Journal of Teacher Education and Educators
Öğretmen Eğitimi ve Eğitimcileri Dergisi
Volume/Cilt 2, Number/Sayı 2, 2013, 167-194

National Competence Standards for Initial Teacher Education: A Result of Collaboration by Faculties of Education in the Netherlands.

Temel Eğitim Öğretmen Eğitimi Ulusal Yeterlik Standartları: Hollanda Eğitim Fakülteleri İşbirliği Sonuçları

Ton Koenraad[1] and Aike van der Hoeff[2]

Abstract
ADEF, the Dutch General Consultative Body of Directors of the Faculties of Education, developed the ICT knowledge base, a description of what should be expected of a pre-service teacher concerning ICT competences. TPACK is used as a conceptual model for development of these ICT-competences. The model captures some of the essential qualities of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multi-dimensional and situated nature of the teacher profession. In this paper we present the 2009 version of this national ICT knowledge base for student teachers and describe supporting measures, instruments and challenges for its implementation. We discuss developments for the 2013 update and illustrate the process of teacher education curriculum innovation with personal experiences in running pilots about inquiry based learning, the use of interactive whiteboards and 3D virtual worlds.

Keywords: Teacher education, ICT knowledge base, competence, TPACK, 4-in-Balance model

Öz
Eğitim Fakülteleri yöneticileri Hollanda Genel Danışma Kurulu olan ADEF, (bilgi ve haberleşme teknolojileri, ICT) öğretmen yeterliğiyle ilgili öğretmen adayından ne beklenildiginin bir tanımı olan ICT (bilgi ve haberleşme teknolojileri) bilgi tabanını geliştirmiştir. TPACK (teknopedagojik eğitim yeterliği), bu ICT yeterliklerinin gelişimi için kavramsal bir model olarak kullanılmaktadır. Model, kompleks ve çok boyutlu olmasına ve öğretmenlik mesleğinin doğasında bulunmasına rağmen, öğretmenlerin derslerindeki teknolojik bütünleşme için ihtiyaç duyulan bilginin gerekli niteliklerinin bir kısmını barındırıyor. Bu raporda, uygulama için sorunlar, araç gereçler ve destekleyici önlemler tanımlanmış ve öğretmen-öğrenci için bu ulusal ICT bilgi temelinin 2009 modeli sunulmuştur. Ayrıca araştırmada 2013 güncellemeleri için gelişmeler tartışılmış ve üç boyutlu sanal dünya ve interaktif beyaz tahta (akıllı tahta) kullanımı, araştırmaya dayalı öğrenme hakkındaki kontrol çalışmalarda yürütülen kişisel deneyimlerle öğretmen eğitimi müfredat yenileme yöntemi örneklendirilmiştir.

Anahtar sözcükler: Öğretmen eğitimi, ICT bilgi temeli, yeterlik, TPACK, dörtlü denge modeli

[1] Ton Koenraad: TELLConsult, www.tellconsult.eu ton.koenraad@gmail.com
[2] Aike van der Hoeff: ICT4edutrain, www.ict4edutrain.nl info@ict4edutrain.nl

Introduction

To support a better understanding of the ICT-competence standards and the implementation pilots in Dutch teacher education presented in this paper we will first describe the policies and developments with respect to the introduction of information and communication technology in the Dutch national educational setting.

Subsequently, we will describe Kennisnet, the Dutch Schoolnet organisation, one of the Ministry's initiatives, and, in particular and more detail, the 4-in-Balance model, one of Kennisnet's products. We follow this up with a description of the collaboration between a number of Faculties of Education that led to the definition of teacher competences in the use of technology. These standards, documented in the 'Knowledge Base ICT', are presented in paragraph 2. In the next paragraph we will describe three cases illustrating the process and challenges implementation of the standards involve. In the fourth paragraph we will analyse and discuss these cases with reference to the requirements for successful implementation of ICT in Education as defined in the 4-in-Balance model and argue for the need for regular updates of the e-competence standards.

The introduction of ICT in Dutch Education

The Ministry of Education's vision on the education system and the role of ICT in this respect can be characterized by its professed general aim to realise ambitions for an outstanding education system that gets the best out of children, challenges them to use their talents, and minimizes disadvantages, driven by quality and professionalism among teachers and school principals. For more than 20 years ICT has been considered as a facilitating and beneficial factor.

However - as in most countries in the world (Voogt&Knezek, 2008; Rizza, 2011) - integration of ICT in education has turned out to be a complex process. Based on Kral's review of the time period 1995-2009 (Kral, 2009) we briefly summarize the main initiatives and developments in the Netherlands.

Three episodes can be distinguished and characterised with the keywords: technology push, the learning of the teacher and focus on the learner. During the first period, covering the years 1995 - 2000, the emphasis was on the provision of hardware and development of the schools' technical infrastructure targeted at improvement of the quality of education. The considerations in the implementation strategy for the main activities were: widespread use of computers will be promoted by training of basic skills, the availability of ICT facilities, an abundance of good practices and the digitisation of (internal) information. At the end of this 'technology push' period studies show that, although teachers are adequately trained and the technical facilities are available, educational use of computers is lagging behind expectations due to a lack of learning materials, shared vision and pedagogical, ICT-related skills.

The conclusion that cultural factors and collaborative learning were missing in the change management strategy gives direction to the approach in the next period (2000-

2005). The motto from 'learn to use' to 'use to learn' nicely summarizes the focus of the new approach: the educational focus and the role of the teacher. The main activities are: development of pedagogy for educational ICT use plus the related ICT-e competences and the professional development of the teacher supported by communities. Concurrent developments in teacher education including the enhanced collaboration with schools lead to schools getting involved in the training of pre-service teachers and teacher education organisations contributing to school development. In this respect student teachers are seen as potential change agents, also in the ICT domain. Another related development is 'new learning', stimulated by the social-constructivist approach to education, where ICT can facilitate competence- and evidence based learning.

Then, from 2005 onwards, the focus shifts to the learner. Developments have been strongly influenced by the arrival of the WEB 2.0 applications, connectivism and the 'digital natives'[3] in the school system.

Knowledge acquisition increasingly takes place through networking facilitated by web 2.0 tools that support sharing and co-creation, deep and experiential learning (simulations, virtual worlds) and just-in-time and just-in-place learning (e.g. smartphones).

However, studies (Four in Balance Monitor 2012, 2012) show that these developments have not led to the 2.0 version of the teacher nor the innovation of the educational system and that there still is a big divide between the use of ICT in and outside of school.

Further innovation in education is needed - also globally - as testified by the Call to Action defined by the participants of the 2009 EDUsummIT (EdusummIT, 2009). Their recommendations included:

- redefinition of educational targets
- multimedia literacy as curriculum topic
- strengthening of change management skills for leaders
- promotion of open educational resources (OER)
- promotion of (continuing) professional development of teachers

The Role of Teacher Education

And, indeed, although more recent editions of the Four in Balance Monitor show that the adoption of ICT in schools in The Netherlands progresses, it is obvious that further development of (new) teacher competences is needed. Teacher education organisations are expected to be leading in this. Not in the least because ICT-driven innovation of education involves new professional roles for teachers.

An example is that of 'constructor or arranger' of digital learning materials. The

[3] Digital native pupils and students bringing their preferred ICT-tools, have networking as lifestyle and learning styles defined by doing, interactivity, images, connectivity and multi-tasking.

relevance of related competences for this particular role was corroborated by recent research by the SLO, The Netherlands Institute for Curriculum Development (SLO, 2012)

…"In all sectors of education, there is a substantial use of self-developed or found educational materials. On average, over a third of the educational materials is self-developed or found. Managers throughout all sectors substantially underestimate the extent of teachers' self- developed or found educational materials." (SLO, 2012, p.4).

That adequate ICT-related teacher competences are still of high priority was also testified by recent research on ICT in Education in Europe (European Union, 2013).

… "Increasing teacher professional development opportunities could be a potentially efficient and evidence-based way to boost ICT use in T&L[4] through the development of highly confident and positive teachers. Focusing policies specifically on teacher professional development is supported by the fact that teachers' opinions about the impact of using ICT for learning purposes are already positive or very positive (around 80% of students being taught by such teachers in schools where the school heads also share such positive views)" (European Union, 2013, p.138).

And there are more challenges for teacher training colleges as it turns out that the net generation school leaver who opts for a career in education does not automatically develop into a 2.0 teacher. This type of student teacher (candidate teacher) will also need educators showing model behaviour in using ICT for educational purposes and be offered (blended) learning environments that allow experimentation and experiential learning.

Kennisnet

The initial experiences with nation-wide projects to stimulate the adoption of technology and professionalization of teaching staff (as described above) have led to insights that more structured and long-term support is needed to address the complex and lengthy process of implementing ICT in education. One of the measures taken by the Ministry of Education at the end of the 20th century was to launch Kennisnet, a national organization geared at helping schools in various educational sectors in the integration of ICT in teaching and learning activities and the their organizational processes.

