

## 22 Digit@l Did@ctics: Development of Teaching Staff

G.J.A. Baars\*, M.J.J.M. van de Ven\*, G.J. Verheij<sup>†</sup>, M.J. Verkroost<sup>††</sup>

\*Erasmus University, The Netherlands  
baars@oecr.nl  
vandeven@oecr.nl

<sup>†</sup>University of Groningen  
g.j.verheij@eccoo.rug.nl

<sup>††</sup>Delft University of Technology  
m.j.verkroost@tbn.tudelft.nl

### Abstract

This paper presents an innovative way of development of teaching staff. Teachers prefer to learn and to receive support 'just in time'. As an answer to this demand this project has developed an educational knowledge base containing didactical materials and an educational call centre.

**Keywords:** Teacher training, knowledge management, didactical methods

### 1 Introduction

The paper presents an innovative way of development of teaching staff, which is being developed in the project Digit@l Did@ctics. Reason for this project is, among others, the national inventory study of the use of ICT in Dutch Higher Education (Veen a.o., 1999). This inventory study identified some bottlenecks in the introduction of ICT in education: teachers have to make a move to new education, but they lack time; teachers lack insight in ICT development; teachers lack ICT capacities. Finally these bottlenecks lead to the recommendation to stimulate expertise development with teachers by means of an on-line learning environment. In addition, it is proposed to make this happen by exchange of expertise and collaboration between institutions.

The project is based upon the following propositions:

- teachers prefer to learn and to receive support 'just in time';
- teachers prefer to learn at their own speed and in their own surroundings;
- the Web is the medium to give information just in time and to facilitate learning.

By collecting and giving entrance to instruments and material referring to digital didactics, it is prevented that, on different spots, the same activities will be performed to shape the teaching and learning with help of innovative use of new technologies.

The three main Dutch partners in this project are the OECR (Educational Expert Center Rotterdam) of the Erasmus University Rotterdam, EDUTECH of Delft Technical University and ECCOO and UCLO of the University of Groningen. Central in this project is knowledge dissemination and staff development of teachers. An important starting point is sharing, storing and dissemination of knowledge.

### 2 Problem definition

Within Higher Education a lot of material and experience is available in the field of digital education, both in designing, implementing and in evaluating education. Educational staff members of the different educational centres and education supporting groups use their own material or material from others within their own advising practise. Pioneering teachers have experience with online teaching and much of their practices are briefly or extensively evaluated. Next to the pioneering group there is an extensive group of teachers confronted with the problems using Information and Communication Technologies (ICT) applications in their way of teaching. Not every teacher has easy access to the assistance of educational experts at the moment he is occupied with designing courses or offering instruction. This is partly due to the financial structure of the Education Centre within the educational institutions, but also to the lack of this type of facilities within their own or another institution.

The goal of this project is to stimulate and expand the use of ICT&E in Higher Education by means of staff development.

Within this goal the following elements can be distinguished:

- Offering just-in-time support in the use of ICT&E to Higher Education teaching staff
- Gathering expertise on the use of ICT in Higher Education and making this expertise available for teaching staff
- Creating and maintaining a lively professional community in the area of ICT&E

An important additional goal is that the collection of expertise elements in digital didactics can act as catalyst for innovation processes in educational institutes. Presumably the results of this project will help teaching staff in overcoming possible reluctance to change.

### 3. Proposed solution

The project 'Digit@le Didactics: Developing Teaching Staff in HE' provides in the before-mentioned demand by offering a didactical help desk for ICT in Education (ICTE). The teacher can be offered assistance at the very moment he is confronted with problems in designing, practising or evaluating within his educational practice. The project is focused at offering help to teachers seven days a week within 24 hours in designing and practising of ICTE. For that purpose objective knowledge is stored in a knowledge management system and is made accessible by a web site. Furthermore a call centre is arranged.

The project is built on three key elements. The most distinguishing part of this project is experimentation with new ways of staff support and development. Next to that, new techniques will be used (e.g. surfing together from different locations). Furthermore, the project will research a system in which 'publication by means of a knowledge database' will be used as incentive for authors and a system in which peer review will be used as quality assurance. At this moment a detailed picture of the way these three elements will interact is not available. In this project careful experimentation, smart 'trial and error' and thorough evaluation are necessary and crucial.

