Best practice report

Transfer of innovation

2009

Education and Culture DG

Lifelong Learning Programme

The East Iceland Knowledge Network

JÖNKÖPING UNIVERSITY

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Project.SmartLabrador.ca

Authors:

The East Iceland Knowledge Network

Stefanía Kristinsdóttir

Ministry of Education, Science and Culture

Sigurbjörg Jóhannesdóttir

Akureyri University Research Centre

Guðrún Rósa Þórsteinsdóttir

Sigrún Sif Jóelsdóttir

University of Jonkoping

Svante Hultman

Lews Castle College UHI

Frank Rennie

Smart Labrador Project

Sheila Downer

Net University, Transfer of Innovation in Continuing University Education

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Project Coordinator

Stefanía Kristinsdóttir, Director of the East Icelandic Knowledge Network

Participants in the project:

The East Icelandic Knowledge Network

Lews Castle College UHI

The University of Jonkoping

Contractors to the project:

Ministry of Education, Science and Culture

University of Akureyri Research Centre

Smart Labrador, Newfoundland and Labrador

Re- education Centre of the University of Iceland

University of Reykjavík

Net University, Transfer of Innovation in Continuing University Education

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1. Introduction

This report aims at providing an overview of best practices within four regions/countries participating in the Leonardo project "Net-University, transfer of innovation in continuing university education". Throughout the analysis there will be a focus on defining best practices concerning distributed and distance education in relation to:

- Educational systems in different regions/countries and their impact on the structure of distance and distributed education.
- The interaction between learning centres and universities/colleges
- The cooperation of universities/colleges to expand their offers of distance/distributed learning offers suitable for students in the periphery
- Facilities and support needed in the periphery to students involved in distributed learning.
- The interaction of local knowledge centres, learning centres and universities, and ways in which rural/remote knowledge providers can be active participants in developing courses within their field of expertise.
- Regional/national policies related to distance/distributed learning.

The objective of the project is to create knowledge transfer between partners in relation to distributed and distance learning models, and how such models are integrated into regions/country education systems with a focus on higher education and life-long-learning. The report also includes a discussion on how the educational system and distributed learning interacts with research and development (R&D) environment in peripheral regions.

The report is divided into 6 main chapters and a conclusion chapter. Chapters are sectioned by a related discussion on each region participating in the project. Each section aims to describe the most prominent and significant features pertaining to each region. First there is a description of the general structure and background of the educational system within each region/country. Accreditation systems for Europe countries and for Newfoundland and Labrador are then described. Next there is a chapter on the policy and practice of distributed education. After that there is a special chapter on learning centres followed by a chapter on how distributed learning interacts with Research and Development in each region.

Participants in the Net-University project are: The East Iceland Knowledge Network, Lews Castle College UHI and Jönköping University. Contractors to the project are Continuing Education Institute of the University of Iceland, the University of Akureyri, the University of Reykjavík and Smart Labrador for the Newfoundland and Labrador Province in Canada.

Key concepts

The relationship of e-learning to distributed learning is demonstrated in figure 1. Different models of flexible and distance learning are displayed.

- Face to face (f2f) learning can be part of both distributed learning (being delivered at different places, knowledge centres and universities) as well as often being part of blended learning where students and teachers meet face to face at some point.
- Blended learning can utilize f2f, distance (video-conferencing) and e-learning.
- Distance education can include different forms of learning, i.e. blended and e-learning.
- E-learning then involves all learning via the Internet, electronic resources etc.

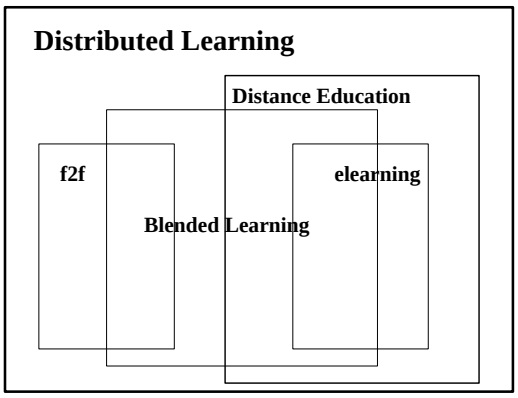

Figure 1. The relationship of e- learning to distributed learning, (Figure 5 borrowed from: Mason, R. and Rennie, F. (2006). *eLearning: The Key Concepts*. Routledge:London)

All these forms are then part of distributed learning models that apply to the development of a flexible learning environment for both students and academic partners involved.

2. Educational systems

This chapter will provide a general description on the educational systems prevailing in each country/region, to provide background information on educational policy and practice in distance and distributed learning. Educational systems will then be compared and suggestions made on how different systems support the development of university networks and on-line or distributed education.

2.1. Iceland

Iceland has a total area of 103,000 square kilometres with a population of approximately 320,000. Nearly half of the national population is located in the dense capital area. Altogether there are 78 municipalities in Iceland (Statistics Iceland, 2009).

The educational system in Iceland is administered by the Ministry of Education, Science and Culture. The fundamental principle of the system is that everyone should have equal opportunities to acquire an education, irrespective of economic status, residential location, sex, religion, handicap and cultural or social background (Ministry of Education, Science and Culture in Iceland, 2005).

Education in Iceland is traditionally within the public sector. There are very few private schools in Iceland and almost all of them receive public funding. The Icelandic educational system is divided into four levels:

- Pre-school, from 1 to 6 years of age (usually 4-5 years). This level is open for kids from 1 year old, though it is thought hard to be accepted at that age. Most commonly, kids start at 2 years old and stay there for 4 years. Parents are free to decide whether their children attend pre-school.
- Compulsory (primary and lower secondary in a single structure) 6-16 years of age (total 10 years by law). The schools are organized by grades: grade 1-4 (4 years), grade 5-7 (3 years) and grade 8-10 (3 years).
- Upper-secondary, from 16 years of age (3-4 years)[1] . From this level student's graduate with matriculation examination, journeyman's examination or fine art examination. Students can choose between grammar schools, comprehensive schools, industrial vocational schools or specialised vocational schools. The programmes that are offered are from 2 years up to 4 years. Some work-based vocational study is 2 years. The journeyman's examination and fine art examination are 3 years and the matriculation examination is 4 years. Students who graduate from fine art or journeyman's can take additional study for 1 year that will lead to matriculation. Students who are 16 years old but have not finished compulsory school with satisfied grades are also accepted into upper secondary schools. They have to attend a general academic programme for 1-2 years before they can be accepted into the other programmes that lead to examination. At the moment the Ministry of Education, Science and Culture is working on a new curriculum where the schools will get more freedom in organizing specialized programmes and deciding on the timeframe for each programme. Two experimental schools are already making their own curriculum in the spirit of the new Icelandic law of upper secondary schools 82/2008, and this autumn (2009) they offered for the first time specialized 3-year-long programmes that will lead to matriculation examination.
- Higher education level, from 20 years of age. Universities offer a short cycle leading to diploma (1/2-2 years), bachelor's degree (3-4 years), graduate study at master's level (1/2-2 years), master's degree (1 ½ 2 years) and doctorate degree (3-4 years). Some upper secondary schools offer a master craftsman examination (2 years). That study programme is at the same level as the short cycle leading to diploma.
- Life-long-learning is taking place in upper secondary schools, higher education institutions, private schools, companies and community organisations. Nine life-long-learning centres are operated around the country.

[1] Matriculation examination or Journeyman's examination used to be 4 years. Now it is in revision and from autumn 2011 upper-secondary schools are expected to offer some 3-year programmes. Two experimental schools started such programmes this autumn 2009.

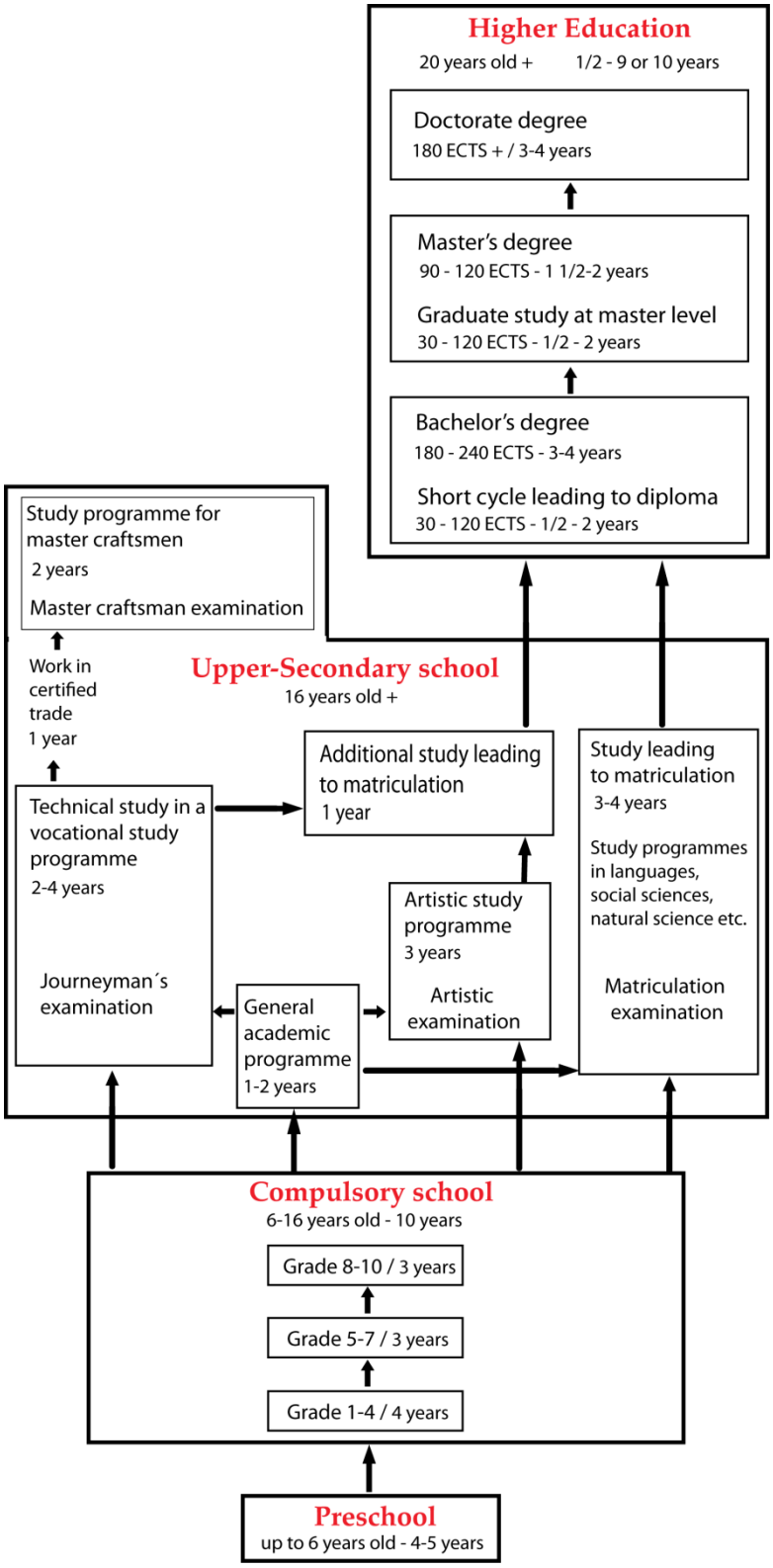

Figure 2. The Icelandic education system

Background - Distributed and distance learning

Distributed and distance learning are constantly becoming more important as a way for people to participate in a flexible learning environment (see table 1). The system for higher education in Iceland dates back to the foundation of the University of Iceland around 1911 and legislation on higher education institutions enacted in 1997. This legislation marks the frame for the activities of these institutions. The Icelandic word for university, "háskóli", literally meaning high school, refers both to traditional universities and institutions which do not carry out research. Separate legislation for each higher education institution defines their engagement in research, internal organization and the charters of privately run universities.

Table 1. Registered students by mode of teaching and type of school in Iceland, autumn 2002-2008

Upper secondary	**2002**	**2004**	**2006**	**2008**
Total students	21,363	22,599	24,459	25,590
Total pr. mode	21,746	24,220	26,958	29,271
Day courses	17,769	19,408	21,236	22,586
Evening courses	2,308	2,470	2,181	1,903
Distance learning	1,576	2,271	3,541	4,782
No support study	93	71	0	0

Universities	**2002**	**2004**	**2006**	**2008**
Total students	13,900	16,096	16,738	18,104
Total pr. mode	14,199	16,277	17,171	18,011
Day courses	11,807	13,089	14,536	14,514
Evening courses	456	437	196	157
Distance learning	1,936	2,751	2,439	3,340

Cost

The municipalities in Iceland are responsible for the pre-school and compulsory education (primary and lower secondary). Parents pay fees for their children to attend pre-school (1-6 years old) but the primary (6-12 years old), lower secondary (13-16 years old) and upper secondary (16+ years old) are free of charge. The state pays for the educational material at the compulsory level. Most of the programmes at the universities are free of charge, but students are charged for tuition fees in some of the master's programmes at the state universities. All the private universities ask for tuition fees for all programmes.

