Eeva Kurttila-Matero

SCHOOL LIBRARY: A TOOL FOR DEVELOPING THE SCHOOL’S Operating Culture
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Abstract
The aim of this study was to increase understanding of the dimensions of the school’s operating culture in general and pedagogical practices in particular in the context of the School Library of the Information Society project (SLI). The purpose was to describe development in the school’s operating culture as perceived by teachers and principals.

The background for the study was the historical basis of Finnish school libraries and the starting point and aims of the SLI project. The analysis of the complex concept of the school’s operating culture was inspired by the Activity Theoretical Model put forth by Yrjö Engeström. The operating culture consists of 1) tools, which are the school library and teaching methods, 2) rules, consisting of different statutes and the curriculum, 3) the school community, including teachers, pupils, and parents, and 4) a division of labor, including resources for librarianship. Teachers and principals are the subjects who work together to improve pedagogical practices. The shared metatheories of Information Studies and Educational Sciences were scrutinized from the viewpoint of learning literacies. The impact of the SLI project was evaluated through all these factors.

This was a qualitative case study. The follow-up time was seven years. The data are comprised of the yearly reports of eleven elementary schools collected during the SLI project in 2002–2004 and group interviews conducted in 2009. The use of methodological triangulation and the follow-up design add to the validity of the study. QSRNVivo software facilitated management and analysis of the data. Application of the activity theoretical model gives external validity to the study.

All eleven elementary schools developed their library space and collection, which was given a more central role in relation to the curriculum and the pupils’ work. An information literacy curriculum was developed in some schools. Library teachers’ resources could not be increased. Collaboration increased between the teachers and the pupils, and with other schools, the public library, and the Education Department. Teaching information literacy and pedagogical use of information technology were developed. The limitation of this study is the fact that the researcher acted as the project coordinator in the SLI project and knew the interviewees, who probably for this reason wanted to give positive statements. However, the researcher’s familiarity with the research subject helped in recognizing significant aspects of the data.

The model of the school’s operating culture can be used and further tested in different school and school library development projects. The activity theoretical Learning Commons Model developed in this study connects education authorities and the public library to the school’s collaborative network. This model should be examined, as it may serve as an analytical tool for developing learning environments and an instrument of developmental work research.

Keywords: activity theory, case study, information literacy, learning, literacy, operating culture, school culture, school libraries
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Tiivistelmä
Tämän tutkimuksen päämääränä on lisätä ymmärrystä koulun toimintakulttuurin ulottuvuuksista yleensä ja erityisesti pedagogisista käytännöistä Oulussa toteutetun Tietoyhteiskunnan koulukirjasto -hankkeen (TKK) yhteydessä. Toimintakulttuurin kehitystä kuvataan opettajien ja rehtoreiden näkökulmasta.


Asiayönä: informaatiolukutaito, koulukirjastot, koulukulttuuri, lukutaito, oppiminen, tapaustutkimus, toiminnan teoria, toimintakulttuuri
To my mother Elli,
December 1918–October 1962,
who was a lifelong learner
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I have been fortunate in having met good teachers and supporters on my journey to becoming a teacher and ultimately a researcher. My journey began in 1994, when Oulu Polytechnic sent me to Tampere to study to become a teacher-information specialist at a course led by Liisa Niinikangas. I was inspired by the potential in pedagogical use of the library and became friends with Liisa, whom I thank for her friendship which deepened over the years and her support in all of my efforts. The education gave my work as a teacher an entirely new direction in teaching information acquisition. Liisa also arranged a one-week course in Tampere and Cambridge supervised by Sharon Markless and David Streatfield in 1995. Thereafter Liisa and I have conducted numerous lectures and courses together in various places in Finland and even in Estonia. Then Liisa arranged a course in Tampere in 1996 where Rutgers University Professors Carol Kuhlthau, Jana Varljes, Caroline Coughlin (late), and David Carr gave lectures on information search process and learning. This meeting awakened a desire to visit American university and school libraries, and Carol and Caroline, in particular, arranged the opportunity for me to do so in 1997.

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Part I
1 Introduction

The advent of the Internet has emphasized the need to further develop the information society in Europe. The technology-based paradigm was not enough to change organizational culture after the development of computer technology and the Internet. They opened up a substantial amount of possibilities to apply technology in enhancing networking and collaboration. (Tapscott & Caston 1993). Easy information retrieval aroused questions of how to effectively use the new possibilities for learning. Along with this development, the conceptions of the information society are changing further towards the concept of a knowledge society or even the concept of a learning society.

Learning is an issue addressed by researchers within both Educational Sciences (ES) and Information Studies (IS). Learning and pupils’ right to have access to libraries are emphasized in both international and national Finnish proclamations and information strategies (IFLA/UNESCO 1999, Library for Every School 2010, ME 1999, ME 2009, and FNBE 2004).

In the Conference of European Rectors (CRE) – European Round Table of Industrialists (ERT) Forum Report on European Education, Moving towards a learning society (1995), learning is considered a key to democracy, equality, and the survival of mankind.

… there is an urgent need not only for “learning to be” but also for “learning to coexist”, to coexist with the biosphere, with our fellow humans within a rich diversity of cultural, religious, linguistic, and ethnic identities. (…) It will be necessary to “learn to share”, because the imperative of solidarity is today a condition for our collective survival. (Cochinaux & deWoot 1995, 68).

Moreover, learning in relation to the role of the school in society is emphasized.

“Learning to be”, “learning to coexist”, and “learning to share” are among the roles of school, or more accurately, parts of its meaning. Through these types of learning, school will provide the coherence citizens need to acquire. (Cochinaux & deWoot 1995, 68).

According to Elley (1992), both large classroom libraries and school libraries support effective reading programs. Moreover, regular silent reading in classrooms correlates with high scores in reading literacy. Leaning on Elley’s (ibid.) survey, Cochinaux and deWoot (1995) recommend that school libraries and classroom libraries should be provided in every school. For the same reasons, the
international school library proclamation, A Library for Every School 2010, emphasizes the importance of having school libraries staffed by professional school librarians.

The need for a library, staffed by a full-time, professionally trained, educational information specialist (librarian), in every primary and secondary school (not just at the university level) is an absolute ‘must’ if countries are to survive, prosper, and compete successfully in the 21st century, in the context of the Global Information Society (Library for Every School 2010, 3).


This study fills in this gap by contributing to the research on school libraries as active actors in the information society. The study is interdisciplinary in nature, and combines the fields of IS and ES to understand the influence of the school library on school culture through a change in the school’s operating culture and teachers’ and pupils’ ways of working with information.

1.1 Research environment

According to the law, school library activity may be arranged to support basic education in Finland. However, this is not obligatory, and the quality of school libraries varies. (Basic Education Act 628/1998 §47). The Finnish Public Library Policy 2015 (ME 2009, 20) emphasizes the need for contracts between public libraries and schools without a school library. This request for contracts, which also include specified budgets for both of these activities, exposes a tension between the two branches of the Ministry of Education and Culture (MEC), because education (including school libraries) and public libraries have separate budgets. The two administrative bodies imply that schools and public libraries are competing for funding with each other. Even their cooperation is voluntary, although they have a shared mission related to children’s learning and literature use, and thereby to development towards a learning society.

The National Knowledge Society Strategy 2007–2015 (2006) expresses the concern that, despite the high educational level of teachers in Finland, their individual information and communications technology (ICT) skills differ from
each other, thus placing students in an unequal situation. Schools began compiling strategies for ICT use in education in the beginning of the 21st century. Principals and teachers became aware of the possibilities of modern school libraries and teaching information skills in enhancing integration of ICT into the learning process. This was seen as a possibility for an overall cultural change in schools, which formed the central idea of the School Library of the Information Society (SLI) development project conducted in the City of Oulu, Finland, in 2002–2004 and followed up in this study.

The researcher was in her previous role involved in the SLI project as a coordinator in 2002–2004. She was an implementer of the project plan, which meant her task was to arrange opportunities for interaction for all actors involved in the project. The division of labor between the actors was clear. The staffs of the schools did the development work by sharing their experiences and expertise. The researcher took care of the frameworks, the budget, and communications and acted as a facilitator of their efforts to do the development work. However, she had to distance herself from the coordinator’s role to enter the researcher’s role when she began to work on this dissertation in 2005. The SLI project was over in 2004, but the development activity has continued as constant collaboration between the schools and the public library (School Library’s Support and Steering Group 2008). A concrete result of this continuity is the completion of the catalog of the library material of all sixty schools in the City of Oulu in 2012 (School Library’s Support and Steering Group 2011). Moreover, development of the learning environments is continuing in the School of the Future project (2007).

