

Pedagogical ICT licences:

A Danish national initiative to offer teachers technology literacy

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Abstract: The pedagogical ICT licence is an in-service training means for teachers combining pedagogical knowledge of ICT integration with basic ICT skills training. It is our philosophy that skilling teachers with one without the other makes the training useless.

The pedagogical ICT licence is a course concept that offers educators basic ICT skills on a personal and a professional level by focusing on the pedagogical integration of ICT in teaching practice. Using ideas from problem-based learning, team-based activities, peer-teaching and critical respons, together with principles for e-learning, we have managed to create a course concept that has been used by more than 35,000 (1/3 of all) teachers and educators in Denmark over a period of three years. Although the licence is not a compulsory education, it has become a formal and nationally recognised certificate.

This massive adoption of the course has only been possible by designing also a distributed course organisation that has two advantages: 1) it moves the actual implementation of the courses away from central government and thus we can handle more people at the same time, 2) the implementation of the courses becomes regional or local which means a higher commitment from all parties.

Originally the course concept was developed for teachers in compulsory education. However, the model has proven sufficiently robust to allow localisation into (so far) an additional seven educational areas within Denmark - and to be selected for localisation in Norway for both compulsory and upper secondary education.

Key words: ICT in education, in-service teacher training, national initiative on ICT in education, blended learning, flexible learning, team-based learning, e-moderation

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1. BACKGROUND

Denmark has come a long way in the attempt to ensure a sufficient level of integration of ICT in education. From first embedding ICT in all curricula, focusing on access to computers and educational software, through national action plans to ensure high speed internet access in all Danish schools, the Danish Ministry of Education is now focusing on in-service teacher training.

The ICT in education action plan of the Danish Minister of Education states that by 2003 all Danish teachers must possess adequate, relevant, measurable and homogenous pedagogical ICT skills to ensure a sufficient ICT integration in all subjects at all educational levels. The development of the pedagogical ICT licence has helped push this development forward, and its decentralised model has ensured local commitment while still maintaining a sufficient degree of national quality control.

By February 2002 the pedagogical ICT licence course 'School-IT' has been attended by more than half of all Danish teachers in compulsory education. Parallel to this success the development of a long series of pedagogical ICT licences has taken place, offering teachers with a higher degree of subject orientation substantially more flexibility of choice.

Existing pedagogical ICT licences cover: teachers in primary and lower secondary education; teachers in social and health care education; staff in afternoon day care centres in schools; teachers in language centres (Danish as a second language); teachers in upper secondary education; teachers in vocational education; teachers in further health care education; and teachers in teacher training colleges.

2. A NATIONAL CONCERN

Each type of pedagogical ICT licence is controlled by a political steering committee with representatives from the Ministry of Education and all central actors in that particular field of education. Each committee is responsible for the overall development, implementation and maintenance of their pedagogical ICT licence. The existence of this committee means that all discussions about the relevance of the course in terms of content, the terms of teachers' participation etc. are dealt with on a political level during the development of the course. Thus, when the course is ready for delivery, the educational community is immediately ready to adopt it.

A pedagogical ICT licence is developed with central public funding, whereas the implementation and use of the course is paid for locally. Thus the owners of the schools pay for teachers' participation in the course -

paying both the tuition fee and a reduction in teaching hours for the teacher. Some areas have used a model where educators receive a PC as compensation for (part of) the time spent attending the course. In addition to this, many teachers may look forward to a payment rise as a result of a completed pedagogical ICT licence.

3. KEY OBJECTIVES OF THE PEDAGOGICAL ICT LICENCE

The pedagogical ICT licence must:

- Substantially contribute to meet the needs for ICT-pedagogical competences of the educators.
- Contribute to improve the pedagogical practice of the participants in relation to the integration of ICT.
- Contribute to an increased use of e-learning that meets the needs and qualifications of the individual educator.

4. PHILOSOPHY AND BASIC ASSUMPTIONS

One of the key objectives is to give each teacher the opportunity to move from his individual point of departure in his working and social context. Another one of the founding principles of the pedagogical thinking of the pedagogical ICT licence is that knowledge and competences do not arise through the transport of information from one person to another, but that learning is a result of collaborative learning through contributing, creating and acting.

