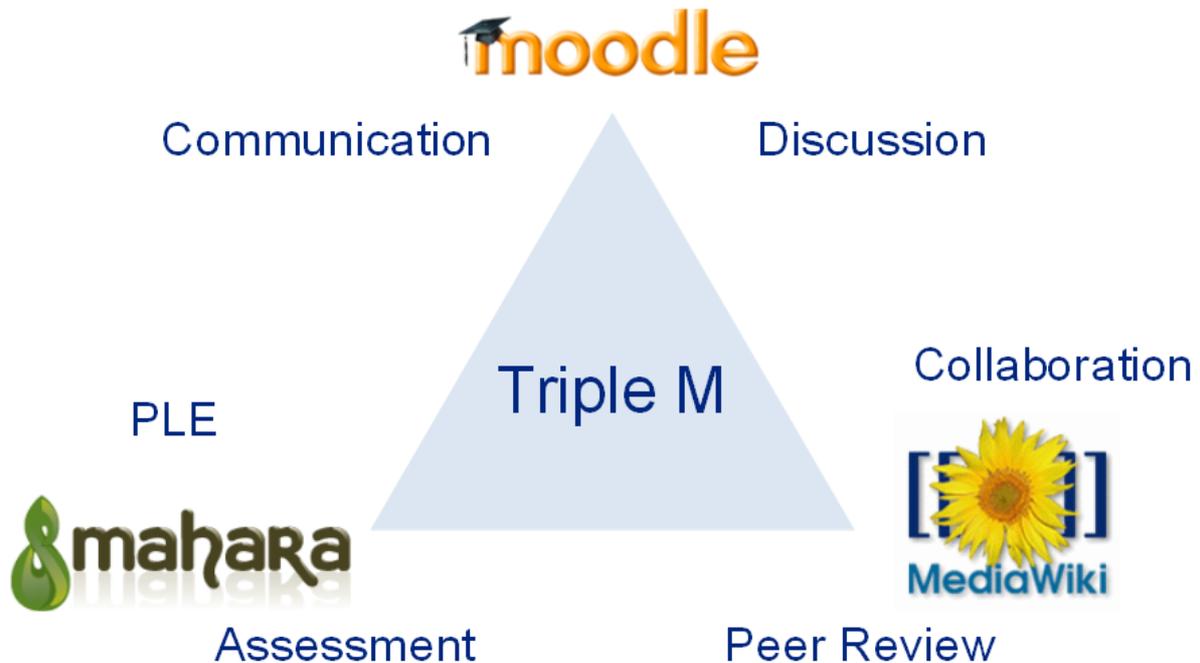

Fig. 2:   *Triple M* – the virtual learning environment of the master course eEducation
            (Himpsl-Gutermann, 2012, p. 98)

The three pillars are formed by the LMS/LCMS *Moodle*, the e-portfolio software *Mahara* and the collaborative platform *MediaWiki* – this combination covers the functions of a portal solution which e.g. Kerres, Ojstersek, Preussler & Stratmann (2009) suggest. The "control centre" of the course is Moodle, which is used as an LMS[1] by the course management and serves as an LCMS[2] for individual lecturers who use it for their course design. Thus, Moodle is mainly a tool for course management and lecturers, which is indicated by the abbreviation "T" for "teacher" in the top corner of the triangle. The students interact with the course offer on the learning platform, though the type of learning activity may differ strongly in individual modules, according to the chosen didactic scenario. All modules, however, have a strong focus on communicating with and within the learning group, mainly a-synchronically in discussion forums. The second pillar, the e-

---

[1]   LMS = Learning Management System (cf. Baumgartner, Häfele & Maier-Häfele, 2002)
[2]   LCMS = Learning Content Management System (cf. Baumgartner et al., 2002)

portfolio software Mahara, is more learner-centred (abbreviation "L" for "learner"). Students document and reflect their personal learning activities in individual portfolio views on each module, and simultaneously present their learning results. Mahara may thus be seen first as an important mainstay of the personal learning environment (PLE), while those parts of the portfolio accessible to others are primarily used for assessment. Finally, the Wiki platform is used in some modules when direct collaborations within the group are planned (abbreviation "G" for "group"). In contrast to the e-portfolio, personal authorship has little relevance in the Wiki (Himpsl-Gutermann & Schnabl, 2012).

