ICT at colleges offering vocational education and training programmes

In the period from August 2009 to June 2010, the Danish Evaluation Institute (EVA) carried out a survey of ICT use at the colleges offering vocational education and training programmes (VET programmes) in Denmark.

This survey shows how and to what extent ICT has been integrated in teaching practices in four of the clusters into which the VET programmes are organised. The survey focuses on how teachers use ICT, their reflections on this teaching practice, and the factors that promote – or possibly inhibit – the use of ICT in teaching. The survey also shows what college managers and students think about the use of ICT.

This summary presents the main results from the survey. Furthermore it identifies several areas that EVA believes are particularly important with regard to further developing the use of ICT for teaching purposes in VET programmes.The method used in the project and the background for using ICT in VET programmes in Denmark are presented at the end of the summary.

Different perspectives on the use of ICT
ICT is included in the formal framework for VET programmes, and there are clear requirements for the use of ICT in teaching. In the rules for the VET programmes, ICT is described as a fundamental skill on a par with reading, oral and written communication skills and maths, and for most programmes, ICT is also described as a specific academic goal. Thus ICT is an integral part of the specific academic skills that the individual programmes aim at and that affect the students' ability to succeed on the labour market. At the same time ICT is also a fundamental skill that we all need to possess if we are to cope in a modern society. Both perspectives are important, because, among other things, teachers find that when students start the individual programmes, they have very different levels of ICT competence from their time at primary and lower secondary school.

For VET programmes, the use of ICT has not just changed the goals set for skills, but also the way in which these goals can be met. The survey shows that in general, ICT is included both as a goal for teaching and as a means of teaching, that is, both as something that students' learn more *about* and as something that students learn *with*, i.e. it is used as a teaching tool.

Widespread use of ICT
Overall, the survey shows that the use of ICT is widespread in all VET programmes. Using information from the internet is the most common way to use ICT. Standard ICT-programmes such as word-processing and presentation programmes are often used in teaching, while the use of audio or sophisticated forms of visuals is still at the early stages.

The use of digital material specifically designed for teaching purposes, and which is typically available on specialist websites is still not very widespread. However the survey shows that teachers are gradually becoming more and more aware of the benefits of using, and adapting, teaching material developed by others.

Teaching opportunities and challenges when using ICT
Teachers mention how using ICT enables them to plan and carry out more up-to-date teaching based on real world scenarios. The survey shows that many teachers already make use of these opportunities. However, it also shows that ICT has only changed the teaching methods and approaches used to a limited extent, and that therefore using ICT has not changed the role of the teacher significantly. ICT is often used as an alternative teaching medium where familiar teaching approaches are still used, but where presentation programmes and word processing are used instead of the traditional blackboard and pen and paper.

Furthermore, the survey shows that teachers are aware of the fact that using ICT opens up for differentiating teaching and enables teachers to adapt their teaching to the needs of each student to a far greater extent, e.g. to the different learning styles of students or to the particularly strong or weak students. In practice few teachers make use of these advantages, except for when using the special ICT toolkits made available to students with reading or writing difficulties.

It is clear that the students appreciate the opportunity to have an ICT toolkit. However the survey shows that these ICT toolkits could be used in a more appropriate way than is the case today, because many teachers are unsure of how to plan their teaching in a way that enables students to make best use of their ICT toolkit.

Finally, the survey shows that many teachers, and also some students for that matter, find it difficult to deal with the temptations and distractions of being able to access websites that are not relevant for teaching purposes when they are online during class.

Differences in the way teachers use ICT
Even though the use of ICT is an overall target, and even though the use of ICT is quite widespread, the survey also shows that there is a significant difference in the way that ICT is used by teachers at the different colleges. There are also significant differences between colleges and the clusters covered by the survey.

Teachers can be divided into three main categories, although of course there is a certain degree of overlap. First of all, there is a group of ICT enthusiasts with special ICT skills, who often use ICT in their teaching in a varied and experimental way. Secondly, there is a group who often, or relatively often, use the more common ICT tools, and finally, there is a group who rarely or never use ICT in their teaching, with the possible exception of specific academic programmes or specially selected websites.

What is characteristic in this context is that the teachers themselves think that factors such as a personal interest in ICT and informal inspiration between colleagues play the biggest role with regard to how much, and how, they use ICT, while they ascribe less importance to the more formal framework.

Finally, the survey indicates that ICT skills development has still not found a form that can match the vast differences between teachers. This applies both to differences in ICT skills and differences in how familiar teachers are with how they can actually use ICT in their teaching.

