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# Educational uses of digital archives. Tools and methods for flexible and personalized access to web repositories

Plan for a proposed PhD project

May 20<sup>th</sup> 2001

Donald Broady & Monica Langerth Zetterman

Department of Teacher Training and Department of Education, Uppsala University  
Postal address: ILU, Uppsala University, Box 2136, S-750 02 Uppsala  
Phone Donald Broady +46-18-4712444, Monica Langerth Zetterman +46-703-945430  
Email [broady@nada.kth.se](mailto:broady@nada.kth.se), [monica.langerth@ped.uu.se](mailto:monica.langerth@ped.uu.se)  
URL <http://www.skeptron.ilu.uu.se/broady/dl/>

## Summary

The aim of the proposed PhD project is to explore tools and methods which give teachers and students flexible and personalized access to digital content archives. Main questions are

- How can teachers and students access, navigate, retrieve and use the content of digital archives?
- How might teachers and students benefit from emerging mark-up and metadata recommendations and standards?
- How do learning communities make use of their digital repositories?

The project will comprise three inter-related kinds of studies:

- Surveys on mark-up and metadata schemes of relevance to educational applications
- Case studies of the uses of content repositories within some academic communities
- Studies on the implementation of tools and methods in learning communities

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## 1. Aim

The aim of the proposed PhD project is to explore tools and methods which give teachers and students flexible and personalized access to digital content archives.

## 2. Main questions

### *2.1 How can teachers and students access, navigate, retrieve and use the content of digital archives? On the relation between personal portfolios and shared repositories*

Much research on ICT supported education focuses matters such as communications issues, teacher/student interaction, teaching methods, learning outcomes or administrative and organizational settings (cf. Langerth Zetterman, 2000). These R&D efforts seldom scale down to the teaching and learning practices or up to institutional level (e.g. Laurillard, 1993; 2000). One reason for the shortcomings of previous attempts is that the content issues are neglected. There is a need for more R&D activities concerning how teachers and students might create, manage, share and reuse content. Many systems and platforms for e-learning and distributed education comprise fairly sophisticated tools for the communication between teachers and students and between students, for management of the course and the assessment of results etc, while the content - the courseware, the reference material, the teachers contributions or the students' papers - is often poorly structured and lacking appropriate mark-up and metadata.

This means that the educational milieus are lagging behind the research communities. During the last decades information technology has changed the research practices of many scholars. One important aspect is the augmented opportunities for co-operation and exchange within the research community. Ten years ago, individual researchers, research groups and archivists typically used proprietary non-portable formats for their depositories of digitalized sources, for example in the humanities electronic versions of printed texts, transcribed manuscripts or language corpora. Today there are de facto encoding standards, such as the TEI DTD (the Text Encoding Initiative Document Type Definition)<sup>1</sup> within the humanities, which permits scholars to create, use and share collections of well-structured high quality digital sources. The same development has taken place within most scholarly domains, as well as in many industries.

However, most teachers and students do not take part in this development. They are still referred to printed material, poorly structured HTML pages or non-reusable PDF files. The qualified digital sources they encounter are more often than not only available on proprietary systems and formats that may function well as long as the material stays on the web site or on the CD-ROM. Students and teachers meet with problems as soon as they try to incorporate material into their learning environment, for example in order to accomplish projects or to create tailor-built courseware. Course content is, thus, not sufficiently integrated into the learning environment. The proposed PhD project will contribute to improve upon this integration.

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<sup>1</sup> The guidelines from the consortium TEI (Text Encoding Initiative) are the dominating de facto-standard for digital critical editions of literary and historical sources. See <http://www.tei-c.org/>

Not the least in domains such as distance education where students are dispersed, sometimes far away from university libraries, their access to relevant content is most crucial. It is also important to note that learning does not end with the completion of formal education. On the contrary, policy in many developed countries focus on the need for lifelong learning and recurrent education. Much of the learning that occurs throughout life is supported by other means than reading textbooks or formal training. For the individual the affiliation to different kinds of communities is crucial in order to obtain learning opportunities. Today and even more in the future such affiliation often means access not only to the members of the community but also to the community's shared resources on the Internet. Therefore it is a problem that the emerging markets for borderless education and eLearning often provide proprietary solutions for content management and communication (Langerth-Zetterman & Lindblad, 2001).

One way of using content from digital archives is to create "digital portfolios", by which we refer to personalized content collections acquired by for example students during the course of their years at the university. A portfolio might include the student's own or peer students' annotations, papers and project presentations, courseware and reference literature, material created by their teachers, test and examination results, copies of or links to various resources. The portfolio might serve several purposes: depository of material for personal use or to be shared with other students or with teachers, documentation of the progress of the studies, reference points in the career planning. When the student leaves the university it might be useful in future professional activities. When applying for a job it might contain items to be presented to an employer.

It is crucial that students are offered course content, teachers' commentaries and guidelines, test results and other relevant material in portable modularized formats, suitable to be incorporated into their portfolios and to be reused for various purposes that may not be foreseen by the teacher. There is a need for archives of content modules on the web that are easy to share, to navigate, and to combine and reuse in new contexts. The content modules should be equipped with metadata and when possible apply to relevant international standards.

An important design principle is that the structure of the module archives should be separated from the structure of the actual course given. Thus, by separating what is to be learnt from how it is taught, one and the same archive might be used in different courses by means of different filtering and presentation, and by different target groups, from freshmen to specialists. For a specific course the teacher might propose the students certain paths through the archive and a certain subset of content modules to be added to their electronic portfolios.