1.2 Historical background and foundation of the SLI project

School libraries have had minor importance in the history of Finnish schools. The existence of a school library in a school is not self-evident, and the quality of existing school libraries varies considerably. A notable feature is that only a few school libraries have a qualified librarian working in the school library. Usually the school library is run by a teacher who devotes from one to two hours per week to taking care of tasks in the library. This was the situation in all the schools in the SLI project. Because the teachers working in the school library are professional teachers but not qualified librarians, they are called library-teachers (LT) in this study.
1.2.1 A brief history of the school libraries in Finland

School libraries have existed in Finland under Sweden’s reign since the 18th century. During the period of Russian rule in the middle of the 19th century, a statute prescribed that every upper secondary school must have a school library. In 1999 Hirvi, Chief Secretary of the Ministry of Education (ME), stated that in the 1960s the school library was called ‘the heart of the school’ in committee reports related to the curriculum. The Parliament even stated that the ME must stress development of school libraries as a part of pedagogical development work. Finland gradually switched to a comprehensive school system in the 1970s, but the central role of school libraries was not realized. According to Hirvi, the biggest obstacles to developing school libraries were old-fashioned teaching methods and unrealistic working models. Teachers didn’t need any kinds of libraries because pedagogy was based on lectures and examinations. (Hirvi 1999). Only a small time resource was invested in maintaining school libraries, and it was usually used to complete some teacher’s teaching duties without thought of the competence of the teacher as a school librarian. This led schools to simulate the model of public libraries without corresponding human resources. Pedagogical use of school libraries was rare, but on the other hand, collaboration with the public library was active in some schools (Lemola 1983, Hirvi 1999).

The practices for maintaining school libraries in the 1970s are still in force. School libraries were regulated to some extent until 1993, after which there are no references to school libraries in the statutes. From the viewpoint of administration, school libraries are a part of the school’s organization. The Library Act in effect since 1998 doesn’t contain any decrees on school libraries. School libraries fell into decay during the recession in the 1990s because of too small allowances for schools. However, the most important premise for developing school libraries is to comprehend the pedagogical possibilities of school libraries and educate teachers and school librarians. (Lemola 1983, Hirvi 1999).

On the contrary, development of the public library network is excellent in Finland. According to the recommendation of the Ministry of Education (MEC), public library service must be accessible within two kilometres or good public transportation services between the library and most citizens (MEC 2010) must be provided. In Finnish society it has been widely agreed that the public library network is adequate for serving the needs of schools, too. Branch libraries are often located in school buildings. However, maintenance of the public library network is the responsibility of municipalities, which have reduced the number of
branch libraries for economic reasons over the last years. Moreover, the widening conception of literacies and the requirements of the information society have awakened a need to establish school libraries in different communities of Finland during the last 15 years. In the MEC, school libraries are administered by the FNBE, while public libraries are administered by the Division of Cultural Policy. This historical administrative dichotomy is brought also to the local level in the City of Oulu, meaning that they have separate budgets and collaboration between the two requires extra effort and a shared vision for implementing the services. (See Figure 1).

**Fig. 1. Administration of libraries in Finland (MEC 2011, modified).**

However, concern over information services for learners is expressed in the policy programs of public libraries. Moreover, they see the necessity of supporting basic education with the expertise of libraries. Successful collaboration is based on additional value of mutually experienced reciprocity. This viewpoint is written into the new library policy programs, like the Library Strategy 2010 (ME 2003) and the Finnish Public Library Policy 2015 (ME 2009) of the Ministry of Education: Teaching information seeking and management to
teachers, pupils, and students is the primary goal in collaboration between schools and public libraries. In this collaboration the best skills of the cooperating partners will be utilized. Most of the comprehensive and secondary schools in Finland are small, which means school libraries, if they exist, are not able to meet the requirements of modern information services, and customizing the services requires overt contractual practices. Even if a school has its own information specialist, collaboration is useful in promoting the quality and effectiveness of the information services. (ME 2009).

In the 21st century, more and more school library development projects are being conducted together with public libraries. The first significant project was in the City of Espoo in 2000–2003, which was followed by the SLI project in the City of Oulu in 2002–2004. After these projects, many other school library projects and/or collaborative school library projects between schools and public libraries have been carried out, for example in the Cities of Kuopio and Jyväskylä.

1.2.2 Local initiatives for the development of school libraries in the City of Oulu

Two surveys were conducted in the City of Oulu at turn of the millennium, which both revealed the bad state of the city’s school libraries (Ahola 1997, Lohilahti & Lumiaho 2002). In Ahola’s survey the target group was all comprehensive and upper secondary schools, 54 schools altogether. The number of school libraries was smaller because some elementary schools didn’t have a school library at all and some schools were combined upper-level comprehensive and upper secondary schools which shared a school library. Seventy-six percent of the questionnaires were returned, so the respondents consisted of 41 schools. The schools were small; only six of the responding schools had over 500 pupils. Eighteen schools had between 251 and 500 pupils. For schools under 250 pupils, UNESCO recommends a minimum of 158 m² for the school library, which was not realized in any of the schools. All the schools, regardless of their size, had a school library that was smaller than the minimum. Only one of the schools had a library of 100 m². The schools assessed the furniture, equipment, and order of their library as satisfactory or poor, and the location of the library as good or satisfactory. The collections were too small and partly out of date. Over half of the schools didn’t have a specified budget for materials. According to UNESCO, the recommended size of collections is 12 items per pupil, but in Oulu the number of items was 5.5 per pupil. Acquisition of items was divided half-and-half...
between fiction and reference books. Some periodicals were ordered, as well. Usually the Finnish teacher or a class teacher was responsible for the management of the library. Almost half of the library teachers had some kind of training (usually in-service training) for her/his work in the library. The situation was the same on the national level at that time. A majority of the respondents were satisfied with collaboration with the public library (Ahola 1997).

Corresponding results were obtained in another survey conducted six years later in the City of Oulu (Lohilahti & Lumiaho 2002). Questionnaires were sent to 58 schools, of which 43 (74%) were returned. The spaces reserved for the libraries were as small as in Ahola’s (1997) study. The collections had developed best during this time; the number of items was 11.8 per pupil in 2002, as recommended by UNESCO. However, 70% of the schools regarded their collections to be unsatisfactory. The problem was the large portion of out-of-date items and decentralization of the collection. Usually, the school library was open during the school day but there was no teacher or school librarian to help the pupils. One-third of the school libraries were open only a few hours a week. Teaching information seeking was coincidental in many schools, one-third arranged it in collaboration with the public library, and one-third of the schools didn’t arrange it at all. Six schools didn’t answer this question. Only three library teachers were satisfied with their library, but many schools had begun developing their library. Lohilahti & Lumiaho (ibid.) compared Ahola’s (ibid.) results with their own and came to the conclusion that satisfaction with the school libraries had diminished. They also compared their results with the national results at the elementary school level and found them quite similar, except for the number of items, which was smaller than in the City of Oulu (10 items per pupil). However, the number of items had doubled during the time under scrutiny. The number of school libraries with computers was over the national average. As a conclusion of these two surveys, only moderate development was seen in the school libraries of the City of Oulu during those six years.

An ambitious attempt to improve school libraries and information literacy teaching was made by a joint working group between the City Library and the Education Department of the City of Oulu in 1996–1997. The working group had an assignment to compile a report on the possibilities of collaboration between the schools and the public library and to formulate a proposal for beginning systematic collaboration, including an outline of the financial consequences and responsibilities. As a result of this collaboration the working group declared eight
theses for improving the library services of the schools in the City of Oulu (Collaboration Group of Schools and the Public Library 1997).

The manifest of eight theses (Appendix 1) was based on a survey of public library units and schools in Oulu: Promoting reading and teaching information skills were seen as a common pedagogical challenge, which needed also financial investment (theses 1 and 2). Collaboration should be improved systematically by establishing regional school and library groups (thesis 3). The school libraries needed appropriate facilities, essential literature and other material, and a yearly allowance for material acquisition (theses 4 and 5). A common database for all the schools should be established and an information specialist employed to catalog the material and to train the library teachers to use the database. The database of the public library should be available to schools via the Internet (theses 6 and 7). The working group suggested that the schools and the public library should employ a shared information specialist whose responsibility is to teach information seeking, act as a school library expert, and communicate between the schools and the public library (thesis 8). At that time pedagogical use of the Internet and library databases was rare and the teachers were not trained for that. Because of this fact and the developing image of the City of Oulu as a high technology city, it was seen necessary to employ an information specialist (School Library’s Support and Steering Group 2008). The eight theses were quite progressive, but tension between the different branches of administration of education and public libraries caused problems in getting funding from the bodies.

In conclusion, the bad state of the school libraries and ICT, the inadequacy of resources and insufficiency of equal and constructive collaboration between the public library and the schools, and the unwritten rules of traditional schooling comprised the development challenges which led to the establishment of the SLI project.

1.2.3 The SLI project

The SLI project was rooted in in-service training for teachers and principals arranged by Learning and Research Services of the University of Oulu in 1999 with funding from the FNBE. The ‘Basic school’s operating culture and technology’ course inspired eight elementary school (grades 1–6) principals from Oulu and two from neighboring communities to start a development project called the Media Center Network (Matveinen 2002). The network aimed at developing pedagogical use of ICT, which in mutual considerations turned into an idea of the
school library’s role in improving schools’ learning environments. As a result of this project the Education Department of the City of Oulu formulated the plan for the SLI project in collaboration with the principals of the Media Center Network. The project plan sought to changing the school’s operating culture and ways of working with information, which is, teaching and learning practices to respond to the demands of the information society.

Networking began by selecting the participating schools on the basis of their applications. In these applications the schools had to express their development plans according to the selection criteria set in advance, of which they were informed. The criteria were set as follows: strong commitment (the principal and the teachers), readiness to do wide-ranging development work, development of the learning environment done so far, other development work in the school related to the curriculum, international orientation, and a practice of conducting projects – and the ability to collaborate in networks. Eleven elementary and three combined upper comprehensive and secondary schools were selected from the 23 applicants. All eight elementary schools that participated in the Media Center Network were selected to participate in the SLI project, also, because they already had a long development process behind them.

