

# **Supporting Information Literacy Learning in Finnish Universities – Standards, Projects, Educating Online**

Creating Knowledge IV, Copenhagen, Denmark 2006

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## **Abstract**

Finnish universities have implemented several projects in order to create standards and teaching aids promoting information literacy education and learning. This paper focuses on the “Curriculum Plan for Information Literacy: a Joint Virtual University Project of the Finnish University Libraries 2004–2006”, the primary aim of which is to enhance integration of information literacy into the academic curriculum. Examples of other efforts to market and to evaluate information literacy in universities are also given.

## **Introduction**

Information literacy (IL) has been under active discussion within Finnish academic libraries from the beginning of this millennium. The first major effort in Finland was the University of Helsinki’s Undergraduate Library’s project “Standardizing the management of the information literacy 2001–2003”. Its aim was to translate the ARCL’s Information Literacy Competency Standards for Higher Education into Finnish, these being published in the Internet during the year 2001. The project also

arranged two working seminars and kept open the possibility of implementing these standards into the Finnish higher education curriculum.

The major problem of integrating IL into Finnish higher education units has been, and still is, the heterogeneity of the IL education and implementation within individual universities and other higher education units. There are some examples where the library has an active and major role in teaching IL, especially information retrieval, to both the students and faculty. But there also are examples of libraries that both do not have the resources, or the opportunity to influence the curriculum; and thus have little impact on IL promotion and education.

Thus the aim of the Finnish university libraries has been twofold: on one hand to try to make decision makers at all the levels aware of the importance and significance of information literacy and related information skills for students and faculty; and on the other hand to test the implementation of IL with different kinds of projects.

Libraries have been successful in both of these aims. In several of its policy papers the Ministry of Education has announced either directly or indirectly the importance of information literacy as one of the key qualifications of modern citizenship in today's information-based society. For example in the newest information society policy document for education and research for the years 2004–2006 (Information Society Programme for Education, Training and Research 2004–2006) it is stated that one of the most important aims is to strengthen the skills and knowledge of all citizens in order to improve their abilities to utilize the services available in the information society (i.e. computer network based services) and libraries are mentioned as one of the key-actors in this process.

But there also is more realistic (pessimistic) vision of the libraries' role in the information society. Mirja Rynnänen, a Finnish politician, who has actively promoted libraries both nationally and at the EU-level (see e.g. Rynnänen 1998) has stated (Rynnänen 2003) that not many politicians actually appreciate the importance of the libraries in promoting and implementing IL education. Thus it is important that the libraries take an active role in IL matters and create their own role in promoting IL for their patrons.

The following paper provides a description of the projects intended to promote IL in the Finnish universities. The national project acts as a network for the universities and supports the work being done in the university libraries by developing common tools, e.g. for the evaluation of information literacy, and by circulating good practices. Also examples of other aids for the marketing and evaluating information literacy in universities are given, i.e. the recommendation for universities for including IL competency in new degree structures in line with the Bologna Declaration and a test for assessing students' level of knowledge in IL. Also the pedagogic questions of the information literacy teaching are discussed.

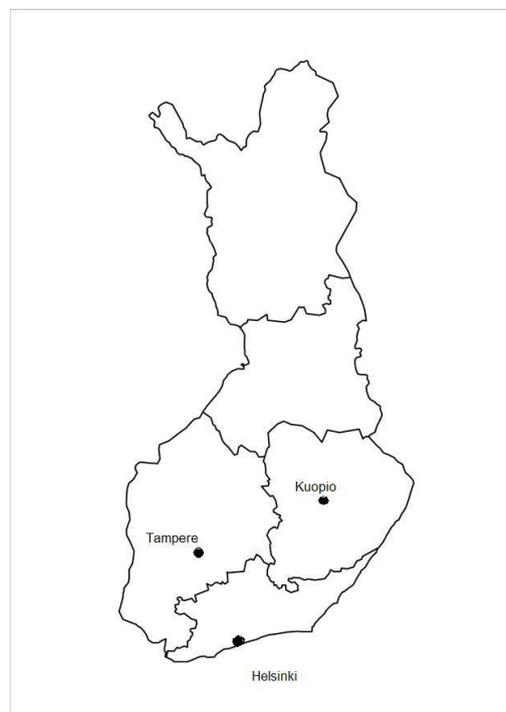


Fig. 1. Locations of the libraries involved in Finland

The universities discussed in the following section (see fig.1.) are University of Helsinki, which is the largest university in Finland, with eleven faculties and the widest range of disciplines, the number of degree students at the University of Helsinki is 38,000; University of Tampere, with six faculties, 15,500 students and the University of Kuopio, with five faculties, 5,500 students.