## *2.2 How might teachers and students benefit from emerging mark-up and metadata recommendations and standards?*

The European Commission (cf. IST, 2001) stress the need for further research and development of digital archives:

The aim of this work is to improve the functionality, usability and acceptability of future information products and services [...] The work will address both applications-oriented research, focusing on publishing, audio-visual, culture and education and training and generic research in language and content technologies for all applications areas, and will include validation, take-up, concertation and standards.  
(ibid., [http://www.cordis.lu/ist/bwp\\_en4.htm](http://www.cordis.lu/ist/bwp_en4.htm))

If such archives are to be beneficial in various educational settings, and if they are to stimulate freedom of choice in higher education and lifelong learning, it is crucial that the content is adapted

to emerging international agreements and standards on mark-up languages and metadata. Else the content will be locked into proprietary platforms and applications.

Among the most important general standardization efforts when it comes to mark-up languages and metadata are SGML (Standard Generalized Markup Language, ISO 8879:1986)<sup>2</sup>, XML (Extensible Markup Language)<sup>3</sup>, RDF (Resource Description Framework), and Dublin Core.<sup>4</sup>

The most important international project aiming at creating de facto standards for educational systems and resources is project IMS (Instructional Management Systems)<sup>5</sup>, which started in 1997 and engages a large number of major educational institutions as well as software companies. Its aim is to develop and promote open source specifications for many domains of distributed online education, including specifications for organization and delivery of educational content. The educational metadata schema LOM (Learning Object Metadata)<sup>6</sup> aims at helping teachers to specify and find multimedia materials to suit their pedagogical needs or preferences, by facilitating content sharing and reuse among educational professionals.

Potentially these kinds of international standardization efforts will be useful for teachers and students. Provided that courseware and other educational resources are made available in modular shape and adequately marked-up, one and the same content might be combined and reused for different audiences with different needs in different educational settings. Teachers and students might be encouraged to find personal ways of learning and less inclined to use pre-constructed syllabi and selections of course content.

Furthermore, the move away from proprietary solutions and towards open standards will offer better opportunities for teachers and students to benefit from existing digital archives and other resources which are today mainly used by research communities and other specialists.

However, today the benefit of appropriate markup is not evident to most users in the educational sector. On the contrary, teachers and students are prone to accept courseware based on ad-hoc categorization, redundant information, proprietary applications and formats such as PDF, non-modularized solutions, and rudimentary mark-up (typically raw HTML).

This attitude is quit understandable, for several reasons. The courseware publishing houses are reluctant to deliver content in portable formats since they - as well as the software producers - prefer to keep the costumers tied to the vendors' proprietary solutions.

A second reason is that teachers are not used to separate what is taught from how it is learnt, that is to separate content from its presentation forms. Therefore they do not spontaneously applause the opportunities to utilize different filtering and presentation tools in order to use the same digital archive for different courses and/or for different student groups. They do not consider the

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<sup>2</sup> SGML is an ISO-standard ince 1986. The seminal work is Charles F. Goldfarb, *The SGML Handbook*, Clarendon Press, Oxford 1990. For more information on SGML see e.g. <http://www.oasis-open.org/cover/>. The Swedish SGML user organisation is found at <http://www.sgml.a.se/>

<sup>3</sup> XML is developed by W3C (the World Wide Web Consortium). Version 1 was adopted in February 1998. See <http://www.w3.org/XML/>

<sup>4</sup> See <http://w3.uu.se/metadata/> or <http://www.skeptron.ilu.uu.se/broady/dl/> for further information on formats, current research and development.

<sup>5</sup> The Instructional Management Systems, IMS, consist of academic, non-profit, corporate, and government organizations. See [www.imsproject.org/](http://www.imsproject.org/) for further information.

<sup>6</sup> LOM is specified by a working group of the IEEE Learning Technologies Standardization Committee. See <http://ltscc.ieee.org/wg12/>.

possibility to accumulate content into archives through which the students might be suggested paths or from which subsets of content modules might be incorporated into the student's portfolios - or even produced by the students themselves. Instead most teachers tend to regard content as hardwired into the syllabus of certain courses.

A third reason why teachers are lagging behind many research disciplines and industrial sectors is the shortage of appropriate and easy-to-use tools that allow teachers and students to access portable resources and to create their own content archives or portfolios. The creation of structured marked-up and metadata-enriched content still requires skills that are fairly rare within the educational sector. Even if XML editors are available the mark-up procedures still are too non-transparent and tedious for most users. Even if the current versions of ordinary web browsers have some support for XML, most teachers do not have any clue about how to make use of those facilities.

Thus, there is a need for both better tools and more developed methods. The proposed PhD project is a modest contribution to this end.

### *2.3 How are learning communities making use of their digital repositories?*

In order to find inspiration for more general educational applications, the proposed PhD project will also explore how digital archives are in fact used in some research communities.

Communities is to be taken as communities of practice, according to the categorization of Lave & Wenger (1991). Such communities are groups of individuals who work, learn and socialize together sharing insights and develop shared knowledge as a consequence of participation. Communities thus evolve, develop and merge around shared interests and expertise. Recent research has highlighted the importance of tacit group knowledge within communities (Cook and Brown, 1999), i.e. knowledge not held by individual members but reflected in the artifacts created and shared by the community.<sup>7</sup>

In a university setting the members of such communities are researchers, teachers, students, administrators. Their shared digital resources are any object or location that has a unique identifier and can be digitally stored, accessed and distributed via a global network or a local area network. A resource might thus be web pages, web sites, course modules, lecture notes, reports, papers, databases or student digital portfolios.

Many learning communities, e.g. within universities, produce and store very diverse content, spanning from syllabi and lecture notes to articles, papers, simulations or research results stored in databases. These communities share content (wholly or partial on-line) such as messages, documents or archives that contain information which is of use to the community members. However, the rapidly growing information on the Web and intranets causes problems when searching for and accessing information. Likewise, the same problem occurs when individuals are trying to organize and share resources.

The digital archives could be valuable learning resources for old and new members of the communities. One problem with the growing digital archives is that content often is molded into

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<sup>7</sup> Schön (1988) for example describes how designers share models that serve as holding environments for ideas that need not or cannot be articulated.

proprietary and application dependant formats and therefore difficult to retrieve, access and reuse in any other context than that in the one in which they are produced.