Another developmental line was also established in Oulu’s schools to enhance reading of literature. This line merged with the ICT developers finding a mutual developmental focus in school libraries. At the national level, the FNBE established a ‘Reading Finland’ priority project for 2001–2004 (FNBE 2005). The SLI project was connected to one of the operational branches of Reading Finland which concentrated on developing school libraries, collaborating with municipal libraries, and promoting networking of schools. Moreover, local curriculum development began in 2004 after the FNBE had published the national core curriculum, which challenged schools to tailor and incorporate school library activities into the local curriculum.

Activities during the SLI project consisted of meetings in varying project schools where concrete planning of the libraries was collaboratively discussed. During the first year the teachers concentrated on acquiring material and planning the infrastructure, and the next year was for pedagogical discussions and exchanging of good practices. To promote the pedagogical development efforts, two in-service training courses were designed in collaboration with the University of Oulu with funding from the ME. The courses aimed at developing ideas and concrete plans for enhancing school library pedagogy and systematic teaching of information literacy in schools.
ERDF (European Regional Development Fund) funding was allocated for the SLI project, which together with FNBE and community funding totalled €700,000 in 2002–2004. Salaries and payments for teachers’ extra hours took half of the budget. The human resources during the EU project were a project coordinator, 1–2 information specialists, and about 5500 hours of teachers’ extra work in the project in the 14 schools. The purchase of the library database was the biggest single investment, but the schools were also able to develop their library collections, make small renovations to obtain better space for the library, and buy furniture for the school libraries with the funding.

After the SLI project was over the resources were minimized, including only one Information Specialist, maintenance of the database, and some resources for the School Library’s Support and Steering Group. The direct consequences of the SLI project reached 14 pilot schools (11 elementary schools and 3 secondary schools) of the 60 schools in the City of Oulu, Finland, in 2002–2004. The rest of the schools in Oulu (five schools per year) are joining the School Library through cataloguing of the material in the school library and mentoring by the experienced LTs. The School Library’s Support and Steering Group is coordinating the work and reporting its progress on a yearly basis. Moreover, the pedagogical development work is being continued by a new international project, the School of the Future, which was started in 2007. Ten other schools from Oulu were selected as Smart Schools for the School of the Future Project; they participated in the first wave of developing the learning environments. Eight of these ten schools were also involved in the SLI project (School of the Future 2007).

1.3 Aims of the study

The aim of this follow-up (2002–2009) case study was to increase understanding of the dimensions of the school’s operating culture in general and pedagogical practices in particular during and after the SLI project conducted in eleven elementary schools. The analysis of the complex concept of the school’s operating culture was inspired by the Activity Theoretical Model by Engeström (1987). The original activity theory (AT) was developed by Vygotsky (1978) and Leontjev (1977) and further modeled by Engeström (1987). The AT and its applications have been used within Information Studies by Allen et al. (2008), Hjørland (1997), Meyers (2007), Myllys (1998), Widen-Wulff & Davenport (2007), and Wilson (2006). The purpose of this study was to describe the development in the school’s operating culture during the course of the school library development project.
conducted in the City of Oulu as perceived by teachers and principals. Engeström’s model was used for structuring the phenomenon of school’s operating culture (Maslowski 2001, FNBE 2004). The activity theoretical model has been used in developmental work research (Engeström 1995) in different contexts, especially within the ES, and in information system development and evaluation, implementation of information technology, information behavior research, and development of organizational knowledge within Information Studies (see Sub-chapter 2.1). In this retrospective study, though, the AT model provides only the framework for the study but is not a research method as such.

As a research object, the school’s operating culture consists of elements that are in complex interaction with each other: teachers and principals work together to develop their working practices, in collaboration with pupils, their parents, the public library, other schools, and the education department of the City of Oulu. The communal practices have developed during the course of history and are difficult to change.

The main research question of this study was formulated as follows: Did the school’s operating culture in eleven elementary schools develop during and after the school library project as perceived by teachers and principals? The main question was divided into two sub-questions:

1. Did the teachers and principals of the eleven participating elementary schools perceive any development in their school’s operating culture? If they did, which dimensions of the operating culture were involved?

2. Did the teachers and principals of the eleven participating schools perceive any development in teaching literacies, especially information literacy, during and after the development project? If they did, how did the teaching develop?

This case study is based on an interdisciplinary approach justified by learning theories (Berger & Luckmann 1985, Engeström 1987, Prawat 1996, Hjørland 1997, FNBE 2004, Paavola & Hakkarainen 2005, Talja et al. 2005), the definitions of both literacy (Lankshear & Knobel 2003, FNBE 2004, UNESCO 2004, Leu et al. 2004) and information literacy (Tuominen et al. 2005, AASL 2007, Lundh & Limberg 2008, UNESCO 2008), and also the teaching practices in the schools. All these issues overlap and intervene with each other and also with the main concepts of this study, namely the school’s operating culture and learning of literacies in the context of school libraries. Research related to these concepts is examined in an interdisciplinary manner in Chapter 2.
1.4 Structure of the dissertation

The dissertation is divided into two parts. In Part I, Chapter 1, the study as a whole is outlined with a short description of the research environment and the historical background and foundation of the SLI project followed by the aims of the study. In Part I Chapter 2, the theoretical foundation of the study is described by defining the concept of the school’s operating culture and its structure, which is inspired by the activity theory. This is followed by definitions of the school library and metatheories of information studies and educational sciences relevant to teaching and learning of literacies. Earlier research on educational change in the context of school libraries is examined next and Chapter 2 is ended with the theory synthesis. In Part II, Chapter 3, the rationale of the methodological choices of the study is outlined to justify the follow-up case study and the decisions on data collection and analysis. Chapter 3 is completed with the discussion of the reliability, validity and ethical concerns. In Part II, Chapter 4, the findings of the study are presented in detail by using the activity theoretical frame in reporting. In Chapter 5 the research questions are answered and the findings are discussed in relation to relevant literature. The validity and reliability of the study are evaluated. The contribution of the results in both theory and practice are examined and suggestions for further research are presented.
2 Theoretical background

This chapter focuses on the theoretical background of a single case follow-up study of a school library project of eleven elementary schools. By enhancing their school libraries the schools sought to develop the school’s operating culture, which is the main concept of the study. The school’s operating culture is a complex entity with multiple dimensions. Thus, it is difficult to outline (Sub-chapter 2.1). This study was inspired by the Activity Theory, which provides a comprehensive structure for defining the concept of the school’s operating culture and analyzing its dimensions (Sub-chapter 2.2). The school library is the second main concept of this study and a central tool for changing the operating culture (Sub-chapter 2.3). In the context of school libraries, learning of literacies has a central role. Constructivist learning theories form the basis for the definitions of literacies, especially information literacy (Sub-chapter 2.4). Chapter 2 ends with a review of recent research on school libraries that are relevant to this follow-up study (Sub-chapter 2.5).

2.1 The concept of the school’s operating culture

The concept of culture has a variety of meanings. Peterson and Deal (1998, 28), who have conducted several studies on school leadership and school culture, defined culture as the “underground stream of norms, values, beliefs, traditions, and rituals that has built up over time as people work together, solve problems, and confront challenges”. The school culture is the often invisible ethos of the school, which has an impact on teaching and learning and the overall well-being of the school community. The school’s operating culture can be considered a substantial manifestation of school culture, which is visible and audible and possible to be examined (Maslowski 2001, FNBE 2004).

The school’s operating culture is defined by the FNBE in Finland’s National Core Curriculum for Basic Education (2004). It emphasizes that all school practices should be developed uniformly to support teaching and learning. The operating culture of a school embraces all official and unofficial rules and behavioral models, values, principles and quality criteria, and cross-curricular themes which assume a concrete form in the school’s operating culture. It aims for open, interactive cooperation practices within the school and with parents and society (FNBE 2004). Limberg (2002) puts the same into more specific terms, stating that the dimensions which create the school culture are teachers, students,
classroom, learning materials, teaching methods, the nature of inquiry, and the attitude of the principal together. Including the school library in the definition, she continues that these dimensions are in complex interaction with the school library’s pedagogical dimensions: the media, the space, the teacher-librarian, the information system, and the pedagogy (Limberg 2002).

The learning environment is defined in the Finnish National Core Curriculum for Basic Education as the entirety of the learning-related physical environment, psychological factors, and social relationships. The physical learning environment consists of the facilities, the instructional and working tools, and the learning materials, library services, computers, media technology, and data networks. The cognitive and emotional factors together with interaction and human relations affect the physical and social learning environments (FNBE 2004). Holappa (2007) investigated the curriculum development processes in the Cities of Oulu and Raahe. The curriculum revision process and data collection for Holappa’s research were simultaneous with the SLI project. According to Holappa, the significance of the operating culture was emphasized in the curriculum process of the City of Oulu in comparison with the corresponding process of the City of Raahe and the national core curriculum.

To summarize the previous research on school culture, the school’s operating culture is based on the basic assumptions and values of the school’s organization. It unifies the working practices in the school which are manifested in curriculum and schedules, the teaching methods which are based on the conceptions of teaching and learning, and the learning environment as a whole which also includes the school library (See Figure 2).
Fig. 2. Formation of the concept of the school's operating culture based on literature.