3.3   Didactic integration of the e-portfolio

Following the basic e-portfolio types according to Baumgartner et al. (2009), the e-portfolio has a threefold purpose:

1. *Learning portfolio*: It serves to acquire knowledge and competencies as well as for individual reflection on one's learning progress in individual modules of the curriculum (more process-orientated).
2. *Assessment portfolio*: It serves the assessment of knowledge and competency acquirement in the modules, and thus as a replacement for examination requirements (more product-orientated).
3. *Presentation portfolio*: It serves to present one's own products and competencies and can also be used outside the course (more product-orientated).

The modular design of the curriculum and the premise of its tight didactic integration already give rise to a basic decision for the e-portfolio: Because of the aim of using the e-portfolio as a learning and assessment portfolio, it is bound to follow the modular structure of the curriculum, which means that the students create sub-portfolios as part of individual modules which are submitted to an assessment by the examiners after the module is completed. Independent of the individually diverse detail design of the modules there is a prototypical concept for the didactic integration of the e-portfolio into the blended learning mode, which will be described below. Figure 3 sketches a typical sequence for a 3 ECTS module with one attendance day which takes place in the middle of the module period.

Fig. 3: Prototypical sequence of a module with 3 ECTS points (corresponds to about 75h learning time[3])

The online phases before and after the attendance day are supervised via the learning platform Moodle. Here course material is made available, as well as the description of the module, which serves as a starting point for the portfolio work. In the first two months, previous knowledge is activated and the attendance day is prepared, e.g. with literature research (15h) and an online forum discussion (15h). On the attendance day itself (10h), lectures, discussions and exercises in teamwork ensure a diversity of methods. In the final phase, the focus lies on application, advanced studies and the transfer of newly acquired knowledge, e.g. in an online teamwork in the Wiki (15h) and an individual paper (10h). The portfolio design is organised by the students themselves and created alongside the moderated module activities. After finishing the last learning activity – in this case after finishing the term paper – there is a first deadline for the portfolio view. After this, there is a peer review loop along three meta-categories (Himpsl, 2010) before the portfolio view is finally submitted for assessment. The students administer the access of others to their portfolio view themselves – they are encouraged to enable access as soon as possible during the process of development in order to guarantee mutual support.

3.4 Introduction to e-portfolio use

The students' introduction to e-portfolio use stands at the start of the master course, where the complete *triple M* learning environment is presented successively. This introduction into methodology and software handling is integrated into the starter module on education technologies covering 6 ECTS points. During this module, the students are closely supported by their tutor and receive intermediate feedback at different points in order to avoid insecurities in the first portfolio design of the course as much as possible. In this process, an "assessment for learning" stands on a par with an "assessment of learning" (Biggs, 2003). A criteria-orientated feedback pointing out potential for improvement paves the way for the future use of the e-portfolio in the following modules. Finally, the e-portfolio serves as an accompanying collection of resources, as a pool of ideas and as a research diary alongside the master thesis, which is also used for communicating with the supervising tutor.

4 The 4-phase model of portfolio use

---

[3] In Austria, 1 ECTS point is calculated with about 25 learning hours.

7

An analysis of the alumni interviews quickly showed that *change* is a central category for the e-portfolio in the master course eEducation. The e-portfolio was important for the students during their studies, and continues to have some importance for the alumni afterwards. However, over the course of time, there are remarkable changes: changes in the use of the portfolio itself, changes relating to what is seen as important, changes in the attitudes towards the portfolio. An in-depth analysis based on Grounded Theory methodology resulted in *four key categories* which also form the headlines of *four consecutive phases*:

