

**OECD STUDY ON DIGITAL LEARNING RESOURCES  
AS SYSTEMIC INNOVATION**

**COUNTRY CASE STUDY REPORT ON SWEDEN**

FINAL

FEBRUARY 2009

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## 1. INTRODUCTION

This is one in a series of country reports prepared as part of the study on Digital Learning Resources as Systemic Innovation being conducted by CERI/OECD during 2008. It focuses on four case studies of systemic innovation in the Swedish school system and draws on:

- background information provided by Swedish officials and
- meetings and interviews conducted during a study visit to Sweden that took place on 10<sup>th</sup>-12<sup>th</sup> June 2008.

The visiting team consisted of Gavin Dykes, International Strategy Advisor to Becta, UK; Christian Wang, ICT-department at University College Lillebaelt in Denmark; Sang Min Whang, professor of psychology at Yonsei University, South Korea; Katerina Ananiadou, analyst at the OECD/CERI Secretariat; and Jan Hylén, consultant to the OECD/CERI Secretariat. During the visit the team met with a range stakeholders involved in the different case studies selected by the national coordinator for detailed study in the context of the project. Beyond this the OECD team also met with teachers from two municipalities as well as representatives from the publishing industry. A complete list of participants' details is given in Annex 1.

The overall aim of the study is to review and evaluate the process of innovation involved in policies and public as well as private initiatives designed to promote the development, distribution and use of digital learning resources for the school sector. In so doing, the study will bring together evidence of:

- how countries initiate ICT-based educational innovations related to digital learning resources, the players and processes involved, the knowledge base which is drawn on, and the procedures and criteria for assessing progress and outcomes;
- which factors influence the success of policies aimed at promoting ICT-based educational innovations, particularly those related to the production, distribution and use of digital learning resources including user involvement in the production process and new stakeholders such as the gaming industry and media companies;
- learner and teacher driven innovations related to digital learning resources such as innovative production and use of digital learning resources, and how the educational system responds to such innovations.

Rather than focusing on discrete institutional innovations, this activity aims to uncover a better understanding of how the process of systemic innovation works best in relation to digital learning resources, and of which factors, including governance and financing, influence systemic innovation's development. The definition of systemic innovation adopted here is: *any kind of dynamic, system-wide change that is intended to add value to the educational processes and outcomes*. The aim here is to analyse innovation systems and strategies regarding the production, distribution and use of DLR by bringing together evidence of the drivers for systemic innovation in the five Nordic countries: Denmark, Finland, Iceland, Norway, and Sweden. All countries participating in the study have selected at least three case studies of recent DLR innovations for in-depth analysis by the expert team.

The introductory section provides a brief overview of information and communication technologies (ICT) in the Swedish educational system. It draws heavily on the Country Background Report (Hult & Westerdahl, 2008). This is followed by a descriptions of the different cases selected for the study. The cases were selected by Swedish officials, in collaboration with the OECD/CERI Secretariat. The report ends with some general reflections and conclusions.

## 2. CONTEXT

The Swedish population of 9.2 million makes it the largest among the Nordic countries. Sweden is a highly industrialized country with an export oriented economy. Traditionally a very homogenous culture, the Swedish population of today includes approximately 20% of immigrants. The largest immigrant groups are from Finland, Iraq, Serbia and Montenegro, Bosnia-Herzegovina, Iran, Norway, Denmark, and Poland. These groups reflect Nordic immigration, earlier periods of labour immigration, and later decades of refugee and family immigration.

Sweden has a 9-year compulsory school system for children age 7-16. Upper secondary schooling for pupils age 16-19 is voluntary and free of charge. Pre-school, compulsory school and upper secondary schools are all free (the public school system) and all of them are comprehensive. School goals and curricula are the same throughout the country and all pupils should have access to equivalent education.

Most pupils attend municipal schools but grant-aided independent schools do also exist. Grant-aided schools are also financed by the municipalities and should provide education equivalent to the municipal schools. In 2007/08, 13 % of the pupils in compulsory schools and 17% in upper secondary education sector attended independent schools.

From the position of having had centralized curricula and syllabi Sweden launched several decentralising reforms in the 1980s and 1990s. Schools became partly financed by the state (with funding channelled through the municipalities) and partly financed by the municipalities themselves. Although curricula and syllabi are still national schools have much more room for their own decisions. They are no longer regulated in detail but through goal and result orientation. Within the framework set up at national level the school leaders/headteachers take responsibility and decide how to reach their goals. All decisions concerning technical equipment in schools and in-service training are taken at municipal and school level.

### 2.1 ICT in Swedish Education

The Country Background Report (Hult & Westerdahl, 2008) reflects that there has never been a national long-term strategy for ICT in Swedish schools. Many ICT projects have been carried out since the 1970s, the main ones instigated by the government in power at the time. Most projects have run for 3-4 years and have been supported by significant levels of funding. The Swedish Government and the Knowledge Foundation, KKS, have been the two major initiators and funders of ICT projects.<sup>1</sup> Projects have overlapped and been connected in a range of ways.