The emerging development of multi-disciplinary fields and heterogeneous audiences at universities makes communities even more complicated both in terms of the disparate nature of shared digital resources and because of the more heterogeneous background of the participants - as in bioinformatics where PhD students might have their major in computing science, mathematics, biology, chemistry or medicine.

By using modularized and structured digital archives based on international standards teachers and students could get distributed access and opportunities to build personal paths for their teaching and learning. Teachers and students will also have a more choices and a better overview over the resources and the context into which these resources are inserted. To some extent these opportunities are realized in certain university disciplines and environments. Therefore we propose further exploration of some communities where modularized content archives are heavily used. Two such communities, which we intend to approach by means of case studies (see below), are bioinformatics and the TEI (Text Encoding Initiative) community in the humanities. By this research design - that is "test beds" in the most advanced natural sciences on the one hand and in the humanities on the other - we hope to reach some generalizable findings on how digital archives are managed today within research communities, and possibly in the future within some educational environments.

A more pragmatic aim is to test tools that can help community members to share and retrieve communal artifacts by being "tuned" to the community they are intended to serve. One motive for adopting this approach is that communities have particular characteristics, which e.g. are revealed in their way of doing things and the domain-dependant use of concepts and topics. Here we expect to be able to profit from ongoing standardizations efforts in the domain "topic maps"<sup>8</sup>, the aim of which is to express concepts and topics in such a way that they can be presented and shared on the web. The topic maps enthusiasts believe that we are approaching a significant transformation of the web, from presentation of information to representation of knowledge.

### 3. Methods, three steps in the research

#### 3.1 Methods

Many attempts to introduce ICT (Information and Communication Technologies) in educational settings still suffer from rhetoric claims and unrealistic promises (cf. Cuban, 1986, Jedeskog, 2000, Johansson & Nissen, 2001, Pedersen, 1997, Riis 1997, 2000). In projects reports it is seldom accounted for why the use of ICT in education could be regarded as pedagogically successful and there are rarely any reported results from less successful projects. One way of improve the exploration of ICT support in educational settings is to focus on "the use of ICT-tools to provide opportunities [related to teaching and learning] that could not be provided otherwise" (Alexander & McKenzie, 1998). In the proposed project we will pay attention to one such factor, namely the design and use of digital content archives, i.e. shared depositories. Our main focus is on the

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<sup>8</sup> Topic Maps (ISO/IEC 1999:13250) is a new standard for the description of knowledge structures and the relations of these structures to information resources. See <http://www.ontopia.net>

opportunities for teachers and students to search, brows, retrieve and organize content from digital content archives in order to make flexible and personalized use of it.

Methods to be used are studies of documents, interviews, participant observation, and some user studies on the application of certain tools. This variety of methods is necessary in order to understand how tools and methods can be used to make content retrieval, access and reuse transparent for community members.

### *3.2 First step: an overview of how content design and metadata schemes are used for research and for educational purposes*

This initial stage will result in an overview over some pertinent previous and ongoing R&D initiatives.

The point of departure will be to analyze projects and other initiatives which have implemented meta-data standards for educational purposes. One prominent example is the ARIADNE project within the European Unions 4<sup>th</sup> Framework R&D Program. This project focuses on development of tools and methods for producing, managing and reusing *pedagogical* elements. Results from ARIADNE are e.g. recommendations for educational metadata that follows a certain structure. Elements of pedagogy and semantics are taken into account. The project is thus an attempt to surpass general and technical information about the resources.<sup>9</sup>

Other similar examples from the educational domain are the already mentioned IMS project and the LOM initiative (see above).

Besides these dedicated educational projects, it is important to explore how content mark-up and meta-data are used within some research domains. The already mentioned TEI project (Text Encoding Initiative) within the humanities will be studied, as well as comparable standardization efforts within the natural sciences, in order to understand how teachers and students might make pedagogical use of resources that are already available on the web albeit mainly used by research specialists.

### *3.3 Second step: Case studies of learning communities*

The aim of the case studies are to analyze how members of learning communities develop shared knowledge. We intend to choose communities from two different domains, the humanities and bioinformatics. By contrasting these domains to each other we hope to gain comparative opportunities. Significance rather than frequency is often regarded as the hallmark of case studies, which are supposed to offer insights into social situations, dynamics and interactions (cf. Merriam, 1988). Participation observation will be used since we are we are interested in discerning and collecting data with more salient features than only verbal statements (cf. Bailey, 1978).

Participatory research is of course dependent on the researchers ability to develop and maintain relations with community members. In this case Monica Langerth Zetterman as a result of her

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<sup>9</sup> See: <http://ariadne.unil.ch> for details.

engagement in Swedish Learning Lab is already well inserted into the milieu of bioinformatics and humanities researchers and teachers at Uppsala university.

The main task will be to understand how existing shared web resources are used within the communities. This will be realized by, i.a., interviews, observations, and content analyses.

Content analyses will uncover the structure of the shared resources and the shared concepts and topics. Among content analysis techniques one possibility is to derive a list of *keywords* to represent the corpuses. Another possibility is *concept modeling* (by help of the concept modeling tool Conzilla<sup>10</sup>) that associates content with a conceptual structure of the domain and the resources within it. *Statistical analyses* might be used to find the frequencies of particular words across documents. There are also many methods for *text analysis*. Of course, none of the existing automatic techniques will in itself be sufficient in order to explore the nature of digital repositories. However we wish to try diverse existing automatic or semi-automatic techniques in order to explore how helpful they are in the analysis, classification and retrieval of shared resources within research and learning communities.