## **Curriculum Plan for Information Literacy: a Joint Virtual University Project of the Finnish University Libraries 2004–2006**

The Finnish university libraries launched a joint project in 2004 to integrate information literacy within academic studies and to create a network among the universities. Even though information literacy had frequently featured in the stated strategies of universities, in practice there was a distinct need to define common standards to promote the integration. The national project received three-year funding from the Ministry of Education and it has been coordinated by the University of Helsinki with Director of Library and Information Services Kaisa Sinikara as the main coordinator. Planning Officer Anne Lehto was appointed from March 2004.

The ACRL information literacy standards have provided a framework for the development work of the national project. As the term information literacy is ambiguous also in Finnish, the project has emphasized the contents of the concept rather than trying to define a specific form of IL.

### **Integration into the Bologna Process**

When the project was launched in 2004 it was obvious that the impending changes in the university curriculum to be implemented by 2005, in accordance with the Bologna process, would require the university libraries to act together to emphasize the importance of information literacy skills training. Thus the Bologna process was considered to represent an opportunity to link information literacy more closely and coherently to the disciplines taught in the universities. Therefore in the first project year, the steering group of the project drew up a national recommendation for universities for integrating information literacy into academic studies. The recommendation (see fig. 2.) was sent to the coordinators of the Bologna process being undertaken in the universities.

## Recommendation for universities for including information literacy competency in the new degree structures

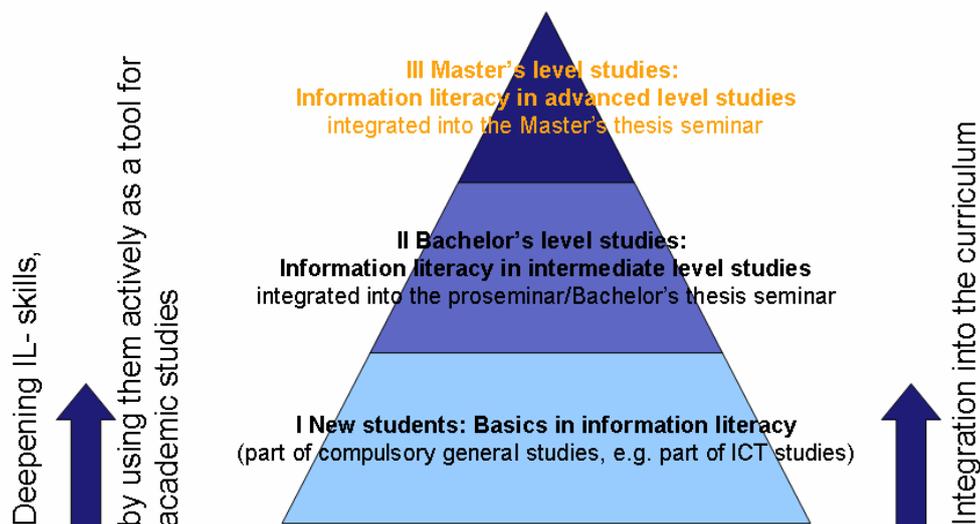


Fig. 2. Recommendation

In 2004, it was also clear that the instruction in information literacy provided by university libraries reached only a part of students and was not sufficiently coordinated. The situation varied between universities and within disciplines. The main objective of the recommendation was thus to ensure at least a minimal level of information literacy training to be provided to all students. The universities would decide on the practical implementation of the information literacy curriculum themselves.

The majority of the Finnish university libraries reported in April 2004 that they had not been involved sufficiently in the planning process of new degree structures. Their responses indicated that those university libraries that had representatives in educational planning committees had the best opportunities to influence the changes instigated by Bologna.

A follow-up survey was conducted in 2005 after the new degree structures had been implemented in universities. In particular, the smaller university libraries reported that

the national recommendation had been useful in their local negotiations. However, we are unable to draw direct conclusions on what effects the national recommendation had on the information literacy integration in the Bologna process as there are many other variables to be taken into consideration.

In the follow-up survey, libraries were also asked who they considered to be their most important partners in developing information literacy instruction at the university. Most of the libraries regarded faculty teachers and the units responsible for development of teaching and learning as their main partners. Also other library units at the university were named as important partners.