During the 1970s and 1980s a range of computer-in-school-projects took place in Sweden. From the beginning of the 1990s the Swedish Government's ambition has been to transform Sweden into an information society. In 1994 the Government formed an IT Commission with the Prime Minister as its chairman. The Commission produced and presented an ICT policy paper called "*Information Technology – Wings to Human Ability*". In this policy document it was stated that all municipalities should have responsibility for the strategy for use of ICT in schools. This was also the starting point for a series of national ICT projects.

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<sup>1</sup> The Knowledge Foundation is a public-private foundation. Its remit is to boost Sweden's competitiveness by means of inputs that, in the long term, improve the joint capacity of the business sector and the academic world to develop knowledge and competence. Their aim is for Sweden to remain a globally competitive nation.

In 1995 the newly formed Knowledge Foundation (KKS) began a national drive addressing ICT use in schools by supporting several related projects. The Foundation has played an important role as an ICT project initiator and funder ever since.

During the period 1999-2002 the government started a national program for ICT in schools (ITiS). ITiS focused on in-service training for teachers and development of Internet access for schools. All participating teachers were offered computers. 60% of all teachers participated in the ITiS programme working in interdisciplinary teams, acting as tutors for the teams, developing problem-based learning and encouraging active participation by pupils. The ITiS is the latest and last large scale governmental ICT programme for the educational sector. Since 2002 the government has offered only general pedagogical support, excluding funding. That support has mostly been in the form of web-based modules of in-service training, where the costs for assessment and certification must be covered by the municipalities, as well as web-based support to schools.

## **2.2 The Case Studies**

It was agreed between the OECD Secretariat and the Swedish officials for the OECD/CERI project on systemic innovation and digital learning resources that four case studies should be included in the study. These are chosen to highlight different aspects of the state of play as well as the Swedish development in the area of DLR. Two of the cases cover government instigated initiatives (IT for pedagogues and the Course Hub), one is a purely bottom-up driven case (Lektion.se) and the last is initiated by the Swedish National Broadcasting Company (the Media Bank). Information about the cases is based on a mixture of background documents provided by the Swedish officials and interviews during the visit and presentations by representatives of the cases.

## **3. CASE 1: IT FOR PEDAGOGUES**

### **3.1 Introduction**

ICT for Teachers (IT för pedagoger) is a website run by the Swedish National Agency for School Improvement. The website is described as acting as a broker for a range of ICT resources and its target users are school teachers and leaders. It provides links to digital learning resources, courses in use of ICT, research, computer programs, suggestions for using ICT in school and reports of teacher experiences. ICT for Teachers is effectively a portal to the Swedish National Agency's web sites, and provides a shortcut to other web resources.

The resources associated with different areas of the web site were developed separately through different projects over the previous 10 years. In the last year, these resources have been brought together and made accessible through the single portal. While bringing the resources together in this way, the opportunity was taken to focus the resources and services on supporting teachers, rather than teachers, learners and other members of the community. The site declares that teacher focus clearly.

Resources that can be reached through the ICT for Teachers portal include:

- Check the source (Kolla källan) - to encourage teachers and learners to use digital materials critically and safely
- The Spider (Spindeln) – a search engine for schools

- Multimediabureau (Multimediabyrån) - for teachers who are using materials for creative purposes- Practical ICT and Media Skills (PIM) –a structured professional development tool
- Link library (Länkskafferiet)
- Leading with ICT (Leda med IT)

### 3.2 Current Status and Statistics

In May 2008 there were approximately 61000 visitors to ICT for Teachers with approximately 85000 pages viewed. 75% of visitors go directly to the pages viewed from links and bookmarks. 1180 websites link to ICT for Teachers. There are 11238 subscribers to the ICT for Teachers Newsletter. In May 2008 there were 968 visitors to the blog with 7314 viewed pages.

From launch to May 2008, approximately 9 months, user research on the web site has generated 603 replies. The results indicate much higher levels of satisfaction when compared with a previous user research. (compared with those averaged for the public sector web sites in Sweden that use the same user research service as the Agency.<sup>2</sup> )

According to the Agency Team, recent focus for development has been on providing teachers with the information and resources they require through the portal and websites. Previously it was reported that quite many learners were disappointed because they found difficulty in locating resources they required. The material for learners and teachers are now separated on the website and learners are leaded forward to websites that target them. By changing name, content and design the website has now a clear focus on teachers.

Analysis of the site's users from 20 August 2007 to 29 May 2008 suggests that 6.1% of users were pupils and students, while the three groups of compulsory school teachers, ICT teachers/support and others (for example High School teachers) amounted to 50.6% of the users. Other significant groups included Special Education Teachers (8.3%) and Upper Secondary Teachers (8.1%).

#### Features/Sections

##### **Kolla källan (Check the source)**

Kolla källan addresses issues associated with safe use of the Internet and provides access to associated resources.

The site, for example, provides access to resources such as Hector's World, Getnetwise, Cybersmart Kids Online and MyGuide . These resources can provide guidance to teachers, and can be used with parents and learners to encourage safe use of the Internet. The Quality Information Checklist and An Easy Guide for Research Work provide simple tools that can be used to instil good practice when searching for and using web based information.