Differences between colleges and clusters

The survey shows that not only are there differences in the way that teachers use ICT, but there are also rather significant differences between the clusters and colleges included in the survey. There are also significant differences between different clusters within the same college.

The formal framework at the individual colleges is not very clear. Often management have implicit expectations rather than more formal requirements for using ICT, regardless of whether the colleges have invested substantial amounts in ICT equipment and knowledge-sharing systems. Overall teachers are happy with the technical side of things, even though these also give rise to many frustrations.

The differences between the different colleges and clusters are closely connected to whether the specific college (or cluster offered by the college) has a formal strategy and explicit and clear goals for using ICT in teaching. These differences are seen in, e.g. the extent to which ICT tools and ICT systems are used by the college itself for cooperation and communication purposes. This applies to communication and cooperation between teachers and students, between teachers and between teachers and management.

The differences EVA has seen between the colleges are also connected to circumstances that reflect characteristics that are specific for the individual cluster. As regards technical clusters, these often have the ICT tools needed to acquire the academic skills the specific programme aims at, often very specific skills. In contrast the ICT tools needed to acquire the academic skills taught on social and healthcare VET programmes and business VET programmes are often more standard ICT tools. All things being equal the simplest approach is to ensure that these VET programmes use ICT in a more general way than on some of the more technical VET programmes. Within the technical clusters, ICT tends to be something the students learn *about*, whereas within the business cluster and social and healthcare VET programme, ICT is both something the students learn *about* and a tool used *for* learning.

EVA's assessment

On the basis of the results of the survey, EVA finds that it is important to strengthen the systematic dialogue about the use of ICT for teaching purposes at the VET colleges, e.g. by each cluster setting explicit and relevant goals for the use of ICT in teaching. It is important that this is done in such a way that the goals set are based on the culture of the individual cluster and that they reflect the characteristics of the academic area toward which the cluster programmes aim.

In this context it is also important that the colleges consider how ICT can be included in teaching, both as a specific academic goal and as a basic skill. Colleges should also consider how the different ICT perspectives can work together in practice.

Survey method in brief

The survey is based on a representative questionnaire aimed at teachers from four identified programme clusters, and on interviews with teachers, students and management at eight colleges that cover the four identified clusters. The following clusters were included in the survey: building and construction, business, production and development, and health, care and paedagogics. Only the social and healthcare programmes from the latter cluster were included in the survey.

EVA is responsible for carrying out the survey and for the conclusions in the report. An advisory group was linked to the survey and has assisted EVA in its work by qualifying the survey and by putting it into perspective.

Why ICT has been chosen as a focus area for VET programmes
There is no doubt that there is great focus on ICT at all levels throughout the education sector in Denmark. This is for example seen in the Government's manifesto from autumn 2007, where more ambitious use of ICT within the education sector, both with regard to teaching and the administration of study programmes, was highlighted. With regard to its education areas, the Ministry of Education has established funding to support development of e-learning and the use of ICT, and at national level the National Knowledge Centre for e-learning (*Vidennet for e-læring)* has been commissioned to enhance productivity, flexibility and the quality of the education system by developing and using e-learning.

There has been special focus on the use of ICT within the VET programmes. In line with the Wellfare Agreement from 2006, funding was set aside to improve the quality of these programmes, including further training of teachers to better equip them to use up-to-date and relevant ICT tools. The FoU programme (*Forsøgs- og Udviklingsprogram*) for both 2008 and 2009 included projects that focussed on different aspects of ICT.

So as to support and inspire the use of ICT in teaching, efforts have also been made to share good examples from the colleges themselves and make access to digital teaching material easier. The national teaching portal, EMU, has a special page where you can read more about users' experiences in practice and examples of how ICT is used in teaching on the VET programmes. The same portal includes '*Materialeplatformen*' that provides an overview of, and access to, a number of digital teaching materials. Furthermore the Ministry of Education is currently developing the website 'eudtube.dk' specifically for the VET programmes, which supports teachers' efforts to share knowledge and material concerning the use of ICT in teaching. Finally there have been several surveys about, and evaluations of, the use of ICT within the vocational training area.

The Danish VET
You can read more about the Danish vocational training system in English at:
http://eng.uvm.dk/~/media/Files/English/Fact%20sheets/080101_fact_sheet_vocational_education.ashx

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Would you like to know more?
The report (in Danish) and other material from the project is available from the project's website: http://www.eva.dk/projekter/2009/it-paa-erhvervsuddannelserne

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About the Danish Evaluation Institute (EVA)
EVA explores and develops the quality of daycare centres, schools and educational programmes. We provide usable knowledge at all levels - from local institutions to ministries. EVA is an independent government body established in 1999.