When developing the school's operating culture and learning environment, the connection to the curriculum is important. In addition to the official curriculum, it is claimed that also an invisible curriculum may guide activities in schools. This is called the hidden curriculum, which refers to the middle layer between the formal structures (laws, regulations, budgets) and daily classroom practices codified in curricula, textbooks, and study materials. The hidden curriculum is about inconspicuous, recurrent aspects of schooling, which usually are not
questioned. These are, for example, use of time, patterns of discipline and control, uses of textbooks, bounding and use of the physical space, and interaction between teachers as well as between teachers and parents. (Engeström 2008).

2.2 Outlining the dimensions of the operating culture for this study

This sub-chapter outlines the structuring of the school’s operating culture as inspired by the activity theory. First the activity theoretical research is presented to understand its applications in different disciplines, especially in information studies (Sub-chapter 2.2.1). Secondly, the structure of the operating culture is outlined using the activity theoretical model presented by Engeström (Sub-chapter 2.2.2).

2.2.1 Activity Theory and the fields of its application

The activity theory (AT) is based on the work of Lev Vygotsky (1896–1934), who worked within developmental psychology and sociocultural learning theory (Vygotsky 1978). Alexei Leontjev (1903–1979) developed the theory further and emphasized the social being of the individual (Leontjev 1977). The AT was first applied to Educational Science (ES) because of its emphasis on learning. The AT is used to understand complex activity systems, which have certain objectives of developing the system and its functions. Engeström (1987) has developed the AT further to utilize it in developmental work research.

Vygotsky created his model of mediated act from the 1920s to the early 1930s. He introduced the concept of cultural mediation, pivotally developing the linear stimulus-response model. The model of Vygotsky concentrated on the individual’s learning, using the concepts of response, stimulus, and mediating artifacts. Engeström (2001) presented a common formulation of Vygotsky’s model of mediated activity in which the responding individual is the subject and the stimulus is the object. (See Figure 3).
Vygotsky’s model illustrates the complex process of human learning, where an auxiliary stimulus (called by Vygotsky a second-order stimulus or a sign or a mediating artifact) facilitates psychological operation indirectly and transfers it to a higher and qualitatively new level (Vygotsky 1978).

Leontjev developed Vygotsky’s idea further by describing the relationships between activity, actions, and operations, and claimed that there is no activity without motivation. These relationships are described in Table 1.

Table 1. Hierarchy of activity by Leontjev (1977, 92).

<table>
<thead>
<tr>
<th>Level</th>
<th>Oriented towards</th>
<th>Carried out by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Object/motive</td>
<td>Community</td>
</tr>
<tr>
<td>Action</td>
<td>Goal</td>
<td>Individual or group</td>
</tr>
<tr>
<td>Operation</td>
<td>Condition</td>
<td>Routinized human or machine</td>
</tr>
</tbody>
</table>

According to Leontjev (1977), motivation is a quality of the object, or, in other words, the object of an activity is its factual motive. An activity and its object must thus be analyzed also from the viewpoint of its prerequisites, namely, concrete operations and conditions, and individual actions and their goals. The activity is a complex phenomenon and is always carried out by a community.

Engeström (2001, 134) applied the Leontjev’s idea by incorporating into it the concept of collective activity. This activity system described by Engeström (1987) is presented in Figure 4.
Engeström (2000) stresses the significance of contradictions in the activity system, which means the activity system is unstable and there is a need for change. The motive and object give stability and continuity to the activity while disturbances indicate systemic contradictions which keep the activity unstable and call for solutions. Implementation of the AT to develop an activity requires identification of systemic contradictions through historical analysis to formulate a working hypothesis for developmental work.

Questioning existing working practices activates an expansive learning cycle, which causes a fruitful conflict to be solved by remodeling the practice. Examination and implementation of the new model that reflects the whole process leads to consolidation of the new practice (Engeström 2000).

Engeström (1995) has developed an activity theoretical research approach called developmental work research, and the AT has mostly been used to examine workplace learning (Engeström 2000, 2001, 2008). Virkkunen and Kuutti (2000) have used the AT to analyze organizational learning. They criticized the research on organizational learning for its tendency to analyze the phenomenon without taking cultural and historical dimensions into account. They found the concept of the activity system to be “a potential candidate for a unit of analysis that makes it possible to analyze the specific historical and local challenges and problems of organizational learning and to direct a collective learning process” (Virkkunen & Kuutti 2000, 291). The organization which is to be developed must be analyzed
historically to find out the obstacles and prerequisites of learning in that specific environment (Virkkunen & Kuutti 2000). Because of the emphasis on cultural and historical dimensions, the AT is also called the Cultural-Historical Activity Theory (CHAT). It represents a possible answer to the demand for dialectically linking the individual and the social structure in an activity where both the individual and the community are changing and developing (Engeström 1999).

Nowadays, the AT is seen as a general, multidisciplinary framework, an approach, or a research program (Kuutti & Engeström 2006), but it is seldom used in the field of IS. Hjørland (1997) has used the AT in information seeking studies. Spasser (1999, 1136) suggested that:

AT represents a conceptual framework with wide-ranging applicability throughout the inherently pluri-disciplinary field of information science, especially with regard to information systems (IS) development, use, and evaluation.

Hasan (2002) has used the AT to investigate implementation of information technology (IT) in working situations. Wilson (2006) has found the AT to be a valuable framework for information behavior research. Allen et al. (2008) has used the AT as a conceptual framework (a tool) for analyzing data derived from several investigations of cases of different policing activities. The context was the use of mobile information systems by UK police forces. Xu (2007) has studied interactive information retrieval by using the AT, and Mursu et al. (2007) have used the AT to model information systems development, in both theory and practice. Widén-Wulff and Davenport (2007) have explored activity systems, information sharing, and development of organizational knowledge in two Finnish companies by using Engeström’s model of the AT. Their aim was to use the AT to articulate the information behavior of individuals and groups within organizational processes. They also evaluated the applicability of the AT as an analytical tool for studying organizational information behavior that focuses on information sharing. However, they applied the AT to secondary data that were not collected for the activity theoretical analysis. The benefits of using the AT consisted of understanding information behavior, firstly helping to clarify the terminology and secondly forcing expansion of horizons for observing and exploring human behavior.

Meyers (2007) has applied the AT to model school library programs and practices in high schools as the “library’s activity system and its contradictions” to find out how to collaboratively design instruments for better learning. He
applied Engeström’s Developmental Work Research methodology and expansive learning in his intervention study on teacher-librarians’ collaboration with teachers. This seems to be the only study on school libraries which has applied this methodology.

### 2.2.2 Concept of school’s operating culture inspired by the AT

This study was inspired by Engeström’s (1987) activity theoretical model to retrospectively scrutinize efforts to develop the school’s operating culture in elementary schools. However, in this study the activity theory could not be applied to examine the activity as such; it was used to describe the complex concept of the school’s operating culture. The structure of the AT was applied to outline the school’s operating culture in order to provide a basis for analyzing the data. In this study the theoretical concept of the school’s operating culture is operationalized by using Engeström’s model (see Figure 5).

![Diagram of school's operating culture](image)

**Fig. 5. Draft structure of the school's operating culture (Kurttila-Matero et al. 2010, reproduced with the permission of de Gruyter).**

Teachers and principals are the *subjects* in the operating culture who work together to improve pedagogical practices. The *community* is an individual school community that includes teachers, pupils, and parents. The *rules* (unwritten and
written, for example, the curriculum) and the division of labor have an essential role in a school’s operating culture. The tools — which are in a close relationship with the change in teaching practices — are the school library with its equipment and materials, teaching methods, and teacher training. The SLI project was established to develop the operating culture, motivated by the effort to change the pedagogical practices of teaching literacies. The pedagogical practices of teaching literacies are thus named as the object of the activity.

Identifying the tensions and challenges within the main goals of the school is important when searching for solutions that achieve sustainable development. At the beginning of the SLI project there was some pre-understanding of the problems emerging from the research environment and the historical background of the SLI project. These tensions were inadequate resources for hiring library teachers and building collections, the schools’ and school administration’s outdated conceptions of the school library’s role in teaching and learning, and the schools’ unequal and irregular collaboration with the public library (see Introduction).

2.3 The concept of the school library

The school library is an important element of the learning environment which reflects the school’s operating culture. According to Streatfield and Markless (1994), the school library always represents the explicit or implicit choices which an individual school has made for making resources available inside or outside the school library. Streatfield and Markless state that the school library must be developed as a part of the comprehensive development of school culture.

The progress of school libraries may be supported by international proclamations (IFLA/UNESCO 1999, A Library for Every School 2010) or national laws (in Finland the Basic Education Act 1998) and with national and local programs and strategies, such as the National Knowledge Society Strategy 2007–2015 (2006). In a joint publication, A Good School Library of the School Library Association in Finland and FNBE, Frantsi et al. (2002) characterize a good school library as follows:

A school library is an organized collection of study and teaching material intended for pupils, teachers, and other staff alike. It also includes access to local, regional, national, and international information databases. The facilities, materials, equipment, and staff of the school library as well as its
operations are organized in such a way that they support learning within the pedagogic goals of the school. (Frantsi et al. 2002, 4).

Frantsi et al. (2002) describe the special characteristics of a school library, which differ from those of a public library. School library activity is based on the curriculum and is the only library that reaches the whole age group. The school library is a part of the school and located centrally in the building. The users of the school library are the pupils and the teachers, and the working methods are pedagogically justified, not service-oriented. The materials are specific but limited, and are a part of the school’s information strategy. (Frantsi et al. 2002).