##### **Spindeln**

Spindeln (the Spider) provides a federated search across national archives containing digital resources appropriate for schools. The search engine has been developed in association with Umeå University and the Royal Institute of Technology. It draws together resources from a network of about thirty

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<sup>2</sup> Dittmer, T: Jämförande studie av skoldatanätet/IT för pedagoger och Kolla källan (September 2008)

organizations that aim to increase the availability of digital resources in schools. Private sector organizations also participate in Spindeln so that searches may point to both free and paid for digital resources.

Searching by subject returns a range of resources and identifies the source (for example, the nature of the materials and the appropriate learner age). Searches return resources from repositories including Länkskafferiet (the Link Library) and NoTNavet (the Science Hub).

### **Länkskafferiet (the Link Library)**

Länkskafferiet has seven editors, drawn from teachers and school librarians, who work part-time (2hrs per week) on the library. Site users suggest and forward links for inclusion in the Link Library. Reviewers assess proposals for linked websites, considering issues such as the amount of advertising, the structure of the site and its ease of navigation, appropriate use of language whether in Swedish or English and appropriate vocabulary. “Anonymous” links are not included and linked sites’ editors or producers must be known. There are plans to develop user feedback and to add user reviews when a new layout of the site is launched in the autumn.

Länkskafferiet’s seven editors are able to remove and to add links. A scanning tool is used to alert editors if there is a major change in the size of any linked resource. Each link is given a reminder date to ensure regular checking. A link robot reports on broken or changed links.

### **PIM**

PIM (Practical ICT and Media skills) is an internet resource that aims to enhance teachers’ skills in use of information technology for teaching and learning. By May 2008, around 100 of Sweden’s municipalities had signed a contract with the Swedish National Agency for School Improvement for PIM based education and training. Working with municipalities, the Agency has developed a cascade model for training teachers and provides a platform for associated course digital learning materials and resources through PIM. The Agency trains a number of local PIM educators within a participating municipality and they, in turn, educate, test and accredit their teachers. PIM materials are free to access and can be used individually or by a group for training. Approximately 46000 teachers (about 35% of teachers if pre-school is not included) are active in their use of PIM.

### **Context and observation**

Swedish education is largely based on what may be seen as a traditional model. Levels of satisfaction with the public school system of course vary. However, in interviews it was suggested that parents typically feel very positive about their local schools while commonly believing that the wider system could be improved.

Discussions suggested that many parents perceive that schools could or should be using ICT more and that employers and employer organizations express concerns regarding learning in maths, science and technology.

In 2005 the Agency for Schools and Centre for Flexible Learning was commissioned to address competence development for teachers, and to make digital learning resources more accessible to teachers. As a result of the relationship between central government and the municipalities, and of the way in which responsibilities are allocated, the Agency’s success criteria are associated firstly with the quality of the digital learning resources and only secondly with their availability and accessibility.

The Agency works with its partners to build availability of materials, and it generally targets resources and services for teachers. The exception is Länkskafferiet (the link library) which focuses on links that will be usable by 10 to 15 year olds learners.

Municipalities are responsible for how digital learning resources are used. Goals for the national curriculum are set centrally, and routes to achieving the goals are set locally. As a result ICT use is not prescribed centrally. Performance against curriculum goals is monitored through collection of statistics on grades. School inspections also take place to support improvement at school level. Inspectors present what they are looking for from the school inspections, they report what they find and where appropriate work with schools to improve.

The Swedish National Agency for School Improvement's web based activity is complemented by off-line activity. This includes the Computers in Education publication produced by a separate association and supported by the Agency. There are approximately 11 000 subscribers to the news letter. Through teachers, the Agency also organizes seminars. The Agency seeks to share best practice in use of digital learning resources and ICT through these channels.

The agency reports to central government each year. Teacher reference groups meet two times per year to reflect on practice and offer ideas for development. The agency's strategy for ICT focuses on ICT and media and has sought to merge ICT and media competence. That focus mirrors the steps towards convergence evident in the wider world. Teacher education is based in the higher education sector. Currently, no direct link or influence has been made to teacher education however, teacher training is being reviewed and it may in future align more closely to the agency's strategy.

### **3.3 Discussion and conclusions**

ICT for Teachers is a service primarily for teachers that draws together the results of a range of initiatives that were developed separately. The structure of school based education in Sweden requires that the Government and its agencies provide services and resources up to the municipality boundary and the municipalities choose how learning and teaching take place to meet centrally set curriculum targets. Success in innovative use of digital learning resources in education is therefore a challenge of influencing behaviours.

The approach engendered by this structure has had some success with relatively high levels of use of the ICT for Teachers portal and web sites and their resources, although this varies across the sites. Engagement of 100 municipalities and 46000 teachers in PIM suggests positive if not universal adoption. That adoption could be driven by recognition of a need to improve engagement with technology and digital learning resources. Equally it could be driven by an enthusiasm for their use. There is, however, no indication of how resources are being used and therefore the degree of innovation involved.