The joint website for information literacy development in Finland has given information literacy visibility at the national level. Although being only partially translated into English, the website has attracted the interest of our international colleagues.

### **Creating a Network of Library Educators**

In 2004 when the project was started, all the Finnish university libraries were asked to designate their information literacy contact persons and accordingly a mailing list was created to permit communication between a total of 29 individuals representing 20 different universities. It was, however, soon recognized that the mailing list was suitable for distributing information to the contact persons but it neither encouraged the network to debate practical issues nor enhanced other forms of practical networking.

The role of the contact persons has been to function as intermediates between the local university level and the national level. One of their major tasks has been to provide the national project with detailed information about the local information literacy situation in order to create a common knowledge base.

In order to strengthen the collaboration in the network, two ad hoc working groups were set up at the beginning of 2005. The themes of the working groups were selected by the participating librarians themselves. One of the groups has concentrated on pedagogical questions and the other has focused on developing a tool for information literacy proficiency assessment. The pedagogical group has arranged seminars and meetings where best practices have been shared. The group has also taken the initiative for pedagogical training for librarians. Most of the meetings have been videoconferences to enable geographically remote universities to fully participate in this work.

### **Collaboration, Seminars and Pedagogical Training**

The national project has also promoted the importance of pedagogical training for librarians. There have been several information literacy seminars and peer meetings arranged by the project. Themes in these seminars have mostly concentrated on pedagogy and e-learning but also some other interesting issues for example the “branding” of the library courses, have been addressed. Many of the seminars have also been open to other library sectors, and a couple of lectures have been videotaped and the files have been placed on the website to be accessed by a wider audience.

The national IL project has collaborated with several other projects in order to obtain information on other ongoing activities related to information skills. At the local university level, the national project has collaborated with the University of Helsinki in a project called ICT Driving License, which is an example of fruitful cooperation between faculties and libraries. Päivi Helminen from University of Helsinki Viikki Science Library will present the ICT Driving License project in detail in the seminar.

The national project has also been actively involved in both Nordic and international networks of information literacy. In the summer of 2005, the Finnish librarians together with NordINFOLIT steering group arranged the 4th Nordic Information Literacy Summer School in the greater Helsinki region.

## **Question Bank: a Joint Tool for Assessing Information Literacy Skills**

On the initiative of the IL-assessment group, a project to create a joint question bank for information literacy proficiency assessment was launched in April 2005.

Accordingly the group participated in creating a large bank of information literacy assessment multiple-choice questions by commenting and providing feedback to the planning officer of the project.

One of the challenges in the project was how to create common material for all universities and all disciplines. Since the information literacy demands within separate disciplines and at different stages of studies vary greatly, it was clear that one single proficiency test with the same contents was insufficient. The question bank consists of about 300 multiple-choice questions that university libraries can modify according to their needs and use for testing the IL proficiency of students at different stages of their studies. The question bank has been distributed by Creative Commons Attribution-NonCommercial-ShareAlike 1.0 Finland Licence.

In the question bank, questions are divided into four categories:

- I Defining the topic
- II Selecting information topics
- III Information retrieval: planning and executing information searches
- IV Evaluating and using information (sources)

In addition to these categories, questions are also divided into three levels of difficulty in accordance with the national information literacy recommendation:

- I New students: Basics in IL
- II Bachelor's level studies: IL in intermediate level studies
- III Master's level studies: IL in advanced level studies

Information literacy proficiency tests can be used to gather information about the students' skill levels to develop how it can be better taught. The tests can also be used for the measurement of the baseline level of a student's information seeking skills in

order to direct students to those teaching groups which correspond to their skill levels. It is recommended that when designing the realization of the proficiency test, the student's studies are taken into consideration as a whole so that the test will not appear to be isolated from their main interests.

It is also important that students receive feedback after having taken the test, to be provided with the right answers to the questions and to know how well they performed. The feedback can include a recommendation to participate in sessions arranged by the library in those aspects where there is a need for support.

