Dies Addresses

Dies natalis

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DIES NATALIS 2007
OPEN UNIVERSITEIT NEDERLAND
LIFELONG RESOURCE-BASED AND PERSONALIZED LEARNING IN COMMUNITIES AND NETWORKS

Fred Mulder
Rector Open Universiteit Nederland

Each year we are celebrating our Dies Natalis in September. For this year’s 23rd version we have chosen the theme: Learning Networks for Lifelong Learning. Like with the themes of the three previous years there is a direct link with our profile and mission, that is to be an innovative university for lifelong learners in the heart of society, dedicated to open and flexible learning.

Mass-individualization of education

In 2004, when OUNL was celebrating its 20th birthday, we explored the marketing concept of mass-customization, or actually the more advanced concept of mass-individualization, in a mapping onto the educational and learning market. We concluded that with a much more heterogeneous and unpredictable market the added value for learners is to come from the learning services rather than from the educational products. Mass-individualization in education links to open learning in a wide variety of qualities of openness. Moreover, it requires the use of compact learning atoms that all together span an enormous learning space, facilitating a rich spectrum of learning packages, in other words flexibility pur sang. There is a profound need for navigation support or guidance as a learning service in this world of flexibility. The learner, finally, more and more turns from a participating consumer into a co-producer of his or her learning package or portfolio.

Lifelong learning

In 2005 the lifelong learning case in our society was studied at our Dies Natalis along two dimensions, a social-economic one and a social-cultural one. The increasing knowledge intensity of our economy and society requires a higher level of education of the population as well as a continuous updating and upgrading of its knowledge and competencies. Lifelong learning has become crucial, both in the context of employability and as a carrier for further personal development. The Lisbon ambition will never be reached without a proper implementation of lifelong learning. The unfortunate observation, made at the Dies Natalis ceremony in 2005 of a serious deadlock regarding lifelong learning among the various stakeholders: government, employers, educational institutions, and employees and citizens, still holds in our country. However, 2007 might mark a breakthrough due to the continuous efforts and arguing during more than 2½ years of a broadly-based National Initiative for Lifelong Learning, through the bad performance warning by both the EU and OECD, and because of a growing awareness among the relevant ministries in our country. And indeed a National Action Plan for Lifelong Learning is in preparation now!

Open Educational Resources (OER)

The Dies Natalis of 2006 was devoted to Open Educational Resources, a fascinating and promising worldwide movement in which course materials are made available online for free. In 2006 two Open Universities in Europe, the UK OU and OUNL, decided to extend the powerful original 2001 MIT initiative to a new
flavour, a new generation of OER. In their view the freely available content on the Internet should empower learners to really study on their own in an open and flexible learning environment, with no (avoidable) references to a teacher, a classroom or an educational institution. This does not happen by accident or through the deployment of ad hoc initiatives, but rather requires structural and explicit learner-centred content design instead of the conventional teacher-centred content approach. And that indeed corresponds with the qualities and competencies of the Open Universities. The large-scale projects in the UK and in the Netherlands are interesting for various reasons. MIT’s Steven Lerman concluded in his 2006 Dies Address that ‘they add an important dimension to the Open Educational Resources movement that will be very influential both here (note: in Europe) and abroad’. And EU Commissioner Ján Figel’ stated in his 2006 Dies Address: ‘Open Educational Resources have the potential to be powerful instruments for attracting a much wider audience to the activities within universities. In doing so, they support the lifelong learning agenda and they respond very well to the point I made earlier about opening up universities to their communities’.

Communities of practice and learning networks

Here we can easily bridge to today’s theme Learning Networks for Lifelong Learning. The two Dies speakers will address this theme from their own perspective. Etienne Wenger starts from the concept of the community of practice, which was coined as a term about 20 years ago by himself and his colleague Jean Lave, but in his view actually is as old as humankind. This is different for the concept of learning networks introduced by Rob Koper in a technology-dominated decade of interactivity and connectivity through the Internet and other networks. It seems to me, however, that both approaches, significant on their own, might move from a complementary position closer to each other to the benefit of both concepts, the explorers of the two practices and of course all learners involved.