Interviews suggested that, as in other countries, some employers are keen to see increased skills levels in terms of use of technology and its applications among school leavers and prospective employees. Similarly, interviews suggested that some parents see value and opportunity through greater use and familiarity with technology. This perhaps reinforces the view expressed in "New Millennium Learner – a project in progress"<sup>3</sup> that "there is a NML case, built on the eventual contradiction and perplexity that

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<sup>3</sup> OECD: CERI (2008) New Millennium Learners: A Project in Progress (EDU/CERI/CD(2008)4/REV1

students may experience when realizing that digital technologies are so important in their daily lives – as they are also in the world of adults, particularly at work – except when they are in classrooms, where even mobile phones are usually banned.”

ICT for Teachers provides teachers with many opportunities for engagement with technology and potentially innovative use of digital learning resources. However, without incentives to drive adoption of content or its innovative development or use, change in existing practice is likely to be slow. In England, Becta’s Harnessing Technology: Next Generation Learning 2008-2014 strategy<sup>4</sup> addresses this area through identification of the ambition, gaps and challenges, capabilities to be developed and interventions and initiatives. With the strategic aim of developing personalised learning, Becta describes ambitions with respect to tailored content and resources including making appropriate tools readily available and universally used. It identifies interventions including setting standards for digital learning resources and guidance for good practice. It addresses gaps and challenges such as provision of high-quality digital resources, and safe and secure use of the Internet.

To some, slower steady progress may be seen as desirable, but for education, it runs the risk of it becoming out of touch with life outside school. Stronger direction, such as that offered by Becta’s Harnessing Technology Strategy, or incentives might provide a basis for more rapid change and potentially innovation

It will be interesting to see if the Agency’s success in developing ICT for Teachers and engagement in its use by teachers can be built upon to support innovation in learning and use of digital learning resources on a system wide basis and how rapidly that takes place. If there is a desire for the pace of innovation in use of digital learning resources to increase within schools and across the education system, then a review of roles and use of policy levers for change should be considered.

#### **4. CASE 2: THE COURSE HUB**

This case was chosen to develop a general picture of DLR (Digital Learning Resources) in Sweden, and to identify the potential impacts and actors for the deployment of DLR in Sweden. There are only two main actors for this case: site developers and school teachers. This case report will summarize the nature of Course Hub, and the potential impact of this DLR to the educational practices in Swedish schools. The objective of Course Hub is to collect and share learning resources for courses by teachers and for the teachers.

##### **4.1 Case Descriptions**

Course Hub started as part of the Swedish Agency for Flexible Learning. It has been working to make lifelong learning possible for adults by enhancing and stimulating the development of flexible learning in municipal adult education, folk high schools, study associations and at work places. In 2002 the Agency initiated this Digital Learning Materials repository for teachers in adult education at upper secondary school level. The repository is called “The Course Hub” (Kursnavet).

The goal of Course Hub was to become a national portal that provides educational content and teaching plans to teachers. The Course Hub project sought to build a repository for digital learning objects and

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<sup>4</sup> Becta (2008) Harnessing Technology: Next Generation Learning 2008-14

parts of digital courses. The Course Hub includes a search engine and functionality that allows connection of digital objects to form a course narrative. It exports the connected digital objects as a single file that can be sent by email or exported directly into a learning management system.

Teachers using Course Hub can search for information related to their teaching including syllabus details and educational content. Teachers can also use the Course Hub to share their teaching materials with other teachers. Such sharing of materials can motivate teachers who are proud about adoption of their teaching materials by others and also feel encouraged from contributing to the general improvement of digital content for education.

The Course Hub was developed by a Public Private Partnership. Initially, the EU structural fund provided funding of 13.7 million SEK. CFL and partners such as municipalities, universities and other governmental services provided a further 11.6 million SEK. In addition, ICT-companies/private support provided 4.5 million SEK, making the total 29.8 million SEK. Support by the EU was crucial in making this educational project work. Personnel from the National Agency for Flexible Learning played a significant role in securing funds from the EU. Users of the Course Hub are mainly teachers. A number of teachers were first introduced to Course Hub through a one-off teacher education program included in the EU project. In this program, they not only got to learn about Course Hub, but also became familiar with DLR and its benefits. Although first started as a pilot project, Course Hub functioned as an infrastructure that allows teachers to utilize digital learning materials and experience them.

#### **4.2 Assessment**

In order to evaluate Course Hub as a DLR that provides innovative features, information on user participation and activity levels are crucial. Currently, Course Hub is frequently and actively utilized when teachers are in their teacher training programme. However, after the programme ends, teachers seldom participate on their own initiative. Teachers not introduced to the Course Hub through the teacher education programme show little to no participation in its use. This observation implies that teachers only participate while they are training and suggests that the Course Hub is not really becoming an active hub for educational content. It appears that the Course Hub may only become an active hub when teachers are provided with time and the tools to develop their digital learning materials for their courses and thereby opportunities share the content they generate.

Success for DLR depends on the degree of attraction and engagement by teachers and learners and the extent of the culture of sharing among these groups. The Course Hub's internal system appears to provide insufficient opportunities for users to upload, revise and expand Digital Learning Content.

