Background

Portfolios are used “to effectively convey skills, accomplishment, and areas of expertise” (Heath 2003, 38). By using portfolios it is possible to find out the knowledge behind peoples ways of working and why they are using certain strategies when solving problems.

There are many different kinds of definitions for portfolio. In Barrets (2001) article the writer mentions two sources as the main ideas behind the portfolio usage. These mentioned issues are…

Canada (2002) describes ePortfolio as a collection “of student work stored in a digital format – on a CD-ROM, for example, or in the form of an internet site” (Canada 2002, 69). As well he describes that ePortfolios may have a unique navigation advantages. They are also often said to be easier to maintain and share than traditional, paper versions. ePortfolios also, because of their electronic format encourage developing additional communication skills. (Canada 2002, 69.)

From the teachers and the educators point of view portfolios eases their work by showing collections of students work and as well showing the progress in learning over time. (Heath 2003, 38, Norton-Meier 2003, 516.) Learners usually collect their work in different fields of education and the portfolio is thereby usually organized around different areas of expertise.

Portfolios are mainly used on the same basis as are personal learning plans; only portfolios are not just common plans but as well showing the results and progress as well. Portfolios are usually used as paper versions in which learners have a kind of folio which to add all products and certificates/diplomas they receive. When using electronically created format organisation of the material eases and it is as well easier to update the material.

When creating a portfolio, whether it is in electronically or paper base format, there still exist some guidelines according of which the work becomes a lot easier. The first thing learner/teacher has to do is to determine the purpose for the portfolio. When the target is clear it is to collect relevant material.
TABLE 1. APPROACHES TO PORTFOLIO DEVELOPMENT (HEATH 2003, 39)

<table>
<thead>
<tr>
<th>Four Processes for Portfolio Development</th>
<th>Three Questions for Portfolio Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td></td>
</tr>
<tr>
<td>Collection</td>
<td>What did I do?</td>
</tr>
<tr>
<td>Selection</td>
<td></td>
</tr>
<tr>
<td>Reflection</td>
<td>What did I learn?</td>
</tr>
<tr>
<td>Projection</td>
<td>What will I do next?</td>
</tr>
<tr>
<td>Technology</td>
<td></td>
</tr>
<tr>
<td>Presentation</td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td></td>
</tr>
</tbody>
</table>

Assessment is the key in most of the work done with portfolios. Nowadays it is very common way to assess student learning in courses by asking to collect a portfolio about the work done during courses. From the university’s perspective using portfolio as an assessment tool it is a method with variety of opportunities for analysis (Norton-Meier 2003, 517). By rethinking the whole assessment it is possible it diminish the amount of different kinds of tests students are facing when learning in university. (Norton-Meier 2003, 517.)

**Previous research**

Most of the research concerning ePortfolios and basic portfolios as well is mainly based on the tasks given by university. In Kansas State University teachers were given task to create an electronic portfolio system for teacher education students. There was also set a committee to follow up the work so that the needs of different program goals would be as well on focus. (Norton-Meier 2003, 516.) This kind of decision has been made as well nationwide in US in the focus of teacher education.
When teachers have to reprocess their ways of teaching and understanding of student learning they also have to think about their assumptions lying behind the thoughts. (Norton-Meier 2003, 517.)

When thinking about portfolios as assessment method it has commonly announced that using this kind of compact, easy store method eases the assessment process. (Norton-Meier 2003, 517) One has not usually considered that these variety opportunities of analysis may also cause difficulties when comparing students between each other and as well when setting targets for assessment.

According to Jonassen (1996) the construction of electronic portfolio demonstrates the complex thinking and creativity, which are central features. (Jonassen 1996)

One important thing that came up in the research made by Dorman, Carroll and Parboosingh (2002) is that the importance of individual learning style cannot be left out. People use different strategies when learning new subjects and as well across different subjects. When portfolio then should present the work done or the things learned these individual differences couldn’t be left out. (Dorman, Carroll & Parboosingh 2002, 769.)

**Situation in Finland**

Portfolio arrived to Finland year 1991 when Paavo Sipilä, who had participated in meeting in Scotland, took the practice as part of the work in (where?). Officially portfolio was taken into practice for the first time year 1994 in University of Oulu.

