

E-portfolios as tools to assess generic competences in distance learning study courses

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Summary

In the field of Education, portfolio usually stands for a compilation of documents describing a particular learning process or a whole learning biography; if it is collected digitally it is called e-portfolio. Since the 1990s portfolios have been increasingly used in all kinds of learning environments and institutions. They typically focus on (long-term) learning processes with a large part of self-reflection. This paper concentrates on the one hand on university distance learning courses with a good deal of e-learning processes and, on the other hand, on the need to evaluate students' performance. We focus on the so-called "generic" or "key" competences, which are increasingly in demand as part of academic competence goals. However, generic competences are not easy to integrate in e-learning environments, as they require sophisticated assessment tools because traditional examinations are not enough. This paper discusses the suitability of portfolios in fulfilling these requirements. We intend to develop an assessment portfolio which at the same time integrates elements of self-reflection and feedback.

Firstly, we outline the theoretical and organizational framework on which our proposal is based on. In this context we sketch the underlying competence model and identify generic competences as a part of academic goals. Next, we refer to the institutional and organizational background of distance learning courses. This leads to the necessity to practise assessments and to some conclusions on the arrangement of portfolios. As a last basic step we define the portfolio method according to the purpose of assessment. In the second part we draw the conclusions from these foundations and assume that portfolios are appropriate for stimulating creative, collaborative and scientific learning strategies to set up the referring generic competences. We close the paper with some final considerations and suggestions on designing assessment portfolios, and referring to the "Vocational Learning Arrangements" module in one of our master courses.

Keywords: e-portfolio, university learning, distance learning, generic competences, key competences, performance assessment, assessment portfolio

1 Distance learning study courses: competence-orientation and organizational requirements

When talking about generic competences as a part of academic learning goals we refer to a competence model used in documents accompanying the Bologna-process. Competence is defined output-oriented and manifests itself in individual performance. The term competence can analytically be described by defining competence types and competence categories (competence classifications). The last ones differentiate the types on a subordinate level (see figure 1; Seeber & Keller, 2006).

competence types	A. domain-specific	B. generic
competence categories	1. domain-oriented knowledge about terms, structure and methods	2. social/communicative, e.g. teamwork 3. personal, e.g. flexibility 4. activity-oriented, e.g. presentation skills

Figure 1. Components of competence

Regarding this model we assume that generic competences - 'key competences' is used as a synonym - can only be developed in combination with domain-specific qualifications. For example, teamwork should be practised within domain-oriented problem situations etc. This combination is a pre-condition of getting expertise in transferring generic competences to particular fields of work (Lind & Sandmann, 2002). Secondly, we assume that proficiency according to all competence types evidentially is the result of practising over a period of time. As conclusions on the use of portfolios we see the necessity to provide users with components stimulating the application of generic competences. Further on, portfolios should offer a chance to improve learners' competences by practising. Therefore a portfolio does not include tests examining students at a fixed time, but evaluates elaborated learning products.

Looking at the organizational background and the function of educational institutions, it does not matter whether study courses are organized traditionally or as distance learning courses. They integrate two "... partly contradictory functions for society: fostering learning and selection for careers by examinations and providing (or refusing) degrees." (Remmele & Seeber, 2008: 4) Certificates are important to succeed in the labour market, and requirements of the labour market vice versa have effects on the design of study courses. Universities have to ensure their clients' employability not only as upcoming scientists. They have to discharge graduates possessing both, domain competences as well as broader, domain-unspecific competences. Employers' associations, e.g. in Germany, want universities to provide education which results in competences such as working well in teams, being able to make inquiries regarding information, techniques to moderate groups, techniques of presentation etc. (FIBAA, 2005: 70 ff.) As a conclusion, portfolios should lead to certificates, and they should examine generic and domain-specific competences.

Another organizational point of interest refers to the particular structure of distance learning. Even if it is organized as blended learning with seminars from time to time, study courses should offer the possibility of 'pure' distance learning at least in a fixed number of modules. One advantage of distance learning is learners' flexible time management permitting for example part-time studies. The disadvantages are a low-level contact between teachers and learners and the difficulty to maintain the necessary high level of self-discipline. Portfolios, therefore, should be applicable in e-learning environments, allow working flexibility, should be mentored and offer motivating learning tasks.