## **IL Education in the University of Tampere - Innovations in Teaching Information Literacy**

The development of teaching information literacy as a part of higher education has progressed differently in different universities. Tampere University Library represents a good example since it has invested much work and effort in this area. The new degree structure reform came into effect on 1 August 2005. During the Academic year 2004–2005, the university was preparing the new curriculum. Tampere University Library participated into the attempt to integrate the instruction of information literacy skills into the curriculum. The library collaborated with the faculty and other personnel of the university, who planned the contents of the higher education. This kind of collaboration was motivated by the library's up-to-date version of its service principle and an ongoing active effort to partnership building inside the university. The library has been successful in implementing its new strategy. The library's activities have raised its visibility and prominence. The electronic services and electronic collections have been developed in order to make the library recognized as the gateway to scientific electronic resources. Developing different IL skills courses and teaching packages to support learning and students' information literacy have been crucial in the achievement of co-operation.

Tampere University Library has actively participated in the national project "Curriculum Plan for Information Literacy: a Joint Virtual University Project of the

Finnish University Libraries 2004–2006”; it was one of the founding libraries in the planning stage and has acted as a member in the guidance group of the project and participated in the project working groups. Tampere University Library has striven to develop co-operation in academic education within the network of Finnish university libraries and been successful in these efforts. The present IL courses in Tampere are consistent with the recommendations made by the project group for the central elements of information literacy. The recommendation has also ensured that IL is included in the curriculum in the University of Tampere.

For several years now, even before the implementation of the national project, Tampere University Library has offered a range of IL skills (formerly called user education) courses for new, advanced and post-graduate students. Unfortunately, these courses have not reached all students, because participation in the courses has been voluntary, though highly recommended.

All students in the Faculty of Medicine, because the faculty emphasizes PBL-learning, and some of the students in the Faculty of Education have taken compulsory IL courses for several years. These faculties organize the courses in co-operation with the Branch Library of Health Sciences and the Branch Library of the Humanities and Education.

Since the degree structure reform of the university in 2005, IL courses have also been obligatory in the curriculum of Information Science, Administration and Social Science. The main library offers IL courses to these faculties. The scale of these obligatory courses means that the Main library staff teaches basic IL skills to some 650 new students each year. The “Basic course on information seeking “ is spread over a four week period per faculty, and it includes 11 hours of contact teaching with exercises, plus those exercises done during free time that cannot be completed within the structured practice lessons. Students earn 2 ECTS credits from this course. The library is in charge of the course. The scheduling of the courses for the first-year-students is during the first and second periods, both during the autumn semester. In the autumn semester of 2005, the total amount of teaching was 336 hours.

The Faculty of Social Sciences has determined that the information literacy course will be obligatory also in advanced studies, along with the seminar work of bachelor level studies. The idea is to deepen the students' basic IL skills from the viewpoint of their own topic, and to familiarize the students with the variety of scientific information sources. The course, "Advanced studies in information seeking", represents 1 ECTS credits and is one part of the ECTS credits which students earn from the whole seminar. In order to arrange the teaching of IL skills as integral part of the bachelor seminar, the information specialists of the library have actively cooperated with the university teachers. In general, the IL skills course is arranged in the context of the seminar, and takes about 2–4 hours.

In addition, many other departments in the university have chosen the "Advanced studies in information seeking" course for their students during the seminar work of bachelor's or master's level. They appreciate that information literacy is a very important part of research skills and the completion of studies. However, it is the responsibility of the departments and their teachers to decide if they want to subscribe to this advanced course for their students. Only the faculty of Social Sciences has included it as an obligatory course in their curriculum. In 2005 the advanced types of information literacy teaching – both the obligatory and the voluntary forms – have demanded allocation of 101 hours by the Main Library.

The Main library and the branch libraries also provide different courses for international students, post-graduate students and for university teachers and researchers. The library also arranges demonstrations and presentations of several electronic information sources and electronic services in the library on a regular basis. In the year 2005, Tampere University Library taught information literacy skills for a total amount of 1,182 hours.

### **Resource Allocation**

One of the challenges concerning IL education in Tampere University library has been resource allocation. The above-mentioned volume of teaching IL skills requires

time and effort from the librarians and information specialists who plan and teach the course. In addition, the library's investments in learning environments, including computers are needed. The investments need to be directed to a variety of needs, e.g. the librarians who will teach and their pedagogical competence to technical solutions; for example teaching packages, video lectures and an electronic examination on the web. This requires a large one-time investment. And, naturally, the teaching material has to be updated at regular intervals.

The library produced in the academic year 2006–2007 a video lecture of IL, which is available on the web. The video lecture includes the theoretical part of IL skills and basic information about academic information retrieval. This is the first part of the IL skills course. Every student can read, watch and hear it on their own via the web. The video has been also designed to support the beginning of the lecture. However, its main purpose is to support independent e-learning, so that distant-learning students can access the information independently of time and place.