The Ministry of Education, Science and Culture run the Icelandic Student Loan Fund that offers students loans for living expenses and tuition fees at higher education and some vocational study programmes. It also offers loans to students that are pursuing special studies (Lánasjóður íslenskra námsmanna, 2009).

Current order of upper-secondary and higher education

The state is responsible for the upper-secondary and higher education. There are 34 upper secondary schools in 7 regions, thereof 17 in the capital area. They are all run by the state except three that are run by private parties. All of the schools request registration fees and the private schools charge also tuition fees. Students pay for their textbooks and teaching materials.

State universities request registration fees and private institutions charge tuition fees, thus instruction in state institutions is considered to be free of charge (The Educational System in Iceland, 2002). Currently there are seven institutions of higher education in the country, most of them run by the state. Three institutions are run by private parties with support from the state. These institutions differ in their research engagement and the number of study programmes offered. The University of Iceland is by far the largest university, see figure 3 that shows the proportional size of universities by number of registered students in autumn 2008. Currently the institutions of higher education in Iceland are facing new challenges in management and infrastructure due to recession and cutbacks in state funding.

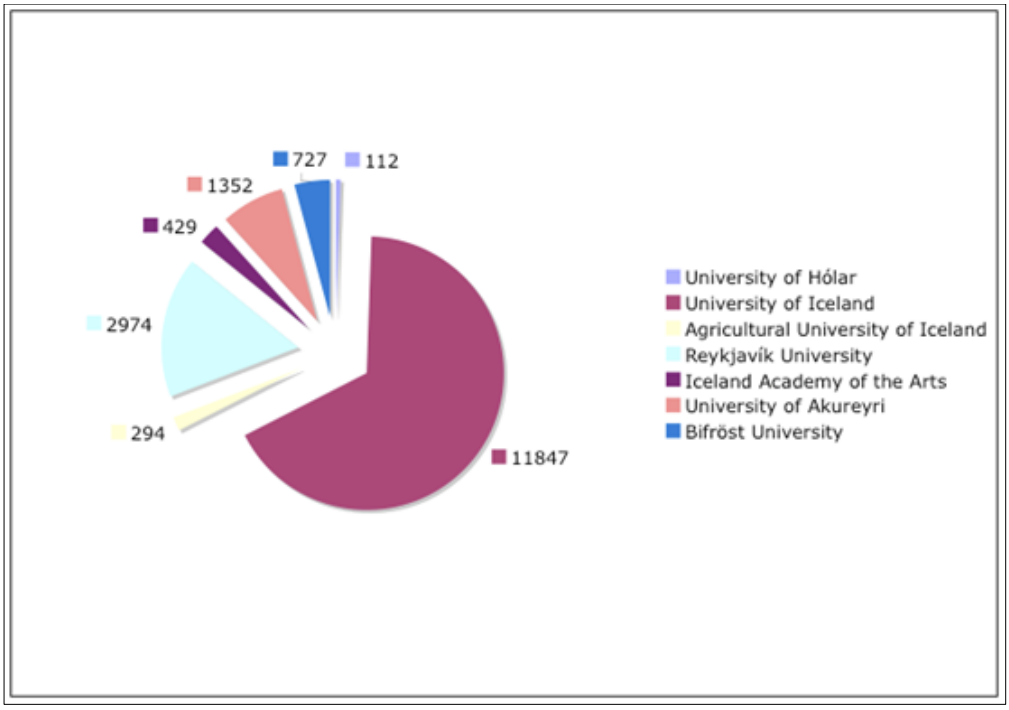

Figure 3. Universities in Iceland; proportional size – registered students in autumn 2008.2

Foreign students

The number of foreign students in Iceland has been increasing, mostly in relation to exchange programmes within the EU. Most foreign students are studying at bachelor degree level and about half of them are involved in some kind of exchange programme. The Icelandic government has no public policy in relation to foreign students. Currently foreign students have all the same rights and pay the same fees to the universities as Icelandic students. The government also contributes equal funds for both groups. The number of Icelandic students who study abroad far exceeds the number of foreign students in Iceland (Gísli Fannberg, 2009).

Grades and competition

The grade scales are 1-10 from compulsory schools to higher education. The competition for admission is very high for certain upper secondary schools in the capital area and for some of the programmes universities are offering. All students 16-18 (by law no. 82/2008) have an opportunity to study at upper secondary schools, but not necessarily in the school they selected as their first choice. The Ministry of Education, Science and Culture is now working with schools to change the system. The schools are supposed to offer more distance programmes with different requirements of grades from compulsory schools. Furthermore, a working group is now reorganizing the requirements of the final assessment of compulsory schools. When accepting students into the upper secondary schools, the schools now have to look at a variety of aspects when accepting students, i.e. not only grades of the core subjects from compulsory school.

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[2] Figure 3: Statistical information retrieved from the webpage of *Statistics Iceland* (2009).

2.2. Newfoundland and Labrador, Canada

Working in an island culture that is remote to much of the rest of Canada, Newfoundland and Labrador has become a vibrant, culturally rich and promising area of the North Atlantic region. Its 464 communities and 508,000 people live within its 405,720 square kilometers jurisdiction. Newfoundland and Labrador's geography has played a major role in the planning and expansion of educational services to meet local needs. See figure 2 of the Newfoundland and Labrador education system.

Background

The infrastructure of Newfoundland and Labrador's education system is comprised of one university, a provincial college system, a number of private training institutions and an integrated system for delivery of the public elementary and secondary (Kindergarten – Grade - 12 (K-12)) programme. The K-12 system offers free access to all school-age children.

Responsibility for education falls to the provincial governments within Canada and although key strategic directions are set by Newfoundland and Labrador's Department of Education, governance of school facilities, human resources and curriculums is entrusted to local district school boards for the K-12 system.

To address a need to involve remote students, Newfoundland and Labrador, through Memorial University, became involved in distance education more than 40 years ago. Newfoundland and Labrador has developed strong leadership and experienced application of methodologies within the field of distance education. This has led to an international reputation in distance education and innovation, particularly for the creative and cost-effective delivery of programmes and services. Beginning at the University, the reputation and strength of the provincial distance education system has grown and now includes the K-12 system and the College of the North Atlantic.

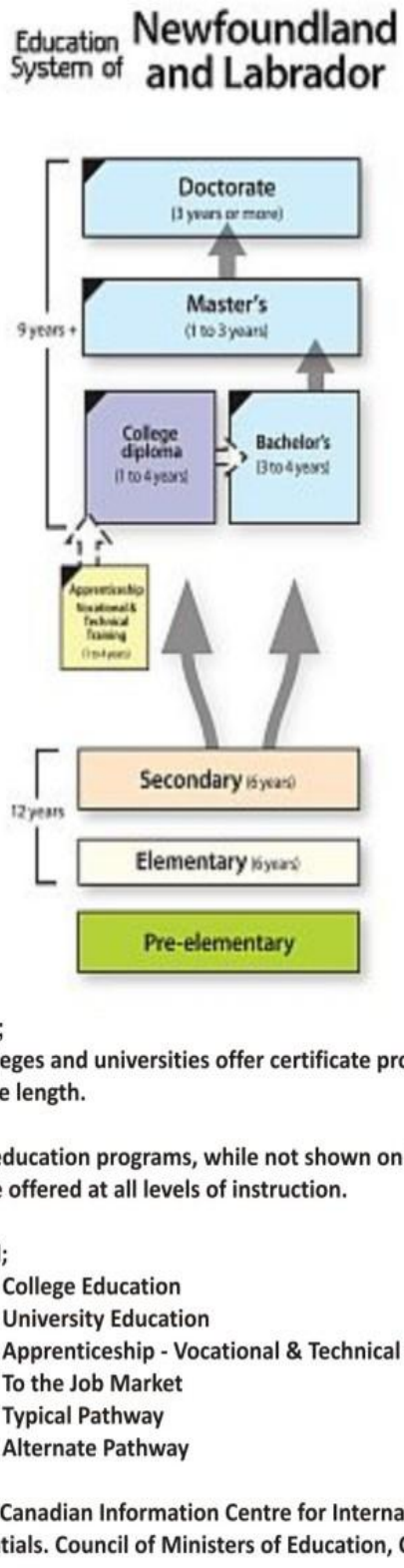

Figure 4. Newfoundland and Labrador education system.

Current order of higher education

The Newfoundland and Labrador Provincial Government's commitment to fostering a "learning culture" is seen as an important step towards addressing many of the challenges and needs of the local communities and industries. A "White Paper on Post Secondary Education" quotes "Within a learning culture, society recognizes the value of education for all citizens throughout their lives, and strives to create an environment where a responsive, high-quality education is affordable, equitable and accessible by all" (White Paper on Post- Secondary Education, 2005). Unlike some of the regions participating in the Net-University project, students in Newfoundland and Labrador outside the primary and secondary system incur substantial costs for higher education. Costs include institutional-set tuition fees and in many cases, living expenses. The government provides financial assistance services through loans and grants for eligible students. Government strategies indicate policies and initiatives toward an integrated and comprehensive approach to support technologies and capacities for life-long-learning in institutions, workplaces, communities and homes.

Table 2. Post Secondary Enrolment in N&L, 2007-2008

Post Secondary Enrolment 2007 - 2008	
Institution	*Registration*
Memorial University	17,849
Marine Institute	842
College of the North Atlantic	6,674
Private Training Institutions	2,892
Total	**28,257**
K-12 Statistics for 2007-2008	
K-12 Students	**72,084**

Knowledge Transfer

Newfoundland and Labrador has been moving toward an integrated and comprehensive approach to support technologies and capacities for life-long-learning in institutions, workplaces, communities and homes. In recognition of the value and benefits of a more streamlined approach for the development and delivery of distance education in Newfoundland and Labrador, the three institutional levels of education, including Memorial University, public college and K-12 system, teamed up for the adoption of a common platform that students will use throughout their education.

This collaboration has involved a partnership with Desire2Learn, a world-leading provider of e-learning technology and has resulted in improved education partnerships, a sharing of expertise and resources and the development of an integrated distance education system.

This partnership decision to use the same learning management system provides a common technology that removes problems for students moving from secondary to post-secondary to life-long learning options, with the same teaching and learning software being used throughout the course of their education.

This collaborative effort is the first system-wide learning management system implementation in North America. Use of this common platform has led to an increase in distance education registrations within Newfoundland and Labrador since its introduction. Statistics show 1650 course registrations within the secondary system, 3800 within the college system and 16,000 within Memorial for the

2008 period. The university reports this as representing 13.5 per cent of the university's overall enrolment and an increase of 48 per cent since 1999.

2.3. Sweden

In Sweden all children attend pre-school for at least one year and most pupils are taken care of by the well-developed crèche organization. Compulsory schooling or "Grundskolan" lasts between 7-16 years of age (nine years) and after that children normally take on upper-secondary education in "Gymnasieskolan" for three years. There they can choose theoretical study programmes or vocationally oriented programmes. The policy is to admit students to their first choice of study programme. Students who do not pass with the sufficient grade from "Grundskolan" (11.2% last year) have the opportunity to take on a three-year individual programme to qualify for conventional studies.

The grade scale for each studied course is: acknowledged, well acknowledged, very well acknowledged or not acknowledged. These grades correspond with numerous values upon which students compete when applying for higher education[3].

Background

In Sweden there is a deep tradition of educational extension through the system with "Folkhögskolor" and "Studieförbund" which offer courses - shorter or longer, daytime and evening or weekend time, seldom in study circles - where many adults throughout the years take courses for their development. This is a great contribution to life-long-learning.

Current order of higher education

Higher education normally retains university studies and **"Yrkeshögskolan"** higher vocational education. In every region (24 regions in total) in Sweden there is at least one minor or major university. The combination of courses that students complete in "Gymnasieskolan" is essential for qualification, in order to be appointed to higher education. That also requires students' marks to meet the given criteria. For many University programmes, Yrkeshögskole-programmes or free courses, the competition for admission is very high. The system is quite rigid. However, attempts are being made to make the admission process more flexible with additional valuation for extended participation, validation and substantial competence.

The proportion of the young population that seeks higher education every year in Sweden is 40%. The goal is to increase the target rate of the younger population who seek higher education before the age of 25. Currently the rate is approximately 42% for the young population.

[3] For further information see: www.skolverket.se

Unlike in most countries, education and all courses in Sweden are free of charge, i.e. the students don't need to pay any fees or take on any cost to be taught. This also applies to students who come to Sweden from the EU-countries to study[4].

2.4. Scotland

In Scotland, pupils between the ages of 5 and 16 years receive full-time education suitable to their age, ability and aptitude. After 7 years of primary education pupils are transferred to secondary education, usually around the age of 12 years. Many pupils continue their education past compulsory schooling to further and higher education levels, however some pupils leave school at 16 years and undertake employment.