I would not like to disclose any element of the Dies Addresses by Etienne Wenger and Rob Koper but rather stick to this short introduction. However, not without underlining once again the strong relationship with the three earlier Dies Natalis themes: Mass-individualization of education, Lifelong learning, and Open Educational Resources. That’s why I chose the title of my Opening Address to be Lifelong resource-based and personalized learning in communities and networks, which does combine the different characteristic ingredients.
Dear learning friends,

It is quite an honor for me to be here with you this afternoon as you celebrate another year of service to the community. I know the reason I am here today is not because of my expertise in universities or distance education – two topics about which I know very little – but because of my work on a theory of learning centered on the concept of community of practice. Some people have interpreted this work as being anti-schooling. This is not my position at all. I think that institutions of learning are essential to today’s society, where learning, and our learning capability, are becoming the most important investment we can make in the future.

And nothing would please me more than seeing my work be of use to those who care about such institutions.

But it is also a surprise to be here because so often I have to count on others to see the relevance of what I do. Sometimes, I think of this work as that of a poet who was really drunk one night and wrote a poem on a napkin, and twenty years later is surprised to see critics find all sort of meanings that were not really there that night.

So this afternoon again, knowing little about your world, I will have to count on you to find meaningfulness in what I have to say for the work that you are doing.

Learning friendship

The concept of community of practice is quite simple and commonsense. A community of practice can be defined as a shared history of learning that has become an emergent social structure. People who share a challenge and interact regularly about it end up learning together and develop practices that become a bond among them. We are all involved in many communities of practice. As I go around the world, I am amazed at all the communities that form all the time and everywhere to take care of all the aspects of what we need to know as a species. The world is a huge system of interconnected communities of practice.

But the implications of the concept for how we understand and support learning are significant. There is something profoundly human about the idea because it brings together learning, community, meaning, and identity into a learning theory – a social learning theory. A Dutch colleague of mine, Marc Coenders, who actually does some work with the OUNL, has a nice phrase for describing what happens in a community of practice: he calls it ‘learning friendship’.

The coining of the phrase in the late 80’s was itself a product of a learning friendship. The term ‘community of practice’ was introduced in a book that my colleague Jean Lave and I co-authored about the process of legitimate peripheral participation – the learning process by which newcomers become members
of communities. The concept of community of practice was an important element of the book, but not the main focus. When I wrote my book on communities of practice where the concept became the main focus, I asked Jean where she had first mentioned the concept in her writing because I wanted to give her credit for having coined the term. She replied saying: ‘I thought you had come up with it’. I still believe she did, but perhaps it does not matter when collaboration is a matter of learning friendship. In such learning friendships ideas are in the air and the collaborative process by which such ideas become unavoidable matters more than who gives it a name first.

This is not to say that the notion of individuality is less important when viewed from the lens of a community of practice. On the contrary, community and individuality complement each other in deep ways. My work with Jean and other colleagues at the Institute for Research on Learning ended up making me a stronger individual. Albert Einstein, the lone genius par excellence, said:

‘The positive development of a society in the absence of creative, independently thinking, critical individuals is as inconceivable as the development of an individual in the absence of the stimulus of the community.’

A useful perspective today

Today the need and possibilities for learning friendships of all kinds are exploding.

As I suggested, when Jean and I introduced the term ‘community of practice’ in our quest for a new theory of learning, we had no idea that the concept would have the impact it is having today. We were merely hoping to contribute something useful to the debate on education by inspecting historical cases of apprenticeship. As turned out, the concept has been adopted beyond all our expectations. It has influenced the thinking of both researchers and practitioners in a surprisingly wide range of fields.

A number of developments have contributed to this explosion of interest in the last two decades.

- **FOCUS ON KNOWLEDGE AND LEARNING IN ORGANIZATIONS.** Communities of practice have attracted increasing interest in organizations and associations trying to manage knowledge as a strategic asset – in the private, public, and professional sectors. The concept of community of practice has helped these organizations in two ways. At a conceptual level, it has given managers a perspective to see where knowledge ‘lives’ in their organizations. And at a practical level, it has helped them figure out what to do about it – cultivate communities of practice and integrate them in the functioning of the organization. As a medium for peer-to-peer learning, communities put the responsibility for managing knowledge where it belongs: in the hands of practitioners who use this knowledge in the performance of their tasks.

