1. Introduction

In Dutch institutions of higher education the subject of e-portfolio continues to attract increasing interest. This can be explained partly by the focus on competence-oriented education in universities of professional education, in which the emphasis is placed on student development, but also by academic universities’ attention to fostering academic maturity. In the process of educational innovation, the e-portfolio is frequently used as an aid for guiding the learning process or as an assessment tool. It also offers the ‘Net Generation’ students of today the possibility of presenting themselves to various target groups. E-portfolios have the potential to offer clarity and flexibility, which various stakeholders in education have a particular need for, both in pedagogic and administrative processes. Much useful experience with the implementation of e-portfolios has been acquired in the Netherlands, through both national projects and initiatives set up by most institutions of higher education. The aim of NL-Portfolio, established in 2004, is to combine, share and expand this experience. NL-Portfolio is one of the SURF Foundation’s special interest groups. SURF is the Dutch partnership organisation for Information and Communications Technology (ICT) in Dutch higher education and research.

In this paper we give an overview of what we have achieved in the Netherlands in the field of e-portfolio and we present a framework for describing and planning e-portfolio implementation. As examples we present the e-portfolio projects of the Universiteit van Amsterdam and Windesheim University for Professional Education. We also show how co-operation across institutions of higher education is developing (both national and international) with partners in the educational sector.

2. Overview of nationwide projects

Over the past four years some major initiatives have been undertaken on a national scale in the Netherlands. We will describe the three most important ones below.


Three Dutch universities (University of Maastricht, Utrecht University and the Utrecht University of Professional Education) launched the E-folio project (supported by SURF) in 2001 aimed at identifying and publicising pointers for the successful use of e-portfolios in higher education. The lessons learned are listed below:

- Portfolios should be tailored to the purposes for which they are used in the learning environment. Introducing portfolios is not a good idea in all curricula;
- Management should provide solid support for the educational change implied by the use of portfolios. The use of portfolios means learning in authentic situations, creating room for individual development, and investing in coaching and alternative assessment;
- Electronic portfolios must be supported by an adequate IT-infrastructure. No ripples are felt while functioning is smooth, but problems with IT could prove an excuse to postpone or avoid investing in working with portfolios;
- Teachers and students are responsible for the tasks involved. If they fail to appreciate the added value that working with portfolios provides, they will not invest the relatively large amount of time and energy required.

2.2. LMS/DPF (2002-2004)
The aim of the LMS/DPF (Learning Management System/Digital PortFolio) project was to realise an environment for learning and teaching in which student-centred and competence-based learning becomes possible and which supports the transformation in which the students will direct more than before the learning and teaching processes. In the project two universities of professional education were involved, Fontys and Rotterdam University of Professional Education.

In order to take a greater responsibility for their learning, students must be supported by a powerful learning environment, in which competences, process steering and co-operation, are the pillars at which the concept of education is built and IT helps meeting their demands.

One of the major findings of the project is that the students are very well able to direct an important part of their learning, using the integrated combination of a learning management system and an e-portfolio, called N@TSchool. In the educational shift towards student-centred education the role of the teacher changes to coach and facilitator of learning processes.

LMS and DPF are tools specialised to support flexible demand-based and competence-oriented training. They enable students to get all the information they need to plan their educational path and organise the process. These tools comprise a number of key components: a competence training matrix, a personal development plan, a personal activity plan, a ‘pending’ dossier, a final dossier and an assessment dossier.

Students of the Department of Education of Teachers in Nursing in Rotterdam, which worked under transformed educational conditions, mentioned the following valuable results of the new flexible, competency-based curriculum:

- Meaningful learning and intrinsic learning
- Using different strategies, such as learning from experiences and team learning
- New goals (experimentation and innovation)
- The opportunity to choose your own strategy
- Goal-directed learning
- Self-responsible learning (the opportunity to pursue your own interests)
- Learning to regulate and test your own learning process.

2.3. Digital University Portfolio Implementation (2002-2004)

Seven Dutch universities, Utrecht University of Professional Education, Amsterdam University of Professional Education, Saxion University of Professional Education, INHolland University of Professional Education, Twente University, Universiteit van Amsterdam en de Free University Amsterdam have worked together on a toolkit, a website, with information and documents to be used at the start of portfolio implementation.

They have also developed new information for managers to help enable them to supervise the portfolio implementation process. Scenarios have been described for portfolio use to present the options in study programmes and set the borders dividing them (Figure 1, above). Checklists have been drawn up to provide insight into the right conditions for successful implementation.