The 5-to-14 curriculum takes pupils through primary education and two years of secondary. As there is no statutory curriculum in Scotland, local authorities and head teachers have responsibility for the delivery and management of the curriculum; however, guidelines are provided.

The Scottish Education Department regulates the curriculum in primary schools under the 5-to-14 curriculum. There are no entry restrictions to secondary education in Scotland. Lower secondary education is divided into three stages. The first two years (S1 and S2) provide general education; third and fourth years (S3 and S4) are based on specialist and vocational education for all.

Pupils aged 14 to 16 years take Standard Grade courses. Standard Grade courses are part of a national programme where assessments are regulated and marked by the **Scottish Qualifications** Authority. These courses are offered at three levels and take two years to complete. The levels offered are credit, general and foundation; different levels are taken according to pupil ability. Options for Standard Grade courses are chosen at the end of the second year of secondary education. Standard grades are attained from continuous assessment within the school and by external examination.

In Scotland, education beyond secondary school is usually divided into two separate categories 1) Further Education (FE) (usually college-based, and normally vocational training) and 2) Higher Education (HE) (normally undergraduate degrees and higher degrees, and although normally in universities, there are many colleges offering degrees too). The UHI is distinctive in that it offers both FE and HE in the same institution. It is possible for a school-leaver to enter a college and to progress through progressive awards from sub-degree, degree, Master's degree, PhD etc.

[4]For further information see: www.hsv.se , www.scb.se/statistik

Background and current order of higher education

For the academic year 2007-8, the UHI had over 7600 students, of whom 62% were in part-time study. Of this total number of students, around 23% are studying in undergraduate degree programmes, and a further 72% studying other (sub-degree) undergraduate courses. Around 3% are studying taught postgraduate courses and 1% engaged in postgraduate research. This breakdown reflects the fact that the UHI network is comprised of 14 different colleges and research centres (Academic Partners) who are federated into a single Higher Education Institution. The history of most of the Academic Partners is as colleges of vocational education, and this is still a substantial part of their recruitment. Research and advanced degrees are a relative recent addition to the curriculum, though in many disciplines the numbers are growing rapidly. Around 87% of students reside in the Highlands and Islands, although growing numbers of students (especially on online courses) live in other parts of the UK, Europe, or internationally.

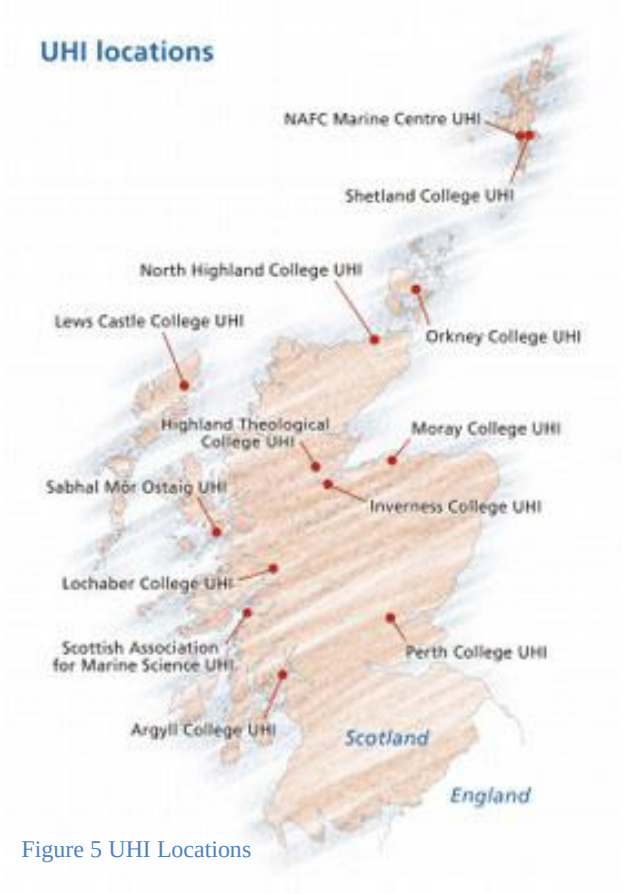

Figure 5 UHI Locations

2.5 Conclusions

Comparing the education systems in different countries, one finds many similarities as well as differences.

The similarities are that compulsory education –- primary and secondary school – is usually financed by the local government with fixed financial support from the state. The overall organization or framework for compulsory education is centralized and managed by the state, such as "The national curriculum" teacher's education etc. Further education including colleges and universities is either financed by students themselves (they usually can apply for grants or students loans to finance their education), like in Canada and Scotland, or the state like in Sweden and Iceland, although there are a few private schools in Iceland (also financed by the state but with higher registration fees). Differences in

	Compulsory education		
	Age	**Elementary**	**Secondary**
Scotland	5-16 years	7 years	4 years
Canada	5-17 years	6 years	6 years
Iceland	6-16 years	continuous	continuous

Table 3. Comparison of Compulsory education in the participant countries.

compulsory education are the age period it spans. In Canada and Scotland children start at 5 years old and undertake 11-14 years compulsory education, 11 years in Scotland and 12 years in Canada. In Canada pupils can finalize their secondary education at 19 years old (that is if they haven't finished it at the age of 17). Compulsory education is divided into elementary and secondary education, in Canada 6 years for each and in Scotland primary 7 years and secondary 4 years (see table 3).

The Desire2learn platform for e-learning in Canada is also a practice that could be integrated in other countries where different universities use different learning platforms for their distance learning.

3. Accreditation systems

Accreditation systems are a way to transfer knowledge and education across borders. In the following sections the European Credit Transfer System (ECTS) and the accreditation system in Canada will be discussed. The ECTS systems makes it relatively easy for Europeans to take part of their studies abroad, and opens up the possibility for higher education institutions to work together on different degrees – joint degrees or cluster cooperation. Such cooperation between partners in Europe and Canada has to be negotiated in each individual case, as such as system is not in place in Canada.

3.1. European Credit Transfer System (ECTS)

All the Nordic countries have ratified the Lisbon Convention and are active members in the Bologna Process. Both a national information centre and a European network of information centres are operating at the University of Iceland (NARIC[5]/ENIC[6] office). An agreement has been made on the recognition of qualifications concerning higher education in the European Region (managed at the ENIC information centre) and in particular between the Nordic countries, where a full mutual recognition will be made (work carried out within NORRIC – The Nordic National Recognition Information Centres, a network of Nordic NARIC/ENIC offices). Within the Bologna Process, foreign qualifications can be recognised and currently increased attention is given to the recognition of prior learning at higher education institutions.

All Icelandic, Scottish and Swedish universities use a credit system comparable to the ECTS system, issuing Diploma Supplements to their graduates. The universities have described learning outcomes for all their programmes in accordance with a National Qualification Framework that has been published by the Ministry of Education (Nordic Declaration on the Recognition on Qualifications Concerning Higher Education, 2007).

[5] NARIC stands for European Network of Information Centres in the European Region.
[6] ENIC stands for National Academic Recognition Information Centres in the European Union.

3.2. Accreditation system in Newfoundland and Labrador, Canada

As there is no current national accreditation system within Canada for educational programmes, Newfoundland and Labrador's university and college system are largely regulated and assessed through their respective legislations, internal reviews and accreditation programmes of regulated professions (i.e. nursing, engineering). Many of the regulated professions within the country have associations that participate in the establishment and review of post-secondary curriculum standards and consult on other professional issues governing student preparations for entry into their professions. Memorial University is also a member of the Association of Universities and Colleges of Canada. It does not perform formal quality assurance functions but does maintain membership criteria to ensure the fulfilment of many principle areas of academic development and delivery. Quality assurance measures for the private educational institutions are performed through a provincially appointed superintendent. All operating private institutions must be registered and must satisfy a series of quality areas through annual inspections.

Within the university and college system of Newfoundland and Labrador there are opportunities for the transfer of credits between institutions and across other educational facilities and professional associations within the country. This process is facilitated through transfer agreements and is made available to students through an online transfer guide and database at www.edu.gov.nl.ca/council .

Both the university and college system of Newfoundland and Labrador utilize a credit system for the issuing of degrees, diplomas and certificates and provide a wide offering of non-credit courses.

4. Policy and practice in distributed education

This chapter will focus especially on the policies and practices within distributed education in project partners' regions/countries.

4.1. Iceland

Distance education was established to make education accessible and thereby create opportunities for studies independent of where people lived, what their financial status was or their personal circumstances (e.g. disability). Distance education has also grown over the last decade with a strong indication of continuing growth. In the past decades emphasis has been placed on developing the technical aspects of distance education, but now there is an increased emphasis on pedagogical research that may lead to improved education. Finally, there is an emphasis on making distance education more economical in the sense of developing further the number of students involved in distance education and extend offers of courses.

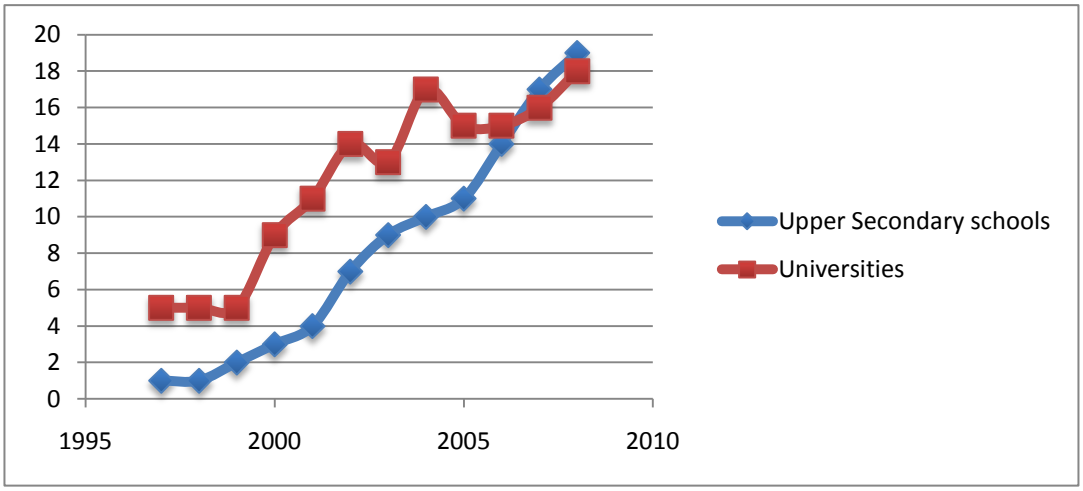

Figure 6. Percentage of total number of students participating in distributed learning

Distance education is regulated in the same manner as traditional education. However no conscious common distance education policy is followed and no formal overall collaboration network on it exists either. The responsibility for the execution of teaching through distance is carried out by several parties within the upper-secondary schools and the universities. The maturity and form of distance education depends on which school is involved and even what type of distance studies are being offered. The development of distance education is practiced separately within each school and university (and it is even very different between departments).

This suggests that distance education on an upper-secondary and university level in Iceland could benefit largely from joint efforts.

National network for distance learning

It is clear that Icelandic distance/distributed education policy is needed: a holistic policy for the overall upper secondary and university educational level. In order to develop curricula and study programmes based on their capacities and environment, a policy is needed on distributed learning and the interaction between local/rural knowledge centres and universities. Collaboration on the development of distance learning has been recognised in many foreign countries as very fruitful and associative university networks have been established, such as the University of Highlands and Islands in Scotland presenting a network of academic partners including both colleges and research/knowledge centres.

An important role of an associative university network in Iceland is continuing development of distributed learning and education. The suggested goal of such an institution/network would be to perform research and evaluations in the broader aspects of distance education. For example, to develop distance educational methods, develop the technical features in web systems and establish courses for distance teachers. This could possibly be done in cooperation with the universities' educational departments and the Ministry of Education, Science and Culture. Furthermore, such an

institution (or a collaborating network) could assist the universities by coordinating the courses and by providing a unified policy that would ensure good flow of information between stakeholders (students, teachers, libraries, schools, ministries and information centres, life-long-learning centres, industry and other). The four nations (France, Scotland, Canada and Sweden) studied in a report by Guðrún Þórsteinsdóttir (2006) all agreed that their cooperation was efficient and remained flexible towards changes in society. Iceland is not different in this respect and Icelandic universities and their students would without doubt benefit from increased cooperation between universities on distance course management and the development of the courses.

International cooperation

International cooperation needs to be nurtured, since many neighbouring countries are now working on the development of joint Internet universities or collaborating networks. The Icelandic educational system is in international competition and therefore needs to take a stand with other countries on education policy and practice, in particular since the nation is scarcely populated.

Kvasir is the association of education and life-long-learning in rural Iceland. The East Iceland Knowledge Network (TEIKN) has worked on the behalf of Kvasir in developing an association university network in Iceland.