1. Orientate yourself
2. Position yourself
3. Identify yourself
4. Present yourself

On these key categories, the interview data yielded main codes, which express what was most important for the students in the respective phase. These codes show a universal pattern: They can be classified by *two dimensions* stressing the *internal perspective (self-reference)* and the *external perspective (environmental reference)* of students respectively, which is expressed at the same time in or by the e-portfolio. Self-reference is reflected in each phase headline by the word "yourself" – while each verb only makes sense when there is a counterpart. While reflection in the e-portfolio centres on one's own learning, the students do not revolve around themselves, but keep looking outwards[4]. This not only shows one of the characteristics of the portfolio, but also what the "process of education" is about: the search for, and forging and formation of identity. This 4-phase sequence shows what Lenz (2011, p. 147) calls "to transform yourself by learning". In an e-portfolio in academic continued education, "digital identity" and "career identity" merge into each other: The e-portfolio can become the expression of one's digital professional identity. Figure 4 shows the 4-phase model for e-portfolio use in the master course eEducation, which inductively arose from interview data.

---

[4]   Looking outwards avoids the danger of „over-reflecting", as termed by Reinmann & Sippel (2011, p. 193).
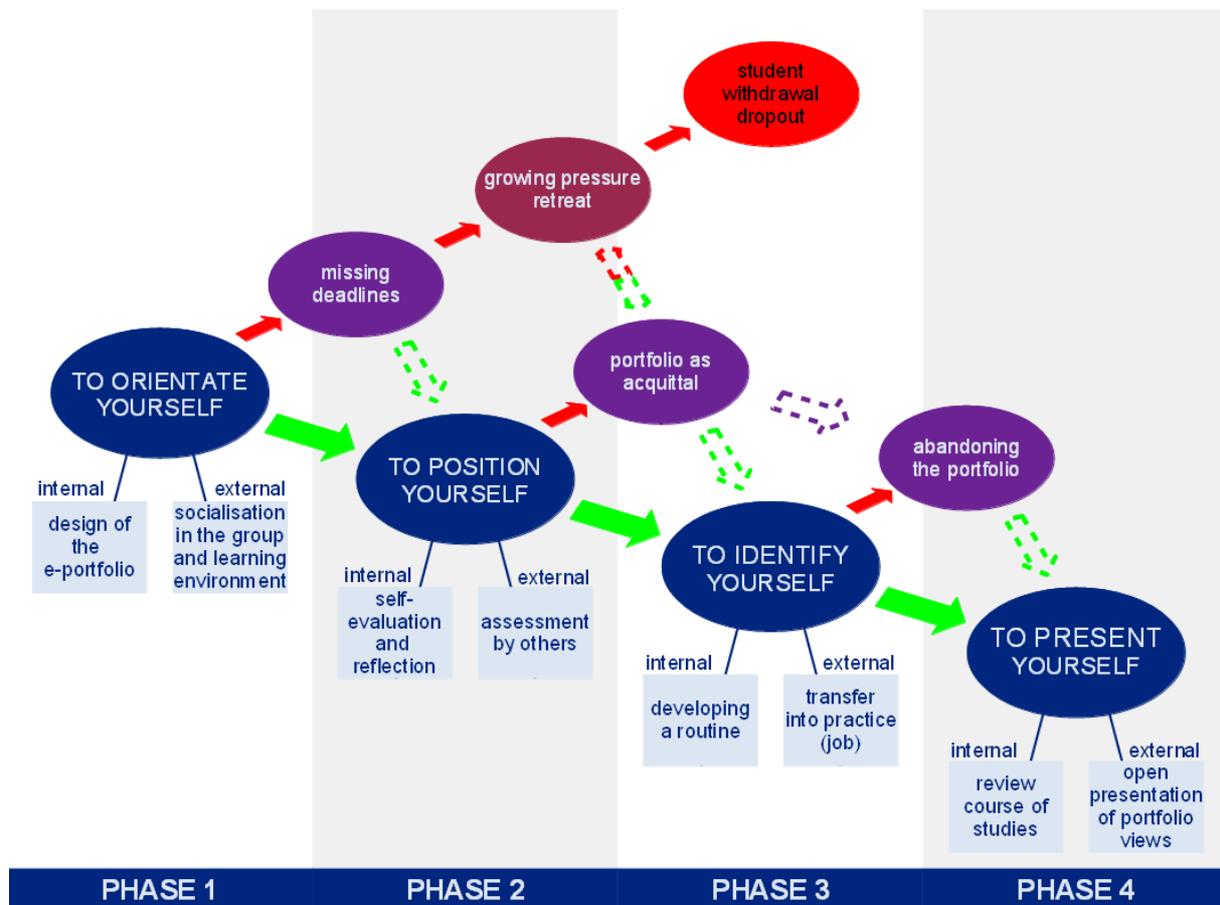
Fig. 4: An overview of the 4-phase sequence of e-portfolio use in eEducation, ideal-typical sequence and deviations (Himpsl-Gutermann, 2012, p. 130)