- **PARTIALIZATION OF LEARNING IMPERATIVES.** The increasing complexity and diversity of knowledge today means that nobody can claim full mastery of any domain of interest. Even within a specialized domain, there is too much to know, too much new knowledge being produced too fast for any one participant to claim exclusive ownership or full mastery of the domain. Learning is learning to take part in communities where the knowledge of the domain is distributed. Communities are essential to the possibility of significant knowing.

- **TECHNOLOGY.** New technologies like the web have enabled people to interact in new ways across time and space and form new breeds of distributed yet interactive communities of practice. It would have
been hard to imagine 20 years ago that the technologies introduced at the time would have the profound effect they have had on communities of practice. Our initial interest in communities of practice was not motivated by technology. Trying to understand learning in new ways, we were developing concepts to articulate the pervasiveness of peer-to-peer learning processes in everyday life. Since then, the interplay between technology and community has both confirmed the importance of this perspective and surprised us in how far it has taken the whole thing. In retrospect, looking back at the development of the Internet, it makes sense that such technology would profoundly affect the potential of communities because the interactivity and connectivity it enables is so aligned with the ways communities of practice function as a context for learning.

I am often asked whether I think that ‘communities of practice’ are just a fad, which will fade away like so many fads today. It is important to remember that communities of practice are not a recent invention. They are not a technique. They have been with us since the beginning of humankind, long before we had an internet, learning theories, or even ‘organizations’. And they have been playing a key role in learning long before we started to focus on them.

As knowledge increases in importance, as we become more and more dependent on each other to know what we need to know, and as we have more and more ways to connect with each other around topics of interest to us, communities of practice are going to play an increasingly critical role in the future – whether we pay explicit attention to them or not.

This explosion of interest has led me to work with a wide variety of types of organizations and groups, in academia, in business, in government, in education, in the nonprofit sector, and in technology circles.

**Learning, communities, and identity**

Let me share a story with you to give you a sense of how this work addresses learning and how I think it is representative of deeper trends.

In June, I went to Chisinau, Moldova, to participate in a meeting organized by the World Bank. This was the second meeting of a community of internal auditors from countries in Eastern Europe. This community is part of an ambitious project by the Bank to form communities of practice among ‘public expense management’ professionals from post-Soviet countries that are transforming their government financial systems. The goal of the project is to create peer-to-peer learning relationships among professionals in various functions and countries going through similar transformations.

The function of an internal auditor is new to many of these countries. An internal auditor’s work is quite different from the traditional controller system they are used to. It focuses on risk management and entails a much more collaborative and consultative relationship with the managers of the departments the auditor engages with. For them it is an entirely new practice. For the second time, these auditors spent two and a half days learning about internal auditing with and from each other and with and from invited experts. They also spent some time discussing how they wanted to function as a community of practice going forward.

This story illustrates a number of important characteristics of learning processes and trends, in terms of community, meaning, and identity.
• HORIZONTALIZATION. When brought together these people quickly realize how much they can learn from each other. They want to hear each other’s stories and discuss each other’s experience. It is quite a significant development that an institution like the World Bank sees as one of its function to cultivate peer-to-peer communities among its client countries, rather than the more traditional process of sending consultant to tell them what to do. From a vertical relationship between a provider and a recipient of knowledge, you have a horizontal relationship among people negotiating how their respective experience can be relevant to each other. The horizontal nature of these learning processes does not deny a role for experts. But the experts who had been invited in Chisinau were part of the process of constructing a shared understanding of the new practice and of the transformation necessary to achieve it. I think your students will increasingly expect to be engaged in this kind of learning processes.

• GLOBALIZATION. When these internal auditors consider what learning partners and resources they need, they are considering individuals, groups, and organizations from all over the world. They see their community as integrally connected with a global system of practices that are potentially relevant to their learning. Their emerging identity as internal auditors is defined for them through a process that reaches across the planet.
I think your students already see the world as the stage of their learning.