Distance education overview

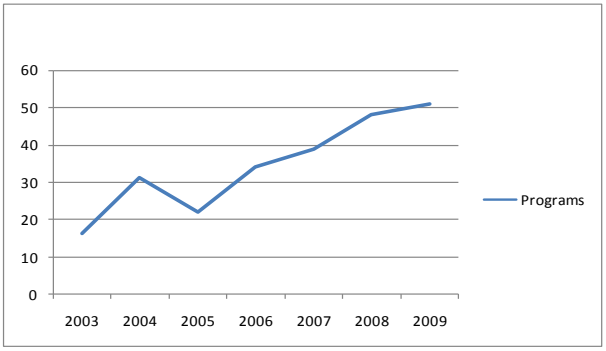

Figure 7. Number of programmes offered through distributed learning from the year 2003-2008

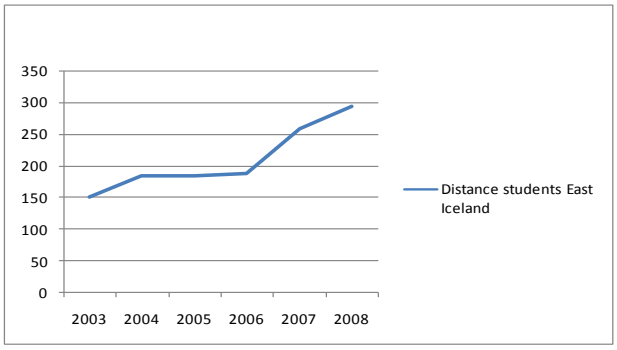

Figure 8. Distance students in East Iceland

In figure 6 you can see the number of programmes offered through distributed learning from the years 2003-2008, from 16 programmes in 2003 to 51 in 2008. The number of students participating in distance education has also *developed parallel to this development, see figure 7 on distance students in East Iceland*. In table 4 there is an overview of programmes offered by different universities in Iceland for the winter 2009-2010. The universities in Iceland have focused differently on distributed and blended learning; for instance, the University of Bifrost and the Agricultural University use blackboards parallel to sequence learning in over half of their education offers.

Table 4. Universities providing distributed learning in 2009

Universities	No. of programmes	Fields
University of Iceland	19	humanities, social science, health, education
Bifröst University	10	business, master in law, economics etc
University of Akureyri	7	education, business, science, health
Reykjavík University	5	computer systems, engineering
Agricultural University of Iceland	5	nature, environmental and forest studies
Hólar University College	5	tourism, event organisation, fish farming
Iceland Academy of the Arts	0	
Total	51	

All the universities use the network of learning centres for hosting exams for their distance students.

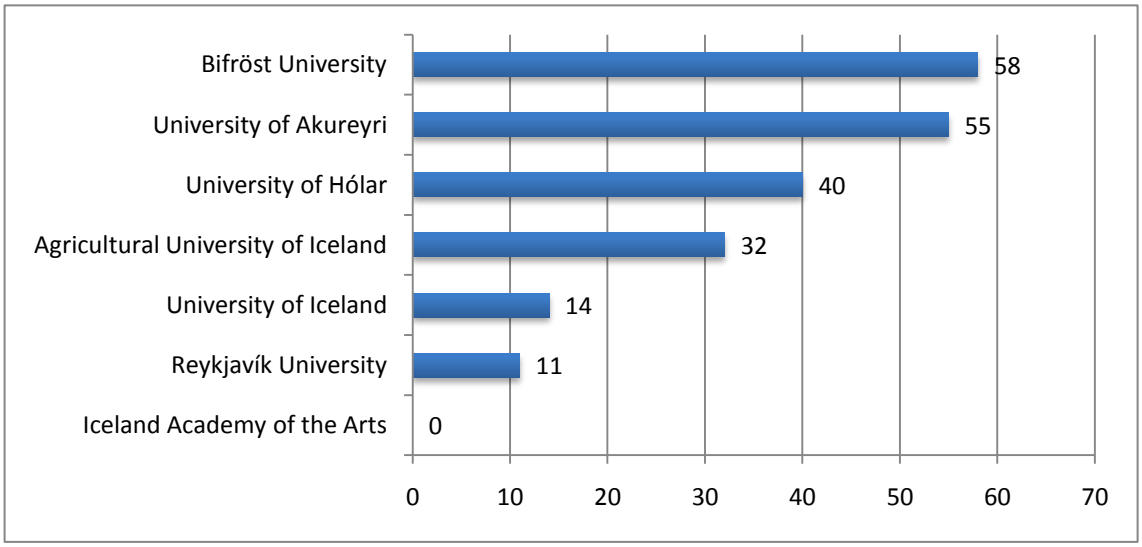

Figure 9. Proportionate rate of students in distributed and distance learning in the universities in Iceland, autumn 2008.

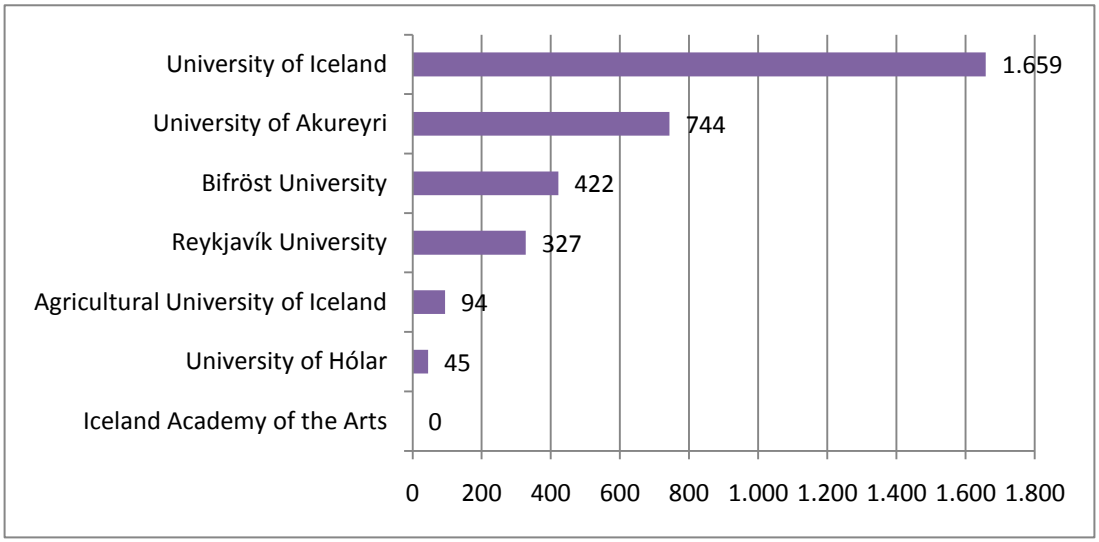

Figure 10. The number of students in distributed learning in the Icelandic universities, autumn 2008.

In figure 9 the percentage of students in distributed and distance learning within different schools is demonstrated and in figure 10 numbers of students within each school is demonstrated. The University of Iceland, although it is the largest university, has the lowest percentage of distributed/distance students. The result is also demonstrated in a limited offer of distributed/distance courses offered in general in Iceland, as for most subjects UI is the only provider of education such as pharmacology, dentistry, science, nursing, medicine, theology as well as most subjects within humanities and social sciences, see table 5 on total number of courses and distributed/distance courses at UI.

Table 5. Proportion of distance/distributed courses at University of Iceland 2007-2008.[7]

Faculty at University of Iceland	Number of courses	Number of distributed/ distance courses	Percentage of distance/ distributed
Theology	36	0	0,00%
Medicine	146	0	0,00%
Law	55	0	0,00%
Business and economics	119	0	0,00%
Humanities	495	38	7,68%
Pharmacology	32	0	0,00%
Dentistry	87	0	0,00%
Engineering	168	0	0,00%
Science	250	0	0,00%
Social science	315	34	10,79%
Nursing	70	10	14,29%
Total other than teaching	**1773**	**82**	**4,62%**
Teaching	860	393	45,70%
Teaching master	113	113	100,00%
Total teaching	**973**	**506**	**52,00%**
Total UI	**2746**	**588**	**21,41%**

[7] Guðrún Geirsdóttir and Rögnvaldur Ólafsson, 6 March 2009.

The University of Akureyri mostly uses video-conferencing supported by blackboard and sequence learning. Other universities in Iceland have focused on distributed and blended learning, such as Bifrost University that uses a blackboard and on-line education environment parallel to sequence learning in over half of their education offers. The University of Iceland and the Reykjavik University have a very limited offer of distance/distributed or blended learning, although their continuing education centres have been extending their offers of distance education financed by the students themselves. The School of Education, one of the departments/schools within the University of Iceland, offers all their postgraduate courses and some undergraduate courses with flexible learning supported by Blackboard and Emission.

Practice points on distance education – University of Akureyri (UNAK)

The University of Akureyri (UNAK) in Northeast Iceland had 55% of its students learning through distance in 2008 according to Statistics Iceland, see figure 9. Research and development of well-defined practice and the formation of policies for distance education in UNAK is currently in progress. Today at least five main means of practice can be identified: these have been used to transfer knowledge to students through distance or blended learning at UNAK.

1. *Parallel teaching* is used where groups are formed at one or two distant ends and local lectures are broadcasted directly and simultaneously to distant ends through a TV recording device. This has been the case in Nursing in the Faculty of Health Sciences.
2. *Local and parallel teaching* is where students participate in local studies but partly through distance broadcasting. This is done by lectures being broadcasted directly and simultaneously through a TV recording device, for instance in the Department of Education.
3. *Evening and night courses* through direct broadcasting to various distant ends. Students studying business alongside work are enabled to attend to lectures in this way.
4. *Learning unrestricted to time and place*. Local learning lectures are recorded and made available to registered students, for instance in Occupational Therapy in the Faculty of Health Sciences.
5. *Sequence learning* where students show up for local interval periods of learning but outside of that there is no structured teaching. This has been practiced for instance in law studies in the department of Law and Social Science.

Some fundamental adjustments need to be made to the current practice in order to take on the leading role in long-distance education in Iceland. UNAK needs to create an educational policy for teachers in long-distance learning, such as a week's seminar for teachers or obligatory courses during semesters where teachers get education and guidance on educational methods, technical issues, ways of good presentation etc. The department presidents need to press the necessity of attending to available courses and appropriate support and guidance.

4.2. Newfoundland and Labrador, Canada

Although the Government of Newfoundland and Labrador has not adopted explicit policies for distance education and life-long-learning, it has through its strategic planning of the Department of Education created a Council on Higher Education which has identified the following focus area as a priority for the public post-secondary education system: "Implement strategies to strengthen the base of post-secondary education, especially in the areas of adult learners, women's participation, aboriginal participation, rural participation, adult academic upgrading and apprenticeship training[8]." Memorial University began extending its training through distance education more than four decades ago. In light of its mandate to serve all citizens of Newfoundland and Labrador, it initiated increased access and enhanced delivery of post-secondary education to rural and remote regions in 1969.

Memorial University offers distance education programmes through its division of Distance Education and Learning Technologies. Its aim is to reach potential students across the province, including those living in rural and remote communities. A variety of credit and non-credit courses are available on-line, including more than 350 credit courses to complete degree programmes from 10 faculties and schools. Enrolment in the distance education programmes of Memorial University continues to increase with a total of 16,000 registered students in 2008.

The College of the North Atlantic's Distributed Learning Service serves remote learners throughout the province, across Canada and internationally. In 2008, learners from more than 260 communities participated in the College's on-line courses. Over 240 courses have been developed for online delivery so that learners can upgrade workplace skills and achieve diploma or certificate completion. Since 1999 more than 15,000 students have participated in the College's online programmes.

Current practice of distance learning

All distance education programming offered within Newfoundland and Labrador is delivered through a common learning management system and allows enhanced services for both teachers and students. This collaborative platform is being recognized as innovative in the field of distance education and offers students access to course information and materials at any time. Likewise, interactions with instructors, fellow students and course content can be flexible and at the convenience of the student's schedule.

Memorial University promotes and delivers its online and distance education programmes through its Memorial@Home service. Memorial@Home is a "self-service model" which utilizes an information management system to enable the exchange of information and streamlining of student services. Considering the range of challenges and issues faced by students who wish to further their education through e-learning, Memorial University's innovative services "provide flexibility learners need to fit

[8] Business Plan 2007-08: Council on Higher Education, Department of Education, Government of Newfoundland & Labrador

education into their lives and offers all of the benefits of a residential university online" (Content Authors Guide, 2009).

Newfoundland and Labrador's public college system have delivered more than 15,000 e-learning course registrations and offers more than 250 college courses and programmes through its online learning service. Although the College caters primarily to local communities, students include learners from every Canadian province as well as from the international community.

As one of Canada's pioneers in the utilization of technology for the practise of distance education, Memorial University became one of the first users of teleconference technology and is now celebrating forty years of development in the use of technology for delivery of continuing education programmes. Reaching out to the changing needs of students and to people who cannot move from their employment, families or communities, Memorial has received several national awards with the most recent from the Canadian Network of Innovation in Education (CNIE). This year they received the Excellence and Innovation in Use of Technology for Learning and Teaching award for the application of Second Life as a teaching and learning tool in Engineering and in 2008 they received the Excellence and Innovation in Student Services award for the development and delivery of their Memorial@Home model.