The impact of the change process is quite different in each of the scenarios. The differences emerge because there is a different impact on how the educational activities are organized. In scenario 1 for example, not all the teachers are involved in the changes, though this is the case in scenario 2, and in scenarios 1 and 2, there is a programme of educational activities that the students take part in, whereas in scenario 3 the planning of the students themselves steers the educational activities.
In each of the scenario’s the implementation process doesn’t focus so much on tools as is often the case in e-portfolio projects. The model, along with the large database of experiences and material on the website, helps the institute to choose its ambitions and lines of development from a functional perspective. In this sense working on e-portfolio implementation becomes a form of change management in which the university can work out its specific form of ‘Folio Thinking’.

3. Two cases of portfolio implementation

We will describe two cases of portfolio implementation in progress at our universities.

3.1. Example of Scenario 1: academic training and skills at the Universiteit van Amsterdam

The Universiteit van Amsterdam is an academic university with ‘traditional’ education: lectures, work groups and laboratory courses. The departments are reasonably autonomous and formulate their educational concept themselves. Ever since 2001, there have been numerous pilots focused on working with an electronic portfolio. In the space of three years, the plans have been put into effect at nine of the twenty-four university departments. Progress was so rapid all over that in January 2003, the decision was made at the central level to draw up a university-wide implementation plan. The situation was described for a two-year out roll in an effort to have 40% of the 22,000 students working with an electronic portfolio by 2005. Due to the great financial investments this would involve, the decision was made to first discuss the matter with all the educational directors to enrol their commitment to the project. After their commitment was clear, a new Plan of Approach was written to prepare a Go - No Go decision for September 2004, so the University Board could make a decision.

The increasing focus on academic training and skills is the reason to start with a portfolio at this university without a central concept of competence-based education. Stimulating the growth of these skills and making them visible in an e-portfolio are the basis for all the pilots. Simultaneously with this movement, there is also renewed interest in arriving at a collective concept of education. As a result of the collaboration with a professional university (Amsterdam University of Professional Education), the improvement of the study career counseling is once again on the agenda.

These three movements converge in the UvA portfolio implementation route. Scenario 1 (instrument for counseling and personal development) is expected to serve as the guideline in the next few years. In view of the strongly autonomous role of the departments at the UvA, up to now the change approach (according to the classification by De Caluwé) has been characterized as a “yellow change” with attention for creating a support base / sharing views / involving the context. The implementation of an electronic portfolio will however require a “blue” approach with a blueprint for a study career-counseling route with checklists for the managers to steer the pilots and new initiatives. This is an approach that is common practice in the IT world but not so much at this university. There will also have to be a “red” focus on stimulating and encouraging teachers to grow in their changing role from expert to coach via a professionalization route.

3.2. Example of Scenario 3: organizational transformation at Windesheim University

The past three years Windesheim University of Professional Education has worked on an integrated and functional strategy for the development and implementation of a campus wide e-portfolio system. In the developed pedagogical model using an e-portfolio is not to be just some extra activity that stands apart for the teachers and the students. Instead it should be a fundamental cornerstone for the pedagogical process on the one hand and the educational institute’s administrative processes on the other. When implemented in the heart of both, an e-portfolio should make learning and teaching more efficient and effective. It should support and improve students’ acquisition of competencies and it should also bring about and support a more transparent and flexible workflow for the different stakeholders involved. In this picture E-portfolio fulfills vital demands for overview and flexibility, which helps answering questions, like “Where do I stand?” and “Where do I move next?” that become even more important in student-centred education.

Windesheim plans to use e-portfolio as a tool for both students and faculty in all of the courses. The results of the first pilots have shown that it can make learning and teaching more efficient and effective, when embedded in the workflow of students and faculty. An important element of e-portfolio development and implementation at Windesheim so far has been that the different stakeholders have been involved from the start of the program in 2001. By working this way there is common ground regarding the functional specifications, the key processes and the selected tool.
Windesheim is currently piloting in 5 of the total number of 10 departments and already scaling up in 2 other departments. It is preparing the 3 remaining departments in terms of educational and administrative processes. Parallel educational standards for the application of e-portfolio in student centred competence based education within the major-minor model are being developed. At Windesheim e-portfolio’s will eventually cover all primary functions mentioned in scenario 3 above (counselling, assessing and planning) in both Windesheim’s more classic courses and especially in so called integrated professional tasks that students work on over a longer period of time. Figure 2 shows the central position e-portfolio will have in students’ processes.