Staff development takes place by gathering and storing expertise of ICT&E experts and using this expertise by other staff members. Ultimately the quality of education will improve. The main characteristics of the expertise that will be made available online are flexibility in use and 'just-in-time' available.

In the first project phase the educational expertise centres involved will gather and further develop their expertise and experience in Digital Didactics and make it available online (**knowledge dissemination**). In a later phase educational experts of other educational organisations are free to participate in the project.

The innovative character of this project is that staff development is offered in a different way, supplementary to the existing services that educational expertise centres offer such as training and workshops. Because of this the project offers new types of relations with clients and new ways of marketing.

Part of the project is research into and experiments with an **incentive system** for teachers that offer expertise elements and a **peer-review system** for judging these elements.

#### 3.1. Target group

The primary target group consists of teaching staff in Higher Education, both universities and Higher Vocational Education. Within this distinction fall prospective teachers, young teachers as well as experienced teachers. A secondary target group consists of teaching staff in other types of education, such as Secondary Education and Vocational Education, and educational consultants.

The target group shows large differences in didactical expertise as well as expertise in online education. Therefore the available material should differ in type and level of detail. Also, sophisticated and efficient ways to search the material are required for these users.

Next to these target groups the project aims at staff of educational expertise centres themselves. The daily practice of these centres might change, in particular the way professional support is offered, evaluated and accounted for. The project might be used as an umbrella project for existing activities of these centres.

#### 3.2. Types of teacher support in this project

Particular in this project is that staff development of teachers is set in a new perspective, which is a major shift from the traditional way in which the service of the educational centres is offered. The innovating character lies in three types of support: the just in time support of teachers, support by means of collaborative teaching and support tailored to the situation at hand, in other words following on questions of individual teachers. The extended and still extending possibilities of the Internet are the designed medium to constitute this new way of staff development.

How does this support work in practise? A teacher can search the tool site for knowledge or material needed to solve a problem that he encounters while designing or practising education. This site is set up and arranged as customer oriented as possible. Many questions of teachers cannot be solved in the above-mentioned way because these questions need to be analysed by the teacher and the educational consultant mutually. Only after mutual analysis a tailored solution can be generated. Although a website might have an user-friendly design, it still will offer little support to a teacher who does not exactly know what he is looking for. For that reason the website and the call centre will be integrated. Support seeking teachers will first, together with an educational consultant, analyse the educational context of the question and then use the tool site (and adjoining sites, see appendix) to find an appropriate solution. This type of support will function synchronous or asynchronous, using the various available web-techniques.

Collaboration between the different educational centres is central to the project. Within the project, knowledge is shared, managed and exchanged. The content of this project is focused on making practical, directly applicable material

available and offering know-how based upon concrete experiences.

For a further extension the site will become more self-supporting by teachers contributions. For that purpose, in this project is experimented with an incentive system. Teachers who provide content to the knowledge management system are rewarded. Among other things, the project researches how a knowledge management system can be used as a publication medium. Besides this the project experiments with a peer review system. This means that users of the knowledge management system can ask questions to each other or can give comment to instruments stored in the system.

### 3.3. Project results

This project results in an integrated product, containing the elements described below.

- A **knowledge management system**, containing descriptive documents as well as educational materials and instruments. The user can use the content of this knowledge management system in designing, practicing and evaluating online education. Through this mutual collection of knowledge and experience participating educational institutes might benefit from each other's expertise and in this way develop themselves further in this area. The material should be electronically available through a central website. The material is ready to be used in practice and it fits within current educational categories, such as collaborative learning and self-regulated learning.
- Part of this system is an intelligent search program, based upon descriptions and characteristics of material contained in the database. Which specific approach will be used for this system has to be decided upon.
- Different users with different responsibilities can be distinguished, such as users, authors, reviewers, editors and technical system managers.
- A **website** (tool site) to be used by users as an interface for the knowledge management system and as a medium for synchronous or asynchronous communication with educational supporters.
- A **call centre**. For users that cannot find the knowledge they are looking for in the knowledge management system a call centre is available, offering educational support in the field of online education. This centre will answer within 24 hours.
- Results of the research into and experiments with the **incentive system** for teaching staff that contribute to this project by adding content to the knowledge management system. Additional to this are the results of experiments with a **peer review system** for judging these contributions. This system is comparable with an E learning Journal, in the sense that staff members will see contributions to the knowledge management system as official publications.