2 Portfolio method

In general, a portfolio is a collection of objects of the same type (e.g. securities). In the field of education portfolio usually stands for a compilation of documents describing a particular learning process or a whole learning biography (Stangl). If it is collected digitally it is called e-portfolio. According to its purpose it is defined in different ways. From the huge number of classifications we choose a simple scheme, nevertheless comprising all relevant possibilities:¹

¹ For different classifications see for example: Stangl: <http://arbeitsblaetter.stangl-taller.at/PRAESENTATION/portfolio.shtml>; Regis University Electronic Portfolio Project:

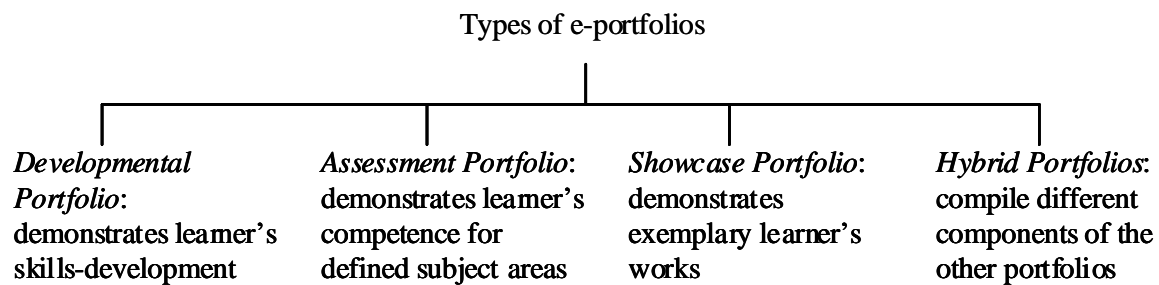


Figure 2. Types of e-portfolios

If portfolios document whole learning biographies they are often used as evidence of competences acquired in different institutional contexts or informally. We know standardized forms of these portfolios as, for example, Europass, Profilpass (Germany) or Bilans de Competences (France). They serve as certificates to acknowledge prior learning (APL). To that purpose e-portfolios are also discussed as a method to document knowledge acquired in electronically open access environments (Remmele & Seeber, 2008). We, on the contrary, look only at so called formally acquired competences² as a part of institutionalized programmes.

We intend to develop an assessment portfolio which at the same time integrates elements of self-reflection and feedback. This is untypical insofar as the collection of documents is not defined by the learner but guided by the trainers: a given portfolio of tasks leads to a portfolio of (learner-regulated) learning products and is accompanied by a guided self-reflection of the process. Such a portfolio is a learning method as well as a learning management tool. Our contribution aims at academic education and is a method to develop competences as well as to document them. Further it allows the trainer to assess performance. Similar goals pursue portfolios used in primary literacy education and in adult literacy programmes (Chang Barker, 2005).

The realization of e-portfolio learning can be subdivided chronologically into five steps:

1. (trainer's) specification of goals and context (i.e. learning goals, portfolio elements, time schedule, performance requirements, assessment standards);
2. (learner's) collecting, choosing and combining information/objects and creating learning products;
3. reflecting and regulating the learning process as individual task and in dialogue with the trainer;
4. learner's presentation;
5. trainer's evaluation and certification.

Assessing with e-portfolios boasts several advantages: The combination of different assessment techniques is possible. A flexible assessment can include "checklists, portfolios, performance tasks, product assessments, projects and simulations; observation of the learner, questioning, oral or written tests and essays, projects undertaken in groups or individually, role playing, work samples, computer-based assessments; ..." (Chang Barker, 2005) This flexibility is necessary to evaluate the acquirement of generic competences because they are generally to be shown in different situations while transferring them on domain-specific subjects. Not only is the variability of tasks important for an appropriate assessment but also the evaluation over a period of time. Generic competences, such as for example learning competence, are developed in lapse of time. People acquire expertise with repeated practise, and after a while they show generalized techniques of problem solving. Portfolios give the chance to improve skills without being assessed at the wrong time.

http://academic.regis.edu/LAAP/eportfolio/basics_types.htm or Haefele, H.: E-Portfolio. <http://www.e-portfolios.org/e-portfolio-grundlagen.html>

² The Europass and the European Qualifications Framework (EQF) distinguish formal, non-formal and informal learning regarding the institutional background.