• LEARNING AND IDENTITY. For these professionals coming together in Chisinau, becoming internal auditors is a transformation that requires not only a new set of skills, but also a new way of being in the world and working with people. The learning they do together has meaning because it is part of their trajectory into a new practice, which entails a whole new perspective on who they are as public expense management professionals. For them, learning is a transformation of identity. Some have already made the shift, some are quite ready for it, and others are wondering whether this transformation is necessary or useful. The factors influencing their attitude was a mixture of personal interest and whether their countries saw the change in practice as urgent (for instance, for EU membership).
But for them, this transformation of identity is not only a personal transformation. A lot of the conversations are about how they take what they are learning in this community back into their organizations. Learning for them also entails new responsibilities with respect to the institutional systems in which they perform their work and the people they interact with.
I think your students are faced with similar challenges of incorporating what they are learning into new ways of being in the world.

This emphasis on identity as a key component of learning is increasingly important today. Access to information is becoming less and less problematic. Even access to courses is becoming easier with institutions like the Open University. What is becoming problematic is who we are in this sea of information and possibilities. How to pay attention to what is relevant to us and is consistent with where have we been and where are we going?

It is this trajectory that gives meaning to our engagement in the world because it places it in the becoming of our person.

Moreover, our trajectory is increasingly individual, not because communities are disappearing but because there are so many of them. In times past, people would spend most of their lives in one community. But today we all move from communities to communities in a way that makes each of us a unique intersection of membership.
Learning citizenship

• Which communities do we belong to? How do we choose, participate, and contribute?

• When are we in a position to act as a broker, that is, to bridge a boundary between communities that should be better connected or explore a boundary between communities where an innovation potential exists?

• When are we in a position to act as the convener of a community that does not exist yet but whose potential we are in a position to see, with the legitimacy to call it into being?

Let me illustrate these ideas with some examples:

• A friend of mine told me that he belongs to about forty communities of practice, many online. This seems hard to believe, but it is typical of the kind of management of our identity that we have to do today. Multimembership has become a way of life.

• At a meeting of a community of investigators in a governmental finance oversight commission, a senior lawyer stunned his colleague by pointing to a mistake in an investigation his team had just finished. This admission of an error by a senior practitioner opened a new space for conversations for the community. It triggered a systematic review of past investigations that led to some recommendations for changing the formal procedure.

• I was explaining the concept of learning citizenship to someone. He told me about a friend of his who was a well-respected rabbi and had decided his next step was to learn Arabic. This was a good example of recognizing one’s position as providing the legitimacy to bridge a significant boundary.

• Doctor Michael Fung Kee Fung is an oncological surgeon in Ontario, Canada. Suspecting that increased interaction among his colleagues would lead to higher quality of care, he used his legitimacy as a seasoned practitioner to convene a community of practice among these busy surgeons. Today this community is starting to have a significant impact on the practice and professional development of these surgeons.

The notion of learning citizenship is a way to talk about the ethics of learning viewed as a trajectory through a landscape of communities. It highlights the choices we have to make in this complex world of ours, given our limited resources of time, attention, and memory. It requires an understanding of our position in a broader context of practices and the possibilities enabled by this position. Learning citizenship arises out of the need to form the learning citizens of tomorrow.

This question shifts the focus from what we put in students’ heads to what we do to increase their learning capability. And if this question refers to the ability to increase the learning capability of the social systems in which they live by acting as learning citizens, we will need new learning theories and new learning practices to guide what we do and assess what we achieve.

• RETHINK DISTANCE AND CLOSENESS. Distance learning is often thought of as a poor cousin of campus-based education. But if learning finds meaning in our ability to engage in the world, then being close to students’ lives might enable them to leverage some of their best learning resources.
• **MAKE LEARNING MEANINGFUL.** A lot of instruction and assessment today focuses on the mechanics of learning, skills, techniques, and information that can be readily tested. But if students are going to put their educational experience in the service of learning citizenship, it is the meaning of what they have learned that will drive their development.

• **PROMOTE LEARNING AS AN ACT OF ENGAGEMENT.** Help students see themselves as active learning citizens. Help them see that leadership entails opening up new spaces of meaningfulness in the world they inhabit. Give them practical experience in taking such leadership.