In the near future, it seems likely that teachers will need to develop course materials by collecting and combining multiple relevant content, information and data from the Internet. If this is the case, teachers should also use teaching materials made by others. Teaching with support from digital learning resources and teaching using textbooks are radically different processes enabling and requiring different pedagogies. Digital learning materials reflect the frame through which teachers and ultimately learners can interpret

the information. The Course Hub's management team is aware of differences made possible through adoption of digital learning resources when they are used well. They believe course materials can only be useful if accessible, editable, pedagogically combinable, technically compatible, and reliable.

The managers and developers of the Course Hub recognize that their site is for providing information for teachers, they appear to give insufficient recognition to the fact that the ultimate recipients and users of content are learners. It appears that a limitation of the Course Hub is that it has been developed from a developer's rather than a user's perspective. Although teachers in the training programme may use the site frequently and consistently while they are in the programme, once they are free to make their own decisions on the resources they use, they do not continue to make use of the Course Hub.

### **4.3 Discussion and conclusions**

The Course Hub has been successful in giving teachers firsthand experience of using Digital Learning Resources.. However, there was no evidence that teachers continue to use the site after the training program was ended. Although experiencing Course Hub itself became an innovative activity, the project failed to persuade teachers to engage in innovative teaching and to continue to use the digital contents repository. The main reason for this failure is the site's inability to fully reflect and support how and teachers share their teaching materials. While it is important that teachers know the content and syllabus relevant to their teaching, it is more important that they are able to revise and improve their teaching materials, to make them their own and in effect to personalise them. Digital content is no more than just information or data if it cannot be customised and personalised in this way.

The second challenge for the Course Hub arises from teachers perception that it is difficult to revise the content initially produced by other teachers.. It is not enough simply to find relevant teaching materials. Modifying, repurposing and reusing digital learning materials are equally, if not more important. The Course Hub pays insufficient attention to modifying, repurposing and facilitating re-use of materials. For the future, the Course Hub team are planning to collect and integrate the digital content to develop a full teaching support package. The management team is also considering collaboration with publishers to develop course packages or and enabling learning objects to be sent directly to Learning Management Systems. However, it seems that all of these plans focus on materials production rather than pedagogic development and the needs of users. While it is true that the main user group of the Course Hub is teachers, teachers are likely to wish to revise teaching materials to reflect the needs and characteristics of their students. The current Course Hub lacks the compelling functionality that would motivate teachers to use it actively in their work and so it remains a digital learning content repository. For greater success and innovative use of Digital Learning Resources is would appear that additional functionality should be developed that will allow users to become active and engaged participants rather than passive recipients of data and information.

## **5. CASE 3: UR AND THE MEDIA BANK**

### **5.1 Introduction and background**

The Media Bank (Mediebiblioteket) is a project developed by the Swedish Educational Broadcasting Company (UR) in 2000. UR is a public service corporation financed primarily through TV licence fees. It is owned by the same not-for-profit foundation that owns Swedish Radio (SR) and STV (Swedish Television) and its aim is to develop and produce educational products for the whole range of educational sectors, from pre-school to higher education. Most of UR's current output consists of TV and radio programmes, which are broadcast on SVT and SR, within specific time slots. In addition, in 2004, a digital TV channel, the Knowledge Channel (Kunskapskanalen), was launched by UR and SVT. UR also produces other types of products such as video-clips, websites and books. Most of UR's products are produced in-house, although 30 % are contracted out to external producers.

The Media Bank is a web-based service providing free and open access to everyone of all radio and TV-programmes broadcast in the last six months. In addition, schools, universities and adult education centres can access all programmes with no time limit in a closed network. If not accessed through the Media Bank, programmes can be borrowed from one of the several municipal Media Centres located all over the country to which 90% of schools are affiliated. Media Centres are the main distribution channels of UR's products to schools. The Media Bank project was therefore considered an innovative way in which schools and the public at large could access UR's educational materials.

### **5.2 Use of evidence and research and evaluation**

UR base their decisions on the types of products to be produced partly on outcomes from consultations with stakeholders in the education community at all levels, including schools, municipalities and the Ministry's school agencies. Specifically, a network of ICT teachers is used to inform UR of the types of programmes that teachers and other education professionals mostly require. The general public also has influence through the Audit Committee.

In terms of the development of the Media Bank itself it is not clear whether any external consultations were carried out prior to its launch. Similarly there has not been a systematic evaluation of the activity, although statistics on issues such as numbers of programmes borrowed are collected; for example, approximately 800 000 programmes are borrowed annually by teachers in the form of videos or DVDs. This figure has been increasing by 5-10 % in recent years. The service is also informally evaluated by UR on aspects such as accessibility and content.