3 Implementing assessment e-portfolios in distance learning study courses

Regarding boundary conditions and specific characteristics of distance learning study courses we need to ask if, and under which circumstances, they can notably meet the requirements for a successful use of portfolio-assessment. First of all, distance learning study courses require a high dimension of self-regulated learning. The student's flexibility - for example regarding time management - results in high demands on learning strategies which shall be reflected in a learning diary³. To structure it we use a heuristic on self-regulated learning (figure 3) distinguishing cognitive, volitional and motivational strategies (e.g. Friedrich & Mandl, 2006). While cognitive strategies mean to control reception and mental processing of learning information, volitional strategies control action by screening the learning intention from rivaling possibilities of action. Motivational strategies are used for self-motivation over a period of time.

In our particular master course the self-regulation of learning is not only a premise to master the course successfully but also content itself. Insofar we kill two birds with one stone: on the one hand students reflect their own learning process and on the other hand they also get a deeper insight into the usability of theory-based heuristics. The usage of a learning diary to provide self-reflection during portfolio learning seems to be suitable to accompany the learning process. Figure 3 gives an example of a learning diary.

First week
<i>Cognitive Strategies: I read chapter 1 and 2 of the learning material and underlined the most important passages. I summarized the text in own words.</i>
<i>Volitional Strategies: I cancelled the cinema evening with my friends. I switched off television to concentrate properly on my reading.</i>
<i>Motivational Strategies: Once I finished chapter 4 I will go to the cinema with my friends.</i>

Figure 3. Example of a learning diary

Regarding assessment of generic competences the following aspects - some were mentioned above - are important: Development has to be combined with domain-specific qualifications training. Further it requires practising over a period of time. Both conditions can be fulfilled in the context of distance learning. First of all, the e-portfolio is embedded into a domain-specific module. The students get written learning material they need to work with before the core portfolio learning starts. The organisational frame of distance learning provides - because of its specific structure e.g. a flexible time management - the possibility to practise over an appropriate period of time. We set a time period of approx. two months of time in our draft.⁴

Necessary for the evaluation of generic competences is a high flexibility not only referring to the variability of tasks but also to the time of evaluation. Furthermore, it is important that tasks are build on top of each other. Theses conditions are in line with the general structure of distance learning study courses. Therefore, an implementation is easy to handle.

Against this background the following draft (figure 4) gives a suggestion on designing and implementing an e-portfolio. We refer to our study module "Vocational Learning Arrangements". According to the five steps realizing an e-portfolio learning we first need to take a closer look into the competence goals of this module as specified in the modules-handbook: It aims at

³ The purpose of a learning diary is to help the student in analyzing and evaluating his/her own learning process. It can also be used as an instrument for the teacher in following and evaluating the students' personal learning processes and profiles. For further information see for example: <http://openlearn.open.ac.uk/mod/resource/view.php?id=210849>

⁴ A longer period could be wise but we refer on the particular settings of our course framework without describing it in detail.

developing domain-oriented knowledge and methods (as domain-specific competences) but also social competences and learning competence (as generic competences). Secondly, we need to think about how to connect these competence goals with the required content. In the following example we attempt to define some possible learning tasks and assign them to afore defined competences (domain-specific as well as generic). Furthermore, some remarks on process-related individual tasks, which lead to further generic competences, are made.

Not only primer learning tasks but also connected process-related tasks are important to foster particularly generic competences. In this draft we focus especially on possibilities to implement feedback and self-reflection during the portfolio learning. Insofar is it crucial to consider the whole portfolio learning as a process and not just to concentrate on providing the core learning tasks within an e-portfolio (Hilzensauer & Hornung-Prähauser, 2005).