The chart illustrates the *ideal-typical sequence* along the green arrows as well as possible deviations from it in critical phases of portfolio work – in its description I will first follow the ideal-typical sequence.

At the start of the master course, the main challenge is *to orientate yourself*, to get to know the team and to find one's way around the learning environment (external perspective). Thus, important socialisation processes take place in this phase. The attitude towards the e-portfolio in the starting phase is rather sceptical, mostly because of anxieties relating to the expected workload. In portfolio work, basic questions of portfolio design and software operation are central (internal perspective). When these are solved, a critical examination of the portfolio concept may take place during the transition to phase 2. Here, one by one known portfolio dilemmas come to the fore: How do I handle reflection (self-reference), especially when my portfolio will be graded for my studies as a test performance (environmental reference)? The following excerpt from an interview clearly expresses pertinent thoughts and conclusions in a rather tactical course of action:

"[…] as soon as you know in such a case that you will publish this at some point, then there is, let's say, self-critical thinking is restrained, of course,

because you don't say this is simply my diary that no-one will see, where I am writing things down for myself. It's not that, you would have to somehow separate that, you would have to say, ok, I can do one part for myself, reflecting for myself alone, but I don't really want to show this to the public, right. This is, I see some tension there […] So probably I have, let's say, I tended to write for a reader, not really for myself. That's, well, looking back honestly right now, this is like a rather automatic and unconscious process, that you tell yourself, ok, this is going to be looked at, graded, so you will write what somehow, well, will give a good impression on the whole. And everything else, well, I can think about that for myself. So, well, it does have this tendency, doesn't it." (s1, para. 68-70)

What exactly are the criteria for assessment, how much creative freedom is possible? What are the rules for the peer review? In phase 2, *positioning yourself* is necessary, one the one hand towards the portfolio itself (self-reference), and on the other hand towards the learning group and the authority (environmental reference). At the same time, this is the most critical phase within the whole portfolio process, which has a decisive influence on whether the learner succeeds in *identifying him-/herself* with his/her portfolio and the method during the transition to phase 3:

> "And over and above this, there is this additional investment and the creation of a suitable portfolio. At least it seems to be an additional investment at first. And possibly many will only see when looking back that this investment actually pays or has paid. I don't know whether this is always the case from the start. I was rather sceptical at the beginning. Or rather, I didn't know this method e-portfolio at all, and it took some time until I was actually able to identify with it, and before I really used it, actually used it with more and more pleasure." (s3, para. 48)

Besides an expert handling of one's own portfolio and the realisation of the possible value of the e-portfolio for one's life (internal perspective), this shows mainly in a transfer into one's professional practice (external presentation). The students achieve a change of perspective towards the authority, develop their own ideas for using the e-portfolio and implement these step by step. This third phase also seems to be critically decisive for whether the e-portfolio continues to be used after the end of the course.

After finishing their studies, students mainly use the portfolio t*o present themselves*, in two senses: in order to present themselves to others via the portfolio (external presentation) and to present the portfolio to themselves, in order to draw new motivation from their achievements (internal perspective). Besides this, the portfolio is valued as a personal learning archive, and time and again alumni resort

to parts of it. The e-portfolio is actively continued when there is a concrete occasion in new learning communities.