Today, Memorial offers a wide range of activity in distance education, and a variety of non-credit offerings in the area of life-long learning. As part of the Newfoundland and Labrador's education strategy, Memorial University received funding in 2007 to develop 72 new distance education courses over a three-year period. Course development has focused in the following areas of study: Arts; Education - Bachelor of Post-Secondary Education; Engineering – Master of Engineering Management; Human Kinetics and Recreation - Master of Physical Education, and graduate programmes in arts and business.

With increased course offerings, Memorial continues to report increased rates of registration of online students. These increases are showing particularly in registrations for continuing education in social work, human kinetics and recreation, education and nursing.

The demand for distance delivery will continue to grow across many sectors. One particular sector of Newfoundland and Labrador that has benefitted from Memorial's expertise and growth in online continuing education has been the medical sector. Memorial's online programmes make it much easier for doctors and nurses practicing within rural communities to continue their medical training. Memorial University's Faculty of Medicine provides a number of online courses for practising nurses and leads a web portal that offers continuing medical education to physicians across Canada – (MDcme.ca.) Since its inception in 2002, MDcme.ca has proven to be an innovative and successful approach to addressing the professional development needs of physicians. Memorial is working with a Pan-Canadian consortium of ten medical schools for the development and ongoing evaluation of this

portal. Other partners in the success of this education initiative include federal/provincial governments, medical associations, private industry companies, and physicians.

As leaders in the development and delivery of distance education programmes and pedagogical services, both Memorial University and the Newfoundland and Labrador College system participate as members of virtual training consortiums along with other leading Canadian colleges and universities for an expanded offering of online training programmes.

Canadian Virtual University or CVU - is a consortium of Canadian universities that offer complete university degrees, diplomas, and certificates over the Internet or through distance education. CVU universities accept the transfer of credit from participating universities. Memorial University is a member of the Canadian Virtual University, along with 10 other Canadian universities, opening up more than 2000 distance education options for students.

Canadian Virtual College Consortium or CVCC - is a partnership of Canadian Colleges and Technical Institutes working together to offer complete degrees, diplomas, and certificates over the Internet or via distance education. Students can mix and match from among 2,000 distance courses offered by participating Colleges/Institutes. Each College/Institute is accepting of the transfer of credits as long as the credits fit the respective programme requirements. The College of the North Atlantic and the Marine Institute are members of the CVCC, along with the Niagara College, Red River College, and the Northern Alberta Institute of Technology.

4.3. Sweden

For more than 10 years the University of Jönköping has been ambitiously engaged in distributed education. One of the important reasons is the fact that the relationship and cooperation with the municipalities and the region (Jönköpings län) is strong and well developed. As Sweden is divided into 24 regions (län) and there is at least one University in each län the policy is clear on cooperation between the University and the region. This is thoroughly described in the development plans for the region (Regional Development Plan).

At the onset of distributed education, teachers would travel to different municipalities where courses were given by the University. The teachers gave lessons and lectures to groups that assembled in a school or other adequate places. In 1998 the decision was made, in a meeting between the municipalities and the University, to form a special council – “Rådet för flexibelt lärande” (e. Council of flexible learning) – with representatives from the municipalities (learning centres) and the University. This council had the goal to discuss, establish and develop distributed learning in the whole region. Special guidelines were made and formulated in a “Metodbok” (e. White paper) where detailed decisions and routines for the municipality, the University, teachers and students were described.

At this time the video-conferencing technique developed and every municipality, through their learning centres, was linked to the University in a specially arranged system which has been refined throughout the years. Currently this technique is working very well, both in regards to technique and pedagogical aspects.

Current practice and development of flexible learning

As the digital capacity has developed, the number of distributed courses by video-conferencing technique has diminished. Online learning has been developed as another tool or method. Some of the teachers are advancing faster technically than others and some only use the video-conferencing method for the learning.

Jönköping University has had an organization or a council for pedagogical development for many years. The people involved have stimulated the teachers concerning the teaching methods with seminars, courses, conferences, lectures and other meetings. The result is evident in the fact that more and more teachers are getting involved in the development of learning by using different media methods. Blended learning is a useful term and is applicable not only to distributed education but also to campus-driven education.

Seven years ago the Faculty of Health Science at the University of Jönköping decided to develop web-based learning. This decision was essential for the development of flexibility of methods used in every course and education at this faculty.

So-called e-learning was stimulated by the state at around year 2000. A special government office was established, NSHU, Nationell Samverkan inom Högre Utbildning, (e. national cooperation within higher education). The Net University was developed. Universities all over Sweden were invited to apply for funding to develop web-based courses which should be marketed through a special website. Some universities were more engaged than others but thousands of web-based courses were made available and could be applied for in a short period of time. This website is now working through the address www.studera.nu, as NSHU has closed down.

The discussion within “Rådet för regional utbildningssamverkan” is currently very focused on the development of web-based courses, blended learning and widening participation. Although still in use, the video-conferencing technique has diminished.

4.4. Scotland

The UHI is not a Distance University in the conventional sense of the Open University, or even the distance learning department of a ‘conventional’ university. The UHI recognizes a category of ‘remote students’ i.e. students who are separated geographically and/or in time from the provision of tuition at a main campus.

Current practice of flexible learning

When courses are validated (approved for delivery) by the UHI quality control system, a course must specify the method of delivery. This can range from being taught face-to-face by only one Academic Partner (e.g. a specialist course with expensive, customized facilities) through a 'networked course' (taught by staff at a multiple of campus sites to students in a wide range of geographical locations) to a fully online course able to be delivered internationally. Academic Partners must prove that they have the resources and experience to deliver courses in a fully distributed manner. Courses that are fully distributed are frequently described as "wholly online with tutor support" in order to indicate that while the main tuition environment is online (no requirement for classroom attendance) the course is not self-taught as there is regular and structured interaction with university academic staff. For courses that are approved for 'network delivery' i.e. different elements of the whole course might be tutored by different academic staff, geographically located in different Academic Partners, there is an internal formula to reward the different elements of student engagement.

In UHI jargon this is called the microRAM (Resource Allocation Model) and currently this breaks down as follows: of the total income earned by the UHI for that student

- 65% is allocated to the Academic Partner who provides the tuition,
- 18% is for the 'hosting' of the student (i.e. the provision of classrooms, computer room, libraries etc)
- 17% is allocated for the enrolment of that student (i.e. recruiting the student to the UHI, processing application forms and associated paperwork).

It is therefore possible for a student to be recruited and hosted by a learning centre, but the teaching to be provided by a different Academic Partner (with both partners benefitting financially). Similarly, a student could be recruited by one Academic Partner, hosted by a second, with some element of the tuition being provided by a third. In practice an Academic Partner will normally try to provide as much of the service as possible, though they may bring in specialist academic staff at other Academic Partners to provide two or three specialist modules/units that are components of a larger course.

Funding opportunities for the students on courses delivered by distributed education is very varied. Full-time 'remote students' may be able to apply for the same governmental financial loans as 'conventional' face-to-face students in classroom attendance courses. Part-time 'remote students' may be eligible for Individual Learning Accounts to support them in the cost of their fees, though this is calculated on individual economic circumstances.

4.5. Conclusions, knowledge transfer

Based on the following descriptions of different policies and practices in distributed and distance learning, it is clear that many best practices can be transferred to the Icelandic University-Knowledge Centre Network. In Canada there is a special channel for distance education, both for universities and colleges. In Scotland the best practice to be transferred is the cooperation of academic partners and

colleges into UHI, and is an example of how Iceland can integrate its knowledge centres and perhaps also its colleges into an academic network providing both support to distance education and a platform for academic partners to develop courses and programmes at higher education level.

The centralized platform for all university education in Sweden is a good example of how to generate a holistic account of programme/course offers of higher education, as well as focusing on on-line education as a vital part of such offers.

In Iceland the financing of the support system for distance education has been in the hands of the government, although estimation of costs of different engagements has not been estimated like UHI has done in its RAM (Resource Allocation Model). This model could become a best practice for future involvement and cooperation between knowledge centres (academic partners), universities and learning centres in Iceland. Table 6 provides an overview of the availability of policies and platforms for distributed education in partner regions/countries.

Table 6. Overview of policies and platforms for distributed education in partners' countries/regions.

Policy, systems and cooperation in distributed education	Iceland	Newfoundland and Labrador	Sweden	Scotland
Policy in distributed education	No	No	Yes	No
Quality system form distributed education	No	No	Yes	Yes
Common platform for distributed education	No	Yes	Yes	No
Common platform for registration into universities	No	No	Yes	No
Coordinated learning environment for distributed education	No	Yes	No	Yes
Network for regional learning and knowledge centers	Yes	No	Yes	Yes

Looking at table 6 that gives an overview of the availability of policies and platforms/systems for distributed education in partners' countries/regions, one can see that although distributed learning is quite advantaged in different areas there is usually no centralized system in place in relation to policies and platforms, although Sweden is an exception. Usually policies are developed and defined within different institutions and regions rather than being a centralized effort. The reason for different approaches in distributed learning may lie in different structures and financing of higher education within partners' countries/regions, i.e. higher education being paid mostly by students in Scotland and Canada and by the government in Sweden and Iceland. It makes sense for government-funded systems to have more of a centralized approach than for privately run systems, although the state may provide a common platform in both cases at their own cost to support cooperation and knowledge transfer between higher education institutions.

5 Learning Centres and knowledge networks

In this chapter an attempt will be made to describe the infrastructure and networks supporting distributed education at the periphery. Special focus will be on the role of learning centres and the overall organization of such centres in partner countries/regions. Additionally the concept of potential knowledge networks, such as the Northern Knowledge Network, will be discussed as a potential for partners' cooperation and integration of their own academic and knowledge networks.

5.1. Iceland

Following a change in legislation in 1996, the Ministry of Education is supporting the establishment and development of centres that facilitate access to distance education and life-long-learning in different regions in the country outside the capital region. Over the years 1997 to 2003, nine such non-profit centres have become operational. All of the nine rural learning centres built a network called *"Kvasir"*.

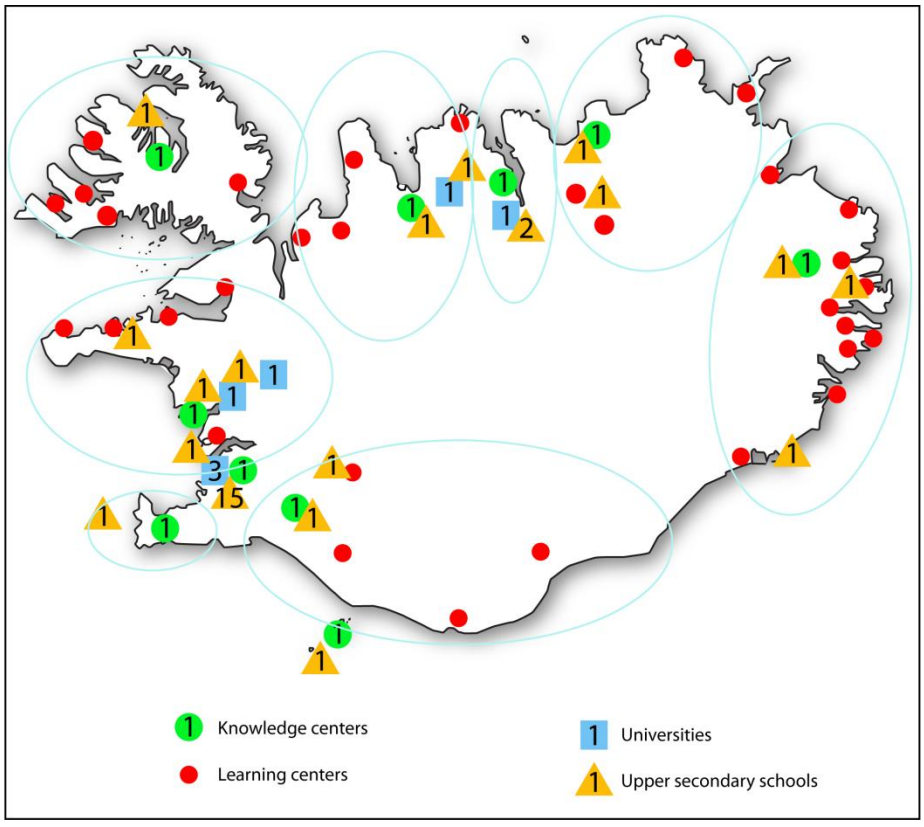

Figure 11. Life-long-learning Centres in Iceland 2004

Network of learning centres

Kvasir functions as a network of nine Learning Centres around Iceland, with regular meetings and seminars to share experiences, and acts as a united front towards the government, partners and co-

workers. Each learning centre within the network functions independently and has its own controlling board. As such, each learning centre makes final decisions in its local practice.