- An innovative approach to teacher support, including the necessary organisational changes.
- Co-operation between a large number of educational support centre in different parts of Europe.

During the project a number of measures indicating the use of the knowledge management system and the call centre will be kept up. As for the knowledge management system, interesting statistics include number of users, frequency of use and evaluation results such as user satisfaction. As for the call centre, statistics such as number of calls and question categories will be kept.

## 4. Content of the knowledge management system

The elements in the management system will be building blocks that teachers or educational developers can use in designing and creating education. The system will not include complete products, such as handbooks or courses.

The focus of the knowledge management system will be the use of ICT in:

- Different educational formats, such as lectures, practicals, field trips, self-study and such.
- Activating educational formats, such as Co-operative learning, Self-directed and self-regulated learning, Case-based learning and Problem-based learning
- Offering feedback
- Different types of assessment
- Course evaluation
- Adapting education to differences in learning styles or learning strategies
- Offering presentations

Arising new technologies will evoke questions on applying these technologies. This project will support users in answering these questions. In fact, the users themselves will to a large extent determine the content of the knowledge management system.

The material in the database can be of different formats. Examples of such formats are 'how-to'-schemes (e.g. 'How to use an electronic discussion forum'), Frequently Asked Questions (e.g. a FAQ on electronic discussions) and lists of 'Do's and Don'ts'. Next to these formats, the system may include descriptions of tools that might be interesting for the use of ICT in education. For example, interactive multimedia applications might be of interest to certain learning goals or target groups.

In a later phase of the project more attention can be given to differences in the relations between didactics and content. In that way the user is enabled to differentiate between content areas, e.g. technical sciences or social sciences.

An example of an online educational support system, including a knowledge management system and a website, is the Catalyst Site of the University of Washington (<http://depts.washington.edu/catalyst/home.html>)

However, this Catalyst project only aims at offering online didactic support. The users did not supply the content of this database. This also means that an incentive system and a peer review system are not included.

## **5. Project planning**

The project is divided into five successive phases.

### *(i) Orientation and design phase*

In the orientation phase the criteria for the knowledge management system will be defined. Based upon these criteria, an existing knowledge management system will be acquired. The website that will serve as an interface between user and knowledge management system will be designed and developed. Furthermore, an organisation plan will be developed for filling, designing and maintaining the knowledge management system and for designing and realising the call centre.

### *(ii) Piloting phase*

The knowledge management system and the website will be installed. User manuals will be developed and the knowledge management system will be initially filled.

The knowledge management system, the website and the call centre will be made operational. In this phase the use of these functions is limited to staff of the first participants in this project. The piloting phase will be thoroughly evaluated and eventual revisions will be carried through.

### *(iii) Preparing implementation*

In this phase a plan will be developed for using the knowledge management system, website and call centre with all Higher Education institutes that are interested.

### *(iv) Implementation*

The knowledge management system, the website and the call centre will be taken into use. Staffs of the participating educational centres will maintain the knowledge management system, implement the incentive and peer review systems and man the call centre.

### *(v) Evaluation*

In each phase the project will be evaluated separately, but the entire project will be evaluated in the last couple of months. In this period a final project report will be written, as well as a business plan for continuation of the activities.

## **Acknowledgements**

The project is co-financed by SURF Foundation a Dutch cooperation organisation on the area of ICT and Higher Education. An important objective of SURF is dissemination of knowledge (expertise development, sharing of knowledge and staff development) in the field of applying ICT in Higher Education.

## **References**

Veen, W., J. van Tartwijk, I. Lam, A. Pilot, M. van Geloven & E. Peters (1999). *Flexibel en Open Hoger Onderwijs met ICT. Een Inventarisatie van ICT Gebruik, Meningen en Verwachtingen [Flexible and Open Higher Education with IT]*. Utrecht: IVLOS Universiteit Utrecht en OC&TO, Universiteit Twente. (In Dutch).