• **USE YOUR IDENTITY AS AN INVITATION.** As a teacher, you can invite students into your own identity of participation and open their experience to a new world. When I remember those teachers who had a significant impact on my life, I notice that they all did this. At a deep level, this invitation into one’s identity is the essence of teaching.

**A question of learning capability**

These questions are important today, when we are facing unprecedented learning challenges. These challenges concern all of us, in institutions of learning and in other institutions. I was talking with a doctor at the World Health Organization after a presentation there and he told me that these questions of learning capability of social systems were quite important for him. He said that we know 95% of what we need to know to save 95% of children under five today. The rest is a matter of organizing the social learning system that can make this a reality.

Personally I have to ask myself how I act as a learning citizen. In a way, this is why I am here today. For some reason, my trajectory has put me in a position to represent a certain perspective on learning and I have to ask myself constantly what is the best way to use this position in the service of a better world.

So I would like to leave you with a question, which is both a question and an invitation to a way to be in the world:

How can I/we, as _______________ (and I will let you fill in the blank here) increase the learning capability of the planet by increasing the learning capability of my/our direct sphere of participation?

This is a question I now carry with me as a guide to what I do as a learning citizen, and it is a question I invite you to carry with you as you develop your institution, engage with your students, and walk the flat grounds of your beautiful country.
BUILDING LEARNING NETWORKS FOR LIFELONG LEARNING

Rob Koper
Professor and director of the Educational Technology Expertise Centre,
Open Universiteit Nederland

Ladies and gentlemen,

It is a great pleasure for me to be invited as one of the keynote speakers for the celebration of the 23rd anniversary of our university. In November it is twenty years ago that I started working at this university which I consider to be one of the most innovative universities, providing open and flexible distance learning that is accessible for everyone in our Dutch society using modern learning technologies. Very recently I am appointed as the new Dean of the Educational Technology Expertise Centre (OTE), the centre that invents, develops, tests, applies and teaches new methods and technologies to innovate learning.

One of the activities of OTEC is to run the research and development programme ‘Learning Networks for Lifelong Learning’ [1]. We started this programme in 2003 and many different projects have been defined under its umbrella. An example is the TENCompetence project [2], a large European funded project with the aim to develop new learning methods and tools to support lifelong competence development.

Given the background of our work at OTEC and the TENCompetence project, my mission for today is a simple one: I will advocate that we need to setup a substantial and integrated infrastructure for lifelong learning in the Netherlands. This infrastructure will be using computers, mobile phones and other smart devices as the main access points to a number of Internet-based learning services that can be used by everyone to test and develop their competences whenever and wherever this is needed during their career. And of course, not only individuals will be able to use these services, but also organisations, teams and regions will be enabled to use it for the support of lifelong learning. We expect that the availability and massive use of such an infrastructure will have a considerable impact on our society, it will stimulate employability, stimulate innovation in organisations, and it will stimulate social inclusion, active citizenship and personal growth and fulfillment [3].

Today I will introduce you to some of the basic ideas behind learning networks. I will also discuss a concrete example in the area of ‘digital cinema’, and in the last part of this keynote I will address some recent research and development that we are doing.

**Lifelong learning**

But first of all, I will introduce you shortly into the ideas behind ‘lifelong learning’. We all know that job demands are changing very rapidly, mainly due to globalisation and the use of new technologies. Many jobs and tasks are becoming obsolete or change dramatically in nature. Even the way we communicate with our colleagues, family and friends is changing, due to the massive use of mobile and Internet technologies.

This has had, and will continue to have a major impact on the way our society is organised, how the markets will function, and how people will relate to other people. These changes also have a dramatic impact on the importance and position of learning: learning will be one of our main day-to-day activities, like...
eating, drinking and breathing. Learning must be intensified because of the increasing complexity of tasks. Learning is the way to cope with all the changes in jobs, tasks and technologies, and most of this learning will take place outside of the context of schools and classrooms: learning must be considered as an integral part of our day-to-day work and living activities.