The map in figure 11 above shows the centres are distributed around the country, dividing it into nine regions. The yellow points locate the main centres and the red dots are minor centres that are managed by the respective main centre. An overview of the varied roles of the learning centres is displayed in table 7.

Table 7. Learning centres- different roles

Learning centres - different roles	Life long learning	Vocational-Academic guidance	R&D infra-structure	University distance education	Training for immigrants
The East Iceland Knowledge Network (6)	x	x	x	x	x
The Husavik Academic centre (5)	x	x	x	x	x
Center for life long learning in North-West-Iceland (3)	x	x		x	x
Educational Center of Western Fjords (2)	x	x			x
Educational Network of South-Iceland (7)	x	x		x	x
Center of life long learning in Reykjanes (8)	x	x		x	x
Center of life long learning in West-Iceland (1)	x	x		x	x
Símey – Center of life long learning in Eyjafjordur (4)	x	x			
Viska (Wisdom) – Centre of education and life long learning in Westman Islands (9)	x	x		x	x

Each region has a population of 5 to 20 thousand inhabitants. Usually the centres don't set up their own facilities or local centres in each village but cooperate with those that already have such facilities locally. It can be the schools, the libraries, the hotel or the labour union, depending on the contacts in each area or village. This arrangement is an advantage because then each region is contributing to better utilisation of the local resources. Most of these centres have access to video-conferencing facilities and are connected with a broadband connection. Some centres have developed further and now provide different kind of services for university students such as vocational counselling, librarians, learning facilities etc.

In addition to Kvasir members there are two knowledge centres that are focused only on university education and research. These centres are both involved in developing university education as well as supporting distance/distributed education. These centres are located in the Western Fjords and South Iceland (which is recently set up and still has a contract with the Educational Network of South Iceland in providing limited services to university students, see table 5).

Availability of distributed education

Kvasir as an organization has sent its resolution to all the universities on increasing availability of distributed education for Icelandic people in line with Kvasir's goal to increase availability of distributed and distance learning at university level. The East Icelandic Knowledge Network (TEIKN) works on behalf of Kvasir with the Ministry of Education in Iceland on a project for a network university in Iceland. The purpose is to make all information on distributed education at university level accessible (sequence-, distance and mixed learning). The result would be enhanced information flow and adjusted definitions of the current need for university level education in different fields.

An important change came about in 2008 in the support system for university students in the country when educational centres in Kvasir got funds to attend to university level education in their areas. Through that role, the educational centres have been acknowledged as a part of the support system for university education in rural Iceland. As such, Kvasir has no mutual policy regarding university level education but each centre or network works on its own policy and in collaboration with the universities. According to Kvasir's representatives, the organization has made an initiative to support distance learning and distributed learning between the universities and life-long-learning centres. There has been good cooperation on distance learning between the University of Akureyri and Kvasir in recent years and a large proportion of UNAK do their studies through distance. Kvasir has also good experience in cooperating with other universities like the University of Iceland, University of Bifröst and Reykjavík University. Kvasir educational centres do not discriminate between students and give all students the same service regardless of formal contracts or agreements between Kvasir and any given university.

In this regard there are still obstacles to overcome. One is the lack of teacher training and/or experience in teaching methods for distance teaching and the technical skills that are required for distance teaching equipment. Most technical problems that occur in distance teaching are due to mistakes or lack of knowledge on technical issues or methods. The requirements that some universities make on student group size at the distance end can create problems and lack of housing for students' classes at the distance end can be difficult. Although attempts have been made at an experimental stage, it has also proved problematic to inspire the universities to take on the assignment of the development of sequence learning and local learning in the rural area.

In knowledge society there is an increasing demand on higher education and it is essential that people have equal opportunities for education. The educational level is lower in the rural areas of Iceland than in the dense population of the capital area, which makes it all the more important for the universities to demonstrate equal opportunities nationally for higher education practice. Kvasir's representatives believe that distance learning will indeed increase in demand as a result of the necessity to improve national accessibility to education by moving it to local areas instead of requiring students to move to the University local areas.

Increased flexibility in learning options through distance learning is one measure to meet the increasing demand. Kvasir's vision is that various teaching methods and combinations thereof will be used. The educational centres give formal and informal educational counselling and support to students. Some of them operate academic centres with study facilities for university students and all of them host distance learning university exams and possess distance teaching equipment.

Future vision for distributed learning centres

Kvasir's future vision regarding distance learning can be summarized in the following points

- That offers of courses provided using distance and distributed learning methodologies (flexible learning) will dramatically increase so that all students regardless of residence can gain access to various types of university education.
- That all the population will be able to finish a majority of courses with adaptable studies with mixed learning methods.
- That universities are open to organizing their local courses and seminars such that they are available anywhere in the country, based on various participation between years.
- That good facilities are created in the rural areas for distance teaching and sequence learning in the form of reading and study facilities.

Kvasir also hopes that the network of learning centres can work with local knowledge centres (academic partners) in providing facilities and support to university education provided by such centres in the periphery – if the knowledge centres are not providing such facilities themselves.

Template for learning centres services in Iceland

In table 8, there is an overview of the facilities and services in learning centres in East Iceland, run by TEIKN and its community partners such as the municipalities (places without staff, where school and town representatives provide the services and facilities).

Table 8. Overview of the facilities and services in learning centres in East Iceland.

Learning centers - East Iceland	Staff	Video conferencing, vireless Internet	Learning facilities, individual/ group	Exams	Vocational guidance and counsellor	Photocopy, accsess to computers	Librarian
Egilsstadir	5	4	yes	yes	1	yes	1
Hornafjördur	2	2	yes	yes	1	yes	sched. visits
Reydarfjordur	2	3	yes	yes	1	yes	sched. visits
Vopnafjörður	1	2	yes	yes	sched. visits	yes	sched. visits
Neskaupstadur	2	2	yes	yes	sched. visits	yes	sched. visits
Seydisfjordur	0	1	yes	not always	sched. visits	yes	sched. visits
Djupivogur	0	1	yes	not always	sched. visits	yes	sched. visits
Breidalsvik	0	1	yes	not always	sched. visits	yes	sched. visits
Stodvarfjordur	0	1	yes	not always	sched. visits	yes	sched. visits
Fáskrúdsfjordur	0	1	yes	not always	sched. visits	yes	sched. visits

5.2. Canada – Newfoundland and Labrador

Unlike other regions within the Net-University project, Newfoundland and Labrador does not have life-long-learning or knowledge centres. Outside of the primary campus facilities associated with Memorial University and the College of the North Atlantic, to access higher education programmes people must utilize web-based programmes through the dedicated divisions of life-long-learning and distance education.

Available learning opportunities

The need for improved life-long-learning opportunities within the Province of Newfoundland and Labrador is laced with challenges which affect a person's ability to participate, including geography, prior learning, and affordability. Through the White Paper on Public Post-Secondary Education (2005), Government has identified the need to "foster a 'learning Culture' and an environment where a responsive, high-quality education is affordable and accessible for all." Although the White Paper identifies the local population as having a strong appreciation for the value of post-secondary education, it also highlights a major gap in the rural and remote communities for life-long-learning and higher education participation. "A fundamental shift must occur from a 'once in a lifetime' concept of education to a process of continuous personal and professional development." (White Paper on Public Post-Secondary Education, 2005). To address many of the challenges, universities and colleges have been reviewing and incorporating new approaches and innovative strategies for the delivery of programmes across wider geographical regions and to different types of learners. However, much of the effort to date has been focused on an expansion of programmes for delivery online. There remains a need to consider additional methods of reaching people who cannot access campus offerings or require direct support for online courses.

In some cases there remains a need for alternate methods of course delivery, particularly within the labour market and changing workforce. According to a report of the Skills Task Force in March 2007, there is a need for institutions to offer more flexibility in the delivery of its programmes such as modular and experiential learning attached to the workplace. This report also indentifies a need for increased use of prior-learning assessment and recognition processes for adult learners.

These gaps and challenges within the most rural and remote areas of the Province may best be addressed by "on-the-ground" support that could be offered through local learning/knowledge centres. This solution has proven effective and successful in many other areas, including those participating in the Net-University project. Through the project, Newfoundland and Labrador will review learning centre models and best practices for development of a pilot learning centre in the remote area of Labrador.

Much is to be learned from the partners of the Net-University project for Labrador's assessment and planning of a learning centre model. Labrador's rural and remote population can benefit immensely from the services of a learning/knowledge centre and can serve as a demonstration region for other rural areas within Newfoundland and Labrador. A local steering committee has been established within Labrador to begin the planning activities for this initiative and dialogue will continue with the partners of Net-University to enable a transfer of knowledge around best practices for learning centre development and ongoing operations.

5.3. Sweden

In Sweden there are around 200 well-equipped learning centres and some of them are organized in cooperation to get maximum results for educational solutions. Some of the learning centres also organize academic, vocational and pre-academic courses and education within the learning centre. Occasionally universities give courses and programmes operated entirely from one learning centre. This solution requires, of course, a sufficient number of students. The most common form of distributed education is where many learning centres take part in the same course and have students who attend the same course.

In every municipality in our region there is at least one learning centre. In several municipalities there is one bigger and several minor ones. The big learning centres are well equipped (according to "Metodboken") and work very well in their role as a meeting place, broker of education and motor. Learning centres as a meeting place give pedagogical, technical and study social services, well equipped technically, as well as space for meetings and staff with special responsibilities. As a broker of education they try to meet the different demands and needs of education by information and action. The learning centres work as a motor in the way they statically work for the development of the municipality and the region.

The learning centres also have the responsibility to investigate and chart the needs for education and competence development in the local and regional labour market as well as those of individual citizens.

The demands and needs are discussed in meetings, and a specially developed questionnaire can be used by the counsellors. Together with different organizations like universities, labour exchange offices, companies, libraries and educators, the learning centres try to satisfy the local and regional needs of education and competence development. Thereby the learning centres contribute to regional development and support. Growth and learning are two factors very much linked together. The learning centres have a valuable role as a motor for local and regional development.

The Swedish and Finnish learning centres work together in the Nitus network which is quite similar to Kvasir the Icelandic Network of learning centres. Today Nitus is made up about 140 municipalities in Sweden and Finland. Nitus operates in conjunction with different universities and with national as well as regional authorities and bodies. [9]

[9] See www.nitus.se.

5.4. Scotland

In addition to the main colleges and research centres (called Academic Partners of UHI) there are 50+ local learning centres scattered throughout the Highlands and Islands that support the UHI learning network. These local learning centres may be simply a small dedicated room with computer and Internet access in the building of another organization (e.g. a school or community hall) or may be a state-of-the-art, purpose-built centre with classroom(s), library, computer room(s) and dedicated management staff. Ownership of local learning centres also varies considerably, most being owned or leased by Academic Partners, but some being owned and managed by a Local Authority or a local community organization. Frequently, local learning centres part-fund their management through obtaining a small commission on the tuition fee of each student that they attract to use their centre. In the past, local learning centres have been considered as extensions of a face-to-face classroom with tuition being provided from a 'main' campus via video-conferencing and/or a computer-based Managed Learning Environment. In practice, students who were remote from the main tuition site could attend the learning centre to make use of high quality technology to link with their tutors and fellow students. Some local face-to-face classes (e.g. evening classes) have also been conducted in local learning centres. As more and more individual people acquire home computers and high-band Internet connections, the function of local learning centres may change with students choosing to study from home and to use the local learning centre to meet/socialise with other students, but this remains to be seen.

You can get a map of the distribution of the UHI network (main campuses and local learning centres) at http://www.uhi.ac.uk/home/uhi-campuses

5.5. Conclusions

The structure and organization of learning centres differs between partner countries/regions. While Iceland is focused on the facilitation of local continuing education and life-long-learning centres to university students in the periphery, Scotland is focused on their academic partners plus a network of learning centres providing facilities for education (usually provided by local municipalities). In Sweden the on-line network of distance education is supported by learning centres set up by local municipalities and in Newfoundland there are no particular learning centres although universities provide a wide range of offers for on-line education. The roles of learning centres are different between countries. They may be only a campus for on-line and distributed learning or they may also be centres for life-long-learning or even a community centre for different municipalities.

In table 9, partners propose a model for classification of local learning centres. The model is based on definition of services and facilities in table 8 for the East Iceland learning centres. This model could be used in a similar way as stars for hotels and guesthouses. The facilities suggested in this table are largely schematic and require to be refined and agreed by the user networks.

Table 9 Proposal for classification of local learning centres.

Status	Description of facilities offered
*****	**** + some teaching staff onsite and/or face-to-face classes
****	*** + functions as an examination centre
***	** + access to video-conferencing facilities
**	* + staff support/mentoring and some library facilities (e.g. photocopying, lending)
*	Access to Internet resources (e-learning) and some study space

With the vast amount of knowledge and experience within the participating regions on the development and operations of learning/knowledge centres, there is much to be gained from sharing models and best practices. Through the Net-University project, partners will share models, operational guides, and best practices for the development of a rural-based learning centre in Newfoundland and Labrador.