The Kennisnet organisation, the Dutch schoolnet, describes itself on its international website pages (www.kennisnet.nl) as "the public educational organization which supports and inspires Dutch primary, secondary and vocational institutions in the effective use of ICT".

Kennisnet ensures that educational institutions are aware and take advantage of the opportunities offered by ICT. It is concerned with the national ICT infrastructure, it

[4] Teaching and Learning

provides access to practical knowledge of what does and does not work with ICT, and it shows how institutions can use that knowledge. Kennisnet also boosts innovativeness in education by exploring new technologies and how they can be used in teaching.

Kennisnet works closely together with several international organizations. After all other (European) countries have similar challenges with regard to the effective use of ICT in education. From a common agenda, international organizations can share their knowledge, support each others' ambitions and generate higher returns for education. For more information on the organisation's current and planned activities see Maes&Mulder (2013).

Based on years of research concerning the conditions for successful ICT integration in education the so-called 4-in-Balance model was developed by Kennisnet. It claims that for the use of ICT for educational purposes, a balanced and coherent use of four building blocks is essential. These blocks are: vision, expertise, digital learning materials and ICT infrastructure. These elements and comparable recommendations can also be found in The International Society for Technology in Education (ISTE) brochure 'Essential Conditions: necessary conditions to effectively leverage technology for learning' (ISTE, 2009).

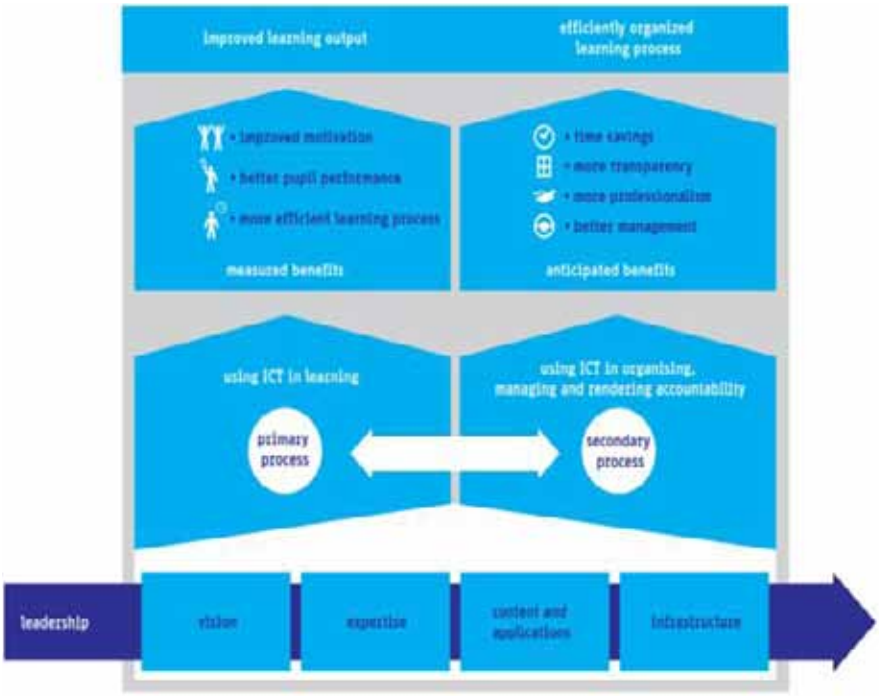

Figure 1. The four in balance model (Four in balance monitor, 2012, p. 25)

In the Four in balance monitor 2012[5] the individual components of this instrument are summarised as follows: Vision: what the school believes constitutes good teaching and how it intends to achieve this. Vision refers to the school's objectives, the role of the teachers, pupils and management, the actual content to be taught, and the materials that the school uses. Expertise: teachers' knowledge and skills, which must be good enough to utilize ICT to achieve educational objectives. This involves not only technical skills, but also the ability to link these skills to pedagogical knowledge and knowledge of the subject matter.

Digital learning materials: all digital educational content, whether formal or informal. Formal learning materials are materials produced especially for educational purposes. Digital learning materials also include computer programs.

ICT infrastructure: the availability and quality of computers, networks, Internet connections. Learning Management Systems (LMS) and the management and maintenance of the school's ICT facilities are also considered to be part of the ICT infrastructure.

The education sector's task is to coordinate these four basic elements when designing, facilitating and implementing teaching/ learning processes. Teachers play a crucial role in this, but there is also a need for leadership to guide the process and create the right conditions for support from and collaboration with other professionals.

In line with the topic of this paper we focus on the Expertise aspect of the model in particular and describe the specifications of e-competences (Schneckenberg, 2006) to be acquired during initial teacher training in the Netherlands. ADEF, the General Consultative Body of Directors of the Faculties of Education at Universities of Applied Sciences, commissioned the ADEF ICT working group to further develop the available ideas on ICT-related teacher competences as described in (Schoot&Keiren, 2005).

The ICT Knowledge Base

Structure and Contents description of the 2009 version

Along with the knowledge bases being developed for teaching specific school subjects in Dutch education, the first version of the ICT knowledge base was published by ADEF in 2009 (Linde et al., 2009). The document holds a negotiated description, with assessment indicators, of what should be expected of a pre-service teacher after four years of training in terms of attitudes, technological skills, digital literacy and pedagogical knowledge related to the use of ICT in teaching and learning. Unlike the subject specific knowledge bases this list of knowledge and competencies is generic in nature implying that application for a specific discipline involves further specifications of content.[6]

[5] The Four in balance monitor is a series of annual publications on the benefits and actual use of ICT in Dutch schools. It is based on independent research, including a study of international sources, and focuses on Dutch primary, secondary and vocational education and training.

[6] The relevance, knowledge about and educational use of e.g. spreadsheets may well differ in nature and level in science vs. arts subjects).

Attitude
1. Instrumental skills
2. Information skills
3. General pedagogy
4. Designing and developing

Attitude points at self-reflection, initiative and leadership towards ICT and education. The teacher has to be critical, flexible, and he seeks collaboration and is able to reflect on his own actions.

Instrumental skills are about the use of a computer and to operate productivity software such as the word processor, spreadsheet and presentation programs. But also to make and process photos, video and audio. And working with a Learning Management System (LMS), testing system, portfolio system and educational software. Obviously expectations for instrumental skills change over time: e.g. the use of mind maps has increased across educational sectors and disciplines and tablets did not exist in 2009.

The section *'Information skills'* covers the ability to select reliable digital resources, teach pupils to search efficiently and select reliable information and to contribute to the development of 'media wisdom' pupils need in the interaction with internet.

General pedagogy is the largest part of the ICT Knowledge base. It consists of four sub-parts.

In *Presenting* the ability to develop materials for and use a presentation program to support explaining and instructing is described. A second part of this deals with the application of classroom technologies, such as the interactive whiteboard.

Collaborating and communicating involves competences both with respect to collaboration with colleagues and with organizing and monitoring the collaboration among pupils.

Working individually is about helping, and sometimes checking, pupils to learn and study on their own. The LMS is a means of facilitating this.

Guiding and evaluating is about gaining insight in the pupils' learning process with the use of ICT. About showing them how to make their own learning process visible, at a distance follow the progress of pupils, guide them in preventing fraud and plagiarism and offer remedial programs to those who need it.

Testing is about the use of test service systems. Awareness of the advantages and disadvantages, the skills to construct test items and to organize computer-based testing.

Finally there is *Designing and developing.* At the time the knowledge base was developed this section led to a lot of discussion. In the end the question whether teachers need the ability to develop digital learning materials was answered positively. Teachers always (have and always will) partly develop their own teaching and learning materials. Consequently they also need the ability to do so in the digital age.

We finish this paragraph with an example of an assessment indicator regarding the topic *Testing:* … "The teacher shows that he can make different types of closed questions (multiple choice, multiple answer, yes/no, ranking, matching, point & click, fill-in-the-blank and numeric)" (Linde et al, p. 7). This indicator focuses clearly on the observable behaviour of the teacher, and so do all the indicators in the ICT Knowledge Base.

Although the teacher training colleges agreed about the ICT Knowledge base as a standard, each college was at liberty to actually use the knowledge base as a model for teaching and testing the related content. Some of them did, others did partly and some of them did not.

The 2013 version of the ICT knowledge base

The 2013 version, currently called 'National ICT competency framework for student teachers' (Kennisbasis ICT, 2013[7]), consists of four instead of five main competence domains:

1. Attitude
2. Basic digital skills
3. Digital media- and information literacy
4. Pedagogical behaviour

In the title of the fourth category, Pedagogical behaviour, the word 'digital' is not there anymore. This shows that the starting point of the new ICT Knowledge Base is the pedagogical behaviour of the teacher. The tools that are linked to that behaviour are the connection with the teaching activities that a teacher performs and with the learning that a pupil is supposed to do.

The 2013 version also relates strongly to a framework of ICT competencies that Kennisnet developed and negotiations are on their way to integrate both standards.

Relation to TPACK

The TPACK model, developed by Mishra and Koehler (2006) and since then the starting point of dozens of research activities, is a model that structures the competencies of teachers regarding the implementation of ICT in teaching and learning. It states that a teacher has three types of knowledge. Pedagogical knowledge (PK), content knowledge (CK) and technological knowledge (TK). The word 'knowledge' should here be interpreted as 'knowledge and experience'.