The need to stimulate lifelong learning in society is broadly recognised and is expressed in many different national and international policy documents. For instance the European Commission [4] has formulated a target for lifelong learning for the year 2010: they want to increase the average level of participation in lifelong learning to at least 12.5% of the adult working age population (24-64 age group). The Dutch government [5] states in her own policies that they want to belong to the three best performing countries in Europe, which means that we target at 20% participation in lifelong learning in our country.

A critical note has to be made about the way lifelong learning is measured in these governmental studies. It is measured by asking people to indicate whether they have been involved in any education or training activity in the last four weeks. People tend to answer this question positively when they have been involved in managed learning activities like courses or training events. However, the majority of the lifelong learning at work and at home has an informal nature [6] and is integrated into the work and other daily activities itself. Livingston [7] has found in a recent study in Canada that 85% of the citizens performed some kind of informal learning activities, spending an average of 13 hours per week, including 6 hours of informal learning per week at the workplace.

So, when we talk about lifelong learning we should include and recognize the whole spectrum of possible learning activities: formal as well as informal.

The need to setup a substantial infrastructure for lifelong learning in the Netherlands has also recently been expressed by the OECD [8, p.70]. In evaluating our tertiary educational system, they state that our educational system is focusing too much on the earlier stages in life:

‘...there are many thousands of [...] students who might have benefit from an academic education who are streamed away from it at an early age, and do not find their way back. Because of limited opportunities to track upwards and the absence of an infrastructure for lifelong learning at scale there are few second chances.’

Also in earlier reports the OECD [9] identified various barriers in our society for lifelong learning, most notably they advice to create more flexible chances for the individual, to provide instruments to assess informal learning and to increase awareness of the population for the existence of the various formal and informal learning facilities (see also [10]).

A key question, not answered by any of these reports, is how such an infrastructure would look like in more detail. This is what we have worked on in the past few years in terms of the learning networks concept, but before I will go into more detail, I will give you a concrete example of a professional area we are working on in the TENCompetence project, the area of digital cinema. This example contains most of the high-level requirements that we should address in an infrastructure for lifelong learning, i.e. Learning Networks for Lifelong Learning.
Example: digital cinema

One of the areas that is rapidly changing is the film industry. At a time that everybody can have their own theater sets at home, cinemas are under pressure to deliver a better experience and a higher quality to stay attractive. Only very recently it is possible to use digital technologies in the whole chain of movie production, distribution and projection. This new process provides a complete new experience of audio and video quality. The implementation has been started some years ago, the number of digital cinemas is increasing rapidly and – as you can imagine – major investments are involved. As a consequence of this innovation, the functions and the labour involved in the film industry will change fundamentally. Some new jobs will appear, some jobs will fundamentally change and many activities will be obsolete.

We analysed this process in the TENCompetence project [see 12] and we came up with a set of requirements that must be fulfilled in order to serve the learning needs in this area:

1/ The first requirement is that the infrastructure for lifelong learning should provide open and geographically distributed access to every professional in the industry to upgrade and update their competences, starting from their own level and needs. Massive development of new competences are required. The cinema production and post-production is a highly distributed industry. The teams who come together to work on a production may be drawn from many different areas and countries, and post-production may be carried out by specialised companies in different countries.

2/ The new infrastructure should support the building of communities of practice in which the relatively isolated professionals are stimulated to exchange knowledge and experience with their peers and in which the professionals at all levels support each other to solve problems. Although there are many different specialists involved in digital movie production, many teams only involve one or two of these professionals. As a consequence, the exchange of experience and knowledge between professionals is hindered by the absence of direct social contacts.

3/ The new infrastructure should provide highly flexible, self-directed learning opportunities that are integrated into the day to day schedules of the busy professionals in the area. Cinema professionals have valuable skills which are in high demand. Many also have to structure their working life according to the demands of production schedules, and cannot guarantee that they will be available for long periods of time in the same location. This means that highly flexible learning activities will be required to meet the needs of the domain.

4/ The actors involved in digital cinema need individualised learning approaches, based on their existing competences and the type of work they will be performing. Most of the workers in the digital cinema area already have mastered some digital knowledge and skills, and also the job demands, preferences and circumstances for each individual are highly different. In this context it is inefficient to use standard courses for training: it is more effective to create personal development plans for each individual.