Different models and types of portfolio are used in Finland and different types have their specific targets. **Teaching portfolio** is used to evaluate teaching knowledge. Teachers have the possibility to do self-evaluation by making a sort of summary about the work done. Teaching portfolio is again dealt into two different categories, to personal and to sample portfolio.
**Personal portfolio** is used when the target is for teacher to develop his/her own teaching ability. Portfolio gives a possibility to upgrade teacher’s own education and to receive feedback from colleagues. Teachers have used portfolios also to maintain their educational memory (to document the history of learning).

**Sample portfolio** is based on the personal portfolio but it is added with authentic documents. Portfolio consists of description of the education, knowledge, feedback from peer review and self-evaluation.

**Faculty portfolio** is used as a part of pedagogical education. In University of Jyväskylä the need for portfolio is announced “.. as a part of quality of teaching”. **Learning portfolio** is targeted for the students to use it as a part of self-evaluation. By setting up a study plan (personal study plan) it is easier to see the progress in learning and degree reflection. As well the faculties may give feedback as part of assessment.

Portfolios are also used as **person evaluation method**. Sample portfolio should work as presentation of real knowledge the academic person has. It should also describe how she/he is capable to work in a working community and show the possible personal potential for the future. The evaluator grades the content of the portfolio and decides how good/poor the content is.

Different universities and polytechnics have set their own targets for the portfolios. University of Helsinki has criteria’s for sample portfolios. Helsinki School of Economics and Business Administration is using learning portfolios in several courses. Helsinki University of Technology has set criteria’s for teaching ability observation when applying posts by portfolios. University of Oulu is using portfolios when evaluating teaching merits. Lappeenranta University of Technology has used sample portfolios since the beginning of 2003 when applying a teaching post. University of Lapland is using portfolios in turning to Bologna process. New degree system is possible to create in a coherent way by using portfolios.
Examples of different ePortfolios

In Finland there exist many different types of portfolio systems that are built up in electronical format. In this section four different types are explained more detailed in order to achieve the idea of creation. These formats are Verkkosalkku, Deca portfolio, Onni learning diary and eHopo.

Verkkosalkku

According to the system builder the opportunities of Verkkosalkku are wide. It gives the opportunity to study independently or under guidance or to work in learning groups. It gives the learner possibility to describe his/her own expertise, to keep a learning diary, draw up and maintain a personal study plan and a portfolio and to participate in exams and tests. To the teacher the system offers tools for drawing up and correcting exams, questionnaires and analyse their results, to define information and to produce study material for a material bank. All in all it offers a tool to plan teaching by means of pedagogic models.

Verkkosalkku offers purposeful tools for the production of study material and for interaction, counselling, follow-up and evaluation. Working within Verkkosalkku enhances the support given to the student and the student's skills to communicate and to seek and produce information on the net.

Research findings show that Verkkosalkku is a pedagogically and technically purposeful learning environment, which enables various learning modes and learning concepts, adds to a communal spirit, and gives new learning experiences.

Verkkosalkku is suitable for both small and large enterprises. Verkkosalkku contains tools for issues such as surveying the corporate development needs as well as describing and developing the expertise possessed by the personnel. Personnel training take place either through self-study or in learning groups under guidance. Flexible teaching and learning experiences within Verkkosalkku encourage the participants to share information and exchange experiences.
Taru Jokinen  
HUT Dipoli

On the technological side Verkkosalkku is supporting general standards and is independent of the browsers used. It does not require extensive hardware; a modem is enough and it’s suitable for international use: various language versions and character set support available.

DecaPortfolio (http://www.academiaca.net/decaportfolio/etusivu.html) (only in Finnish)

DecaPortfolio is a program, in which learners (usually students) are able to collect contents supporting their own subject. This content can be in form of lecture notes, lectures, links, attachments and all possible material in digital format.

DecaPortfolio is announced to be an effective multimedia tool for users of personal learning or sample portfolio. It is possible to work with the most common document formats (pdf, jpg, MS-Office, mpeg etc.).

Standardized basic tools help the user to focus on content produce. Use of the system does not demand any support of handbooks or courses, basic skills and knowledge in IT is enough.
As a tool for ePortfolio creation this system is possible to use as a faculty level. The layout, structure, navigation and content that customer prefers is possible to tailor as one entity. Content is also possible to update. The system works in net environment and with an additional feature it is possible to use at distant. The net connection is not demanded all the time for use.