6. Distributed learning and its interaction with R&D

The ideology behind distributed and flexible learning provides great opportunities for knowledge centres and institutions in the periphery to develop curricula and courses related to their specific expertise and local environment. To explore this possibility, a short description of the current environment of knowledge and R&D centres is presented for the participating countries/regions.

6.1. Iceland research and development centres

There are several Research and Development (R&D) centres distributed around Iceland. These centres are clusters of national branches of R&D institutions and regional R&D organizations such as development centres, education centres and nature centres. Regional development agencies and nature centres are also quite distributed and powerful. The definition of knowledge centres is usually that of clusters of R&D institutions, development and learning centres.

The human capital within these institutions usually possesses master's and PhD degrees within the relative field and is involved in research, mostly applied but also basic. It would be interesting to further utilize this potential, for instance in teaching at university level. This could motivate and increase student's interest in working on their projects in rural settings, resulting in an accumulation of knowledge within different regions. The key actors involved in R&D at the periphery are:

University Centre Institute (founded in 2003 as an umbrella for regional centres of the University of Iceland), whose objective is to enhance research conducted by the University of Iceland all around the country by:

- providing facilities for University personnel for research projects dealing with local environmental conditions/local enterprise,
- providing facilities for student field work,
- enhancing possibilities for education in rural areas by provision of facilities for further education and by involving locals in research projects,
- strengthening the relationship of the University of Iceland and local enterprise and daily life in rural areas.

Nature centres and national parks. The national parks in Iceland are Vatnajökulsþjóðgarður and Snæfellsnesþjóðgarður. The objective of nature centres is to:

- Provide applied research on demand to public and private organizations, such as environmental assessments etc.
- Initiate and participate in basic research and R&D cooperation with universities and institutions.

Regional Institute, development centres around the country and the **Icelandic Innovation Centre**. Objectives to assist entrepreneurs, support innovation and work on policies and development projects for municipalities within their region.

Other institutions related to different industries such as fisheries, food production, farming, forestry etc.

Already three universities are located in the periphery: Hólar University College (an agricultural university), University of Akureyri, The agricultural university in Hvanneyri and Bifröst University. There have been demands to set up a university in the Western Fjords and East Iceland. In Ísafjördur there is a pilot project started in autumn 2008, which is a master's degree programme in coastal and marine management. Most of the lectures come either from Reykjavík or abroad. The problem is high costs and lack of local involvement.

Other ideas on university education within the regions are being developed by:

- TEIKN and the Science Park in Egilsstaðir: Master's degree programme in environmental/national park management.
- The Icelandic Academy – network of knowledge centres lead by The Reykjavik Academy, Hólar University College and several regional research centres of the University of Iceland.

As part of the Net-University project, TEIKN in participating in a committee nominated by the Ministry of Education and Culture which aims at mapping all knowledge and R&D institutions in Iceland as well as defining ways in which their expertise can be exploited through a more focused cooperation of institutions, centres and universities in the future.

6.2 Sweden – Nässjö learning centre[10]

The Swedish learning centres are financed by the municipalities. Their role is first and foremost to meet the individual demand of local communities for education as well as to strengthen support to industry development and innovation. Another important aim is to mobilize local knowledge and competence resources. The centres were developed in cooperation with the municipality's directors, commissioners and business organization leaders. Their focus is on:

- Blended learning and education (demand and supply)
- Investments in development
- Experience based cooperation with social partners, industry and the business world
- Coordination of operators, resources and activities.

Nässjö learning centre (NLC) provides variable services for the community, adult education, post-secondary training courses, university courses, open seminars and tailor-made courses for enterprises. A guidance office is within the centre as well as vocational programmes related to their excellent centre and Teknikcollege.

NLC is located at Träcentrum which means quite close collaboration between the two. The centre for woodwork is supported by some 30 manufacturers, the local community and the whole branch of woodwork in southern Sweden. See www.tracentrum.se. The centre works with IKEA by providing training in, for instance, wood surface treatment to their subcontractors who often come from the Baltic countries. NLC students sometimes choose to do their work practice at IKEA as well as examination tasks.

Within the centre, companies can seek consultation related to business-, production- and product development. The learning centre therefore has a central role in community and R&D development.

6.3. Scotland - Interaction with R&D

The UHI has a small but growing number of degree programmes and currently offers over 40 undergraduate and postgraduate degrees and over 100 higher national awards. Typically an Academic Partner will specialize in a small number of disciplinary areas that have particular local relevance. Examples of this may be courses in renewable energy, archaeology, Gaelic language and history, marine science, and sustainable rural development. Strategically the UHI is keen to develop niche areas of specialty that address a different student market than is provided for by the current provision

[10] Presentation from Yvonne Lindbom in EUCEN conference 4th November 2009.

of other Scottish universities. Commonly, areas of higher degrees and staff research teams are based in Academic Partners with a similar undergraduate specialization. Due to the fact that the 14 Academic Partners of UHI are geographically spread over a very wide area across the whole north-west of Scotland, there are no conventional university departments located in any one place. Instead, following the distributed education model, staff and subjects within a common disciplinary area (e.g. engineering) are grouped into a specific Subject Network, regardless of their geographical location. Similarly, individual researchers are loosely grouped into Research Networks, though there may be particular nodes of research activity involving a number of staff in local research groups at individual Academic Partners. In common with the teaching programme, the research strategy of the UHI is particularly focused on areas of specific relevance to the Highlands and Islands area.

6.4. Newfoundland and Labrador R&D

In Newfoundland and Labrador, research and development activities take place within both the university and college system. As one of the most innovative research facilities in Atlantic Canada, Memorial University is home to 24 research chairs and is currently developing a five-year research plan with a comprehensive consultation process. The University currently has research priorities in the areas of Oceans, Energy and Environment, Health and Well Being, Heritage and Culture, and Natural Resources.

As the region's only university, Memorial obviously has a very important role to play for local communities within Newfoundland and Labrador in the areas of public policy and regional development. To coordinate and facilitate Memorial's work in these areas, the Harris Centre of Regional Policy and Development was established in 2004. The Harris Centre mobilizes the resources of the University to help politicians, public servants, municipal officials, regional development practitioners, volunteers and staff in non-governmental organizations, community leaders and citizens to identify and discuss priority issues and projects relating to education, research and outreach. The Centre also assists faculty, staff and students of Memorial University to connect with outside stakeholders to help with regional development projects and with public policy issues.[11]

The Harris Centre currently administers three research funds, making available to Memorial's faculty and students valuable funding for applied research projects that focus on the areas of regional policy and development. Also, as part of its commitment to outreach the Harris Centre organizes regional workshops throughout the Province each year. These regional workshops provide communities with an opportunity to find out what research and project activities the University is currently doing or is planning to do in the province's many regions. They also offer a unique opportunity for regional

[11] Harris Centre Website: http://www.mun.ca/harriscentre/about

economic development practitioners to encourage work by the University on specific issues. In an effort to extend Memorial's research knowledge and expertise to the broader community of Newfoundland and Labrador, the Harris Centre developed Yaffle (yaffle.ca). Yaffle is an innovative, searchable web-based application, developed as a knowledge mobilization tool to provide access to:

- Research, teaching and outreach activities at Memorial University, with concise project descriptions providing a non-academic overview of the work in question, along with links to other work completed by the researcher and contact information
- Collaborative opportunities identified by both faculty and community members, presented in a one-page overview of the topic. This provides the means for university faculty, staff and students to identify community partners and research opportunities, as well as to build linkages for inter-disciplinary collaboration
- Faculty expertise - integrating research interests and expertise listings for University faculty, staff and students. [12]

Newfoundland and Labrador's College system research activity focuses upon enhancements to local prosperity and is done in partnership with the public and private sector. Research activities relate to work in the following areas: manufacturing technology, instrumentation, telecommunications, agrifoods, digital animation and wave-powered pumping.

7 International networks

Three international networks have been defined for future cooperation with the Net-University partnership: The European Association for University Life-long-learning (EUCEN), University of the Arctic (UArctic) and The North Atlantic Knowledge Network (NAKN). Each of these is related to the different aspects of the project – cooperation between universities and knowledge centres in developing courses and life-long-learning as well as cooperation of experts in the North Atlantic.

7.1 European Association for University Life-long-learning (EUCEN)[13]

EUCEN membership is institutional: all universities within geographical Europe that deliver the highest academic degree in their country are eligible for Full Membership. In March 2007 EUCEN had a total of 212 members in 42 European countries. EUCEN aims are:

[12] Information provided by Harris Centre and http://www. Yaffle.ca
[13] See information on www.eucen.org.

1. to contribute to the economic and cultural life of Europe through the promotion and advancement of life-long-learning within higher education institutions in Europe and elsewhere;
2. to foster universities' influence in the development of life-long-learning knowledge and policies throughout Europe.

In furtherance of the above-mentioned objectives, the Association shall have, amongst its functions, the following:

1. to provide a forum for the development, interchange and dissemination of innovation and good practice on life-long-learning within European higher education;
2. to encourage high standards in all areas of life-long-learning and to harmonise levels of quality for life-long-learning among its members;
3. to represent the interests of the life-long-learning community within higher education and to European policymakers;
4. to facilitate communication, liaison and collaboration with other appropriate bodies and organisations;
5. to promote and conduct research into life-long-learning and to disseminate the results of this research;
6. to obtain, collect and receive money, funds and other property and to administer them in pursuance of the objectives of the Association.

The definition of University Life-long-learning (ULLL) varies between countries and universities; the following definition has been adopted by EUCEN: "*ULLL is any form of education, vocational or general, resumed after an interval following the continuous initial education*". This may include, for example, education for full-time mature students, liberal adult education, part-time degrees and diplomas, post-experience, continuing professional development and training courses, staff development, open access courses and regional development through open and distance learning and networks of partnerships and collaboration with local stakeholders. EUCEN’s mission is to:

- Enable the exchange of experience and information between members on current life-long-learning regulations and policies and to establish contacts with the relevant European bodies.
- Provide contacts for members with life-long-learning policy makers and practitioners in a range of universities throughout Europe.
- Seek to harmonise levels of quality for ULLL among members and to maintain standards for effective monitoring.
- Contribute to the development of an effective university credit transfer system that would be acceptable within the network.

- Seek to influence European policy on ULLL.

EUCEN is therefore provides great dissemination possibilities for the Net-University project as well as being a great source of best practices to be transferred in the future.

7.2 University of the Arctic

The University of the Arctic (UArctic) is a cooperative network of universities, colleges, and other organizations committed to higher education and research in the North. UArctic's programmes are focused around five strategic areas including undergraduate studies, graduate studies, mobility, access, and knowledge and dialogue. The programmes include:

- higher education curricula, which is relevant to and offered across the Circumpolar World;
- opportunities for student and faculty mobility as well as dialogue and discussion;
- and innovative programmes for solving some of the unique challenges to offering higher education in the North.

UArctic is not a degree-granting institution; it is a network of other institutions which are involved in higher education and research in the Circumpolar North. The member institutions may incorporate UArctic courses and programmes into their degree programmes, but each institution sets the degree requirements. All participating regions of the Net-University project are member universities of the University of the Arctic.

7.3 The North Atlantic Knowledge network

The North Atlantic Knowledge Network was established in 2007 as a means to facilitate dialogue, sharing of information, partnerships and innovation across communities of the North Atlantic region. Goals of the Network are largely focused upon:

- The provision of mechanisms and tools to foster connections
- The provision of tools and opportunities for knowledge sharing
- The increase of knowledge mobilization for North Atlantic collaboration and partnership and development of stakeholders and their communities

The North Atlantic Knowledge Network (NKN) works with stakeholders across a broad scope of sectors and will include a “community-contributed” online tool for a variety of knowledge resources pertaining to living, learning and developing northern, rural and coastal communities of the North Atlantic region.

There are extreme commonalities across the communities of the North Atlantic region and if small coastal communities are to sustain themselves, there is a critical need to learn from one another and to

collaborate. This can only become possible if spaces and tools are made available for people to share knowledge and to dialogue for partnership possibilities.

The North Atlantic Knowledge Network can play a critical role in assisting people in all sectors who are working for the development of small, rural, remote, coastal communities by reaching across jurisdictions to:

- Connect people, places and ideas
- Facilitate linkages and exchanges
- Foster relationships and partnerships for development with agencies, education, industry and research stakeholders
- Provide a mechanism for constant and immediate interaction
- Provide increased access and leverage to resources
- Provide a means to link scientific knowledge with traditional/local knowledge

This Network will serve as one of the key dissemination points for the Net-University project activities, reports and results. The NKN can also serve as an excellent means of connecting knowledge networks and learning centres of the project regions.