It must be noted that, for example, Limberg (2002) has criticized the definitions of the school library for concentrating on resources and information seeking, not on information use and knowledge building (see Sub-chapter 2.4).

As a response to this critique, the concept of a learning commons has emerged in the school library and academic library fields, especially in the USA, Canada, and Australia. Loertscher and his colleagues (Loertscher & Diggs 2009, Loertscher 2010, Koechlin et al. 2011) have conducted research on school libraries. Their conclusion is that a learning commons is a revolution in traditional school library thinking. A learning commons is a physical, digital, and social environment in the school and it combines the integrated curriculum and collaboration between teachers, pupils, and school librarian to learn together and create knowledge. In their thinking, the school library is connected to the outer world and cooperates with other institutions like public libraries. Basic literacy is practiced by reading all forms of print and multimedia, not only fiction.

In academic libraries, Franks (2008) and Beagle (2010) have investigated the transformation of college and university libraries from reference libraries towards a learning commons. Franks (2008) describes the development of a learning commons as increasing electronic collections to create space for collaborative workstations and study space and integrating other campus service units with traditional library services. The learning commons transformed into a hub that contains technology support, writing and math laboratories, tutorial services, and even a coffee shop. The usual prohibitive policy towards food and drinks was given up, which was an additional factor of the convenience of the learning environment. (Franks 2008).

Beagle (2010) stated that the role of an information commons has emergent properties similar to the organizational learning theory. The information commons evolves towards a learning commons when it goes beyond the library to web-
based learning environments and classrooms, and when collaboration between teaching, library, and technology staff develops towards scholarly communication and knowledge creation.

The concept of the learning commons provides rich content for building up and evaluating school and academic libraries as a central part of the learning environment. In this study inspired by Engeström’s model, the school library is defined as a tool for developing the school’s operating culture.

2.4 Conceptions of learning

The teachers’ conceptions of learning and knowing are crucially important when the school culture is to be changed towards a more collaborative and constructive direction. The National Core Curriculum emphasizes cognitive constructivist and social constructivist learning and the conception of knowledge, problem solving, and learning of metacognitive skills (FNBE 2004, 16–18). Despite this widely agreed-upon perception of learning, teacher-led learning, which included memorization of facts, is still alive and well in Finnish schools. Moving towards social constructivism in teaching and learning practices requires a strong collective effort and discussions in the community of teachers and principals, who in this study form the learning collective. In the next sub-chapter the metatheories of information studies and educational sciences are discussed from the viewpoint of learning. The summary of the sub-chapter provides the basis for Sub-chapters 2.4.2 and 2.4.3, which focus on the literacies from such a wide perspective as learning skills.

2.4.1 Metatheories relevant for this study

The three constructivist metatheories of IS introduced by Talja et al. (2005) are based on an analysis of an extensive collection of philosophical and information scientific literature. Because these metatheories deal with conceptions of knowledge and learning, they are widely applied also in education and are an appropriate point of departure for this study. In the context of schools, curricula, and school libraries it is important to consider the origin of knowledge, because the result of such consideration forms the basis for directing the teaching and learning practices that schools are developing and encouraging. The information transfer idea of learning is still strong in teacher-centered learning situations. To change this tradition, it is important to discuss the conceptions of knowledge and
learning in teaching communities. Teachers’ conceptions of knowledge and learning have an impact on how they arrange learning situations for pupils and to what degree they accept pupils as co-learners in constructing knowledge. The following brief review of three main categories of constructive theories is comprised of cognitive constructivism, social constructivism, and social constructionism.

In the 1960s cognitive psychology envisioned the human mind as analogical to the computer, referring to information processing, which is called the information processing (IP) model (Hjørland 1997, Talja et al. 2005). The IP model produced techniques for better memorization of things to be learned. Cognitive constructivism emerged as a reaction against the IP model and the information transfer model, which presuppose that information can be given to individuals and they absorb it as such. Cognitive constructivism means human beings build their knowledge by creating mental models or schemas, as stated in Piaget’s cognitive development theory. Critique has been expressed towards the conception of language’s role in communication. For example, Talja et al. (2005) state this as follows: ‘However, the information transfer model and the cognitive constructivists implicitly assume that language is a neutral instrument for reporting observations and thoughts’ (Talja et al. 2005, 84). This view of learning from texts is also present in the traditional library paradigm criticized by Kapitzke (2003), where truth is a static entity, retrievable using information literacy (see Sub-chapter 2.3.2).

Social constructivism (collectivism) assumes that the individual’s knowledge building occurs in social interaction with others. The starting point of the cognitive construction process is in connection with others, as Vygotsky’s (1978) theory of cognitive development stated. He brought the concept of Zone of Proximal Development to learning theories. Shortly described, the zone of proximal development is the area which the child can cross in his/her learning only with the help of other people. This brings the ‘social’ to constructivism. As already noted, Hjørland (1997) has used the AT in information seeking studies. In these studies knowledge is seen as “a tool shaped in order to increase man’s adjustment to his physical, biological, and cultural environment,” and as “historically and culturally developed products organized in collective human organizations such as scientific disciplines” (Hjørland 1997, 3). The understanding is social in origin. In Finnish schools, the social constructivist viewpoint of learning is recommended in the National Core Curriculum (FNBE 2004, 16). It emphasizes a communal knowledge building process which enhances cultural involvement. The
curriculum’s conception of learning is a practical perception of social constructivism that is comprised of both individual and collective contextual learning.

Social constructionism abandons the idea of truth as an objective set of facts. Knowledge is always socially created in a certain context which is not possible to reproduce in other conditions. Truth is a social construction produced in interaction between individuals (Berger & Luckmann 1985), where language is the carrier of truth: “Truth is a property of linguistic entities, of sentences.” (Rorty 1989, 7). Social constructionism abandons the dualism of the mind and the world. However, too strong an emphasis on language may lead to neglecting other elements of human life, like physiological or physical interactions with the world (Talja et al. 2005).

Paavola and Hakkarainen (2005) have developed three metaphors of learning on the basis of the three metatheories described above, as follows: the acquisition metaphor (monological), which corresponds to the IP model and even the cognitive constructivist model described above; the participation metaphor (dialogical), which is equivalent to social constructivism; and the knowledge creation metaphor (trialogical), which refers to the social constructionist conception of learning. In these metaphors the core question is about the nature of knowledge. Paavola and Hakkarainen (2005) criticize the two first metaphors of transmission or construction of existing knowledge to individual learners by claiming that this is not enough for the knowledge society. In spite of this emphasis on knowledge creation, they state that all three metaphors are needed to understand the learning process.

According to Scardamalia and Bereiter (1999), schools are often seen as bureaucratic service organizations rather than learning or knowledge-building organizations. The core question is what kinds of experiences should the school offer to the pupils to achieve better readiness to act in the knowledge society. For this, the nature of the students’ work should be directed towards construction of collective knowledge, which means the students are the active doers of the work and the class functions like a professional research group. (Scardamalia & Bereiter 1999).

As a summary of the metatheories of learning, the teacher’s conception of learning and knowledge is at the core of the teaching profession. Whether conscious or unconscious, these conceptions have an impact on everyday choices made in the teaching profession. If a school and its teachers have adopted the conception of the school as a service organization and the teachers’ work as
delivering information, the constructivist processes of learning are difficult to enhance. Conscious and purposeful development of teaching methods to arrange all-round learning situations for pupils encourages teachers to work with children as co-learners in constructing knowledge. Collaboratively developing teaching and learning in schools also reduces teachers’ stress and haste during the school days. Because the literacies are tightly connected to learning, the conceptions of literacies are discussed in Sub-chapters 2.4.2 and 2.4.3.

2.4.2 Literacies and learning

Learning theories have an essential role in the definitions of literacies, which may be based on the IP model or cognitive constructivist, social constructivist, or social constructionist perspectives to learning. The importance of the interdisciplinary approach has emerged from the new definitions of literacies, especially information literacy, from the curriculum’s conception of learning, and from teaching practices in the schools.

Information literacy (IL) has been defined during the last forty years mostly on a practical basis. Common to these early definitions is that IL is considered to be a set of skills needed to access and use information for problem solving, being thus related to cognitivist constructivism. (Zurkowski 1974, Eisenberg and Berkowitz 1990, ALA 2000, UNESCO 2008). The definitions of IL shortly described above have a common assumption about IL as an individual’s skill. Kapitzke (2003) has strongly criticized the concept of IL. She argues that there is no real theoretical thinking behind the concepts of information skills and IL. Kapitzke (2003, 57) claims that “Teachers and teacher librarians need a critical theoretical perspective that will enable learners to negotiate dominant and non-dominant knowledges and information sources.” Kapitzke also criticizes the ‘library paradigm’ by stating that: “Within the traditional library paradigm, knowledge and ‘truth’ are deemed essential, static, and retrievable with the ‘right’ method, namely, IL.” (Kapitzke 2003, 58). Kapitzke approaches the perception of IL as a built-in information processing (IP) model where it is considered to be a set of skills which enable acquisition of facts from different sources. Such a conception of IL leads to the idea that a successful information search process is enough for learning.