DecaPortfolio contains below mentioned features:

- Content up date
- Easy to use and maintain. All that is needed comes along.
- Does not demand special knowledge or separate devices and software
- Alternative for web use
- Simple to install and contains safe copying
- Content update can be protected with username
- Structure and content are both entirely editable
- Possibility to link to the internet and attachment files
- Search tool
- Printing tool

*Onni –learning diary*

Onni is described as a web tool for students to guide and evaluate their learning. The system is created by University of Kuopio and the target is to improve learner’s skills to make self-evaluation for own learning. The system also aims at supporting personal growth towards expertise, recognition of strengths and weaknesses of learning skills, helps to discover the core content for the subject under process and makes the central concepts well-defined and structuralizes the theory.
Learners own targets, products and feedback description, writings of thoughts, feelings or unclear issues, build up the content. Onni can be used as a method either for self-evaluation or external evaluation. Diary has to have a real meaning for working with and the content creation (i.e. writing) is possible to be guided with questions.

The best use is achieved when the diary is updated regularly. The length is not a deciding factor, since the usage is based on learning by writing. The aim is to support self-control and self-evaluation.

As part of Onni system it is also possible to create a portfolio, which presumes that reflective writing and seeing things backwards are made possible. It is recommended that portfolio be produced in connection with learning diary.

By this time Onni is in piloting stage, so it has not been launched yet for wider use. It will be a tool for all learners through the websites of Finnish Virtual University fall 2004.

**eHopo**

eHopo is an electronic tool for personalized learning planning and portfolios. With the tool it is possible to plan, create and evaluate learning.
Filling in the ready-made format begins with description of learning history. The information given in each section helps the learner to fill in the data. In history section the description is needed from the learning path used for studies, the decisions made and things that have affected on them, and the possible causes of back ground that have guided the decision making.

The next section goes further to the learning and its starting points. The idea is to describe previous learning achievements; the subjects that have been really interesting, the success and the failure in learning experiences and to think further which kind of professions attract the most.

The system has different assignments, which helps the learner to choose his/her alternatives. For example different preferences direct learners in the same major subjects choose learning paths differently. Majors rarely are strictly tied in certain paths and for that reason give an opportunity to choose for example to specialize to certain work professions. By thinking own preferences, choices made so far and the choices planned for the future, then thinking about the from different points of view and finally to compare different alternatives wide the knowledge behind own thinking. The aim is to find most suitable orientation alternative according of which to plan the studies.

Orientation is planned by collecting minor subjects and practices and then considering the positive and negative sides of these issues. Finally the learner should consider what these requires for him/her to be fulfilled. The most attractive decision needs to be justified in a written format.

The whole picture of eHopo shows also future visions and targets for every learning periods, planning for every terms, planning and realisation on course level, course evaluation and summary. The picture on the next page tries to illustrate the view of eHopo.
Planning eHopo system has had four different approaches. Three of them are the most important for this project and those are described more detailed.

1. **Learning instruction**: Target orientation, planning and self-evaluation as well on course as academic year level. Supporting learners’ self-directness and decision-making processes with exercises, interactions, guided paths. A tool for whole learning process. Supporting interaction between the learner and the teacher, but mainly offering the learner a tool for following her/his own work.

2. **Content for the tools**: Learner perspective – a tool primary for learners, secondary for teachers and administrative personnel. Contains tools for planning, realisation and evaluation. Alternative ways to implement learning plans, for example many different learning routes for major and minors, possibility to create one to five years plan, a detailed (one course and its target and evaluation) or common (only content of the course).

3. **Technological solutions**: JDK 1.4.x, Tomcat –servlet, PostgreSQL – database, browser
In summary the functions of eHopo can be described as: future visions, course planning (per term), course planning and realization, course materials, course evaluation, summary of personal learning plan, sending tool (for teacher to evaluate), editing tool (edit, delete, clear). For learners eHopo offers a tool to

**Competences for personal development and documentation**

Competence as a cognitive “ability” is determined by the observation of successful performance, which may easily be result of chance. Competence is a highly-valued qualification that accounts for the effective use of knowledge and skills in specific, usually complex, contexts. Only knowing (knowledge) and having the skills needed do not guarantee success in performance in complex situations. Knowledge is best used when individuals know how to select from available knowledge and skills the ones that support efficient and effective behaviour. (Westra 2001, 79.)

According to different kind of systems the core competences that are central for documentation have usually been just a description about the content and how it should be described. The given instructions rarely give any recommendations about the areas that are important to describe.

The definition of competences wary very much depending of the context of research. Commonly competences are assumed to represent more than the levels of knowledge and skills and to account for the effective application of available knowledge and skills in a specific context (Westra 2001, 75).