The pedagogical and content knowledge are the core of a teacher's abilities. A teacher should know how to teach and should be an expert at the content that he or she teaches. The third knowledge domain is relatively new: a teacher should have knowledge about technological subjects like how can I operate an electronic whiteboard, what are the possibilities and limitations of a chatbox, how can I use an LMS

[7] The 2013 version was not available in English yet at the time of writing this article.

to support the learning activities of my pupils, etc. The overlap of the three types of knowledge is the Technological Pedagogical And Content Knowledge (TPACK competencies) and this represents the ability to integrate ICT into teaching and learning. (Mishra&Koehler, 2006) have published a well-known graphic representing their model.

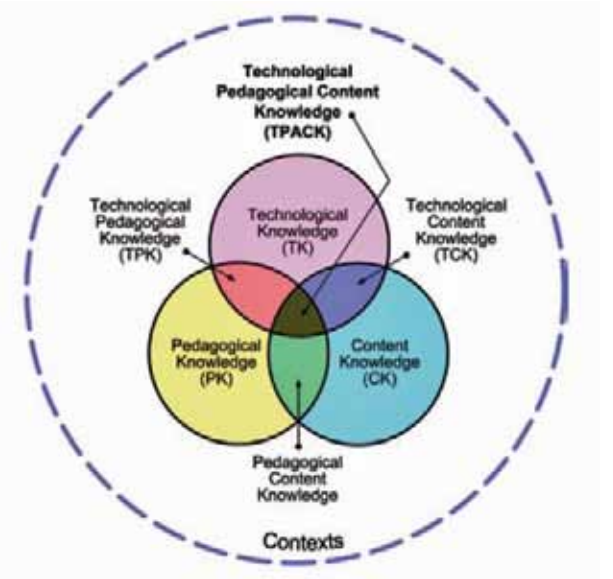

Figure 2. The TPACK model (Reproduced by permission of the publisher http://tpack.org)

Recent survey research by Fisser et al. (2013) suggests that Technological Knowledge (TK) is not essential to have, but Technological Pedagogical Knowledge (TPK), TPACK and Technological Content Knowledge (TCK) are. Fisser calls this the "TPACK-core". In other words: training in the mastering of technologies as such does not enlarge the TPACK of teachers. Training in the pedagogical use of technology however does, and so does training in the use of technology connected with content.

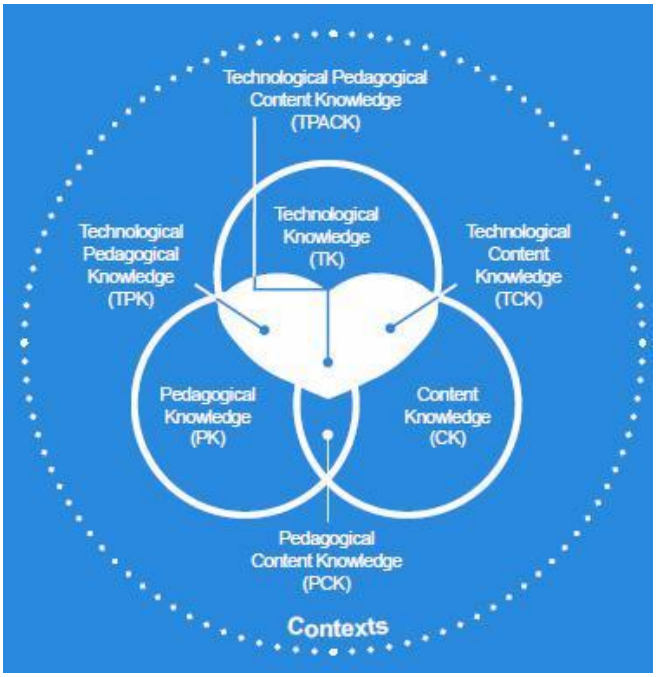

Figure 3. TPACK model, with the TPACK-core in white (Fisser et al., 2013, p. 25)

Implementation challenges

Implementation of an ICT competence standard for teachers into the curriculum of a teacher training college is "a tough job" as also shows in international research (Davis&Loveless, 2011). Firstly the curriculum 'as is, at any point of time' is already brimming with content and learning activities so basically there is little room for new and/or additional content and activities. In addition, every proposed change in the curriculum gives rise to the discussion: should we change, and if we do, what other curriculum elements can be replaced. Secondly the majority of teacher educators - generally - are not yet competent or confident enough to show model behaviour with respect to integrated use of ICT in the content courses they teach.

Thirdly due to the pace changes are taking place in the (educational) technology domain even the educators teaching technology and/or methodology may have a hard time keeping their courses up-to-date and providing relevant input or learning activities where subject specific ICT applications are concerned.

Polly et al. (2010), taking the idea that technology use can improve teaching and learning as a starting point, analysed 42 reports and articles about U.S. projects aiming to implement the use of ICT in teaching and learning. In the US the project was known as 'Preparing Tomorrow's Teachers to Teach with Technology (the PT3 project). The

authors distilled three strategies that appeared to be effective in developing TPACK competencies during teacher training.

1. Coaching and training of teacher educators.

Teacher trainers need to acquire competencies in using ICT in their teaching and in the learning process they design for their students. Therefore training the teacher educators helps students to gain TPACK.

2. Develop TPACK during internship

Students of teacher training colleges frequently perform internships at schools. The teacher training college should give them assignments to incorporate the use of ICT in their teaching. The TPACK model can be a helpful model to construct and design teaching and learning activities.

3. Develop an ICT-rich teacher education curriculum in cooperation between teacher trainers, teachers and students.

A curriculum in which the teacher educators show what technologies they use and how, is fundamental for students. Polly et al. (2010) found in their analysis that the best way to do this is in cooperation between teacher trainers, student teachers and teacher practitioners that work in the target educational sector involved. And although these three strategies look obvious at first sight, they are evidence-based, being the result of rigid research of actual practices as documented in 42 projects.

TPACK and the ICT knowledge base

Both TPACK and the ICT Knowledge Base are aimed at enhancing the pedagogical behaviour of the teacher. A remarkable development in both approaches is the slightly diminishing role of technology as such. Only the use of technology in direct connection with content and/or pedagogy (the TPACK-core) seems to be relevant. The changes in the 2013 update of the ICT Knowledge Base are in line with this trend.

Implementation cases

In the following paragraphs we summarize three practice developments one of the authors was involved in illustrating efforts to support implementation of the ICT standards locally and integrate ICT in the curriculum of a Dutch teacher education organization. The 4-in-Balance model will be used to analyse and account for differences in the process and results of the individual cases.

Introduction: the context

The cases described below cover the first decade of this century and are set at the Archimedes Institute. This institute is part of the Faculty of Education of Hogeschool Utrecht, University of Applied Sciences. It runs Bachelor and Master programmes preparing for teaching careers in secondary and vocational education. Two other institutions of the same Faculty are responsible for the training of (future) teachers for the

primary and special education sectors.

As most Dutch organizations for Teacher Education the Utrecht Faculty of Education has been involved for the past 15 years in a number of (inter)national projects (i.e. Educational Partnership (EPS) targeted at innovation of teacher education and the delivery of teachers with qualifications required by the changes taking place in (Dutch) schools and society.

In the course of the years, and thanks to governmental additional funding, a practice-oriented curriculum model has been developed based on close collaboration with regional schools. Affiliated schools have been involved in the specification of the actual teacher education programme. They supervise internships, participate in curriculum redesign and development discussions and co-assess student portfolios evidencing study results and practical skills and competences.

A further characteristic of the curriculum model is the integration of subject studies and professional preparation. Its key elements are: educational partnership with schools; competence based learning and training; personalized study programmes; promotion of action research supported by local centres of applied research. The competence to professionally apply ICT was considered highly relevant in this respect. The model aims to meet the requirements of modern higher education as also defined more generically at Hogeschool organisation level as:

'…education in which students develop into starting professionals and which takes place in interaction with the professional field. The professional field is involved in formulating competences, defining and providing (study) assignments, giving feedback on students' results and in the assessment and development of knowledge. Students carry out assignments in the role of the starting professional, which means that they produce work of a high level and that they can demonstrate that their work meets relevant current standards. ICT is an important tool in creating a rich learning environment as well as in creating the necessary conditions: the use of ICT makes it possible to organise educational processes differently.' (Hezemans&Ritsen, 2003)

The main conclusions in various studies about the state of the art of ICT in Dutch Education commissioned by the Ministry of Education and summarized by Koenraad&Parnell (2005) illustrate the national situation at the time. Within the context of this paper we highlight the part about the interim evaluation by the Dutch Inspectorate (Inspectie van het Onderwijs, 2001) of the EPS project – being a major, national, 3-year project targeted at teacher education -: […] The overall picture is that ICT as didactic tool has not been adequately integrated in teacher training pedagogy. Trainers' ICT expertise is at the level of basic skills, excepting those involved in expert centres. There are still serious shortcomings in the preparation of future teachers as far as their competence in the use of educational and subject specific ICTs is concerned (Koenraad& Parnell, 2005)

This criticism led to the formation of a national working party/network of teacher

educators focusing on ICT issues in teacher education. A description of a set of characteristic features was developed defining what is called an 'ICT rich' Teacher Education programme.