### *3.4 Third step: Application of tools and methods within certain research and learning communities*

Besides the last mentioned more “neutral” mapping of actual practices within research and learning communities, we also wish to understand and to some extent promote the application of a few tools:

Tools for the creation of *personal portfolios* are developed within the four Learning Lab projects “Content and Context in Mathematics education”, “Digital resources in the humanities”, “Personalized Access to Distributed Learning Repositories” and “Personal Learning Portfolios”, all of which are co-ordinated by Donald Broady. The personal portfolio is the student’s (or teacher’s) own collection of content that might be partly derived from shared digital archives.

A tool for *concept browsing* is Conzilla, which is developed by Ambjörn Naeve and his collaborators at CID/Nada, KTH, within the research domain “Interactive learning environments”, directed by Donald Broady. The concept browser Conzilla gives the opportunity to create conceptual maps in order to navigate resources for example shared web archives or the content of a personal portfolio. In the same research environment there is also a tool Anti-Loop for the *management of digital archives*, developed by Hans Melkersson et al.

The testing of these and other appropriate tools will be evaluated by use of the “theory-anchored evaluation” framework (Strömdahl & Langerth Zetterman, to appear), which aims at supporting the teachers’ self-assessment.<sup>11</sup>

<sup>10</sup> See <http://sourceforge.net/projects/conzilla>.

<sup>11</sup> The theory-anchored evaluation framework have been developed an attempt to systematise the evaluation and design of ICT supported projects within the Wallenberg Global Learning Network. Theory-anchored evaluation framework is a fusion and development of ideas in the US and Swedish approaches to theory-based evaluation and the main characteristics is the explicit description of the theories/ideas of the phenomena or object among those involved (both researchers and actors) developed during a negotiation process. See <http://www.learninglab.uu.se/ssi/reports.asp> for a seminar-version of the article.

## 4. Affiliation to research environments

The proposed project will be connected to four partly overlapping research environments combining pedagogical and technical expertise.

The research program **Digital literature** at ILU, Uppsala university, and CID/Nada, KTH <<http://www.skeptron.ilu.uu.se/broadly/dl/>>. Directed by Donald Broady. The program started in 1990 at KTH with the aim to develop methods and tools for the encoding, management, and delivery of information, mainly in the humanities, in accordance with relevant international standards as SGML, XML, HyTime, DSSSL. For information on previous and ongoing projects, see [www.skeptron.ilu.uu.se/broadly/dl/dl-proj.htm](http://www.skeptron.ilu.uu.se/broadly/dl/dl-proj.htm).

The research domain **Interactive Learning Environments** at CID/Nada, KTH (Royal Institute of Technology), Stockholm. CID (Centre for User Oriented IT Design, see <http://cid.nada.kth.se/>) was founded in 1995. It is a joint effort between KTH, NUTEK, 21 industrial partners and representatives from user organizations (such as LO and TCO). Donald Broady has been working part-time at CID since the start, and is directing the research domain Interactive Learning Environments (see <http://cid.nada.kth.se/il/>)

The proposed PhD project will also be associated with several projects within **Swedish Learning Lab** (see <http://swedishlearninglab.org/>), primarily the projects “Content and context of Mathematics in Engineering Education”, “Digital resources in the humanities”, “3D communication and visualization environments for learning” (these three projects within the domain APE, Content archives, student portfolios & 3D environments), “Personalized Access to Distributed Learning Repositories” and “Personal Learning Portfolios” - all of them coordinated by Donald Broady. Within the Swedish Learning Lab we also intend to profit from Monica Langerth Zetterman’s ongoing involvement in the Bioinformatics project, co-ordinated by prof. Siv Andersson. Thus, we will gain access to several multi-disciplinary domains, both in the humanities (where the three above mentioned projects at CID/Nada, KTH are experimenting with digital editions of August Strindberg’s works, historical sources etc) and the natural sciences (Bioinformatics). In a Bioinformatics course the students produce new course modules as a part of their examination (Andersson, Langerth Zetterman & Strömdahl, 2001).

The **ELOÏS** program (see <http://www.ped.uu.se/elois>) will provide a relevant research and evaluation environment for pedagogical evaluation issues. It is directed by Prof. Ulla Riis, Dept. of Education, Uppsala University. ELOÏS is a Swedish acronym for “Elever, Lärare och Organisationer kring IT i Skolan”. Monica Langerth Zetterman has been engaged in several evaluations within the ELOÏS program.

## 5. Personnel, institutional affiliation

The PhD work is to be undertaken by Monica Langerth Zetterman. Donald Broady will act as supervisor. Cf. the enclosed CVs.

Monica Langerth Zetterman has applied for the PhD courses in Education, which at Uppsala is the responsibility of the Dept. of Education. Her institutional affiliation will however be the Dept. of Teacher Training (ILU).

## 6. Anticipated outcomes

The proposed PhD project will result in Monica Langerth Zetterman's PhD thesis. It will also

- present findings on how digital archives are managed today within research communities in advanced areas of natural sciences and the humanities,
- improve the understanding of the use of domain-dependant concepts and topics in some learning communities and disciplinary fields,
- improve the knowledge of how teachers and students might access and use the content of digital archives, and how course content might be integrated into the digital learning environments,
- contribute to an enhanced awareness and knowledge of how of ongoing international standardization efforts might be useful to teachers and students.

## 7. Plan for dissemination

- contributions and presence at scientific conferences, symposia and workshops both nationally and internationally,
- participation in several national research environments (mentioned above) and international networks of researchers and teachers such as the Wallenberg Global Learning Network, i.e. the Learning Lab organization in several countries,
- participating in different academic communities when conducting the case studies,
- publication on the web of the project's results, application examples and models. Special attention will be paid to the creation of digital resources which will function as guidelines to the use of appropriate tools, international standards, agreed mark-up schemes etc.

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## Curriculum vitae, Donald Broady

Donald Broady, born May 5th, 1946, PhD, since 1990 acting professor (tf professor) at the Dept. of Educational Research, Stockholm Institute of Education. Since 1997 professor at Uppsala university, chair in Education.