5/ And last but not least, there should be a flexible qualification system in place that stimulates and certifies informal learning [see also 9]. This will facilitate the labour market in the industry: especially the formation of competent (post-)production teams in which the total team competences are of more importance than the specific set of individual competences.
Learning networks

For workers in the digital cinema area, and all other areas with similar problems, we are developing the learning networks concept. One of the major underlying assumptions is that the traditional education model, using classrooms with students and teachers, has a couple of disadvantages that makes it largely unsuitable for massive support of lifelong learning. We should revise the model fundamentally, because of at least four reasons:

1/ First of all, the traditional model is highly dependent on the availability of high quality teaching staff. There is a structural shortage of teachers in the first place (see for instance the recent report from Alexander Rinnooy Kan [11]), that describes a real dramatic situation in the near future), but also, in order to keep their qualifications, the teachers should be lifelong learners themselves: they should also be permanently informed and updated to keep up with the massive changes in knowledge and skills. The problems of teachers are comparable to the situation of the professional in the digital cinema industry: also teachers need learning networks to keep up with the changes and to increase their qualification levels.

2/ A second reason is that the traditional model does not really fit the demands and lives of the modern adult who has to manage many different priorities and wants to be as independent of place, time, and other constraints as possible. Adults prefer to exchange knowledge with colleagues and friends, by going to conferences and workshops, by reading articles or books and by browsing the Internet. Adults wants to direct their learning activities themselves, lifelong learning should be integrated within daily work and life.

3/ A third reason is that current jobs are becoming so demanding that most of the work will be done in teams of different professionals. In practice these teams do not have fixed roles, but care is taken that the sum of the competences of the individuals are sufficient to do a job. So the demarcation between jobs and professions are becoming less clear: someone who can perform a certain set of tasks will be asked to do so, and when you have competence gaps, someone else can fill this up for you in the team. This new team based work provides much more opportunities for the individuals to develop their talents to a maximum without being forced to loose time on areas where they are less interested or are less talented. So, instead of classrooms were everybody is developing the same competences, we are better of when each professional has to work on the development of his or her competences depending on interests and talents. Individualized, Personal Development Plans are the key instrument in lifelong learning.

4/ The fourth reason is that new mobile devices and Web 2.0 Internet services are maturing in a way that they are becoming the universal portal to knowledge, communication and collaboration. This fact on its own will have an enormous impact on the way education and training or more in general ‘learning’ is organised in our future society. An increasing number of persons will be using tools like Google as their primary source of information. They are sharing information through services like blogs and del.icio.us as never before and slowly but steadily also Web 2.0 services like Zoho will replace the existing desktop applications, allowing various new kinds of collaborations among professionals.

To summarize, in order to facilitate lifelong learning we need an Internet-based infrastructure that is open accessible by every individual in our society to stimulate, support and acknowledge formal and informal learning that is embedded in various communities of practice. This is the aim of learning networks.

Typically, persons can join a learning network related to their profession, for instance the network of movie directors, but also many other networks that are related to their interests. The people in a learning network can change roles all the time: sometimes they are learners, sometimes they are teachers and sometimes they are professionals who answer questions or solve problems. Sometimes they are composing their own
learning resources, sometimes they use resources that are created by peers in the network and sometimes they use courses and programmes that are supplied by educational institutions like the Open University. Learning networks are in principle self-organised and contain a set of services that you use to contact people and to create, share and find resources. These services can be selected on a case by case basis to create a personal learning environment [13] or can be bundled to create a managed learning environment within a school, university, or company [14].

It is by the way good to note that the learning networks for lifelong learning that we envisage is not aiming to replace the current infrastructure for primary, secondary, and tertiary education. It is envisaged as an additional infrastructure for people who have left school, with or without a start qualification, and who want to upgrade, update and certify their competences in various areas during life.

**Current research and development**

In OTEC we are also working on a large number of research and development projects related to learning networks that will enable us to set up these networks in a more effective and efficient way in the future. I will give you three examples. When you are interested in more details, you can go to the TENCompetence website (www.tencompetence.org) or the OUNL dspace site (dspace.ou.nl) for more information, publications, software, etc.