In the autumn semester of 2006, it will be possible for the first time to pass the “Basic course on information seeking” by taking a proficiency test as an alternative way to demonstrate the competence in IL skills. The test is meant for those new students who have possibly acquired IL skills during their earlier studies or who believe that they have sufficient proficiency in IL skills, or those who want to study IL skills and information sources on their own, and take the test later.

### **Proficiency Test for IL at the University of Tampere**

The proficiency test is one of the electronic examination pilots which the University of Tampere has developed in the past six months. The test is located on the Moodle platform, and students sit the exam in a computer class situated in the library.

At the beginning of November 2005, Tampere University Library's OPTIA project was launched, the main idea of which was to produce a web based test or examination. For 5 months, the library had a full-time designer working on the

proficiency test project, in collaboration with the information specialists teaching IL skills. At the same time, there was another cooperation project at the University of Tampere to survey ways to devise electronic examinations in some studies in parallel with the traditional written examination. The process of setting up the OPTIA proficiency test and the management is arranged entirely on-line.

At the same time, the national project started the process of developing and gathering the electronic based question bank. The use of the questions from the project's questions bank in the Tampere University Library saved time and resources. From the start, it was obvious that a test on a web environment requires a large pool of different questions, with many questions belonging to the same category, and with questions that are not too easy to answer.

The proficiency test contains a total of 40 questions; from every category 10 questions appear on one page. Furthermore, the test is programmed to randomly select different questions for each student so that every student will have his/her own questions (see fig. 3.).



The screenshot shows the Moodle interface for a quiz. At the top, the Moodle logo is visible on the left, and the user's name "Olet kirjautunut nimellä Johanna Tevaniemi (K)" is on the right. Below the logo, the breadcrumb navigation reads "moodle.uta.fi » Tietotentti » Tentit » Tiedonhankintataitojen sähköinen tentti. » Yritys 1". There are buttons for "Info", "Reports", "Esikatselu", and "Edit Quiz". The main heading is "Preview Tiedonhankintataitojen sähköinen tentti." Below this is a "Start again" button and a page indicator "Sivu: 1 2 3 4 (Seuraava)". The question is numbered "1 (2504)" and asks "Mitä seuraavista väitteistä on/ovat tosi(a)?". The question text is "Vastaus: a. Tesaurus on asiasanasto, joka sisältää aina sanojen väliset suhteet." Below the question, there are four multiple-choice options: "b. Asiasanastoa käytetään aiheenmukaiseen tiedonhakuun.", "c. Kaikissa tietokannoissa käytetään samaa kansainvälistä, monitieteistä asiasanastoa, monialaiseen asiasanastoon, joka on käännetty monille kielille, mm. suomeksi.", and "d. Asiasanastossa kullekin asialle on valittu yksi nimitys."