### **5.3 Discussion and conclusions**

UR is a publicly-funded publishing company and as such is not in direct competition with other commercial publishers regarding the production either of digital materials or other more conventional resources. The fact that they are publicly funded allows the company to develop products that would be

prohibitively expensive for other publishers. Such products include, for example, educational TV programmes for linguistic minorities. This approach forms part of the general ethos of the company who see themselves as ‘publishers with values’ and who aim to develop products that are not just profitable but also useful and of a high quality. In addition they try to encourage learning and education at large and not solely to respond to specific educational needs. The company is therefore keen to maintain this unique position in education publishing as well as its independence from the TV and radio companies and regard these as essential conditions for continuing to be able to produce programmes of the same high quality.

However, neither innovation nor the development of internet-based materials or services or digital learning resources form part of UR’s core mission. Despite the development of services such as *Mediebiblioteket*, the company sees its core business as that of a traditional broadcasting corporation, i.e. the production of TV and radio programmes. In fact, according to one study participant *‘they are developing this line of business because they have to’*.

There appear to be two main reasons why this is so: firstly, UR has not actively and systematically engaged with teachers and other users in order to find out what types of products would be of most use to them or how teachers are currently using digital resources and ICT more generally in the classroom. In fact they are not even certain whether there is demand for such products, although the general belief, based on anecdotal evidence, is that they are being increasingly used in education and will continue to do so in the future. This, coupled with the fact that there is generally little systematic research on these issues, may have resulted in the company being hesitant about adopting a more coherent strategy regarding their future in this area.

Secondly, the lack of interest and initiatives in the development of DLR is to some extent also a consequence of a more general lack of vision or guidance at top-level on the part of the Swedish Government. It appears that the Swedish Government’s view is to let other stakeholders, such as publishers, take the lead in this respect without providing an overall policy framework or incentives within which the latter can operate. Publishers, including UR, are therefore rather hesitant about which options and opportunities to pursue. UR were not the only stakeholders to have raised this as an issue, and in fact the matter will be discussed further in the final part of this report.

Despite the discussion above, there is a wish, at least within parts of the company, to become more innovative and to move towards development of more interactive products. There are also opportunities for encouraging teachers and other users to use their products in a more creative or interactive way. In order to achieve this UR should establish more systematic collaborations and consultations with teachers and other professionals likely to use their products. Although this is to some extent already happening, the company seems to be unclear about the specific needs of teachers with regard to DLR or how materials, including UR’s own materials, are currently being used in interactive and innovative ways by teachers in classrooms. Conducting surveys or focus groups with teachers would be one way of communicating with user groups. Observing teachers in the classroom could also provide useful information.

In addition more communication channels could be explored and established with the Ministry of Education and its Agencies – particularly the Agency for School Improvement – and with other stakeholders in the publishing industry in order to discuss common concerns and challenges. Despite the lack of a coherent national strategy in the area of ICT and DLRs in education at the moment, regular

communication with government could encourage the latter to develop such a strategy and would ensure that UR's views are taken into account when this happens.

## **6. CASE 4: LEKTION.SE**

### **6.1 Introduction**

Lektion.se is a "bottom-up" community website where the users, mainly comprising teachers, upload, describe, metatag and share teaching and learning materials which they have produced. The materials are currently primarily PDFs. The site was initiated in 2001. It is still driven by its three entrepreneurs, all of whom were originally teachers. This case report is based on an interview with two of them.

The original rationale for development of Lektion.se was based on recognition that teachers use a lot of their own material in their lessons and spend significant amounts of time in developing them. An extensive database of digital learning materials with a community and website around it would surely encourage sharing these materials among teachers throughout Sweden. During Lektion.se's first year the idea was tested "live" and was found to be a success. In the following years the team has worked hard to increase the number of members in the community and to develop a critical mass of content in the database. Marketing is effectively viral and almost solely achieved by passing the message about "the material sharing community with free membership for teachers" by word of mouth, from teacher to teacher. The entrepreneurs have now created a private company to run the Lektion.se community and are funding the website through advertising.

### **Status**

In November 2008 Lektion.se reports 167 000 registered members. The user community is mostly made up of teachers (compulsory school: primary and secondary levels), plus a few parents and students. Membership is free. All that is required for registration is an e-mail address. Teachers apply for a membership online and confirm via automated mail with a link back to the website. The number of members is steadily growing, as are the collection of materials available for sharing.

The materials must be for schools and be copyright free (based on Creative Commons – the commercial model/version). No specific quality control is carried out on materials. The target user group is compulsory school (primary + secondary levels). In the near future Lektion.se is expanding to gymnasium (upper secondary level) – and even university levels. Commercial publishers can also supply downloadable 'sponsored' free materials.

Traffic statistics:

- +35 000 unique visitors (logins) and +70 000 visits per week.

- Many schools have one shared login-id.
- Average duration of a session: 6-7 minutes, mostly in the “IDEA BANK” section of the site, where members can upload materials (primarily PDF-files).
- Rush hours: 06:30-15:00, peaking on weekdays at 10.00-11.00 – and at 15.00-16.00 on Sundays.
- There are more than 200 000 downloads per week, mostly in the form of PDF-files.
- Lektion.se has over 1 million page views per week and 10 000 unique resources (covering all school subjects) in the database - small as well as large publications/files.