Competences are usually described to appear in situations that are more complex. Competences show the ability to master these situations and it is also assumed that “ ‘competence’ transcends the levels of knowledge and skills to explain how knowledge and skills are applied in an effective way” (Westra 2001, 75).

Competences are characterised in many different ways. One may describe competence as knowledge or understanding or as cognitive skills. There are clear distinctions between the
definitions, which should not be confused. *Knowledge* is usually associated with the representation of facts, procedures, principles and theories in a particular domain. Knowledge is also the information gathered from observations, situations experienced, beliefs and prejudices in everyday life. (Westra 2001, 76.) *Understanding* goes further from knowledge gathering by representing an intellectual capability to use information and being able to use it in a new situation. (Westra 2001, 76.) *Cognitive skills* are associated with the mental operations that process knowledge. These kinds of processes are mental and associated with higher-order activities. Cognitive skills are difficult to test directly because of the multidimensional hinders of direct brain observation. (Westra 2001, 77.)

According to Westra (2001) the only way to test the mastery of a cognitive skill is to provoke observational behaviours that can directly be linked to the skill (Westra 2001, 78).

Definitions of competence can be found in many literature texts. Westra (2001) has listed the most significant characteristics according of the writer. Lists are summarised on the table below.

<table>
<thead>
<tr>
<th>Definitions of competence</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chomsky’s (1965) approach</td>
<td>Competence vs. performance</td>
</tr>
<tr>
<td>Anderson (1992)</td>
<td>Abilities = The (optional) outcomes of the tests Competences = Underlying cognitive functioning</td>
</tr>
<tr>
<td>Gronlund (1981)</td>
<td>Competences = Individual abilities that can be improved by training → performance tests?</td>
</tr>
<tr>
<td>Langford &amp; Hunting (1994)</td>
<td>The competence of deductive reasoning is constructed rather than activated. Competence i.e. the baric cognitive structures, can be acquired by learning processes.</td>
</tr>
</tbody>
</table>

1 Westra (2001) defines higher-order activities referring to Bloom *et al.* (1956) as “problem solving, reasoning, thinking, assessing, concluding, and include the mental processes of analysis, synthesis and evaluation” (Westra 2001, 77).
<table>
<thead>
<tr>
<th>Taru Jokinen</th>
<th>HUT Dipoli</th>
</tr>
</thead>
<tbody>
<tr>
<td>White (1959)</td>
<td>Competence is linked with the idea of self-esteem. Competence is an outgrowth of feelings after the successful completion of a task etc.</td>
</tr>
<tr>
<td>Stephenson &amp; Weil (1992)</td>
<td>Competences also include attitudinal components.</td>
</tr>
<tr>
<td>Gagné (1977)</td>
<td>Competences = Strategic abilities</td>
</tr>
<tr>
<td>Kirschner et al. (1997)</td>
<td>The ability to make satisfactory and effective decisions in a specific setting or situation.</td>
</tr>
</tbody>
</table>

→ COMPETENCES ARE NOT ROUTINES OF BEHAVIOURS

According to Westra (2001) competence can be divided into two different perspectives according of the processes it tries to rise. These perspectives are called theoretical and operational. From a theoretical perspective, competence is conceived as cognitive structure that facilitates specified behaviours (Westra 2001, 80). From an operational perspective, competences seem to cover a broad range of higher order skills and behaviours that represent the ability to cope with complex, unpredictable situations (Westra 2001, 80).

When competence is seen as representation of both mental performance and observational behaviour it can be described as a competence model according to common definitions. A picture below describes the connections between different levels.
Competence and behaviour are associated usually because of the common understanding that competence can be presented in behavioural habit. Competent behaviour is always associated with conscious thinking. This adds another element to the chain of competence.

**Some considerations**

Some things need to be mentioned when discussing about portfolios. One thing is to consider how to handle portfolios in administrative bodies. As well one important thing is how to encourage people to make portfolios. Making a portfolio needs a lot of work but makes reflection possible. One central question is also how to grade and how to order superiority? And as well to find out so-called best practises by finding out what kind of criteria’s already exists.

It is as well important to consider students side. Teachers should think how to guide the students. Some central issues concern portfolios and how to make one. This kind of portfolio information sessions should offer students the basic information about the background of the portfolio. Secondly it should be mentioned aloud how to work with portfolios. Also it is of very importance to speak out what is the faculties understanding of portfolios.
References