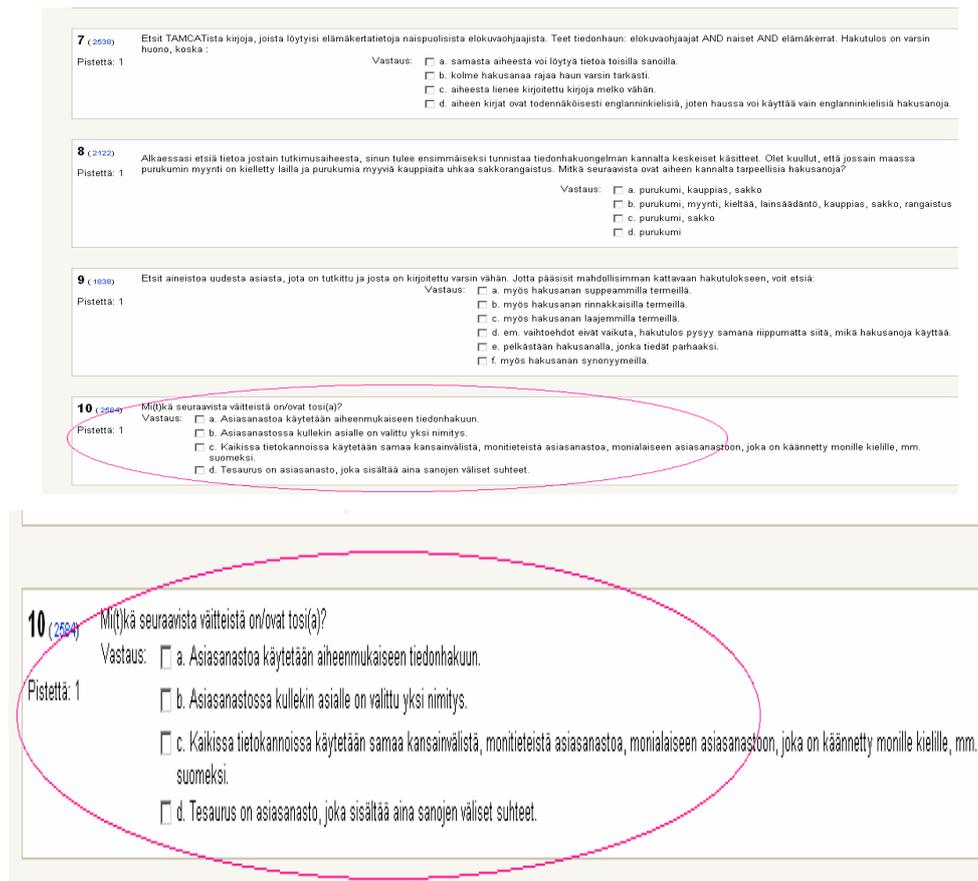


Fig. 3. Different alternative forms of the same question provided to different students.

The selection of questions has been carried out in every category. The test has a total of 183 questions. The random selection of questions and the shuffling of answers mean that it is difficult to cheat in the test. During the test, access to e-mail and to other programs has been blocked out, and the proficiency test is the only working area on the web. The questions have been designed in a way that candidates, if they are able to manage the information literacy skills, do not need access to the actual databases.

The questions in the test are all multiple-choice questions, and they can have one or more correct answers. The time limit to take the test is 40 minutes. To pass the test the student has to get 70 % correct, and this earns 2 ECTS credits. The student has the right to take the test twice; after that, the only way to pass the obligatory “Basic course on information seeking” is to attend the normal classes with contact learning and exercises.

From the national project's point of view, another challenge in creating a joint question bank is the diversity of e-learning systems at the Finnish universities. There are at least nine different systems in use. Moodle course management system, for example, is offered by eight universities. Therefore the question bank was planned to be independent of any e-learning system. However, there is an ongoing KLAARA Project of the Finnish Virtual University to create a joint query bank which contains questions and surveys particularly related to ICT-skills to be used for assessing student proficiency. KLAARA has been created with the Moodle course management system but it is devised such that the questions and queries can be easily exported also to other systems.

### **IL at the University of Kuopio – from Classroom Teaching to Web-courses**

The electronic material has been effectively in use in the University of Kuopio for several years. This is probably due partly to the fact that the disciplines of the University of Kuopio are those where the publication began to digitalize rather early, e.g. medicine, pharmacy and natural sciences. Thus patrons have been used to the convenience of electronic material and library has actively promoted their use and given customer education.

The elementary course of the information retrieval has been a part of the curriculum as a compulsory study module from the inauguration of the university in the 1970's. The library is responsible for providing and administration of the teaching. The scope of the study module is at the moment 1 ECTS credit and it consists of one lecture of the basics in information retrieval (e.g. the thesaurus, systems of classifications, boolean operators, the evaluations of the reliability of the information and the types of publication), field-specific database exercises and as a final test a personal assignment which is estimated as either accepted/rejected.

The teaching of the information retrieval skills has been under continuous development: but increasingly the trend is to move to web-based teaching and towards the discipline-specific approach. When the study module is compulsory to the student, its significance as the enhancer of their own study skills may not be so apparent. For example students seem blindly seek credits during their early phase of the studies rather than trying to learn information retrieval skills. Thus motivating the students to understand the importance of IL skills is a significant factor in the development of the teaching.

Also the transition of the scientific publication to the network, the rapid growth of the electronic material and the use of the Internet as the tool for the information retrieval have meant that the teaching of the information retrieval must be dynamic, both from the content viewpoint as well as from the teaching point of view. During their training, the students must master information literacy skills in relation to all the different types of publications: e.g. they must be able to assess independently the scientific reliability of the different types of publications obtained over the network. These skills also will be essential in career development after they leave the university.