The sketched sequence is ideal-typical – along the red arrows in the chart, the critical sequence of portfolio work can also be followed. When problems arise during the course of studies, these quickly become apparent insofar as (group) access to portfolio views is delayed and *deadlines are missed*. Missing portfolios have to be submitted later – when students succeed to do this quickly, a return to the "road to success" is possible. When shortfalls accumulate, *pressure* on the students *mounts* because work for new modules is due as well. The workload rises. At the same time, concerned students often *retreat*, from the learning group as well as the course management. When modules to be made up get out of hand, the continued high workload can lead to overburdening and an inability to cope. In some cases, extreme commitment succeeds in a return to the planned course sequence, but in most cases, the only option is *to interrupt the course* for some time, or *to drop out* completely. In eEducation, this rarely happens at the beginning right after the orientation phase, after only a few months. My observations seem to suggest that phase 2 is more critical. When the student does not succeed in positioning him-/herself towards the portfolio appropriately, i.e. to find his/her own method of self-reflection and at the same time to cope with outside assessment, there is a danger that the portfolio becomes a simple *acquittal*. In the views, this becomes apparent in several aspects: The choice of artefacts is restricted to the mere minimum requirement, reflections refer more to the teaching context than to one's own learning process, and instead of creative design, the views become more and more alike. In this case the probability of a transfer of the portfolio method into the student's own professional practice is low, and *portfolio use* usually ends with the last obligatory module that has to be completed for the master course.

5   Summary and perspectives

The case study has shown that e-portfolio use by students can be described in its ideal-typical sequence *in four phases*: to orientate yourself, to position yourself, to identify yourself, to present yourself. The four phases may be structured in two *dimensions*, which respectively stress the *internal perspective (self-reference)* or the *external perspective (environmental reference)* of the learners, which are simultaneously expressed by or in the e-portfolio. The most critical phase in e-portfolio use seems to be the transition between phase 2 and phase 3: When we succeed in convincing students of the benefits of the e-portfolio in an intense and critical examination of the e-portfolio method, their identification with the e-portfolio will last beyond the course of studies. It is clear that, because of the study's context and its limitation to "one case" with a limited sample, the 4-phase model of e-portfolio use is to be understood as a first suggestion, which we hope

will inspire further studies with a longer-term perspective in different contexts in order to question the central categories of the model and to allow for conclusions about problems and critical factors in the successful implementation of integrative e-portfolios.

Bibliography

Note:

Sections from interviews with students of eEducation were quoted with s1 to s7 – bibliographical data as well as interview transcripts (in German) and codes are available in Himpsl-Gutermann's (2012) dissertation. The quoted sections were translated freely, with the aim to convey the impression of the spoken word as well as the content.

Ayala, J. I. (2006). Electronic Portfolios for Whom? *Educause Quarterly*, (Number 1 2006), pp. 12–13.

Baumgartner, P. (2008). *Eine Taxonomie für E-Portfolios - Teil II des BMWF-Abschlussberichts "E-Portfolio an Hochschulen": GZ 51.700/0064-VII/10/2006* (Forschungsbericht). Krems: Department für Interaktive Medien und Bildungstechnologien, Donau Universität Krems.

Baumgartner, P., Häfele, H., & Maier-Häfele, K. (2002). E-Learning Praxishandbuch. Auswahl von Lernplattformen: Marktübersicht - Funktionen - Fachbegriffe. Innsbruck: Studienverlag.

Baumgartner, P., Himpsl, K., & Zauchner, S. (2009). *Einsatz von E-Portfolios an (österreichischen) Hochschulen: Zusammenfassung - Teil I des BMWF-Abschlussberichts "E-Portfolio an Hochschulen": GZ 51.700/0064-VII/10/2006.* (Forschungsbericht). Krems: Department für Interaktive Medien und Bildungstechnologien, Donau Universität Krems. Available at http://www.peter.baumgartner.name/Members/baumgartner/news/e-portfolio-forschungsbericht-und-publikationsstrategie/ [08.03.2012]

Biggs, J. (2003). *Teaching For Quality Learning at University* (2nd ed.). Buckingham, Maidenhead: Open University Press.

Coghlan, D., & Brannick, T. (2010). *Doing Action Research in Your Own Organization* (3rd ed.). London: Sage Publications Ltd.