Criteria were formulated for the domains and subdomains: Policy (Vision, Staff, Hardware investments, Partnership), Staff competences, Infrastructure, ICT coordination and ICT in the primary process. More detailed information and related case studies in (Koenraad et al., 2004).

Figure 4 shows a graphical representation of the domains and related criteria.

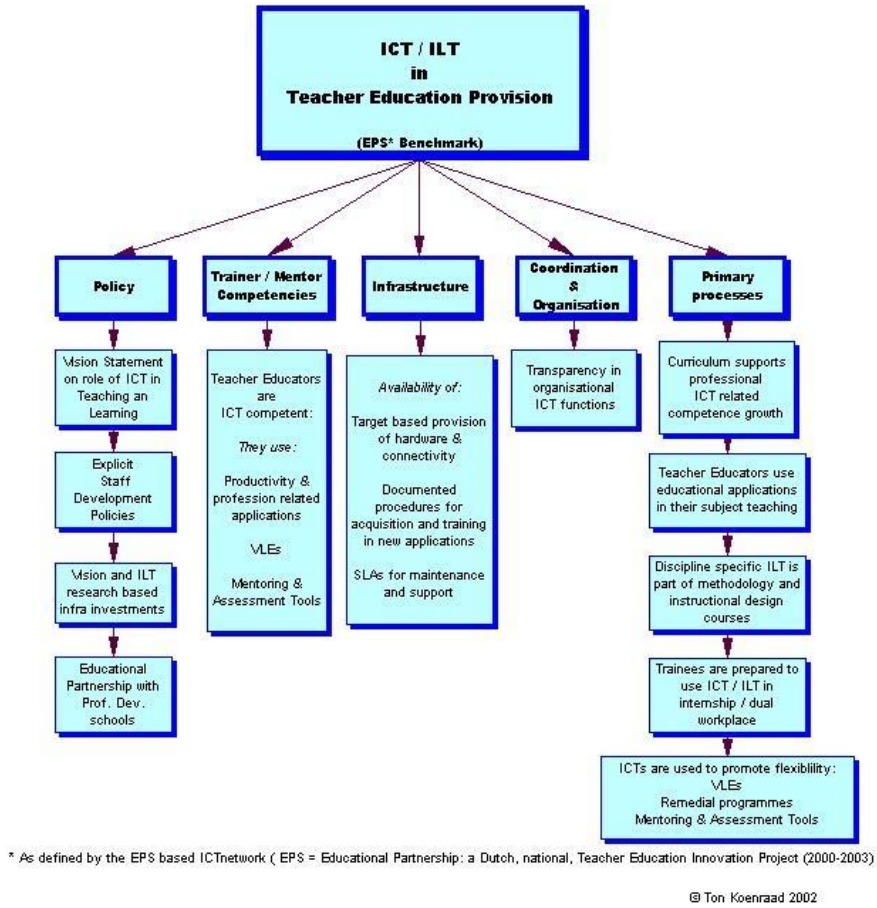

Figure 4. Model for ICT in Teacher Education Provision (Koenraad et al., 2004)

The elements listed for the aspects Policy, Infrastructure and Coordination & Organization of this blue-print can be said to have been well developed both at Faculty and Institution level at the Faculty of Education at the time. Some indications to illustrate this. Also at institution level one of the members of the management team was

responsible for ICT and worked closely with an ICT coordinator on the definition and updates of a policy/vision document and the production and evaluation of the related annual action plans. In each team a teacher educator with some ICT affinity was facilitated to support the ICT coordinator in the realization of the action plans in the various teams and subject-specific curricula. Technology training for students, which so far had been offered centrally, was gradually embedded in the departmental curricula as by then there were sufficient colleagues with the required competences and the need for a more subject specific approach also for the training of basic ICT skills was recognized. Teams were also responsible for the introduction of ICT tools that were relevant for studying subject specific content and educational technology instances that were in actual use in the (affiliated) schools. As to infrastructure and software provision centralization of facilities (e.g. a faculty-wide Intranet) was seen to have more advantages (communication efficiency, cost of ownership etc). Students had access to computers in the central library and dedicated labs. Teacher educators could make use of a staff PC or laptop (also for use at home).

Three practice reports

Below we document the developments related to the integration of ICT in the curriculum of the Modern Language Department at the Faculty of Education of Hogeschool Utrecht, University of Applied Sciences. The perspective is that of one of the present authors who worked at the Language Department in the roles of lecturer of courses on Modern Language Pedagogy and Computer Assisted Language Learning in the Bachelor and Master programmes and as departmental ICT coordinator.

Case 1: Inquiry based learning: WebQuests[8] for language education

The arrival of a more user friendly Internet interface (Web 1.0) in the nineties caught the interest of language teaching professionals as they recognized a powerful digital learning environment for language learning, if only because of the abundance of potentially interesting and/or topical content as input for language learning activities. The WebQuest (WQ) model (Dodge, 1995) was in line with pedagogical trends in Europe encouraging more autonomous and competence-based learning requiring customized (self-access) materials for a variety of learners and learning styles. The model was seen to have the potential to help teachers of Modern Foreign Languages (MFL)

[8] In Wikipedia a webquest is defined as: A WebQuest is an inquiry-oriented lesson format in which most or all the information that learners work with comes from the web.These can be created using various programs, including a simple word processing document that includes links to websites.A WebQuest is distinguished from other Internet-based research by three characteristics. First, it is classroom-based Second, it emphasizes higher-order thinking (such as analysis, creativity, or criticism) rather than just acquiring information.And third, the teacher preselects the sources, emphasizing information use rather than information gathering.Finally, though solo WebQuests are not unknown, most WebQuests are group work with the task frequently being split into roles.

to relate learning to the real world, enhance and replace textbook-based learning activities, and support transdisciplinary curriculum activities. Some colleague teacher educators in 3 different teams (English, French and Spanish) started to introduce the WebQuest approach in regular methodology courses involving the production of (web-based) materials by student teachers.

As the local infrastructure did not support publication of web content by lecturers or student teachers at the time results were at first stored on disks and memory sticks so they could be presented in the classroom for discussion and review. In due course various platforms (e.g. the First Class Intranet and portals of EU projects that the faculty participated in such as PRONETT[9] (Koenraad&Parnell, 2005) and MICALL[10] (Koenraad, 2005) were used to publish the webquests produced during the courses.

The NL project 'TalenQuest'

One or two colleague teacher educators got also involved in a national project 'TalenQuest' ('Talen' is Dutch for 'Languages') started in 2000. Motivated by theoretical insights from Second Language Acquisition (SLA) research this state-funded project aimed to adapt the WebQuest concept to the specific requirements of language education. It aimed to support improved task design and methodology for realistic, content-oriented, functional, task-based foreign language learning.

A number of results have been achieved, such as a website, providing registration facilities for published WebQuests and supporting instruments such as an HTML template, customised for the production of LanguageQuests and a rubric for the assessment of the pedagogical qualities of LanguageQuests. For more information on the development and results of this project see (Koenraad, 2010)

Thanks to further informal sharing of experiences during the previous course pilots and related institutional continuing professional development (CPD) events for staff, teams could allocate specific courses and curriculum activities for the acquisition of the competences involved as they were recognized as relevant for (future) teachers to facilitate forms of inquiry based learning with the help of Internet resources. And also, not in the least, because of students' feedback as testified by the comment by a master student evaluating a materials development course where the WebQuest concept was introduced (Koenraad, 2010):

… "As I have not worked with WQs yet, I took ample time to study everything well. First through the eyes of the pupil, then from a teacher's perspective. As a pupil I think it is a pleasant way to occupy oneself with language. It offers a nice and useful

[9] 'Professionally Networking Education and Teacher Training' (PRONETT). The key objective of the EU project PRONETT (2001-2004) was to develop a regional and cross national learning community of pre- and in-service teachers and teacher educators supported by webbased resources and tools to collaborate and to construct shared understandings of teaching and learning in a networked classroom.

[10] EU project 'Moderating Intercultural Co llaboration and Language Learning' MICALL'(2004-2007)

alternative to the textbook. The Quests were very clear and not too difficult for the pupils. As a teacher, I think, one needs to have a clear idea of what one hopes to achieve. That is what I find challenging: although WQs look attractive, are well structured and communicate well what the idea is, it looks by no means easy to me to design a WQ. So far I have always thought my ICT skills were at a reasonable level, but looking at these WQs I realised that I need to upgrade and learn a lot of new skills" (Koenraad, 2010, p. 7)

So some years later, when the ICT Knowledge base 2009 had been published and local implementation initiatives had been taken, the relevant competences could be included in the first phase of the Department's implementation plan as in all teams sufficient know-how was available to run the related courses. By 2009 also an electronic portfolio system had become operational that simplified the assessment process of student products, in this case the WQ designs.