Since the objects, publications and databases, of the information retrieval are electronic, the transfer of the IL teaching to the web-courses has been easy to arrange. In the University of Kuopio the teaching of information literacy was first organized as distance education in 1999. A pilot project was the teaching of the nursing science information retrieval. In distance education, the design of field-specific courses has been one major objective from the outset. At the university level, it is difficult to provide a general course of information retrieval for all the students.

For example there are more than 100 databases in use in the University of Kuopio. So it is difficult if not impossible for the individual student (or a user) to identify from his own field, what are the essential information sources. Even in field-specific teaching there are still from 7–15 databases with which the student needs to become acquainted. However discipline-specific teaching of information literacy skills provide the opportunity to concentrate on the actual information needs of the students who in turn have better opportunities to learn tools to estimate which information sources they need.

When the starting point for the teaching of information literacy skills is a discipline-specific point of view, it is easier to achieve cooperation with the departments at the University. It is possible to discuss the timetable of the teaching or how it can be integrated into parallel study modules. The personal assignments of the IR courses have been designed so that the student will search for information for some practical purpose, e.g. some term paper, thesis work. The student obtains the material and the information specialist's expert help during the study module when trying to search for relevant material. When the process of the information retrieval becomes demystified and appreciated through this kind of exercise, the significance of the information literacy skills becomes clear to the student.

The most important advantage of the distance education is its ability to be tailored to fit the individual. Even though the teaching totally provided over the network, the meeting of the tutor (information specialist) and student is more personal. In the classroom setting where there can be from 100 (lectures) to 10 (training lesson) students, the teacher very seldom has time to devote to an individual student. However, as can be seen from the feedback of our web-courses, students almost always assess the personal-level of tutoring as positive: they do not feel left alone. Furthermore it seems that the learning results are better in web-teaching.

### **TieDot-project – Creating Web-based IR-courses for Finnish Universities**

The Kuopio University Library coordinated the TieDot project that started in the year 2001. The project was a joint project of seven universities and was financed by support from the Ministry of Education's Finnish Virtual University project. In the TieDot project, field-specific distance education courses were created from 15 different disciplines (see fig.4.). There were three objectives of the project: 1) to create the actual courses; 2) to build networks between libraries involved and 3) to promote the distribution of the completed work. Thus: a course created by one

university library can be transferred or taken into use in another library and in this process an agreement system was established. The agreements stipulated that it would be possible to adapt the course to one's own requirements. This was because all the universities have their own specific fields of studies, as well as, their own practices in the provision of IL tuition.