Directing the research unit Sociology of Education and Culture (see <http://www.skeptron.ilu.uu.se/broady/sec/>).

Since 1990 part-time position as research fellow at Dept. of Numerical Analysis and Computing Science (Nada), Royal Institute of Technology, Stockholm. Since 1996 member of the executive board of CID (Center for user-oriented IT-Design) at KTH (for information on CID, visit <http://www.nada.kth.se/cid/>). Directing the research domain Interactive Learning Environments at CID/Nada, KTH.

Co-directing (together with Monique de Saint-Martin, École des Hautes Études en Sciences Sociales, Paris) the international research network "Formation des élites et internationalisation de la culture" with partners in 21 countries.

Co-directing (together with associate professor Ulf Jonsson and representatives of École des Hautes Études en Sciences Sociales, Paris) a French/Swedish research exchange programme.

Co-directing (together with professor Sverker Lindblad) a Swedish research network "Forum för studier av utbildning och kultur" (Education and Culture Research Forum) with ca. 100 researchers and doctoral students, funded by Skolverket.

Associate editor for, i.a., *Curriculum Studies* since the start in 1992.

At Uppsala University directing research projects on the Swedish educational system, cultural fields students' trajectories, transnational educational strategies, and educational history, funded primarily by Riksbankens Jubileumsfond (The Bank of Sweden Tercentenary Foundation), Humanistisk-Samhällsvetenskapliga forskningsrådet (Research Council of the Humanities and the Social Sciences), Skolverket (National Agency for Education), Högskoleverket (National Agency for Higher Education), Sida (Swedish International Development Agency).

Since Autumn 1999 Director of Uppsala Learning Lab, a partner in Swedish Learning Lab together with the Royal Institute of Technology and the Karolinska Institutet in co-operation with Stanford university. See <http://swedishlearninglab.org/>

At Royal Institute of Technology and Uppsala University also directing R&D projects on computing systems design, internet applications, and computer support for education and research, funded by Nutek, FRN, Skolverket et al.

Member of the scientific board of the research school LearnIT (KK-stiftelsen).

Presently supervisor for 8 PhD students in Education (pedagogik) and appointed assistant supervisor for 11 PhD students (in the subjects pedagogik, sociologi, historia, konsthistoria, kulturgeografi, datalogi, medievetenskap, skandinavistik). Has supervised 9 PhD students up to their PhD examination.

## Some publications

"Enligt konstens alla regler", *Kvinnovetenskaplig tidskrift*, Årg. XV, nr 1 1994, pp. 27—39.

*Les élites : formation, reconversion, internationalisation* (éd. D. Broady, M. de Saint Martin, M. Palme). Paris: CSEC, École des Hautes Études en Sciences Sociales / Stockholm: FUKS, Lärarhögskolan, 1995. (212 pages.)

- (With Barbro Berg and Mikael Palme) "L'enseignement secondaire et l'enseignement supérieur en Suède face à l'internationalisation", pp. 148-163 in Donald Broady, Monique de Saint Martin och Mikael Palme (éd.): *Les élites : formation, reconversion, internationalisation*. Paris: CSEC, École des Hautes Études en Sciences Sociales / Stockholm: FUKS, Lärarhögskolan, 1995.
- Exploring Cultural Fields*. Keynote address, Nordisk Förening för Pedagogisk Forskning, 23. Congress, Aarhus, Denmark, 16—19 March 1995 (15 sidor)
- "Det nya handbiblioteket", pp. 83-107 i *Biblioteken, Kulturen och den sociala intelligensen* (red. Lars Höglund). Göteborg: Forskningsrådsnämnden/Valfrid, 1995.
- (With Hasse Haitto) *Internet and the humanities: the promises of Integrated Open Hypermedia*, konferensen "Contemporary computer and network technologies. Unlimited possibilities to expand world-wide cultural and scientific bridges", Moskva, 17—18 januari 1996. Report IPLab -106, Dept. of Numerical Analysis and Computing Science, jan 1996 (12 s.)
- (With Ingrid Heyman) "Omvårdnadsforskning. Ett vetenskapligt fält i vardande?", *Pedagogisk forskning i Sverige*, årg. 1, nr 4 1996, pp. 193-209.
- "Kapital, habitus, fält. Några nyckelbegrepp i Pierre Bourdieus sociologi", pp. 41-72 in *Kunskapsmål, teori, empiri* (red. Anders Gustavsson), Etnolore 17, Skrifter från Etnologiska avdelningen, Uppsala universitet, 1996.
- (With Mikael Börjesson) *Transnational strategies in Swedish higher education*. Konferensen "Europe Researched", Prag 17-19 oktober 1997. (18 pages.)
- "The epistemological tradition in French sociology", pp. 97-119 in Gripsrud, Jostein (Ed.): *Rhetoric and Epistemology. Papers from a seminar at the Maison des sciences de l'homme in Paris, September 1996*. Rhetoric-Knowledge-Mediation Working Papers No. 1 1997. Department of Media Studies, University of Bergen, 1997.
- Formation des élites et culture transnationale. Colloque de Moscou 27-29 avril 1996* (éd. D. Broady, N. Chmatko, M. de Saint Martin). Paris/Uppsala: CSEC, École des Hautes Études en Sciences Sociales/SEC, ILU, Université d'Uppsala, 1997. (385 s.)
- (With Ingrid Heyman and Mikael Palme) "Le capital culturel contesté ? Étude de quatre lycées de Stockholm", pp. 175-211 i *Formation des élites et culture transnationale Colloque de Moscou 27-29 avril 1996* (éd. D. Broady, N. Chmatko, M. de Saint Martin). Paris/Uppsala: CSEC, École des Hautes Études en Sciences Sociales/SEC, ILU, Université d'Uppsala, 1997.
- (With Mikael Börjesson and Mikael Palme) *Go West! Swedish higher education and transnational markets*. Paper presented at the conference "Empirical Investigations of Social Space," Universität zu Köln, 7-9 Oct. 1998. (26 pages.)
- "Kapitalbegrebet som uddannelsessociologisk værktøj", pp. 415-452 in Jens Bjerg (red.): *Pædagogik — en grundbog til et fag*. København: Hans Reitzels Forlag, 1998.
- "Inledning: En verktygslåda för studiet av fält", pp. 11-26 i D. Broady (red.), *Kulturens fält*. Göteborg: Daidalos 1998.
- Kulturens fält* (Ed. D. Broady). Göteborg: Daidalos 1998. (476 pages.)
- (With Mikael Palme) "Inträdet. Om litteraturkritik som intellektuellt fält", pp. 173-215 in D. Broady (Ed.), *Kulturens fält*. Göteborg: Daidalos 1998.
- "När fältbegreppet inte räcker till. Några svårigheter i studiet av kvinnors nätverk". Konferensen "Det vidgade rummet: kvinnors idéer, strategier, nätverk och nischer på väg ut i offentligheten ca 1880-1940", Bjärsjölagårds slott, 10-12 maj 1999.
- (With Espen S. Ore, Harold Short et al.) "European studies on textual scholarship and humanities computing", pp. 63-88 in Harold Short et al.: *Computing in Humanities Education. A European Perspective*. SOCRATES/ERASMUS thematic network project on Advanced Computing in the Humanities. Bergen: University of Bergen, 1999.
- "Skolmästarkonst och vetenskap", *Artes*, årg. XXV, nr 1 1999, s. 80-85..
- (With Per-Johan Ödman, Monika Olofsson et al.) *Pedagogikhistorisk forskning. Perspektiv, betydelse och funktion i dagens samhälle. Konferens 10-12 september 1998*. Stockholm: Lärarhögskolan i Stockholm, 1999. (608 pages.)
- "Nutid och dåtid. Inledningsanförande", pp. 7-10 in *Pedagogikhistorisk forskning. Perspektiv, betydelse och funktion i dagens samhälle. Konferens 10-12 september 1998*. Stockholm: Lärarhögskolan i Stockholm, 1999.
- (With Sverker Lindblad) "På återbesök i ramfaktorteorin. Temaintroduktion", *Pedagogisk forskning i Sverige*, årg. 4, nr 1 1999, pp. 1-4.
- "Hur kodar man Röda Rummet?", pp.48-61 i *ABM, IT och forskningen. Rapport från en konferens på Kungliga Biblioteket den 17 november 1999*. Red. Mats Rolén. Stockholm; Riksbankens Jubileumsfond, 2000. Elektronisk publikation, www.rj.se.