When developing content for any pedagogical ICT licence the following basic objectives must always be considered:

- Development, process and teamwork are key issues.
- No use of ICT-tools should occur without a pedagogical rationale.
- Differentiation and flexibility in learning material and method should allow for the difference in existing ICT competencies among educators.

5. THE DISTRIBUTED COURSE ORGANISATION

The pedagogical ICT licences are delivered to the educators through a decentralised model in which courses are provided by a number of local or regional actors within the field of education. The course concept is described

in sufficient depth and detail for it to be possible to involve local actors in the practical aspects of the organisation of the courses. Thus educators perceive the courses to be highly local and flexible to their needs, delivered to the teachers sometimes by the very school in which they are employed, sometimes delivered to the teacher by the regional educational centre and sometimes by the local division of the pedagogical university.

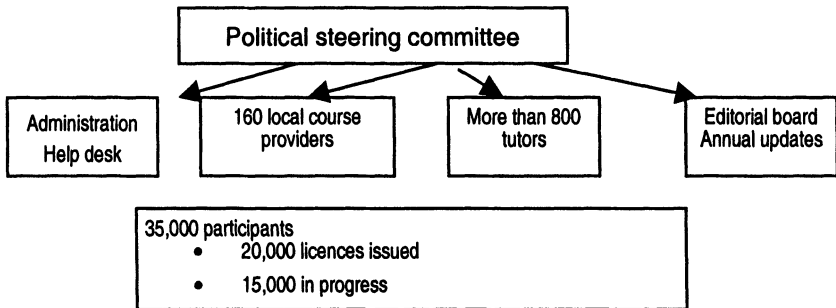


Figure 1: Model of course organisation

6. PEDAGOGICAL METHOD

The flexibility of the concept offers participants a wide opportunity to organise the work so that it meets the needs of their everyday work as much as possible.

In a pedagogical ICT licence course we try to practice what we preach. This is not a 'sit-down-and-listen-while-I-tell-you-about-problem-based-learning-and-active-involvement-of-the-students. - Then-go-home-and-do-exactly-what-you-have-always-done' kind of course. Educators are challenged and moderately pushed into describing and documenting learning activities that integrate ICT, and to develop the ICT products needed to initiate that learning activity. In teams they discuss articles and examples of good practice and they describe a learning situation that they will use as their point of departure for their module assignment. An outline or draft of this learning activity is sent to the tutor for response. The tutor then comments, reflects and constructively criticises the draft and challenges the team to rethink and further improve their work. Upon receiving this response the team contemplates the tutor's comments and finishes the assignment, which is then sent to the tutor for final approval.

The level and sophistication of the assignments vary from team to team - there is no absolute level. Focus is on the process and the assumption that all

educators can learn more and have a right to be challenged and make progress.

Blended learning

The pedagogical ICT licence is realised through blended learning. The course is opened by an introductory day where teachers meet and get acquainted with each other, the course and its content and have the opportunity to discuss the objectives of the course with each other and the tutor. The introduction also deals with the necessary technical and basic ICT skill elements that make the teacher able to continue the course after the introduction. During this introduction the teachers are divided into teams of 2 to 4 participants.

The course runs across 24 weeks or more; and during this period the educator (participating in one or more teams) hands in eight assignments to the tutor.

7. STRUCTURE

To obtain a pedagogical ICT licence the educator (in a team) must follow eight modules. Each module follows the same structure dealing with an overall theme that is described both from a pedagogical and from an ICT-skill point of view. A module consists of the following types of material:

1. Articles, case studies and examples of good practice that focus on the pedagogical possibilities that arise from ICT integration.
2. ICT exercises, and ICT skills (platform independent). The exercises illustrate key functions and issues in the ICT theme of the module.
3. ICT manuals (platform dependent).
4. Module assignment.