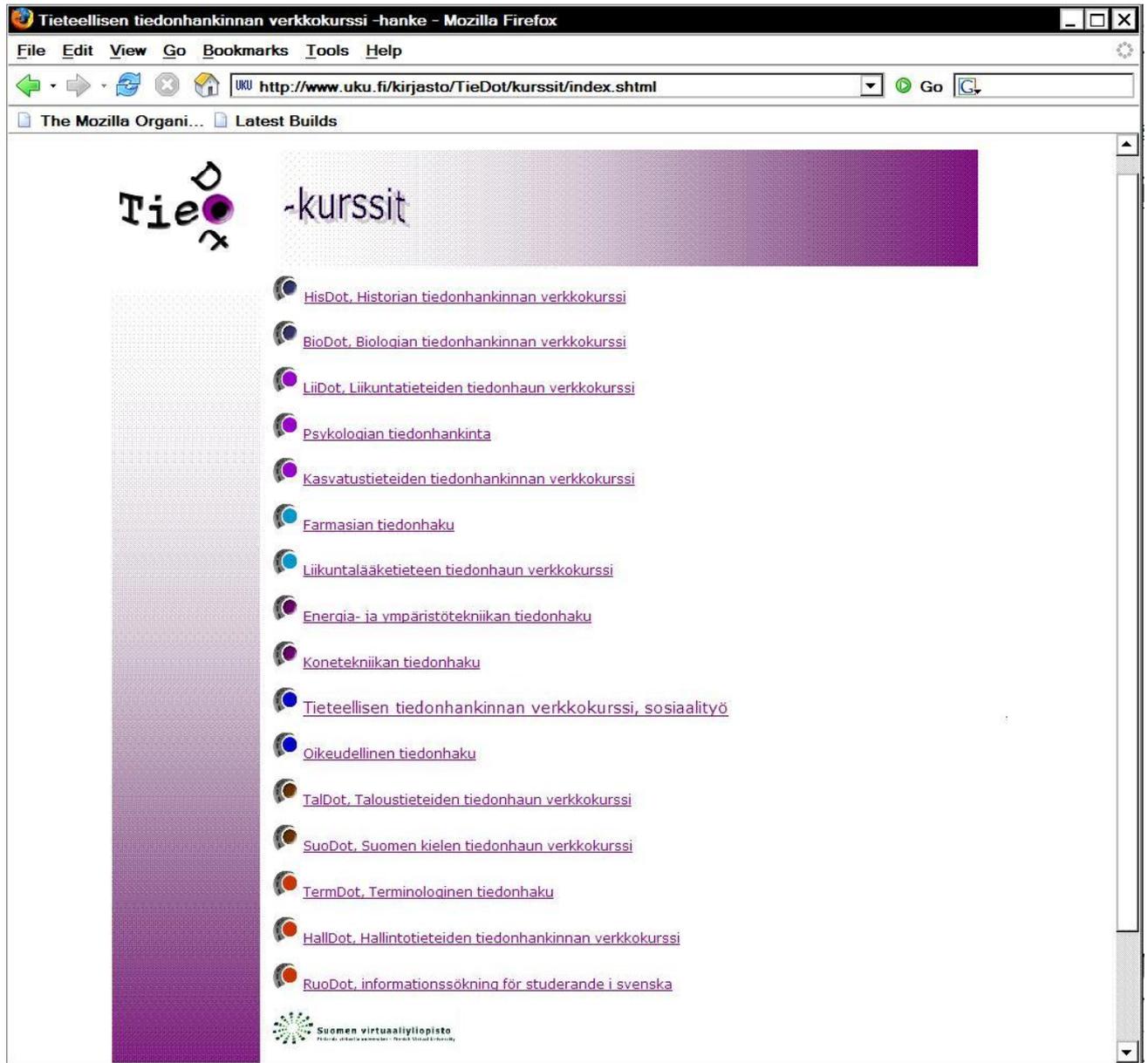


Fig. 4. IR web-courses made in the TieDot-project

The TieDot project gave birth to an active network with its annual conferences. The distance education courses that have been made in the project have also been

estimated from pedagogic and technical points of view. This evaluation was extremely important to the creators of these courses. To summarize the pedagogic evaluation: the course contents were excellent but they lacked some pedagogical aspects such as recognizing the student's learning process, making evident to the student the objective's of the teaching and the tutoring process (Pirttimäki et al. 2005).

## **Discussion and conclusions**

The development of IL is a major challenge to the university libraries and libraries will have to allocate more resources to this area. At the same time they have to collaborate with other personnel within the university. The use of new technological options means that one can offer a wealth of teaching and learning opportunities and innovations in the area of teaching IL.

In this work we need national and international standards and evaluation models. One of the advantages of common IL objectives is that they help in the course creation, in the assessment of the students as well as comparison between different courses. They also help in the dissemination of the same courses between universities.

Designing the proficiency test of IL at Tampere University Library is a good example of a successful collaboration and the innovative use of information technology.

Designing the proficiency test has required a wide range of plans and solutions. Co-operation with other professionals in the university, especially with information and communication technology developers, laid the foundation for the proficiency test to be offered as an electronic examination. The fruitful co-operation between project members has motivated the staff of the library to develop IL teaching methods and contents. In addition, the fact that IL skills courses are a compulsory part of the curriculum means that information literacy courses have now a sound position as part of the higher education provided in the University of Tampere.

In Finland, librarians have striven to promote information literacy and according to *High-Level Colloquium on Information Literacy and Lifelong Learning* the country

can be viewed as a model for other countries for having succeeded making the political decision-makers aware of the importance of IL. However, much work remains to be done in higher education to achieve a more coherent integration of information literacy into all stages of studies.

The Finnish university libraries are now convinced that in promoting information literacy integration into the academic curricula, also the instruction given to university teachers and researchers is of critical importance. In addition to classroom sessions, the instruction can be provided on a one-to-one basis or by using self-learning materials on the web. Having realized the value of collaboration both with the faculties and with other libraries, librarians have become more aware of the significance of good communication and networking skills in addition to pedagogical and technical skills.

One of the major challenges will be how to support the network of library educators in the future without any allocated funding. Also more studies are needed to improve the standards, methods, assessment and evaluation of our IL teaching.

### **Acknowledgements**

The authors are grateful to Dr Ewen MacDonald for revising the English.

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