7.4 Conclusion

To further develop the project there is a need to define relevant international networks for dissemination and future cooperation. EUCEN provides a great forum for dissemination and knowledge transfer in relation to universities' involvement in life-long-learning while UArtic and NAKN provide a forum for cooperation for experts and institutions to work together.

8. Knowledge to be transferred

The main purpose of adult education is to encourage equality of opportunity among adults without regard to age, gender, occupation, previous education or location. On an international level, the key qualities people in a modern society need to possess have been identified and the importance of finding a balance between those key qualities and ways to enhance them within an educational system are stressed.

Learning Centres – Our conclusions regarding learning centres should stress the success of models used in the partner regions, with qualifying statistics and statements for rural and remote communities in particular (some of that is already included in this report – it simply needs extrapolation), but also to indicate the level of support provided by the policies and funding schemes of regional governments toward making these centres successful. Learning Centres offer a potential solution to address the gap

identified within Newfoundland and Labrador's White Paper on Post Secondary Education within rural regions.

This report is to a great extent focused on knowledge transfer to Iceland from other partner countries, although partners have identified through their meetings different "best practices" to be transferred. In this chapter a summary will be provided on lessons learned in the definition process for each partner, in particular the Icelandic Net-University model that is being developed at a national level in close cooperation and through the leadership of the Ministry of Education and Culture in Iceland.

8.1 Iceland, lessons learned

Life-long-learning and educational centres are working with the universities in Iceland but it has been suggested that a more formal setting should be formed with broad-scope discussions on long distance education. University representatives are also looking more towards grounds for cooperation with overseas countries.

It is clear that a policy for distance education and distributed education is needed for the higher education institutions in Iceland, both within each of the universities and a more holistic one for overall university education level. Developing distant learning and distributed education is an important aspect of an on-line or an association network university.

Kvasir is the association of education and life-long-learning centres in rural Iceland and works with the universities. Its main goal is to increase availability of distributed and long-distance learning at university level. Education in Iceland is lower in the rural area than in the dense population of the capital area and that undermines the importance of demonstrating equal opportunities on a national basis for education at university level in those areas. This can be accomplished through distant education and distributed education.

The Icelandic Net-University model

The idea of the Icelandic Distance University has been developing for several years in Iceland. The Ministry of Education nominated a policy group on distance university education in 2005 that resulted in two reports: one on distance education in Iceland (Guðrún Rósa Þórsteinsdóttir 2006) and another on the organisation of on-line or distance university education in Sweden, Scotland, Canada and France (Guðrún Rósa Þórsteinsdóttir et. al, 2007). [14] Following up this work, Kvasir – the association of education centres around the country – nominated The East Iceland Knowledge Network to work further on the development of the Icelandic Netháskóli or Distance University. Based on this nomination, a preparatory group for the distance university was formed within the Ministry of

[14] The expert working with the group was Gudrun Rosa Thorsteinsdottir, who edited and wrote the reports.

Education in cooperation with TEIKN in 2007. The ministry supported the group to develop two outputs:[15]

- A demonstration and framework for a Distance University, presenting necessary information, searches, site-map and ways in which the demonstration could be developed further. At this point the group was only focusing on a site including content related to distance education in Iceland (Sigurbjorg Johannesdottir et. al, 2007).
- A report including a needs analysis and system definition on how content related to distance education could be transferred and categorized from universities' IT systems into a centralized database. Also issues like services to distance students were tackled, e.g. how can learning centres better work with universities in servicing their students, access to students' calendars, information on exams and contact information to be able to inform students of local facilities and services (Sigurbjorg Johannesdottir et. al, 2008).

The first report was developed and presented at a conference in the autumn of 2007, where representatives from the universities, the ministry and the education centres met to discuss ways to further develop the Distance University – ideas that then were used to further develop the project. Prior to the conference, representatives from TEIKN and the ministry visited all the universities in Iceland to introduce the idea of the Distance University and discuss their involvement in the project.

The second report was a follow-up on the conference and meetings with the universities. It was developed in cooperation with university representatives (different ones than in the first round) from IT and distance education departments. The report was handed to the ministry in January 2009 with suggestions on next steps, a draft of a project and a financial plan for implementation. In the project plan the idea for the Distance-University was changed and instead of suggesting that the Distance-University would include information on courses and services for distance students, the idea has changed in a way that the Distance-University could just as well be a holistic and categorized database for university education in Iceland. That database could include categorized information on distance education, courses in English, short courses as part of life-long-learning (ECTS courses) etc.

The idea of the holistic database and platform for university education in Iceland also supports the ongoing work of the ministry in the reconstruction of the education system to save money without decreasing education offers or the quality of the system.

The idea for the Distance-University, or rather the University Education Network (UEN), was presented to the Minister of Education Mrs. Katrín Jakobsdóttir on the 29th of September 2009 and included the following components:

[15] The expert working with the gropu was Mrs Sigurbjorg Johannesdottir, who edited and wrote the reports in question.

- A coordinated, searchable and categorized database for university education, courses, distance education, courses in English or other foreign languages etc.
- A platform for registration onto university studies in Iceland and a student account where courses taken by students at different universities can be registered, thereby simplifying evaluation between universities.
- A scenario for university cooperation in content development courses/study lines.
- A scenario for university integration into life-long-learning, offering courses and content to both local students and within a flexible learning environment for both distance students and students who need to organize their studies in their own time parallel to work and family life (often adult learners).
- A scenario where regional or peripheral knowledge centres can develop and present courses at university level and with it disseminate and develop their knowledge base, interacting with the universities.

In chapters 5 and 6 on learning centres and the R&D sector, there is a discussion on how a network of learning- and knowledge centres can support knowledge building and dissemination in peripheral regions. Figure 11 demonstrates how different actors, learning centres (like TEIKN), knowledge centres and universities can work together in developing and servicing regional knowledge-building and university education.

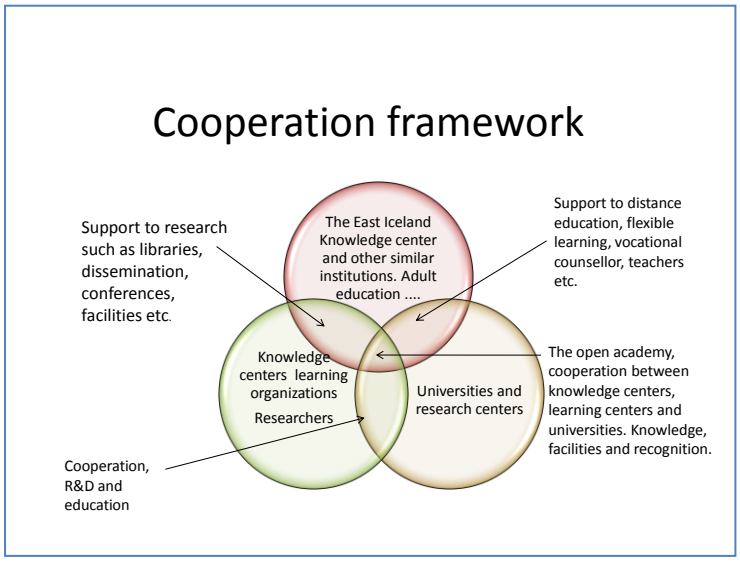

Figure 12. Regional environment for university education

The development of the Distance-University idea in Iceland goes hand in hand with lessons learned in the Net-University project, transferring best practices from:

Jönköping University

- The coordination and a common platform for university education in Sweden, www.studera.nu.
- Cooperation of universities and learning centres, though organization of life-long-learning, study programmes, facilities for distance students and cooperation with learning and knowledge centres (excellence centres) in developing and disseminating research – learning centres being a portal for all kinds of life-long-learning at different levels within the national school system.
- Their involvement and participation in EUCEN, the European Association for university life-long-learning. Can networks like EUCEN benefit from the Net-University programme, can net-university models benefit from EUCEN as a platform for dissemination of university best practices in life-long-learning?

Lews Castle College and University of Highlands and Islands

- A model for flexible learning and cooperation between knowledge centres, colleges, universities and learning/community centres in developing and supporting university education.
- Best practices in relation to locally designed study lines, like LCC programmes of sustainable regional development both at bachelor and master's level, are models for the development of the master degree programme in environmental and national park management that is being developed in East Iceland.
- A model for academic partnership of colleges, universities and R&D centres creating critical mass through the UHI network or the Millennium Institute. A model quite well adjusted to a similar network in Iceland.
- The Open Education resources, demonstrations and guidelines on curriculum design. Methodology that can be useful for international cooperation in curriculum design and the development of international degree programmes etc.

Smart Labrador and Newfoundland

- In developing international networks of experts and knowledge centres in the North Atlantic Knowledge Network. Canada has a long history of highly developed learning platforms for on-line education and a large number of on-line courses.
- On organization of online university education and university–college cooperation in distance and distributed learning.

This report is finalized in the middle of the knowledge transfer process, and further definitions on how such a process will be realized will be demonstrated in reports from partners on the “best practice” integration.

All these lessons were integrated and presented to the Ministry of Education as an integrated part in developing the Netháskóli or Network-University in Iceland, the idea being not only to access information but also to support systematic change of the Icelandic education system. There will be considerable cuts in funding to the education system in Iceland which calls for greater cooperation of all the Icelandic universities. Distance and distributed education can be one way of reconstructing the system, enabling universities to share courses and content.

8.2 Smart Labrador and Newfoundland

As an agent of change and development for rural and remote communities, SmartLabrador has identified several best practises and gained a great deal of knowledge from the Net-University project partners that can be applied in the Labrador region, including:

- Community-based learning/knowledge centre models to address life-long-learning and research needs of remote regions.
- Practises of learning/knowledge centres that strengthen supports for non-traditional learning, research and regional development.
- Awareness of non-traditional strategies and practises of higher education institutions to reach people who cannot access campus offerings or require alternative delivery and support for continuing education.
- Broadened awareness and understanding of open education resources, and how they can be utilized for the development of curriculum and used both within and outside of the academic arena.

8.3 Sweden, lessons learned

JU has the mission of developing lifelong university education and to make education accessible wherever you live, whatever you do, supported by methods and means that are adjusted to the student as far as possible. Another common ability is the drive, the engagement to go beyond the limits and comfortableness.

The fact that development often is driven by enthusiasts has the great risk that the enthusiasts move away, quit, no longer are active for different reasons. The Leonardo project, "Net University, Transfer of Innovation in continuing university education", has evidently shown this fact. Another evident fact is the migration in the areas where our partners work. The importance of distributed learning is essential for even more reasons than we, in the Jönköping region, have to deal with. Our partners have

to act together with many authorities in the society in the fight not to be drained of people and competence. The importance of accessibility is very clear and that stimulates us to go even further in our mission at home, in our region. We have widened our understanding of the importance of accessibility.

We have discussed quite a lot about the development of courses which are adjusted to a modern, e-learning, Net-based field as far as possible. The way Professor Frank Rennie composes the contents and makes the courses very varied and interesting has stimulated us a lot. Our department for the development of flexible learning is engaged in Frank's methods and has frequent contact with him. We plan to cooperate in developing projects. The international EUCEN conference Jönköping University organized in early November was very much influenced by our Leonardo project, where Professor Frank Rennie was one of two keynote speakers. The most important conclusion is the fact that benchmarking and honest discussion always stimulate the learning process. Jönköping University has learned that it is essential to get to know each participant in the project, its organization and environment, as thoroughly and fast as possible.

8.4 Scotland, knowledge to be transferred

The UHI network of Academic partners and Lews Castle College have defined the following best practices to be transferred from the partners:

1) The adoption of the same student online interface (VLE) by schools, colleges, and universities throughout the region. The best practice to be transferred from Newfoundland and Labrador that uses Desire2learn as a common interface for all school levels.

2) The transfer of local learning centres to ownership and management by the municipality or the State. Best practice transferred from Sweden (the municipality) and Iceland (the state and in some cases also the municipality).

3) The utilisation of local learning centres by more than one educational provider or university. Best practice to be transferred from Iceland and Sweden.

LCC has been able develop the concept of Open Educational Resources within the project through pilot actions of curriculum design.

8.5 Concluding remarks

This report is the first step in defining best practices between the partnership in the "Net-University" project supported by Leonardo. Based on the report, partners have already started to further develop and influence their system and organization of distributed and distance learning. The project is being developed as the same time as the higher education system in Iceland is under reconstruction. TEIKN has been, nominated by Kvasir, a partner to a working group within the Ministry of Education and

Culture, whose role is to define best practices and develop a framework for the Icelandic net university model. TEIKN also took a seat in a committee nominated by the Ministry of Education, Research and Culture on developing cooperation and a network between knowledge, learning centres in the periphery and universities. The objective of the group is to document the operations, financing and objectives for these centres as well as defining cooperation, both current and potential. The project will become a part of the Net-University as well as the regional integrated growth plans for Iceland for the year 2020.

Results of the knowledge transfer between partners will then be presented in transfer of innovation reports published on project and partner websites, www.nethaskolinn.is.

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