Figure 4. Exemplary schedule of portfolio learning

Learning tasks	Competence goals	Process-related individual tasks
1. Answering questions regarding the written learning-material (individual task, requirement to take part in the portfolio learning-group)	<ul style="list-style-type: none"> - Domain-oriented knowledge - Domain-oriented methods <div style="text-align: center;">↓</div> <ul style="list-style-type: none"> - Learning competence 	Keeping a learning diary from the very beginning of the e-portfolio learning to reflect on learning-strategies
2. Writing a critical statement about an article dealing with vocational learning arrangements (individual task)	<ul style="list-style-type: none"> - Domain-oriented knowledge - Domain-oriented methods (direct information search) <div style="text-align: center;">↓</div> <ul style="list-style-type: none"> - Social competence - Learning competence - Personal competence (flexibility and self-discipline) 	Learner-teacher- (feedback-) dialogue; further documentation of the learning process in the learning diary to reflect on learning strategies
3/1. Electronic presentation of research about one specific (controversial-discussed) topic regarding vocational learning. Pros and cons need to be extracted in the presentation (group task)	<ul style="list-style-type: none"> - Domain-oriented knowledge - Domain-oriented methods - Information technology skills - Presentation skills - Social Competence (Teamwork) <div style="text-align: center;">↓</div> <ul style="list-style-type: none"> - Learning competence - Personal competence (flexibility and self-discipline) 	Feedback through one other student needs to be given; further documentation of the learning process in the learning diary to reflect on learning-strategies
3/2. Evaluation of the presentation through another student (individual task)	<ul style="list-style-type: none"> - Domain-oriented knowledge (transfer of knowledge about domain-specific contents to evaluate others) - Domain-oriented methods - Presentation skills (transfer of knowledge about presentation-techniques) - Social competence (Teamwork) - Personal competence (flexibility and self-discipline) <div style="text-align: center;">↓</div> <ul style="list-style-type: none"> - Learning competence 	Learner-learner-feedback (Feedback rules need to be known and considered); further documentation of the learning-process in the learning diary to reflect on learning strategies

Following the question arises how and when to assess performance during portfolio-learning. As mentioned before flexibility is necessary to evaluate the acquirement of generic competences as they arise in different situations while transferring them on domain-specific subjects. In our module we use the technique of product assessments but provide flexibility by assessing different types of products (products of individual tasks, products of group tasks). Furthermore, an e-portfolio-design needs to provide the possibility of evaluation over a period of time and not just at one fixed date. The following draft, which focuses on the progress, can give some insights about possible time-management and ways of evaluation:

student's learning	teacher's task	time schedule
elaboration of specific knowledge with learning material; answering questions and sending them to the trainer	evaluates solutions	until 15th of March
	first individual learning task is sent by e-mail	1st of April
1st obligatory online chat	open questions will be discussed	4th of April
forwarding the results of the first task	assesses products; delivers new tasks for groups	30th of April
2nd obligatory online chat (open questions; dialogue about learning strategies)	discusses open questions; provides feedback on the first task	7th of May
group discussions; forwarding of the presentation to members of other groups and to the teacher	assessment of the presentations	1st of June
assessing one presentation of others		7th of June
	evaluation of students' assessments	

Figure 5. Portfolio-progress

4 Final considerations about the assessment of competences through e-portfolios

E-portfolios can be suitable tools to develop and assess generic competences in university distance learning study courses. Nevertheless, the following conditions for designing and implementing portfolios need to be considered:

- Combination with a domain-specific qualifications training;
- Practising of a period of time to provide proficiency and time for improvement;
- Variability of tasks to evaluate the acquirements of generic competences. They arise in different situations while transferring them on domain-specific subjects;
- Evaluation over a period of time as generic competences are developed in lapse of time.

Assessment portfolios should lead to a certificate with an overall grade, which is composed of the different product assessments. In this context it is important to meet a number of quality standards like objectivity, reliability and validity (Leutner, Hartig, Jude, 2008: 179 ff.). Therefore, it is crucial to define assessment criteria in advance - e.g. number of pages, content-related and formal requirements, presentation standards etc. A frame for the weighting of the different competences (learning tasks) needs to be defined. These requirements should become transparent to the students by providing them with a list of all important criteria as well as with information about the weight of the different tasks. Furthermore, giving feedback is crucial for portfolio learning. Besides providing feedback at the end of the portfolio process it is also

important to provide the learners with some feedback in-between the different portfolio tasks so they can revise and improve their strategies. Implementing learner-learner-feedback offers an appropriate method to engage the students actively into the feedback process. That can also lead to additional generic competences such as social and personal competences. Also, the students' learning diaries could be used as a feedback-tool to improve the design of the portfolio process. They can provide information about tasks, that were too broad or too difficult and about steps in the process where the students could have used more support

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