3.3 Challenges in implementation

As there are of course differences between the cases described of the University of Amsterdam and Windesheim described above, there are some mutual challenges to face in each scenario. Some of the key issues appear to be:

- On the organizational side, the question is how to keep the different perspectives of involved stakeholders in line with each other? It is clear that a multi-disciplinary approach in development and implementation is essential with the involvement of all of the stakeholders (students, teachers, coaches, assessors, work field).
- Sharing of outcomes with each other is also an important element. E-portfolio implementation is not an easy job to do. Learning from each other, and making new choices together helps to keep the stakeholders involved.
- Support by management is crucial, the lines of development are best to be chosen as a result of a bottom up process, but after the decisions are made management should support and facilitate them top down by defining a strategic framework.
- Another important form of support is that on the functional-pedagogical and on the technical-instrumental side in the different departments and in co-operation with institution wide support units for IT and Educational development.
- Although one should not focus on the technical issues too much, there is of course also the technical challenge: how to create functional workflows in an integrated technical infrastructure? In the Netherlands there is a growing tendency to work with integrated architecture approaches, giving attention to open standards and interoperability. In most cases e-portfolio is not just a single tool (one piece of software), it is more often part of a larger technical configuration, in which the required functionality may be met by the interoperation of different hard- and software tools.

4. Policies for co-operation within the educational sector

E-portfolios play a significant role in both the pedagogical and administrative processes of institutions not only in higher education but, increasingly, in other branches of the Dutch educational sector as well. Furthermore, even outside the confines of education, issues such as ‘competence management’, ‘employability’ and ‘life-long learning’ are salient topics of discussion, both in the field of employment and the public arena. Therefore different partners in the educational sector in the Netherlands establish links and develop initiatives beyond educational boundaries. Within Dutch higher Education SURF funds special interest groups, a concept that has already been applied successfully for the subjects of streaming audio and video in the ‘Webstroom’ group and for standardization in the ‘SIX’ special interest group. As yet another of these special interest groups ‘NL Portfolio’ has defined its activities for the coming two years, including:
• Setting up a co-ordinating website that will be the portal to the subject of e-portfolio for Dutch institutions of higher education;
• Participating in existing innovation projects in the Netherlands, grassroots projects, and e-learning research projects;
• Initiating its own project tender among Dutch institutions of higher education;
• Co-operating internationally in the field of e-portfolio
• Exploring and developing the subject of ‘life-long learning’ in the Netherlands, thereby co-operating with partners in the educational sector, the government and the professional field.
• Dissemination by means of national and international conferences and study days

Co-operation within higher education in the Netherlands has been taken up for example in the ‘Trendstudy E-portfolio in higher Education’, as part of an e-learning research project by SURF, aiming specifically at the audience of higher education managers, describing the lessons learned by different institutions regarding e-portfolio, in terms of ‘actors, factors and strategies’. Also different higher education consortia in the Netherlands, like Apollo, E-merge and the Digital University have done e-portfolio tool study’s to explore the future in this field together.

Across the educational sector different partners, from primary education up to higher and further education have worked together on a broad state-of-the-art study on e-portfolio in the Netherlands. The report describes five possible routes for future development in terms of co-operation: from doing nothing (route 1), up to one system for e-portfolio on a national scale (route 5). The report advises to work towards ‘route 4’ by creating ‘one mutual highway’ that will set standards for both functional and technical specifications that can be applied regionally and in different sectors of education. Also in other sectors of education initiatives on portfolio exist. An example is “Platform portfolio” in the professional education sector.

Internationally co-operation on e-portfolio is also emerging. Some recent achievements are:
• The annual conference organized by Eiffel in La Rochelle in France attracted 180 specialists from across the globe, using as a credo “Objective 2010 - Eportfolio for all citizens”.
• Recently IMS has launched its specifications for e-portfolio’s
• At Educause 2004 there were some ten presentations and working groups on e-portfolio, and also a preconference by different participants in OSPI, the Open Source Portfolio Initiative.

A recent example of co-operation by Dutch universities was organized by SURF and ALT (United Kingdom). Portfolio specialist from both countries have exchanged knowledge and experience in a working seminar and written a briefing paper together. The paper highlights apparent similarities and differences in approaches between UK and Netherlands as well as opportunities for future collaboration. In the 2005 edition ILTA from Ireland joins the conference and research seminar. The University of Maastricht participates in the European Union funded EPICC project, which describes use cases and scenarios.

**Conclusion**

Together the models, cases and examples described above make it clear that ‘folio thinking’ is and will remain a strong trend for the coming years in the Netherlands. It is at the same time a result of and a stimulus for both the development and implementation of e-learning and that of pedagogical change across educational sectors and potentially also through working life of our citizens.

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