"Det svenska hos ramfaktorteorin", *Pedagogisk forskning i Sverige*, årg. 4, nr 1 1999, pp. 111-121.  
(With Mats B. Andersson, Mikael Börjesson, Jonas Gustafsson, Elisabeth Hultqvist, Mikael Palme)  
"Skolan under 1990-talet. Sociala förutsättningar och utbildningsstrategier" pp. 5-133 i SOU  
2000:39, Valfärd och skola. Antologi från Kommittén Valfärdsbokslut, Stockholm 2000.  
(With Annika Ullman)" 'Ständigt var man i farten med att grunda och stifta'. Om fält, offentligheter  
och nätverk vid sekelskiftet 1900", *Kvinnovetenskaplig tidskrift*, under utgivn 2001.

For more publications see <http://www.skeptron.ilu.uu.se/broadyskrifter.htm>

2001-05-20

## Curriculum vitae, Monica Langerth Zetterman

Monica Langerth Zetterman  
Myråsvägen 32 C  
818 33 Valbo  
Tel. 026 – 134057  
Arb: 018 471 7373/6292  
e-post: [monica.langerth@learninglab.uu.se](mailto:monica.langerth@learninglab.uu.se)  
f. 1962 03 27- 7600

### Examina

År	
2000	Fil. mag. i pedagogik och datavetenskap
1997	Gymnasielärarexamen, 40 p, ILU, Uppsala Universitet
1985	Sjuksköterskeexamen, Vårdhögskolan i Gävle

### Arbetslivserfarenhet (längre anställningar)

År	
1999-fortf.	Assessment Team Leader vid Uppsala Learning Lab Uppsala universitet samt forskningsassistent vid Pedagogiska institutionen, Uppsala universitet
1999-00	Kursansvarig/lärare vid Institutionen för Teknik, Högskolan i Gävle
1996-98	Distriktsköterska vid Primärvårdens jourverksamhet i Gästrikland
1994-95	Verksamhetschef vid Omvårdnadsförvaltningen, Gävle Kommun
1987-93	Sjuksköterska (intensivvård & kirurgi) vid Länssjukhuset i Gävle
1986-87	Dykledare i Australien & Nya Zeeland

### Publikationer

- Langerth Zetterman, M. (2000). IT-stöd i distansutbildning med fokus på lärande. -Nya förutsättningar och konventionella lösningar. C/D-uppsats. Rapporter från Pedagogiska institutionen, Uppsala universitet.
- Langerth Zetterman, M (2001) Educational use of digital archives. Proposal for a PhD-thesis. Working report. Uppsala University.
- Strömdahl, H. & Langerth Zetterman, M. (to appear). On Theory-anchored Evaluation Research of Educational Settings - especially those supported by Information and Communication Technologies. (seminariebehandlat manus).