Häcker, T. (2008). Wurzeln der Portfolioarbeit - Woraus das Konzept erwachsen ist. In I. Brunner, T. Häcker, & F. Winter (eds.), *Das Handbuch Portfolioarbeit* (2nd ed., pp. 27–32). Seelze-Velber: Kallmeyer.

Himpsl, K. (2010). E-Portfolios in berufsbegleitenden Studiengängen zu Neuen Medien. *MedienPädagogik - Zeitschrift für Theorie und Praxis der Medienbildung*, Medienpädagogik, *18* (Neue Medien und individuelle Leistungsdarstellung – Möglichkeiten und Grenzen von ePortfolios und eAssessments). Available at http://www.medienpaed.com/18/himpsl1004.pdf [08.03.2012]

Himpsl, K., & Baumgartner, P. (2009). *Evaluation von E-Portfolio-Software - Teil III des BMWF-Abschlussberichts "E-Portfolio an Hochschulen": GZ 51.700/0064-VII/10/2006* (Forschungsbericht) (p. 94). Krems: Department für Interaktive Medi-

en und Bildungstechnologien, Donau Universität Krems. Available at http://www.bildungstechnologie.net/blog/evaluation-von-e-portfolio-software-ab-schlussbericht [08.03.2012]

Himpsl-Gutermann, K. (2012). *E-Portfolios in der universitären Weiterbildung. Studierende im Spannungsfeld von Reflexivem Lernen und Digital Career Identity (Dissertation)*. Boizenburg: Verlag Werner Hülsbusch.

Himpsl-Gutermann, K., & Schnabl, S. (2012). Tutorials mit Screenrecording und Wiki. Einführung von Studierenden eines berufsbegleitenden Weiterbildungslehrganges in das Arbeiten mit MediaWiki. In M. Beißwenger, N. Anskeit, & A. Sporrer (Hrsg.), *Wikis in Schule und Hochschule*. Boizenburg: Verlag Werner Hülsbusch.

Kerres, M., Ojstersek, N., Preussler, A., & Stratmann, J. (2009). E-Learning Umgebungen an Hochschulen: Lehrplattformen und persönliche Lernumgebungen. In U. Dittler, J. Krameritsch, N. Nistor, C. Schwarz, & A. Thilosen (eds.), *Ein kritischer Blick auf E-Learning an deutschsprachigen Hochschulen als Basis eines Aufbruchs* (pp. 101–115). Münster: Waxmann.

Lenz, W. (2011). *Wertvolle Bildung: kritisch - skeptisch - sozial*. Wien: Löcker.

McAllister, L. M., Hallam, G. C., & Harper, W. E. (2010). The ePortfolio as a tool for lifelong learning: Contextualising Australian practice. *International Lifelong Learning Conference 2008, 16-19 June 2008*. Yeppoon, Queensland. Available at http://eprints.qut.edu.au/14061/ [08.03.2012]

Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. San Francisco: Jossey-Bass.

Przyborski, A., & Wohlrab-Sahr, M. (2008). *Qualitative Sozialforschung. Ein Arbeitsbuch*. München: Oldenbourg.

Ravet, S. (2007). EIfEL-Campaign „ePortfolio for all". Available at http://www.eifel.org/activities/campaigns/ [08.03.2012]

Reinmann, G. & Sippel, S. (2011). Königsweg oder Sackgasse? E-Portfolios für das forschende Lernen. In: T. Meyer, K. Mayrberger, S. Münte-Goussar & C. Schwalbe (eds.), *Kontrolle und Selbstkontrolle: Zur Ambivalenz von E-Portfolios in Bildungsprozessen* (pp. 185–202). Wiesbaden: VS Verlag.

Schön, D. A. (1983). *The Reflective Practitioner: How professionals think in action*. London: Temple Smith.

Zwiauer, C., & Kopp, M. (2008). *Modellfälle für Implementierungsstrategien für integrierte ePortfolios im tertiären Bildungsbereich: GZ 51.700/0065- VII/10/2006* (research report). Wien: fnm-austria.