Pedagogical discussions and the preparation of the assignment paper takes place in the team, whereas the work with the ICT exercises and ICT manuals is individual, according to the level of ICT skills of each participant. You can say that each educator digs into the material to the level needed.

All material in a pedagogical ICT licence is subject to an annual review and update.

8. EXAMPLES OF CONTENT

Sund-IT is a pedagogical ICT licence for educators in further health care education. Educators follow eight modules in the following order: three compulsory, four optional, one compulsory.

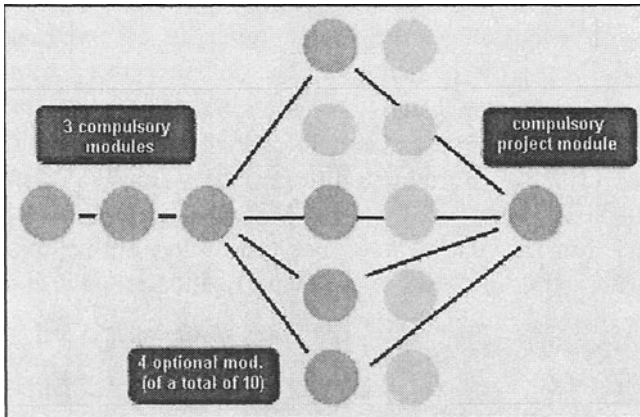


Figure 2. Model of content of a pedagogical ICT course

Compulsory modules in Sund-IT are:

1. ICT in education.
2. Collaboration, communication and the internet.
3. Make your own learning material (paper or digital).
4. Project work.

Optional modules in Sund-IT are:

1. Presentations in an educational context.
2. Using and processing digital images.
3. Educational multimedia.
4. Producing educational web-sites.
5. Web resources.
6. Educational data bases.
7. Evaluations.
8. Flexible learning.
9. Process writing.
10. The use of spreadsheets.

School-IT is by far the largest licence in terms of numbers of participants. It is the licence for teachers in compulsory education. More than 30,000 teachers have participated in this course, which consists of:

1. Introduction.

2. Creative writing.
3. Communication, information.
4. Work with spreadsheets.
5. Cross curricular projects.
6. Multimedia and web-sites.
7. How to use a data base.
8. ICT in school development.

9. QUALITY ASSESSMENT

The quality of a particular course depends upon a number of interchanging factors. The pedagogical ICT licence quality control operates through the following initiatives:

Provider's contract

The provider's contract determines in detail how courses are delivered and administered. The provider is contractually obliged to use only certified and annually updated tutors.

Certification of tutors

Tutors must participate in a formal training of tutors, be a practicing educator within the field of that particular pedagogical ICT licence, must have passed the licence in advance and must attend the annual updates to maintain his certificate. The training of tutors focuses on the tutor's role as an e-moderator and on the written response to participants.

Tutor's e-conference

All tutors are members of an e-conference for their particular pedagogical ICT licence. Here they can discuss borderline cases, help each other, discuss matters of principle - and they are in daily contact with the secretariat.

The tutor's manual

A tutor's manual is prepared for each pedagogical ICT licence. This extensive book describes in detail all aspects of the tutor's role.

Random sampling of approved assignment papers

The secretariat may select any assignment paper for further scrutiny to assess the level of performance both of the participants and tutors.

10. EVALUATION

How do educators evaluate the pedagogical ICT licences? We have remarkably low drop-out rates - 90% of participants complete the course. Secondly, in three years more than 35,000 educators have participated and all pedagogical ICT licences are 'still going strong'. Two extensive, independent studies document that participants are very positive and that the long-term effect of participating in the course is very impressive.

BIOGRAPHY

Ulla Gjørling is a senior project manager at Uni-C, the Danish national centre for ICT in education. Uni-C is a self-governed institution within the realm of the Ministry of Education. Ulla oversees the development and implementation of large-scale national initiatives on teachers' in-service training such as the pedagogical use and integration of ICT in education (the pedagogical ICT licences). He has responsibility for licences for teachers in upper secondary education, in vocational training, in teacher training colleges and in teachers in further education within health care.