- Monica Langerth Zetterman & Sverker Lindblad (2001). Learning about e-learning. A starter about Internet discourses and borderless education. I NFPF:s 29:e kongress Stockholm. Pedagogikens mångfald. Lärande innanför och utanför institutionerna. 15-18 mars, 2001.
- Siv Andersson, Monica Langerth-Zetterman & Helge Strömdahl (2001). Theory-anchored evaluation applied to a CSCL intense course in bioinformatics. In proceedings of: The First European Conference on Computer-Supported Collaborative Learning, Euro-CSCL, Maastricht, March 22 - 24, 2001.
- Langerth, M. (1998). Distance and Lifelong Learning in Denmark and Sweden: A Comparative Perspective. Paper presented at SOCRATES/ERASMUS Network on Comparative Education: European Identity, Economic Competition and Education. Intensive Program Madrid, September 1-12, 1998.  
Se: [www.learninglab.uu.se/ssi/monica/socrates.pdf](http://www.learninglab.uu.se/ssi/monica/socrates.pdf)
- Langerth Zetterman, M. & Strömdahl, H. (under utgivning). Teoriförankrad utvärdering – ett integrerat perspektiv. Uppsats antagen till GötaPriset vid Kvalitetsmässan 2001, Göteborg.  
Se: [www.kvalitetsmassan.se/](http://www.kvalitetsmassan.se/) → Kvalitetsbanken → sök "langerth" på fritextsökning.
- Lars Borin, Kariné Åkerman Sarkisian, Camilla Bengtsson, Monica Langerth-Zetterman (to appear) Developing and evaluating web-based diagnostic testing in university language education. To appear in proceedings of the ALTE European Year of Languages conference, July 5-7, 2001.
- Langerth, M. & Morssing, E. (1997) Etik i kulturen – kultur i etiken? En analys av kulturella perspektiv i litteratur för gymnasieskolan i ämnet etik och livsfrågor. Examensarbete. Institutionen för Lärarutbildning, Uppsala universitet

## Time plan

Year/Period <sup>1</sup>	2002 - spring	2002 – autumn	2003 - spring	2003 - autumn	2004 - spring	2004 - autumn	2005 – spring	2005 - autumn
<i>Project studies</i>								
1) Surveys on mark-up and metadata schemes	Readings		Readings/ juxtaposing		Readings/ juxtaposing		Readings/ juxtaposing	
2) Case studies		Field work		Field work		Field work		
3) Studies on the implementation of tools and methods in learning communities		Tests for application and data collection of digital resources		Tests for application and data collection of digital resources		Tests for application and data collection of digital resources		
<i>Analysis and writing</i>	Study 1		Study 1 & 2		Study 2 & 3		Study 3	
<i>Evaluation</i>			Evaluation of 1 <sup>st</sup> test in study 3		Evaluation of 2 <sup>nd</sup> test in study 3		Evaluation of 3 <sup>rd</sup> test in study 3	
<i>Postgraduate courses (compulsory/elective)<sup>2</sup></i>	15 ECTS	15 ECTS		15 ECTS	15 ECTS		15 ECTS	15 ECTS
<i>Publication</i>		1 <sup>st</sup> paper/article		2 <sup>nd</sup> paper/article		3 <sup>rd</sup> paper/article		
<i>Dissertation work</i>	Dissertation writings will be preformed concurrently with all activities above							Completion of dissertation

<sup>1</sup> The periods are divided in conjunction with the Swedish academic year, which consists of two semesters, the autumn semester spanning from 1<sup>st</sup> of September to middle of January and the spring semester starting in the middle January and ending in the middle of June.

<sup>2</sup> The first compulsory course, methodology 15 ECTS, will be completed during the fall term of 2001. The graduate student is expected to complete a total of 120 ECTS in postgraduate courses. See App. 5b for further information on postgraduate courses at Uppsala University.

## 9. INTYG fr. prefekten



### UPPSALA UNIVERSITET

Institutionen för lärarutbildning  
Box 2136, 750 02 Uppsala

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#### INTYG OM ATT DOKTORANDANSTÄLLNING KAN INRÄTTAS

Härmed intygas att, under förutsättning att erforderliga medel beviljas, Institutionen för lärarutbildning kan inrätta en doktorandanställning med inriktningen "Educational uses of digital archives". Lokaler, datorstöd och annan infrastruktur finnes vid institutionen. Jag har granskat och godkänt den budget som ingår i ansökan till Distum från Donald Broady, rubricerad "Educational uses of digital archives" och daterad den 20 maj 2001.

Doktorandanställningen är avsedd för Monica Langerth Zetterman, som i maj 2001 sökt till forskarutbildningen i pedagogik vid Uppsala universitet. För antagningen till denna forskarutbildning ansvarar Pedagogiska institutionen vid Uppsala universitet, medan således anställningen skall förläggas till Institutionen för lärarutbildning. Ett sådant arrangemang har vi redan för ett drygt tjugotal doktorander.

Uppsala den 21 maj 2001

Arne Lindquist  
Prefekt

Tel 018-4712465  
E-post arne.lindquist@ilu.uu.se

## 10. Definitiv ifylld ansökningsblankett

Till Distum

Preliminär ansökan om medel för projekt inom området "Ansökan om medel för doktorandtjänst 2001/02".

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Efter underskrift skickas ansökan per post till:

Distum, Box 194, 871 24 Härnösand

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### PERSONAL

Doktorandprojektets benämning:  
Educational uses of digital archives.

Forskningsledaren:

Forskningsledare: Donald Broady

Adress: Institutionen för Lärarutbildning (ILU), Uppsala universitet, Box 2136, 750 02 Uppsala

Telefon: 018 4712444

Fax: 018 4712400

E-post: broady@nada.kth.se

Handledaren:

Handledare: Donald Broady

Adress: Institutionen för Lärarutbildning (ILU), Uppsala universitet, Box 2136, 750 02 Uppsala

Telefon: 018 4712444

Fax: 018 4712400

E-post: broady@nada.kth.se

Doktoranden:

Doktorandens namn: Monica Langerth Zetterman (besked om antagning till forsk.utb., juni 2001)

Adress: Pedagogiska institutionen, Uppsala universitet, Box 2103, 750 02 Uppsala

Telefon: 018 471 7373

Fax: 018 471 6292

E-post: monica.langerth@ped.uu.se

Institution:

Institution: Pedagogiska institutionen, Uppsala universitet, Adress: Box 2103, 750 02 Uppsala

Telefon: 018 – 471 1664

Prefektens namn: Gunnar Herting

Forskarutbildningens rektor:

Studierektor: Ingrid Heyman

Adress: som ovan

Telefon: 018 - 471 16 78

Administrativ kontaktperson:  
 Administrativ kontaktperson: Ingegerd Öfverstedt  
 Adress: som ovan  
 Telefon: 018- 471 24 75

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#### Projektidé

Beskrivning av forskningsmiljö, nätverk i vilket doktoranden ingår/kommer att ingå:

The proposed project will be connected to four partly overlapping research environments combining pedagogical and technical expertise.