Gradually the WQ-format was also applied to a number of regular content courses such as 'British culture and institutions'.

From conversations with colleagues in Utrecht and other teacher education institutions we understand that by 2010 the majority of Dutch language student teachers were somehow confronted with the WQ format and related task models during their studies.

Over time and with the help of the results of the national TalenQuest project - and its international edition 'LanguageQuest' sponsored by the European Centre of Modern Languages - the methodological approach for this type of courses has evolved at our institution and nationally.

Case 2. Interactive Whiteboards

For the description of the second case, about interactive whiteboards (IWB), we also need to go back in time almost 15 years. The Faculty of Education had planned to have a new building constructed and operational by 2007. As with any building of this size, capable of hosting 5000 students and staff, preparations had started years earlier. By 2000 however decisions on ICT infrastructure including facilities for lecture- and project rooms had to be finalised. With the growing popularity of IWBs and interim reports about national projects in the UK and experiences elsewhere available it was decided to have IWBs in each and every lecture room. Expecting that this would help their adoption and implementation it was also decided later not to provide any alternative or additional means for presenting content or notes (e.g. whiteboard or flipover). Preparations for the migration included the training of some 50 colleagues targeted at qualifying them to use the manufacturer's training materials when instructing student teachers. To support this instructor and train-the-trainer approach some 5 rooms in the old building were equipped with IWBs. The training itself - offered by employees

of the local IWB dealer - was of a didactic nature with plenary demonstration of the various functionalities of the IWB as key activity. For about half a year after having moved to the new building technical IWB courses were offered to faculty. Being part of the ICT-team at the time the present author stimulated course attendance and monitored the implementation process by observing actual IWB use by colleagues and joining discussions about potential and added value.

Having been informed about some grumbling about the lack of presentation alternatives in the lecture rooms and the educationally limited way the IWB was generally used management decided to form a multi-disciplinary special interest group to support further implementation. It was also suggested that the group could eventually evolve into an IWB expertise centre that might also service regional schools. As member of this working group we started to contribute to the development of a knowledge base on the topic by summarizing available international research on effective methodologies, added value and approaches to training. In its introduction this meta-study (Koenraad, 2008b) is motivated as follows: …"Our main objective is to provide a resource for colleagues, affiliated school-based teachers and also for teacher educators and trainers of partner organisations to support the development of their personal and our common knowledge base on this subject. Furthermore it is hoped that access to research and debate about what 'good practice' with reference to IWB-use implies also contributes to the development of educators' personal skills and the quality of initial training in this respect. Because - though an IWB might not immediately remind one of computers – we are obviously dealing with the use of ICT in education. And, as is the case with all uses of ICT in training and professional activities, the impact the model behaviour teacher educators (should) display may have, can be enhanced if trainers can make links to (subject-specific) pedagogy and manage to organise reflection on the educational use of this specific ICT product" (Koenraad, 2008b, p.3)

Other activities by members of the working group involved the training of colleague teacher educators and organising the sharing of discipline specific materials, developing a dossier on IWBs for publication on the Faculty's public educational webpages (OnderwijsWEB) to support internal and external CPD activities and offering in-service training for schools. Contacts with parties providing CPD materials on the topic at a national level led to contributions to a booklet (Ast et al, 2010) in the ICT in Education Research Series that Kennisnet distributes nationally. For Leraar 24 (Leraar 24), a video-based CPD platform for teachers started by Kennisnet and other national organisations, scripts were created for classroom-based videos showing a variety of purposes for IWB use in various school subjects.

One of the conclusions Koenraad (2008b) arrived at is that

… "the key questions 'Does the use of IWBs lead to educational innovation or merely to optimisation of traditional education?' and 'Do IWBs contribute to better school results?' cannot be answered with certainty. The opinions expressed about these

issues vary considerably in the papers studied. There is still too little empirical, qualitative, longitudinal and subject-specific research available for firm conclusions, perhaps with mathematics as an exemplary exception" (p.18).

The study also brought to light that - compared to other school subjects - the modern languages teacher community appeared to lag behind in adopting the IWB, possibly due to a lack of inspiring and pedagogically adequate sample materials and/or documentation of actual practice.

These observations led to the initiative to define a project on IWB in language education and apply for an EU grant. Although Faculty management decided not to be partner in this venture and the author left his job in Utrecht before all the outcomes of the resulting project 'Interactive Technologies In Language Teaching' (iTILT) were available (Koenraad et al., 2013) the most relevant deliverables (including video-based classroom reports, IWB teaching materials, design criteria, community of interest) have been noticed and - thanks to active local dissemination and personal contacts - currently are being made use of in initial methodology and in-service courses.

So currently IWB training in the technical and educational sense (materials design and reflection on added value) is part of all the departmental curricula. To further facilitate the assessment procedure of student products and to support the embedding of IWB use in school-based teaching and learning activities Faculty management has recently provided dedicated infrastructural facilities by subscribing to the Digitale Klas[11] (Digital classroom) a platform that allows exploiting and expanding textbook content for use on interactive whiteboards at a national level.

Case 3: Virtual Worlds in Language Education

The developments related to the introduction of 3D virtual worlds at the Faculty of Education started when the Language Department was approached in 2006 by the management of a school board with the request to assist with the innovation of the local practices in modern language teaching and learning in their schools with the help of information technology. Game-based learning oriented approaches in particular were considered attractive. Inspired by the potential added value and documented good practices of text-based Multi-User Virtual Environments (MUVEs) in language education (Goedemé&Koenraad, 2002) and emergent ideas for and educational projects in 3D virtual worlds (Svensson, 2003) it was suggested to explore activity designs to tap the potential of voice-enabled, 3D virtual worlds to enhance the attractiveness of language learning and support task-based methodologies with a focus on oral skills. Fortunately it was possible to carry out this consultancy activity in the form of a proper project thanks to a research grant made available by Kennisnet, promoting innovative ICT-based developments and through participation in a national project on gaming and virtual worlds, organized by 'SURF', the national provider of web services for Higher Education.

[11] http://www.dedigitaleklas.nl/index.html

In collaboration with the participating teachers and teacher educators the project ViTAAL (2007-2008) was defined involving the French departments of 2 secondary schools, their affiliated teacher education institutions (Utrecht and Amsterdam) and a Dutch national educational service provider (CPS). Three pilots were proposed: a) a virtual version of Language Village, targeted at empowering a current, real-life assessment practice for lower secondary education b) a cross-media, interactive narrative WebQuest ‘, called Panique à Bord’ and situated on a 3D version of the Titanic c) activities in 3D environments to promote informal learning such as Quizzes, fortune-telling and karaoke competitions. The building of the virtual world settings and some additional avatars for specific roles (e.g. a baker) for the pilots a and c was done by a member of the school IT-support team. The NL provider of Active Worlds, a first generation open source 3D platform for education, made a copy of the 3D version of the Titanic available for customisation needed for the b pilot.

A blended approach was used involving teacher-led, face to face preparatory activities and so called ‘in-world’ sessions with fellow pupils and student teachers as mentors. The design and production by the student teachers of the activities and materials needed in all pilots was prepared and monitored during methodology courses. The present author acted as guest lecturer for the Utrecht student teachers involved.

Despite the fact that all involved were positive about the experiential modelling approach to serve curriculum objectives both for language learning and language teacher education the project offered and although attempts were made to repeat the activities the following year, too little support and expertise appeared to be available to work towards embedding the activity in the curricula of the schools and the programme for prospect teachers of French in Utrecht and Amsterdam. For more information on this and similar international projects in other teacher education organisations see (Koenraad, 2013).

Discussion and Conclusions

In this paragraph we discuss the challenges related to the implementation of the e-competence standards in Dutch initial teacher education by reviewing the cases presented with special reference to the 4-in-Balance and TPACK models and the related research.

From the case descriptions it can be concluded that the developments documented in the first two cases have - in due course - led to a successful implementation of elements from the ICT Knowledge base categories ‘Designing and developing’ and ‘General Pedagogy’ targeted in the Faculty’s policy document as finalised in 2010.

The process involved appears to go through the following stages: early adopter(s) in one department experiment(s) and introduce(s) first ideas about methodology related to application of a new technology in a methods course. Then experiences are reported to team members and other colleagues adopt & adapt shared initial course

materials. A next step is the formalisation through the study guide of that team of the course description including the new requirements and related activities for the students. Subsequently other teams, possibly also in other departments, include versions of the application customised to the subject specific pedagogy in their methods courses. The stage that could be called full implementation is reached when also content teachers adopt the approach and adapt their teaching methods.

In both cases we see the required expertise gradually spread among the teacher educators, the necessary infrastructural facilities were in place on time and the other pre-conditions, supporting policy and leadership, and materials became available in the course of time. Other factors that appear to support the process are a) the research-based documentation of the methodologies related to the use of specific applications and b) the adoption of technologies by 'the field' i.e. the (affiliated) schools. Topic related supporting initiatives and projects, both local, national and international, are important accelerators in this respect as they can help disseminate good practices, training materials and relevant pedagogical underpinning.