The cognitive constructivist learning theory forms the basis for Kuhlthau’s (1993) information search process (ISP). She claimed that information seeking is a primary activity of life and an essential part of the learning process. Kuhlthau
has continued studying the learning process from a social constructivist viewpoint by referring to Dewey, Bruner, Kelly, Piaget, and Vygotsky. The zone of proximal development introduced by Vygotsky is the basis of her later works on guided inquiry (Kuhlthau 2004, Kuhlthau et al. 2007), where she and her colleagues borrow Vygotsky’s idea by using the expression of ‘zone of intervention.’ The six principles of guided inquiry are:

1. Children learn by being actively engaged in and reflecting on an experience.
2. Children learn by building on what they already know.
3. Children develop higher-order thinking through guidance at critical points in the learning process.
4. Children have different ways and modes of learning.
5. Children learn through social interaction with others.
6. Children learn through instruction and experience in accord with their cognitive development. (Kuhlthau et al. 2007, 25).

The inquiry approach motivates students to engage in the learning process and helps them reflect their ideas and grow as learners from the elementary level to adulthood.

The American Association of School Librarians (AASL) has produced Standards for the 21st Century Learner, which connects IL with learning skills. These standards extend the concept of IL in the directions of digital, visual, textual, and technological literacies, adding to the concept the important pursuit of personal and esthetic growth through reading, viewing, and listening to versatile sources of literature, other formats, and different genres in the concept (AASL 2007). The AASL has included in the standards some chapters that refer to social construction of knowledge:

Learners use skills, resources, and tools to (...) collaborate with others to exchange ideas, develop new understandings, make decisions, and solve problems. [They] use the writing process, media and visual literacy, and technology skills to create products that express new understandings. (AASL 2007, 5).

As representatives of social constructionism, Tuominen et al. (2005) have introduced IL as a sociotechnical practice:

If we see the learners of information skills as belonging to information-literate communities, we need to understand the practices of these
communities before we can effectively teach IL. In essence, the sociotechnical practice approach calls for empirical research efforts to analyze how specific communities use various conceptual, cultural, and technical tools to access printed and digital documents and to evaluate and create knowledge. (Tuominen et al. 2005, 341–342).

IL is thus understood as a situated practice, not a generic skill, and it can only be understood and explored in its actual context. Lipponen (2010) has examined the current definitions of IL from the perspective of sociocultural learning research. He refers to the participation perspective (Lave & Wenger 1991), where the concept of information acquisition is replaced with terms such as discourse, interaction, activity, and participation. Referring to the AT, Lipponen (2010) defines IL as a social activity that is located in communities of practice and must thus be analyzed in a broader context, not only as an individual act.

Limberg (2009) calls for interdisciplinary research through integration of learning and IL research. Limberg emphasizes that information seeking and learning are closely intertwined aspects of constantly ongoing human activity. She states, however, that there is a problem as these aspects are difficult to distinguish, though they nevertheless are separate for research, education, and professional practice (Limberg 2009). It is important to go ahead with integration of learning and IL research. Limberg states that further collaboration between Library and Information Science (LIS) and learning research has great potential. She claims that there are common interests in both research and practice, and collaboration may offer fruitful theoretical approaches. (Limberg 2009). Lundh and Limberg (2008) argue that the sociocultural perspective on IL could be one dimension of literacy. Equally, Bruce (2004, 8) suggests that “Information literacy is a natural extension of the concept of literacy in our information society, and information literacy education is the catalyst required to transform the information society of today into the learning society of tomorrow.”

The literacy definitions have a more important role in the thinking of teachers. The definitions of literacy have been expanded through the years with, for example, digital skills and media literacy, having similarities with definitions of IL (Cochiaux & deWoot 1995, UNESCO 2004, ME 2000, FNBE 2004). Traditionally, good literacy skills refer to good skills in reading, writing, and calculating, which are also called ‘reading literacy’. Literacy as a wider term refers to civilized or cultural education, which needs not only the skills mentioned above, but also knowledge of a wide range of literature, history, science, and arts.
In Finland, ‘The working group for the literacies of the information society’ defined the concept of literacy in an assignment from the Ministry of Education (ME) in 2000 as follows:

The concept of literacy has a wide meaning: it consists of besides reading, writing, and calculating, also the general ability to manage information, learning, and culture. The term ‘literate’ refers not only to reading and writing ability but also to education more generally, and may be called ‘civilized’ (in Finnish ‘sivistynyt’). Media literacy can thus be seen as a part of modern general and professional knowledge, or as an investment in human capital (ME 2000, 21).

Traditionally, literacy has referred to a linear conception of literacy. However, multiple literacies bring a non- or multi-linear view to the concept, thus changing the ways of reading and viewing multiple media (ME 2000).

The core curriculum of basic education was defined in the CRE-ERT Forum Report for European Education in 1995. This report covers well the wider definition of literacy, proclaiming that for the first nine/ten years pupils should have basic education, which includes the three cultures in the curriculum: 1. mathematics, science, and technology, 2. humanities, and 3. economics and social sciences. Each of these cultures draws up from the past but is also building the future, which both are linked to the basic personality of every European citizen. Nobody should be illiterate in any of these fields (Cochinaux & deWoot 1995). This view is supported, for example, by Lankshear and Knobel (2003), who have also defined ‘new literacies’ and criticize grounding the term in information technology. They argue that there are also other sources which need new literacies, like some work-related literacies, scenario building within business, economics, and print-based fan fiction and manga.

2.4.3 New literacies

The concept of ‘new literacies’ expresses the changing nature of literacy through rapid technological change and connects the concepts of literacy, information literacy, media literacy, and digital literacy to each other through the development and global accessibility of the Internet and other ICTs (Leu et al. 2004). A critical stance towards information, meaning critical literacy, is a central dimension of the new literacies, because of the open access to the Internet and the possibility to widely distribute also biased information. Literacy learning becomes more
collaborative by nature, and students who learn on social learning strategies may show better progress than those who adhere to individual, independent strategies. The teacher’s role will be changed, but it will become even more important in supporting students’ critical thinking and introducing them to the new literacies. (Leu et al. 2004).

From a sociocultural perspective, literacy is a social practice. Literacies are bound up with social, institutional, and cultural relationships and can only be understood when they are situated within their social, cultural, and historical contexts. Literacies have a political dimension loaded with power in the continuum of non-literate-literate people. Critical literacies appear to be important in empowering people to become subjects of their own lives.

Literacies are fundamental learning skills. Pedagogical development work in OECD and EU countries like Finland and curriculum development in schools should be focused on supporting learning skills instead of learning individual facts (Hautamäki et al. 2005).

Kauppinen (2010) has studied Finnish curricula in different decades to understand how literacy is defined and how teachers are guided to teach and assess literacy skills. One of the biggest problems in the curricula is that the content of different subjects has increased strongly, which can be noted as long content lists. She argues that the content of the curriculum contradicts the pedagogy stated in the same curriculum. Moreover, she claims that the information skills part of the curriculum does not correspond with the criteria of new literacies and the socioconstructivist conception of learning, but instead stays on the level of mechanical information search techniques.

### 2.4.4 Summary of the conceptions of learning

Ideally described, learning is a social activity which aims at constructing new knowledge by developing and using multiple literacy skills. The fundamental aim of schooling, especially at the elementary level, is teaching literacy skills, which are learning skills. This kind of perception of learning encompasses the empowering element interwoven in it. Teachers’ conception of learning and knowledge is at the core of the teaching profession. Whether conscious or unconscious, these conceptions have an impact on everyday choices made by teachers. Conscious and purposeful collaborative development of teaching methods to arrange all-round learning situations for pupils encourages teachers to work with children as co-learners in constructing knowledge. Inquiry-based
learning (Kuhlthau et al. 2007) develops information literacy and social construction of knowledge and is especially suitable for application in elementary schools. Because literacies are fundamental learning skills, a wide and rich understanding of literacies is important among teachers and library-teachers. Pupils also need to read a variety of fiction works to develop rich language skills and cultural understanding. Critical literacy is necessarily social in its nature. In this study, school library development focuses on pedagogical practices of teaching literacies, including literature and information literacy (see Figure 10, page 78).

2.5 Research focused on changing the school culture

It is a globally shared general perception that educational reform is needed as a consequence of the transition from an industrialist society to an information or knowledge society. It is generally agreed that the school culture, curricula, and working methods of schools must be changed into more interactive, collaborative, and democratic practices by taking advantage of information technology and better availability of information. Fullan has investigated school reform and sustainable educational change from the viewpoint of teachers, principals, and organization development during the four decades since 1970. The focus of his research is on education’s role in social change and equality (Fullan 1970, Fullan & Pomfret 1977, Fullan et al. 1980, Fullan 1992, Fullan & Hargreaves 1992, Fullan 1993, Fullan 2001a–b and Fullan 2007). Fullan stresses that organizational factors must be taken into focus if sustainable changes are pursued. Strategies must address the culture of the whole organization. Otherwise, working within single innovations will melt to tinkering with details. Collaboration and trust are key elements, meaning that principals must share power with teachers, administrative bodies with schools, and teachers with pupils. This means, for example, that teachers should become more learning-oriented. (See Fullan & Hargreaves 1992).