The research program Digital literature at ILU, Uppsala university, and CID/Nada, KTH . Directed by Donald Broady.

The research domain Interactive Learning Environments at CID/Nada, KTH (Royal Institute of Technology), Stockholm. CID, Centre for User Oriented IT Design, see <http://cid.nada.kth.se/>

The proposed PhD project will also be associated with several projects within Swedish Learning Lab, see <http://swedishlearninglab.org>

The ELOIS program will provide a relevant research and evaluation environment for pedagogical evaluation issues, see <http://www.ped.uu.se/elois>

Beskrivning av avhandlingsområde:

The aim of the proposed PhD projekt is to explore tools and methods which give teachers and students flexible and personalised access to digital content archives. Main questions are:

- How can teachers and students access, navigate, retrieve and use the content of digital archives?
- How might teachers and students benefit from emerging mark-up and metadata recommendations and standards?
- How do learning communities make use of their digital repositories?

The project will comprise three inter-related kinds of studies:

- Surveys on mark-up and metadata schemes of relevance to educational applications
- Case studies of the uses of content repositories within some academic communities
- Studies on the implementation of tools and methods in learning communities

Förväntade effekter av arbetet:

Anticipated outcomes

The proposed PhD project will result in Monica Langerth Zetterman's PhD thesis. It will also:

- present findings on how digital archives are managed today within research communities in advanced areas of natural sciences and the humanities,
- improve the understanding of the use of domain-dependant concepts and topics in some learning communities and disciplinary fields,
- improve the knowledge of how teachers and students might access and use the content of digital archives, and how course content might be integrated into the digital learning environments,
- contribute to an enhanced awareness and knowledge of how of ongoing international standardisation efforts might be useful to teachers and students.

Plan för spridning av resultat utöver publicering av avhandling:  
Plan for dissemination

- contributions and presence at scientific conferences, symposia and workshops both nationally and internationally,
- participation in several national research environments (mentioned above) and international networks of researchers and teachers such as the Wallenberg Global Learning Network, i.e. the Learning Lab organisation in several countries.
- participating in different academic communities when conducting the case studies,
- publication on the web of the project's results, application examples and models. Special attention will be paid to the creation of digital resources which will function as guidelines to the use of appropriate tools, international standards, agreed mark-up schemes etc.

Ekonomi

Söker även medel/alt. erhållit medel från:  
Nej

Summa sökta medel/alt. erhållna medel:  
Ej sökt medel

Budget år 1:  
Se även bilaga 7 för budget år 1-4

Monica Langerth Zetterman  
Budget år 1:  
Månadslön Antal månader Omfattning

17 000 12 100%

Summa lönekostnader 204 000

LKP 2001 51,6% 105 264  
Summa personalkostnader 309 264

Resor 5 000  
Utrustning (bärbar dator) 25 000  
Datainsamling 5 000  
Konferenser 5 000  
Material, litteratur 5 000  
Programvara 7 000  
Övrigt 2 000

Institutionsomkostnader 11% 39 959  
Summa kostnader 403 223  
Universitetsomkostnader 13,67% 55 121  
Lokalkostnader 10% 40 322  
SUMMA 498 666

Resor, möteskostnader:  
Se budget: Bilaga 7 samt tidsplan: Bilaga 5a.  
År 1:  
Resor: 5 000  
Konferenser: 5 000

Administrativa påslag:  
Se budget: Bilaga 7

Administrativa påslag år 1:

LKP 2001 51,6% 105 264  
Institutionsomkostnader 11% 39 959  
Universitetsomkostnader 13,67% 55 121  
Lokalkostnader 10% 40 322  
SUMMA 498 666

Övriga kostnader:  
Se budget: Bilaga 7

Dessa filer har ni bifogat:  
42Bilaga2\_LangerthCV.doc - 34304bytes  
43Bilaga7\_budget.xls - 20992bytes  
44Bilaga5a\_tidsplan.doc - 33280bytes  
45Bilaga6\_ProjectProposal.doc - 105472bytes  
46Bilaga1\_BroadyCV.doc - 34816bytes  
47Bilaga3\_intyg\_doktorandanst.doc - 37888bytes

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Underskrift av sökande:

Ort:

Datum:

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Projektledare - Namnförtydligande

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Ekonomiskt ansvarig -  
Namnförtydligande

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Projektledare - Underskrift

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Ekonomiskt ansvarig - Underskrift

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<sup>1</sup> See World Wide Web Consortium at [www.w3.org](http://www.w3.org) for standards.

<sup>2</sup> See [//sourceforge.net/projects/conzilla](http://sourceforge.net/projects/conzilla).

<sup>3</sup> The theory-anchored evaluation framework have been developed an attempt to systematise the evaluation and design of ICT supported projects within the Wallenberg Global Learning Network. Theory-anchored evaluation framework is a fusion and development of ideas in the US and Swedish approaches to theory-based evaluation and the main characteristics is the explicit description of the theories/ideas of the phenomena or object among those involved (both researchers and actors) developed during a negotiation process. See [www.learninglab.uu.se/xxxx](http://www.learninglab.uu.se/xxxx) for a seminar-version of the article.

<sup>4</sup> See [//sourceforge.net/projects/conzilla](http://sourceforge.net/projects/conzilla).