And although the room for experimentation - necessary to spark developments off as we saw in case one and two - was also available in case number three this practice has not evolved as yet from teacher level to team level to reach the final stage as formal departmental curriculum element. Factors that have so far obstructed this development appear to be a) the inadequate infrastructure (no local hosting and/or know-how of running/maintaining 3D platform software), b) the complexity of (tele) collaboration between organisations (school and teacher education) needed to realise a so called 'learning blend', a learning practice that is relevant for both parties, and d) the absence of managerial support. Also the uptake by schools has been very limited so far despite attention paid on the developments related to 3D in general and language education and for the Language Village concept in particular nationally, also by other parties such as e.g. the National Expertise Centre Modern Language (Nieuwenhoven et al., 2008). One of the reasons appears to be the learning curve for mastering the software involved. The conclusion is based on user response analysis (Koenraad, 2008a) with reference to the 4-E model as defined by Collis&Moonen (2001). In addition we hypothesize that the related available research (Jauregi Ondarra et al., 2011) has as yet been insufficiently 'translated' into practical methodological frameworks and has (therefore?) not reached teacher educators and practitioners yet.

We conclude by establishing that the innovation process in a teacher organisation with respect to ICT integration is helped by having a negotiated agreement on which competences need to be developed and which technologies warrant inclusion or experimentation in this process. As also concluded in the report of the workgroup on Teacher Professional Development at the EDUsummIT 2011 conference (EDUsummIT, 2011) the rate of technological innovation obviously is one of the challenges for offering adequate preparation to our next generation of teachers with respect to effective use

of educational technology. …" The ICT knowledge and skills needed by teachers are never fixed and learning must be continual. Although new recruits to the profession will have grown up with a variety of ICT applications, even they will need to engage in constant professional learning about both the technology and its pedagogical applications. Hence, pre-service preparation must contend with the habitus developed through twelve years of schooling (Belland, 2009) and this presents a significant challenge for teacher educators who must find ways to keep their programs at the leading edge of changes in technology and pedagogy"(EDUsummIT, 2011. TWG 3 paper, p.3).

The importance of models of good practice seems clear. Using ICT to support Communities of Practice (CoPs) in which practice can be shared as a basis for mutual professional learning seems to offer the best hope for providing teacher educators and grass roots teachers with opportunities for continuing development, and this is in coherence with the findings of Polly et al. (2010). However, there is still much to be learned about how best to initiate and support such learning communities and the change to the professional culture that is needed to facilitate their success.

Özet

Giriş

Bu çalışmada, teknoloji kullanımında öğretmen yeterlik standartları tarafından takip edilen Bilgi ve İletişim Teknolojileri'nin (ICT) Hollanda ulusal eğitim ortamlarına tanıtılması anlatılmaktadır. Standartların uygulanabilirlik süreci üç farklı durumla açıklanacaktır.

İçerik

Birçok ülkede ICT'nin eğitime entegre edilmesi karmaşık bir iştir (Voogt&Knezek, 2008; Rizza, 2011). Hollanda'da Kral (2009) bu durumu üç şekilde ele almaktadır: 1995-2000 teknik altyapının geliştirilmesi, 2000-2005 pedagojinin geliştirilmesi ve 2005-2009 öğrenciye odaklanma. Bu karmaşık süreçte başrolü öğretmen eğitimi oynamaktadır. Çeşitli araştırmalar (Four in Balance Monitor, 2012; EdusummIT, 2009) öğretmenlerin ICT yeterliğinin, öğrencilerin öğrenme çıktıları üzerinde etkin bir rol oynadığını göstermektedir. Örneğin; öğretmenler sürekli kendi öğrenim materyallerini geliştirmiştir ve geliştirecektir (SLO, 2012). Bir başka örnek ise öğretmenlerin, hedef kazanımların yerleştirilmesi için ICT'yi kullanma konusundaki düşünceleridir. Öğrenciler, ICT'ye karşı olumlu tavır sergileyen öğretmen okullarında eğitim gördüğünde düşünceler de olumlu olabilir (European Union, 2013).

ICT kullanımında ilk ve ikinci kademe ve meslek okullarına destek ve teşvik verme misyonuyla Hollanda'daki eğitim ortamlarındaki desteklenmiş ulusal okul ağı 'Kennisnet' organizasyonu, (Maes&Mulder, 2013) 'dörtlü denge' modelini geliştirmiştir. (Four in Balance 2012). ICT'yi tanıtan bu model, öngörü, uzmanlık, dijital

öğrenme materyalleri ve ICT altyapısı gibi dört temel unsur dengeli olduğu takdirde, öğrenim amaçlarının daha başarılı olacağını belirtmektedir. Benzer bir kaynak için bakınız ISTE (2009).

Öğretmen eğitimindeki yeterlik meselesine Uygulamalı Bilimler Üniversitesindeki Eğitim Fakülteleri Yöneticilerinin Genel Danışma Birimi ADEF tarafından değinilmektedir (Schneckenberg (2006). Schoot ve Keiren'in (2005) çalışmasını temel alarak 2009'da bir ICT bilgi çerçevesi geliştirilmiştir (Linde ve diğ., 2009). Bu ICT Bilgi tabanı, dört yıllık eğitimini tamamlayan öğretmen adaylarından tutum, teknolojik beceri, dijital okur-yazarlık, genel pedagoji ve öğretimde ICT kullanımıyla ilgili tasarım ve geliştirme açısından nelerin bekleneceğini içeren, değerlendirme ölçütleriyle birlikte üzerinde anlaşmaya varılmış bir tanımlamadır. Bu, Hollanda'daki ICT yeterlik standartlarının ilkidir. ICT bilgi tabanı geliştirme süreci 2009'da 'tasarlama ve geliştirme' konusunda tartışmaya sebep olmuştur. Bir uzlaşmaya varıldıktan sonra, son hali Öğretmen Eğitimi Okullarında uygulamaya konulmuştur. Bu deneyimlere dayanarak ve TPACK modelinden esinlenerek (Mishra&Koehler, 2006) güncellenmiş bir sürüm olan öğretmen adayları için Ulusal ICT yeterlik çerçevesi 2013'te geliştirilmiş ve yayımlanmıştır (Kennisbasis ICT, 2013). Bu sürümde Tutumlar, Temel Dijital Beceriler, Dijital Medya ve Bilgi Becerileri ve Eğitimsel Davranışlar olmak üzere dört farklı alan vardır.

TPACK modeli (Teknolojik Eğitimsel ve İçerik Bilgisi) hizmet öncesi öğretmenlerin ICT yeterliklerinin ve sınıflarda teknolojinin etkili kullanımının geliştirilmesi için tasarlanan kavramsal bir modeldir (Mishra&Koehler, 2006). Bu model; öğretmenlik mesleğinin karmaşık, çok boyutlu ve yerleşik doğasını hedef alırken, öğretmenlik uygulamalarına teknolojiyi entegre edebilmek için öğretmenlerin ihtiyaç duyduğu bilginin temel özelliklerinden bazılarını da kapsamaktadır. Modelde, Eğitimsel Bilgi (PK), İçerik Bilgisi (CK) ve Teknolojik Bilgi'den (TK) bahsedilmektedir. Bir öğretmen bu üç farklı bilgi çeşidini de öğretime dahil etmeli ancak bu model ek olarak Teknolojik Eğitimsel Bilgi (TPK), Teknolojik İçerik Bilgisi (TCK) ve Eğitimsel İçerik Bilgisi'nin de (PCK) önemine dikkat çekmektedir. TPACK modeli dünyadaki tüm araştırmacılara ilham vermiştir. Son zamanlarda yapılan bir araştırma (Fisser ve ark., 2013) TPK ve TCK kullanımı eğitiminin çok yararlı olduğunu göstermektedir.

Davis&Loveless (2011) tarafından da belirtildiği gibi öğretmen eğitimi programında ICT yeterlik standartlarının uygulamaya konması kolay bir iş değildir. Mevcut herhangi bir programın değişmesi tartışmalara yol açacaktır. Polly ve ark. (2010) 42 farklı uygulamanın proje raporlarını inceleyerek etkin TPACK gelişimi sağlayacak üç strateji belirlemiştir.

1. Öğretmen adaylarının eğitimi ve rehberliği 2. Öğretmen adaylarının staj süresince TPACK becerilerinin geliştirilmesi 3. Öğretmen adayları ve öğretmen-öğrenci arasındaki ortak çalışma sonucu ICT zengini öğretmen eğitimi programlarının geliştirilmesi.