2.5.1 Studies on school libraries

Streatfield and Markless (1994) conducted a significant series of case studies to define the roles of the school library in different developmental phases of schools. Their results make it possible to determine the developmental state of a school when searching for solutions for better utilization of the school library’s
possibilities. The role of the school library was determined through four dimensions of the library, namely, fiction collection, lending function, physical access to materials, and intellectual access to resources. Each of them supports different learning and teaching approaches. The school library may thus be directed towards a quasi-public library role or an information skills development role. The quasi-public library supports teaching and reading for pleasure, while the school library serves as an information skill development unit that supports self-study and independent learning.

The proposed features of the four school development stages in relation to the role of the school library were classified by Streatfield and Markless (1994) as four ideal types of schools (see Table 2).
## Table 2. Four phases of school development suggested by Streatfield & Markless (1994, 143).

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>TYPE OF SCHOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Traditional/ Didactic</td>
</tr>
<tr>
<td>TEACHING STYLE</td>
<td>Emphasis on teaching</td>
</tr>
<tr>
<td>TOPIC WORK</td>
<td>Teacher controlled – doesn’t involve librarian</td>
</tr>
<tr>
<td>TEACHER INVOLVEMENT WITH LIBRARY</td>
<td>Minimal (except in English) – fiction reading</td>
</tr>
<tr>
<td>PROGRAMMES OF STUDY</td>
<td>Unlikely to refer to books/ learning resources</td>
</tr>
<tr>
<td>TEACHER EXPECTATION OF LIBRARIAN</td>
<td>Book clerk</td>
</tr>
<tr>
<td>TEACHER VIEW OF LIBRARY</td>
<td>Book store</td>
</tr>
<tr>
<td>STUDENT INVOLVEMENT</td>
<td>Constrained. May ask librarian where things are</td>
</tr>
<tr>
<td>TYPE OF LIBRARY ROLE PREFERRED</td>
<td>‘Fiction’</td>
</tr>
</tbody>
</table>

The ideal school types described in Table 2 did not usually exist as such, but were more or less combinations of two or even more of these types (Streatfield & Markless 1994). It could be assumed that it is possible to apply the ideal types when evaluating the development of the schools’ operating culture in relation to the school library’s pedagogical role. It is important to realize that comprehensive
development of the school culture is necessary when the school library is
developed, otherwise a modern, well-equipped school library may remain useless.
It is also necessary to take the starting points of schools into account in the
developmental process when evaluating the learning outcomes of a single school.

The connection between learning and school libraries has been investigated in
several studies. A collaborative working culture is a distinctive feature of positive
learning outcomes in both Howard’s and Montiel-Overall’s works. Howard (2010)
conducted case studies in four schools which had been awarded at the national
level for having effective school library programs. She sought to examine the
relationship between the school library and the school culture. Common patterns
found at each site included the presence of a collaborative culture, the principal’s
collaborative leadership style, and high expectations for the students and staff.
Montiel-Overall (2008), in turn, proposed a model for teacher and librarian
collaboration for highly successful teaching and learning (see Figure 6).
In Montiel-Overall’s model, the collaborative working culture has four facets, namely, Coordination, Cooperation, Integrated Instruction, and Integrated Curriculum. Each of these facets has a function in building collaboration. The school culture is an integral element of the learning environment. Collaboration may be occasional and present in only some tasks, or it may be regular working together in the classroom. The best learning outcomes are attained through district-wide collaboration. Montiel-Overall emphasized that a school culture that supports working together district-wide is a prerequisite for collaboration (Montiel-Overall 2008).

Bruce (2004) suggests that information literacy education is part of a broad shift in educational change, which is moving the orientation of teaching from a teacher-centered to a learner-centered view of learning. Oberg (2009) has conducted several studies with emphasis on the school’s organizational and cultural change within the context of integrating school library programs in teaching and learning. Oberg stresses the role of the teacher-librarian as an agent of change and the importance of collaboration at all levels from administration to work in the schools at the grass roots level. The key professionals in
implementing the school library program are principals, teachers, and teacher-librarians. According to Oberg, the school library is a special library because it serves the interests of the organization of which it is a part, and because the organization and the clients have high expectations of the librarian to contribute to the organization’s primary goal, namely, teaching and learning in the school.

Oberg and her colleagues also carried out an international survey on the principal’s role in advocating and facilitating the implementation of a school library program (Oberg et al. 2000, Henri et al. 2002). The survey was conducted in Australia, Canada, Finland, France, Japan, Scotland, and South Korea. The results for Finland indicated that both principals and school librarians agreed that the school library is important because of its resources, equipment, and open access and connections to other libraries. There was a shared view that a good school library is near to its users and it has qualified and/or cooperative staff focused on learning. The challenges concentrated on acquisition of materials, funding, the library space, and cooperation between teachers, students, and the library. The survey exposed the contradiction between the teachers’ attitudes and beliefs and the integration of information skills across the curriculum. The principals also criticized the Finnish curriculum’s rigid content requirements and the matriculation examination’s dominant influence on pedagogical practices. Moreover, the Finnish principals emphasized the importance of ICT, while the school librarians sometimes even saw ICT as an enemy of reading. (Oberg et al. 2000, Henri et al. 2002).

Alexandersson and Limberg have conducted several projects concerning learning and school libraries in Sweden in the 21st century. These studies have uncovered the incomplete implementation of inquiry-based learning in Swedish schools. Alexandersson et al. (2007) criticized the schools for leaving pupils to work alone, as this transforms the activity of inquiry-based learning to simple operations like copy-pasting texts and accidentally searching for information. They showed that pupils’ access to information is too wide and they try to solve the research question quickly through fact-finding and by writing their text, trying to signal activity, and delivering elegantly completed assignments. Alexandersson et al. (2007) pose a valid question in wondering what the pupils understand and learn.

In conclusion, the most distinctive feature in the research on school libraries and their role in contributing to learning is collaboration. Collaboration is emphasized in the relationship between the librarian, the teachers, and the students; between the administration, the teachers, and the librarian; and between
schools. The need to develop the curriculum in a more integrative direction emerged in several studies. Teachers were criticized for their lack pedagogical skills in using inquiry-based learning methods. The development of school libraries must be a part of comprehensive development of the whole school culture.

2.5.2 Evidence-based practice in the context of school libraries

School libraries do not have a self-evident, established role as contributors to learning, especially in countries like Finland where there is no strong school library movement. Evidence-based practice (EBP) is an approach of systematically collecting unbiased data to uncover a possible connection between school libraries and learning outcomes and to help develop school libraries’ role in supporting teaching and learning. EBP has recently spread to the school library field in order to support the development of school libraries as an integral part of the learning community.

The evidence-based movement was built on the perception that practice should be based on up-to-date, valid, and reliable research, especially on controlled trials that are regularly critically summarized (Cochrane 1979 in Brice & Hill 2004). The concept of EBP is widely used in healthcare, especially in Medicine, where it also covers the practical knowledge of clinicians.

Booth has developed a systematic review methodology for librarians to support both medical and healthcare researchers and their own practicing of librarianship (Booth 2003, Grant & Booth 2009). EBP has further spread to the fields of information work, education, social work, and management (Booth 2003, Booth & Brice 2004). The term ‘evidence-based librarianship’ (EBL) is used for librarians and other information professionals who are discovering research that may contribute to decision-making in professional practice.

In the middle ground of education and information work, Williams and Coles (2007) conducted a study in schools on teachers’ use of research-based information. Their findings indicate that teachers prefer pre-digested information, have a lack of local access to research information, and lack confidence in their own ability to use research information. They also have a lack of time, which constricts their use of research information. The role of school librarians could be important in supporting the professional development of teachers.

Gordon (2009a, 2009b) introduced the EBP paradigm for IS, where school libraries can be seen as an opportunity to develop the school culture: “Action
research-based information literacy instruction constitutes a shift in the culture of teaching and learning in schools that has the potential to reform education” (Gordon 2009b, 23).

Todd (1995, 2004, 2006, 2009) has conducted research in Australia and the USA in the fields of learning and school libraries for twenty years, focusing on learning outcomes and the impact of school libraries on learning. He has proposed a holistic model for evidence-based practice for school libraries which is composed of three different dimensions of evidence: Evidence for practice refers to the importance of using empirical research results for developing school library practices – this is the informational dimension of evidence. Evidence in practice refers to practitioners integrating research evidence and their deep experience in their own work to make suggestions and decisions to continuously contribute to the school’s mission and goals – this is the transformational dimension of evidence. The third dimension, Evidence of practice, refers to the impact of the school librarian’s work on learning which is systematically measured during the learning process – this is the formational dimension of evidence (Todd 2009).

Williams and her colleagues conducted a systematic review of the impact of school library services on student achievement from the perspective of the United Kingdom. Williams et al. (2001) underlined both librarians’ and teachers’ training in raising mutual understanding of each other’s contribution and roles within the school library setting. According to Williams et al., school libraries can have a positive impact on learning outcomes, particularly at the primary and early secondary level and with appropriate action to ensure that service delivery is efficient and effective.