**PERSONAL COMPETENCE MANAGER**

First of all, we are working on an Internet service called the Personal Competence Manager [15]. This is the most crucial service that will enable individuals and groups to set up their own learning networks. The PCM will have its major value for people after they have finished their initial education, with or without a start qualification. It supports persons to continue to learn during the rest of their lives. With this freely available service, everyone will be able to create, subscribe and participate in various learning networks; will be able to define competences s/he wants to develop, will be able to create personal development plans and use and share various formal and informal learning resources. People are able to contact other persons and friends in the network, chat with them, mail with them, having forum discussions, etc. The first prototype, a proof of concept, [16] will be released in October during the ePortfolio Conference in Maastricht that we are co-organising.

**NAVIGATION WITHIN LEARNING NETWORKS**

A second topic I want to mention is the work we are doing on navigation issues within learning networks. People are overwhelmed with information and choices, and often they do not find the most adequate solution. A navigation service will help persons to select the best solution, fitting their needs and situation. Given the massive amount of learning resources at the Internet there is a need to automate this kind of advise. These systems are called recommender systems and they have proven to be useful in many domains like ordering books at Amazon. To develop and test good algorithms for recommendations in the learning field, we first build a simulator. Using the simulator, we developed an algorithm that could increase the level of successful learning (and decrease drop-out) with around 10% [17]. The next step was to test this algorithm in practice. We have executed an experiment with a 1000 learners in the learning network, randomly assigned to a control group and an experimental group. In this real life experiment we were able to confirm the prediction: persons who were supported with the automated navigation algorithm made more progress [18]. We are now continuing the research by taking personal characteristics into account in the advice given to the learners in an attempt to attain even more effect. A new simulation has been produced and an empirical study has been executed very recently [19].
LATENT SEMANTIC ANALYSIS

A third and last example is related to the workload of people who have the role of teachers in the learning network. Remember that everybody can take this role in the learning network from time to time, depending on the available competences and the issues at hand. In modern approaches to learning, learners are stimulated to be more actively engaged in real world tasks. Learners are also stimulated to create more products, like reports, blogs and wikis, instead of consuming knowledge by reading. As a result more and more products are created and shared, but it would be nice to assess the quality of these products and to provide feedback for the learners on the quality of these products [20]. Also learners are stimulated to ask more questions as part of their learning process. As a result a group can formulate hundreds of different questions that need an answer.

In traditional educational settings it would typically be a task for a teacher to read all the products and to answer the questions of students, but this will overload the teacher. One way to solve this problem is to automate the correction and feedback work as much as possible, and to spread the workload between all the members of the network instead of making this a task for the teachers alone.

In various studies we are exploring the use of language technologies, more specifically a technique called Latent Semantic Analysis (LSA) [21, 22] to automate parts of these tasks. For instance in an experiment that has recently been carried out by Peter van Rosmalen [23], a learner can ask a question, the LSA engine analyses which person in the learning network is able and available to answer the question and the message is forwarded to the right persons. Care is taken that the workload is spread among all the participants. The results of the experiment with approximately 110 persons in the learning network showed that it is possible to find the right persons in the learning network to assist their fellow learners in answering their questions, and that persons selected in this way outperform persons selected at random both with regard to the quality of the answers but also with regard to their responsiveness.

The impact of this work is easily to imagine, not only in the context of learning networks, but also in the field of helpdesks.

As I have said, this is only a very limited selection of examples. There are many more topics that are of interest, like Mobile Learning Technologies, Serious Games, Competence Assessment, ePortfolio’s, matching of competences, Learning Design Technologies, e-learning standards and Web 2.0 technologies for learning. All these technologies are tested in various areas in the TENCompetence project, most notably digital cinema, the health care sector, the City of Antwerp, and together with UNESCO-IHE in the area of water management, specifically in the Nile region.

The basic research and pilots are planned to be finished at the end of 2009, but anyone who is interested to setup related projects is welcomed to contact us and to participate, because as I have said earlier: it is now time to set up a substantial and integrated infrastructure for lifelong learning in our society.

Thank you for your attention.

References


[16] The sources of the Personal Competence Manager can be downloaded at http://sourceforge.net/projects/tencompetence/