Bu çalışmada, ICT bilgi temellerinin üç farklı uygulaması "Dörtlü Denge Modeli" referans alınarak analiz edilmiş ve açıklanmıştır. Çalışma, Uygulamalı Bilimler Üniversitesinin Hogeschool Utrecht Öğretmen Eğitimi Okulunun Modern Diller Bölümünde gerçekleştirilmiştir. Son 15 yılda Eğitim Fakültesi, öğretmen eğitimiyle ilgili birçok yenilikçi projeleri ve özellikle bölgesel alanlardaki uygulamaya dayalı gelişmeleri bünyesinde barındırmaktadır. ICT'yi profesyonelce uygulama yeterliliği Hogeschool seviyesiyle oldukça ilgili olmasına rağmen (Hezemans & Ritsen, 2003), program oluşturulurken ICT entegrasyonunun yeterince etkili bir şekilde sağlanamadığı gözlemlenmiştir (Koenraad ve ark. 2004; Koenraad&Parnell, 2005; Inspectie van het Onderwijs, 2001). Bu yüzden ileriki uygulamaları desteklemek amacıyla ek girişimler gündeme gelmiştir.

Bu durumlardan ilki araştırmaya dayalı öğrenmeyle ilgilidir ve dil eğitimindeki webquest formatının kullanılmasını temel almaktadır. Webquest modelini temel alarak (Dodge, 1995) öğretmen eğitimcileri daha otonom ve yeterlik temelli öğrenmeyi destekleyici pedagojik eğilimleri benimsemektedirler. Öğretmen adaylarının görev temelli ve internet temelli materyaller üretebilmeleri için Webquest yaklaşımı kullanılmıştır. O zamanlarda içeriği internette yayınlamak zor olduğu için, webquest ürünleri CD'lerde ve hafıza kartlarında saklanmıştır. Daha sonra farklı platformlar da kullanılmıştır (Koenraad&Parnell, 2005; Koenraad, 2005). Bölümdeki personel de 2000'de başlayan ulusal 'TalenQuest' projesine katkıda bulunmuştur.

Bu proje gerçekçi, içerik bazlı, işlevsel, görev odaklı yabancı dil öğretimini içeren yaklaşımları desteklemeyi amaçlamıştır. Proje sonuçları, yayınlanmış webquestler için kayıt olanakları ve LanguageQuest oluşturmak için bir html örneği içermektedir. Daha fazla bilgi için bakınız (Koenraad, 2010). ICT bilgisi tabanı 2009'da yayımlandığı sırada ilgili dersin yürütülmesi için gereken tüm bilgiler bütün ekiplere verilmiştir. Elektronik portfolyo sisteminin kullanıma açılması ile değerlendirme süreci kolaylaşmıştır. Ayrıca öğretmen eğitimi veren diğer kurumlar da webquest uygulamasını kullanmaya başlamışlardır.

İkinci durum ise "Akıllı Tahta" ile ilgilidir. Yeni Eğitim Fakültesinin bütün sınıflarına konulması gereken akıllı tahtalar (IWB) sadece beyaz tahtalara alternatif olarak düşünülmemelidir. Hali hazırda eski binada 5 sınıfta IWB üreticilerinin sağladığı IWB'ler yerlerini almış ve eğitim öğretim için kullanılabilir haldedir. 2007'de yeni binaya geçildikten sonra okuldaki eğitim öğretim devam etmiştir. Ders sunumları için sınıflardaki alternatif araçların eksikliğinin belirtilmesi nedeniyle yönetim IWB'lerin kullanıma açılmasıyla ilgili, ileri destek vermek için birçok bölümden elemanın yer aldığı bir grup oluşturmuştur. Grubun çalışmaları, daha sonra bir IWB araştırması olarak ulaşılabilecek ve bir AB projesi olan "ITILT"ı tanıtan (Koenraad ve ark. 2013) bir raporu da içermektedir (Koenraad, 2008b). Bu projede diğer alanlara nazaran modern diller öğretmen topluluğu IWB kullanımını daha çok desteklemektedir. Diğer faaliyetler ise ileri eğitim seanslarının organizasyonu, fakültenin web sitesindeki (Onder-

wijsweb) IWB bilgi alışverişi, Kennisnet tarafından düzenlenen kitapçık yayını (Ast ve ark. 2010) ve sınıf bazında video eğitimleri sunan ulusal kaynaklara katkıları içermektedir (Leraar 24, 2013). Uygulama faaliyetlerinin sonucunda, IWB eğitiminin tüm öğretmen eğitim okullarının bölüm programlarında kendine yer bulması gerekliliği ortaya çıkmıştır.

Üçüncü durum ise dil eğitiminde Sanal Alemle ilgilidir ve oyun temelli öğrenme ve 3D sanal dünya ile ilişkilidir. Metin temelli MUVE denilen eğitsel projeler (Çok Kullanıcılı Sanal Ortamlar) ve 3D dünyalar ilgi çekici görülmektedir (Goedemé&Koenraad, 2002; Svensson, 2003). Okul, bu ilgiyi 3D dünyaya ses de ekleyerek arttırmayı amaçlamıştır. Ayrıca Kennisnet projesi sayesinde üç pilot çalışma yapılabilmiştir:

a. Alt orta dereceli okullar için güncel ve gerçek bir değerlendirme uygulaması desteklemeyi amaçlayan bir Dil Köyü'nün sanal sürümü,

b. Bir çapraz medya, etkileşimli hikaye WebQuest'i – 'Panique à Bord' , Titanic'in 3D versiyonunda geçen bir durum,

c. Quizler, kahve falı ve karaoke yarışmaları gibi informal öğrenmeyi sağlayan 3D sanal ortamlar.

Öğretmen öncülüğünde, yüz yüze hazırlık faaliyetleri, öğrenciler ve onların yol göstericileri olarak öğretmen adaylarıyla sözde "gerçekçi" seansları içeren, harmanlanmış bir yaklaşım kullanılmıştır.

Dil öğretimi ve öğrenimi programlarına hizmet etmesi için kullanılan bu deneyimsel yaklaşıma karşı herkes olumlu tepki göstermiştir ancak bir sonraki yıl bu faaliyeti okulun ve öğretmen eğitimi organizasyonlarının programlarına koymak için çalışacak sınırlı sayıda destek ve uzmanlık görülebilmiştir (Koenraad, 2013).

Sonuç

İlk iki durumdaki gelişmeler 2009 ICT bilgisi tabanını oluşturan kategorilerden 'Tasarlama ve Geliştirme' ve 'Genel Pedagoji' gibi ögelerin uygulanmasında başarıya ulaşılmasını sağlamıştır.

Bu süreç içinde dört farklı aşama bulunmaktadır: 1. Bir bölümdeki ekibin uyguladığı pilot çalışmalar, 2. Ekibin çalışma rehberi doğrultusunda formalizasyonu, 3. Başka ekiplerin veya bölümlerin yöntem derslerinde uygulamaların kendi bölümlerine ait versiyonlarını kullanması, 4. Öğretim elemanlarının yaklaşımı benimseyip öğretim yöntemlerine adapte etmeleriyle tam uygulamaya geçilmesi. Süreci destekleyen diğer faktörüler ise a) Özel uygulamaların kullanımına ilişkin araştırmaya dayalı belgelendirme yöntemleri, b) Bağlı okullar tarafından teknoloji kullanımının bir 'alan' olduğunun benimsenmesi. Üçüncü durumda da deneysel çalışmanın yapıldığı derslik kullanılabilir durumda idi ancak bu uygulama, resmi bir bölüm program ögesi olarak son aşamaya ulaşmak açısından öğretmen düzeyinden ekip düzeyine geçememiştir (Nieuwhoven ve diğ., 2008).

Süreçteki diğer faktörler: yetersiz altyapı, ilgili teknolojilerin yeterince uygu-

lamaya alınmaması (uygulama bazlı açıklamalar için bakınız Koenraad (2008a) ve Collis&Moonen (2001), işbirliği içinde olan tarafları ilgilendiren bir öğrenme uygulamasını gerçekleştirmek için organizasyonlar arasındaki (tele) işbirliğinin karmaşık olması, ve yönetimin desteğinin olmaması olarak söylenebilir. Genel olarak eğitim ve dil eğitiminde, özel olarak da Dil Köyleri için kullanılan 3D uygulamalarıyla ilgili gelişmelere ulusal konferanslarda gösterilen ilgiye rağmen, okulların gösterdiği duyarlılık daha sınırlı düzeyde kalmıştır. Uygulamayla ilgili araştırmalar (Jauregi ve ark., 2011) oldukça yetersiz düzeyde uygulamaya dönük yöntemsel bir boyuta "çevrilmiş" ve bu nedenle de pek çok öğretmen ve öğretmen eğitimcisinin uygulamalarında yeterince yer bulmamış olabilir.

Bir öğretmen eğitimi organizasyonunda yenilikçi bir sürecin başlatılmasında bu süreçte hangi yeterliklerin geliştirilmesi gerektiği ve hangi teknolojilerin bu sürece dahil edileceği konusunda görüşülüp anlaşmaya varılması yardımcı olabilir (EDUsummIT, 2011; Belland, 2009). İyi uygulama örneklerinin önemi açıktır. Karşılıklı mesleki öğrenme için kullanılabilecek uygulamaların paylaşılabileceği Uygulama Toplulukları (CoPs) Polly ve ark.'nın (2010) çalışmasının sonuçlarıyla uyumlu olarak öğretmen eğitimcileri ve hizmetteki öğretmenler için sürekli gelişme imkanları sağlayacak en iyi fırsat olarak görülebilir.