The main features/sections are:

- New ideas/new materials/new PDF-files – to be shared.
- ‘My site’ where the user can maintain a personalized list of preferred materials.
- Many teachers use this feature as their personal disk space and ‘to-do-list’ in their daily work.
- Most popular materials, last month, last week.
- Most downloaded materials.
- Comments on materials.
- Upload of materials/files, and automatic conversion of uploaded files into PDF-files.
- Discussion forums
- Forums for groups of members
- Advertisements from publishing houses, about teachers jobs etc are displayed on the right hand side of website Advertisements are restricted to ‘school related issues’. Teachers are the main target group for advertising.
- Sponsored materials (indicated as sponsor materials)

The developers report Lektion.se to be a very popular site in Sweden. More than 50% of the teachers in compulsory schools know about Lektion.se.

Lektion.se’s strategy is based on 6 focus areas, namely to:

- Keep focused on the core idea - and be patient.
- Keep it simple.
- Keep it user friendly and staying focused on the ICT-average teacher.
- Seek and listen carefully to user comments.

- Help new users not to feel alone and to become part of the community.
- Help members to relate, interact with each other.

Lektion.se has received no public funding or other support from the top-level in the school system. In the view of the innovators responsible for Lektion.se, official school bodies in Sweden (i.e. agencies) that fund projects require a degree of control. With respect to Lektion.se, this could have meant tighter quality control of materials and their decision was that they would seek a sustainable business model that did not lead to such levels of control. By taking this approach, their view is that Lektion.se better supports teachers' formal freedom of choosing teaching methods and their freedom to choose materials.

## 6.2 Discussion and conclusions

Lektion.se is a good example of a successful and innovative bottom-up activity or service with great impact on the teachers in Sweden. Lektion.se focuses on the teachers, and not on learners. With this focus the site does not necessarily create innovative effects in the teaching and learning processes itself.

The platform clearly covers the need for exchange of teacher made learning resources in “digital paper” form. These activities seem to create new types of processes and relations in the teacher’s daily work around lessons and classroom activities. In this way Lektion.se potentially increases teachers ICT-competences and skills, and contributes indirectly to teachers’ general awareness of the potential benefits of using ICT and DLR in the schools.

The future development of Lektion.se will address increased collaboration across schools and municipalities; support for and development of professional skills; increased collaboration associated with planning lessons (a part of the job where teachers often find themselves on their own); and changing teachers’ professional identity by adding digital skills.

Although it is likely that Lektion.se will develop its role as a popular and a widely used marketplace for teachers, it is difficult at this point to see in which way Lektion.se will contribute to changes in the school system from a ‘DLR as systemic innovation’ perspective. This is mainly because there are no special requirements for either form or content of the materials uploaded to Lektion.se. For instance, relationships with levels and curricula, learning outcome, teaching and learning strategies or techniques, topics and themes within the specific subjects, etc. This limited relationship with innovative use of DLR arises mainly because there are no special requirements for either form or content of the materials uploaded to Lektion.se, nor in their use. For instance, information regarding relationships with levels and curricula, learning outcome, teaching and learning strategies or techniques, topics and themes within the specific subjects, are not included.

At least two different alternatives were presented by the interviewees regarding possible avenues for the future development of Lektion.se:

- One possible scenario is further commercialization – and/or partnership with (or ownership by) one of the bigger publishing houses in Sweden.

- Another possible scenario is scaling up to include materials and other educational levels and/or sectors, followed by entering new countries based on the original idea: “The material sharing community with free membership for teachers”.

One crucial parameter for Lektion.se’s effect on the systemic level will be the website’s ability to encourage the teachers to introduce newer and more diverse material formats and content than the present PDFs. For example, more content that includes multimedia, rich media, learning objects, interactivity. While this may be a significant challenge Lektion.se starts from a strong position given the significant engagement it has already achieved. Another crucial parameter will be the owners and managers ability to maintain an efficient and well running organization and IT-infrastructure for Lektion.se while increasing the size and scope of the community. A national Single-Sign-On service would be beneficial for Lektion.se, as well as for many other services, players and users of DLR in the Swedish school system.

## 7. GENERAL COMMENTS AND REFLECTIONS

*Willingness by teachers to increase the use DLR – and they ask for help, support, training and directions in the future.*

The impressive growth and level of engagement with websites such as Lektion.se suggest that teachers are willing to use DLR, recognize its value and that they are seeking help and support. Teachers are willing to share what have produced and what they know. The number of registered users of Lektion.se suggests widespread interest in DLR.

Teachers are also seeking guidance with respect to future directions for development. With limited central direction, the impact of policy appears to be to “let a thousand flowers bloom” however the risk is encapsulated in the quote attributed to Michael Fullan<sup>5</sup> which says “ the answer to large scale reform is not to try to emulate characteristics of the minority who are getting somewhere under present conditions... Rather change existing conditions so that it is normal and possible for a majority of people to move forward”.