References

Ast van, M., Bergen van, H., Koenraad, A.L.M.&Winden van, E. (2010). *Meerwaarde van het digitale schoolbord.* Kennisnet (The added value of the interactive whiteboard) http://issuu.com/kennisnet/docs/meerwaarde_digitale_schoolbord

Belland, B. R. (2009). Using the theory of habitus to move beyond the study of barriers to technology integration. *Computers&Education*, 52(2), 353-364.
doi: 10.1016/j.compedu.2008.09.004

Collis, B.,&Moonen, J. (2001). *Flexible learning in a digital world: Experiences and expectations*. London: Kogan Page.

Davis, N.E. &Loveless, A. (2011). Reviewing the landscape of ICT and teacher education over 20 years and looking forward to the future. *Technology, Pedagogy and Education* 20(3): 247-261. http://dx.doi.org/10.1080/1475939X.2011.610928.

Dodge, B. (1995). Some Thoughts About WebQuests. http://webquest.sdsu.edu/about_webquests.html

EDUsummIT(2009).http://www.edusummit.nl/about-edusummit/results-edusummit-2009/

EDUsummIT (2011). Twining, Peter; Albion, Peter and Knezek, Don. Brief Paper for TWG3: Teacher Professional Development. (2011). http://www.edusummit.nl/

fileadmin/contentelementen/kennisnet/EDUSummIT/Documenten/2011/3_ExpandedTWG3Report_final.pdf

European Union, (2013). Survey of Schools: ICT in Education in Europe. Benchmarking access, use and attitudes to technology in Europe's schools. doi:10.2759/94499

Fisser, P., Voogt, J., Tondeur, J. &Braak, J. van (2013). TPACK: kennis en vaardigheden voor ICT-integratie, Kennisnet. Zoetermeer http://4w.kennisnet.nl/artikelen/2013/05/29/tpack-kennis-en-vaardigheden-voor-ICT-integratie/

Four in Balance Monitor 2012 (2012). Kennisnet, Zoetermeer, The Netherlands http://www.kennisnet.nl/fileadmin/contentelementen/kennisnet/1_deze_map_gebruiken_voor_bestanden/Over_ons/About/pdf/Four-In-Balance-Monitor-2012.pdf

Goedemé, L.,&Koenraad, A.L.M. (2002). MOO-en in een Vreemde Taal: suggesties voor de praktijk. *Levende Talen Magazine*, Nr. 5, 2002. (Mooing in a foreign language: suggestions for educational practice)

Hezemans, M.&Ritsen, J. (Eds.), (2003). Educational Innovation & ICT. Giving direction to policy at Hogeschool Utrecht, University of Professional Education. Unpublished Position Paper.

Inspectie van het Onderwijs (2001). Resultaten van 4 jaar ICT-beleid in het onderwijs. (Results of four years of ICT-policies in education).

ISTE. (2009). Essential Conditions. Necessary conditions to effectively leverage technology for learning. http://www.iste.org/docs/pdfs/netsessentialconditions.pdf?sfvrsn=2

Jauregi Ondarra, M.K., Canto, S., Graaff, R. de, Koenraad, T. & Moonen, M.L.I. (2011). Verbal interaction in Second Life: Towards a pedagogic framework for task design. *CALL (Computer Assisted Language Learning Journal),* 24(1), 77-101.

Kennisbasis ICT (2013). Vereniging Hogescholen, Den Haag, The Netherlands http://10voordeleraar.nl/documents/Toetsgidsen/Kennisbasis%20ICT%202013.pdf

Koenraad, A.L.M. (2005). Developing network-based language learning & teaching in Education and Teacher Training: The MICaLL Project. In Schäffer, D. & Adamopoulou, M. (Eds), *Fremdsprache Deutch Europäisch. Neue Wege zum Sprachenlernen mit dem Daf-Netzwerk*. Pallini: Ellinogermaniki Agogi

Koenraad, A.L.M. (2008a). How can 3D virtual worlds contribute to language education? Paper presented at the 3rd International WorldCALL Conference: Using Technologies for Language Learning. Fukuoka, Japan.

Koenraad, A.L.M. (2008b). Interactive Whiteboards in educational practice: the research literature reviewed. Download available at elearningEuropa: http://www.elearningeuropa.info/files/media/media24055.pdf

Koenraad, A.L.M. (2010). LanguageQuests in Language Education: Introduction. *CORELL: Computer Resources for Language Learning*. Issue 3, 1-13. http://www.ucam.edu/corell/issues/issue-3-2010

Koenraad, T. (2013). Exploring student teacher roles in 3D virtual world projects in modern language and teacher education. In R. McBride & M. Searson (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2013* (pp. 3514-3521). Chesapeake, VA: AACE. Retrieved from http://www.editlib.org/p/48643 .

Koenraad, A.L.M., Celik, C., Higgins, A.&Hillier, E. (2013). Approaches and resources to promote teacher competences development for effective interactive whiteboard use, highlighting 2 EU projects: iTILT and SMARTVET. Paper presented at the International Symposium 'New Issues on Teacher Education' 2013 May, Hacettepe University, Beytepe, Ankara/Turkey

Koenraad, A.L.M., Jongejan, J.I., Klijn, C., Schoot, H.W. &Tomson, A. M. (2004). Benchmark development for the ICT-domain in Dutch Teacher Education Provision. Paper presented at the EU Minerva Dissemination Conference 2004 'ICT in Education and Professional Development of Teachers'. http://dl.dropboxusercontent.com/u/4677144/ICT_TeacherEd.pdf

Koenraad, A.L.M.&Parnell, J.D. (2005). 'Pronett. Networking Education and Teacher Training'. In Mohamed Chaib & Ann-Katrin Svensson (Eds.), *ICT in Teacher Education. Challenging Prospects.* Jönköping University Press, Jönköping. http://www.technologyandinnovation.hu.nl/~/media/sharepoint/Lectoraat%20ICT%20en%20Hoger%20Onderwijs/2005/SwedenBook.pdf

Kral, M. (2009). Vijftien jaar onderwijs en ICT in vogelvlucht. (A bird's eye view of fifteen years of education and ICT). In Tiende Frank Stötelerlezing. Arnhem: Hogeschool van Arnhem en Nijmegen.

Leraar 24 (Teacher 24). (2013) A national service offering videos and dossiers to support CPD initiatives of teachers. http://www.leraar24.nl/zoek?sorteerVolgorde=relevantie&trefwoord=digibord

Linde, van der, Diane, Aike van der Hoeff, Hans Pronk, Michel van Ast (2009). ICT Knowledge base, version 1.0

http://www.leroweb.nl/cms/wp-content/uploads/2013/06/ICT_Knowledge_Base_v1.0_11-2009.pdf

Mishra, P.&Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A new framework for teacher knowledge. *Teachers College Record* 108 (6), 1017-1054

Maes, T.&Mulder, M. (2013). Let ICT work for education. Kennisnet Strategic Plan 2013 – 2017. http://www.kennisnet.nl/fileadmin/contentelementen/kennisnet/1_deze_map_gebruiken_voor_bestanden/Over_ons/About/pdf/2013-2017_Strategic_Plan_Kennisnet.pdf

Nieuwenhoven, E., Corda, A. &Caspers, J. (2008). Een Taaldorp spreekt niet vanzelf. Leiden: Expertisecentrum MVT (A Language Village does not speak of its own accord,
Leiden: National Expertise Centre on Modern Languages)

Onderwijsweb, Hogeschool Utrecht http://www.onderwijsweb.hu.nl/Dossiers.aspx

Polly, D., Mims C., Shepherd, C.E. & Inan, F. (2010). Evidence of impact: Transforming teacher education with preparing tomorrow's teachers to teach with technology (PT3) grants. *Teaching and Teacher Education*, 26, 863-870.

Rizza, C. (2011). ICT and Initial Teacher Education: National Policies. OECD Education Working Papers, No. 61, OECD Publishing. http://dx.doi.org/10.1787/5kg57kjj5hs8-en

Schoot, H.&Keiren, M. (Red.) (2005). ICT-E bekwaamheidseisen voor leraren in opleiding. ADEF ICT-netwerk, HBO lerarenopleidingen VO (ICT-e competence standards for student teachers. ADEF ICT-network, HE teacher education programmes (qualifying for Secondary Education)

SLO (Netherlands Institute for Curriculum Development). (2012). Monitor for educational materials 2011/2012. Enschede, the Netherlands.

Schneckenberg, D. (2006). Understanding the Concept of eCompetence for Academic Staff. In Mac Labhrainn, I., McDonald Legg, C., Schneckenberg, D., Wildt, J. (Eds.), *The Challenge of eCompetence in Academic Staff Development.* Galway: NUI Galway.

Svensson, P. (2003). Virtual worlds as arenas for language learning. In U. Felix (Ed.), *Language Learning Online: Towards Best Practice.* Lisse: Swets & Zeitlinger.
Voogt, J.&Knezek, G. (Eds.), (2008). International Handbook of Information Technology in Primary and Secondary Education. New York: Springer.