*Slow but steady increasing use of DLR in the schools.*

Adoption and adaption of DLR in schools is developing, but at what appears to be a relatively slow pace. There may be some advantages in moving at a slow, steady pace, with fewer risks being taken. However, there may be risks too as that slower approach may not keep up with and nor benefit from the innovations and developments in DLR use, nor will use of DLR in school reflect the experience of learners in their world outside. Learner engagement is likely to be more challenging in such circumstances. Clearly the use of DLR varies from individual to individual, from institution to institution, and from municipality to municipality.

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<sup>5</sup> E-learning Maturity Model: Version Two Key Concepts:  
<http://www.utdc.vuw.ac.nz/research/emm/TwoConcepts.shtml>

Although an increasing use of DLR can be detected, it seems as if the current use of DLR tends to reinforce existing behaviours rather than generate innovative behaviours. Perhaps teachers accessing materials on Sunday afternoons (as the figures show) indicates their putting together lessons in much the same way as they have in the past, just using electronic materials and sources rather than book based materials. Similarly it can be argued that Learning Platforms are used in schools largely in ways that might previously have been paper based. There is a lot of room for innovation and for doing things differently that appears not to be being exploited at the moment.

*Several impressive innovative cases, mainly bottom-up cases (i.e. the municipality of Nacka, lektion.se).*

Interviews with teachers reflected some infectious enthusiasm for development of the use of DLR and the circumstances in which that use is likely to be innovative. However, the drivers for adoption and innovation appeared to be associated with individuals who had identified the value of technology and DLR and provided mutual support, both in their own work and in spreading their vision to their wider teaching and learning community. In general terms the drivers for adoption of DLR appeared more individual than systemic.

It is not absolutely clear how innovatively DLR are being used in Swedish schools. While there was evidence of provision of technology, examples viewed suggested reinforcement of existing relationships, pedagogies and systems rather than re-casting and innovation in learning and teaching. For example, growth in learner production or co-production of DLR was not observed.

The importance of opportunities for users to be actively involved in uploading, revising and expanding the resources are highlighted when the Course Hub is compared with Lektion.se. Both are repositories for teachers to share digital learning materials. The Course Hub, instigated by The Swedish Agency for Flexible Learning, comprises 10,000 free Digital Learning Resources and courses in 60 subjects offers limited ways for teachers to be involved and the level of use seems quite low. Lektion.se on the other hand is the most popular service currently with more than 167.000 users, and has a rapidly expanding base of shared lesson plans. They have a simple level of quality control undertaken by a small team of web editors with limited external evaluation.

Bottom-up developments have significant benefits, possibly including higher levels of engagement and evidenced by Lektion. However, there are risks too, when there is no over-riding vision of the direction of development, That risk lies in the relationship between pure adoption of technology, for technology's sake, or adoption of technology for learning and teaching's sake. In these circumstances, learning and teaching can flex to accommodate technology, whereas a more attractive and arguably more innovative proposition is when DLR and technology to flex to support learning and teaching. Shared vision and direction at high level can help to ensure that the needs of learners, and of learning and teaching are put first.

*Publishers seem to be hesitating and defensive, partly due to lack of DLR-market, copyright issues and lack of pressure from top level along with public funding and/or seed money.*

The market for DLR is such that publishers appeared to need greater confidence before they would invest in significant scale development of DLR. Several factors may contribute to that position including there being little systemic drive for DLR, the size of the market particularly the Swedish language market and expectations associated with commissioning and public funding. There was some evidence of collaboration or potential collaboration with publishers in other countries. Such collaborations may offer a path to pursue and to help to ensure that developments reflect a future and innovative view of DLR is embedded in education.

### *Funding for projects*

The philosophy of Lektion.se's founders, and the high levels of teacher engagement that the founders have achieved deserve credit for having led to a sustainable business model. Private sector funding through carefully controlled advertising and inclusion of paid for as well as free resources are in effect an innovative model for public-private partnership for DLR with both publishers and individuals contributing to the DLR resource.

In summary, while there are examples of good and possibly innovative practice with respect to DLR, it appears that these are isolated cases and may provide benefits at a local rather than national level. Without a nationally agreed vision for technologies use and the role for DLR, isolation will continue to grow with some fortunate learners benefiting from the innovation of some heroic teachers, but many not. This is not a question of initiatives and projects, but one of vision and policy. A systemic commitment to vision and policy, there should be greater incentive for publishers to make informed decision for investment in DLR and to manage their own risks appropriately. Equally with a shared vision, there should be greater opportunities for municipalities, schools and teachers to take confident steps forwards while taking proper account of issues of community and localization.

#### **ANNEX 1**

##### **List of Participants**

##### **Ministry of Education**

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Mr Thomas Nordling

##### **National Agency for School Improvement**

Ms Seija Eriksson

Ms Anette Holmqvist

##### **National Agency for Flexible Learning**

Mr Ulf Sandström

##### **Nacka municipality**

Ms Kerstin Lindström

Ms Sandra

Ms Sandra Wissting

##### **Fredrika Bremer gymnasiet, municipality of Haninge**

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##### **Lektion.se**

Mr Per Malkert

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##### **The Course Hub**

Ms Kerstin Namuth, Folkuniversitetet

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**Swedish Educational Broadcasting Company (UR)**  
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