Lonsdale (2003) conducted a corresponding worldwide review of school libraries’ impact on student achievement to provide a synthesis of existing research to inform Australian research. She came to the same conclusion as Williams et al. (2001), that the impact of school libraries is strongest in primary and junior high school and weakest at the upper levels of secondary school. However, more research is needed to show why this is the case at the senior level (Lonsdale 2003). Strong input in the computer network that connects the library’s resources to the classroom, the quality of the collections, and the library program integrated into the curriculum have an impact on student learning. Collaborative relationships between classroom teachers and school librarians, especially in planning instruction, developing resource collection, and the teachers’ professional development, have a significant impact on learning.
A broad research community in the USA has conducted 60 research projects surveying students’ academic achievements in national tests during the last two decades in 19 states in the USA and Ontario province in Canada. Learning outcomes and student achievement were reviewed in relationship with school library programs, school library media specialists (SLMS), reading literature, and the attitudes of principals and teachers towards the use of the school library to enhance learning. As examples of the results, the SLMS’s involvement in the learning process as a fellow administrator with the principal or fellow teacher and the curriculum designer produced better results in the tests. Collaboration between the SLMS and teachers, flexible scheduling, a large number of computers in the library, and computers connected to the library and the Internet produced higher test results. Integration of information skills into the curriculum improved both information and content literacy. Increased library staffing and a model of reading adults were linked to higher reading performance. Extending the school library’s operating hours beyond the school day enhanced reading performance, as well. (Scholastic 2008). The results of these examples of extensive reviews of the school library’s impact on learning provide corresponding evidence of school libraries’ significance.

Limberg et al. (2002) had a little different viewpoint of learning by looking at it from the perspective of information seeking in schools, though their review is comparable with the three former reviews and gives important information, critique, and guidelines for further research. Their review suggests that the dimensions of analysis, reflection, and conscious source criticism were often missing in situations where information was used for learning. Limberg et al. (2002) also stated that there is a need for more research on information use. Too many studies rely on individual search actions and the focus is on information seeking but not on how the information is used or what the students are learning from it. Critical thinking and the ability to analyze and synthesize has long been the goal of learning, but it needs rethinking now that an information overload and the unlimited possibilities of ICT are present. In conclusion, Limberg et al. argued that the quality of teaching information seeking and information use is similar to the quality of teaching other subject areas, and the crucial question has a double nature: How can I as a teacher/librarian help pupils create meaning from information and information seeking? They concluded that the LIS and pedagogy and didactics can be combined in an enriching way. (Limberg et al. 2002).

There is no lack of research evidence of the significance of school libraries’ role in the learning process. However, empirical studies on school libraries’
impact on learning outcomes are totally lacking in Finland. The reason for this may be the weakness of the school library movement in Finland and the overall marginality of school libraries in Finnish legislation, information society politics, and development of the national curriculum.

2.6 Theory synthesis

The synthesis of the interdisciplinary research presented in this chapter frames the concept of the school’s operating culture. Building the structure of the school’s operating culture was inspired by Engeström’s (1987) activity theoretical model (see also Appendix 2).

This study is focused on examining the development of the eleven elementary schools and their operating cultures which are the units of analysis (See Chapter 3). The overall aim of the SLI project was to enhance learning, which was a shared goal with the Education Department and the City Library of Oulu. On the basis of literature, a draft structure of the learning commons inspired by the AT in the City of Oulu can be outlined as presented in Figure 7. However, this study focuses on the viewpoint of the individual schools and looks the rest of the City community — the Education Department and the City Library — only from the schools’ perspective as partners in enhancing learning.
The purpose of the SLI project was to develop the operating culture in schools seeking to advance their pedagogical practices. The key subjects of this activity are the teachers and principals (Fullan 1992, 2001a, 2001b 2007, Oberg et al. 2000, Henri et al. 2002, Howard 2010, Bruce 2004). A change in the school’s practices is not easy to follow through, and new ideas are difficult to bring into the school community from the outside world. Collaboration and trust are the key elements, meaning principals must share power with teachers (See Fullan & Hargreaves 1992). Excluding school librarians from the subject component of this framework is explained by the fact that in Finnish schools a teacher working part-time as a library-teacher takes care of the library routines and all the teachers in the school are jointly responsible for library pedagogy.

The object of the activity includes all the pedagogical practices that promote learning of literacies. Teachers’ conceptions of learning and literacies as a focus of their efforts to enhance their work contribute to learning outcomes. This is the object of change in the school’s operating culture. This change is carried out by developing the premises of the teaching practices, which are the tools, the
community, the rules, and the division of labor. The conceptions of learning restrict or liberate selection of working methods at schools and direct learning towards individualistic models or community inquiry and knowledge creation (Hjørland 1997, Talja et al. 2005, FNBE 2004, Paavola & Hakkarainen 2005). The conception of learning is related to the school culture, which must be developed as an entity. The conceptions of learning are challenging to discuss explicitly in a professional community like a school because these are the basic assumptions that are not easily open to questions (Peterson and Deal 1998, Maslowski 2001). The socioconstructivist conception of learning is shortly mentioned in the Finnish national curriculum (FNBE 2004), but the curriculum is not built on that conception (Kauppinen 2010). The broad conception of new literacies which combines information literacy and different perspectives on literacies as learning skills are emphasized today. Basic literacy is practiced by reading all forms of print and multimedia, not only fiction. (Lankshear & Knobel 2003, Hautamäki et al. 2005, Leu et al. 2004, Kauppinen 2010).

The central tools for change are the school library and teacher education. Teachers develop the school library towards not only a well-equipped space and a collection, but a mental commons of reading, literacy, inquiry, and knowledge creation which produces better learning outcomes (Williams et al. 2001, Frantsi et al. 2002, Lonsdale 2003, Gordon 2009a, Gordon 2009b, Todd 1995–2010). The new concept of learning commons widens the traditional conception of the school library as a physical, digital, and social environment in the school and combines the integrated curriculum and collaboration between teachers, pupils, and school librarian to learn together and create knowledge. The school library is connected to the outer world and cooperates with other institutions like public libraries. (Loertscher & Diggs 2009, Loertscher 2010, Todd 2010, Koechlin et al. 2011).

Education of teachers is a tool for changing teachers’ conceptions of literacies and learning. As a result of that learning, teaching and learning practices in schools may be enhanced. (Williams et al. 2001). Teachers’ conceptions of learning and the type of school have a crucial influence on how the school library is developed (Streatfield & Markless 1994). Teachers’ own learning is not only a matter of official education or in-service training, but an organic part of development projects.

The rules that limit or guide activity in schools and school libraries are the laws (Basic Education Act 1998), the curriculum, both explicitly written (Cochinaux & deWoot 1995, Oberg et al. 2000, Lonsdale 2003, FNBE 2004, Montiel-Overall 2008, Scholastic 2008, Todd 2010) and hidden (Jackson 1968,
Broady 1987, Engeström 2008), different local and national programs and strategies like the National Knowledge Society Strategy 2007–2015 (2006), and national and international proclamations (IFLA/UNESCO 1999, Library for Every School 2010), which also include ideal definitions of a good pedagogical library.

The division of labor differs depending on the context: in schools where a full-time teacher-librarian is employed, the teachers and librarians collaborate and share their expertise differently than in schools where a part-time LT is working. The latter is the situation in the schools of the SLI project, and a common situation in Finnish elementary schools in general. The division of labor depends on the resources and the culture of the school. It is also a question of the wider context of the schools – the city administration, the city library, and the neighboring schools may have a role in facilitating pupils’ learning as well as in supporting teachers’ work.

The community is formed by the individual school (Fullan 1992, 2001a, 2001b, 2007). Inside the school the pupils, teachers, and principal form a learning community that is characterized by the type of school and the prevailing conceptions of learning in that particular school (Streatfield & Markless 1994). The school collaborates with other schools, educational authorities, and the public library to achieve sustainable and continuing development of learning (Fullan 2001a, Montiel-Overall 2008, Oberg 2009). This refers to the concept of learning commons (see Sub-chapter 2.3), which includes all these actors and organizations (Loertscher & Diggs 2009, Loertscher 2010, Todd 2010, Koechlin et al. 2011)
Part II
3 Research methodology

The research methodology of this qualitative follow-up study is based on a case study approach. The case study approach is suitable for describing specific social phenomena and investigating how they work. A case study is contextual and holistic. It is usually used to answer questions such as what can we learn about the case? Or: how can we add knowledge about a complex phenomenon and understand how it developed? A specific case may seem to be somehow important, but the final significance of the case may not be revealed until during the course of the study (Yin 2009, Laine et al. 2007).

The main research question of this study was formulated as follows: Did the school’s operating culture in eleven elementary schools develop during and after the school library project as perceived by teachers and principals? The main question was divided into two sub-questions:

1 Did the teachers and principals of the eleven participating elementary schools perceive any development in their school’s operating culture? If they did, which dimensions of the operating culture were involved?

2 Did the teachers and principals of the eleven participating schools perceive any development in teaching literacies, especially information literacy, during and after the development project? If they did, how did the teaching develop?

3.1 Case study approach

It is difficult to make decisions that are most appropriate for investigating a certain historical event in its actual environment. In this study, the schools are not isolated units of society. The activity of the SLI project was directed not only towards the internal practices of the schools, but also towards interactions between the schools and other actors in society. Two challenges were faced when conducting this case study: firstly, how to delineate it without cutting off essential elements of the case, and secondly, how to administer the complex entity with all its features to gain a rich understanding of the case.

The SLI project was an attempt to develop the school’s operating culture in the schools that participated in the project in the City of Oulu, Finland. The SLI project can be characterized as an umbrella development project which gave the participating schools an arena for networking with each other and with other partners and helped the schools plan, discuss, and learn together how to carry out
the development project in their schools. Therefore, the most appropriate case study design for this study was a single case study strategy, that is, the SLI project with the embedded multiple units of analysis, namely the schools (Yin 2009). (see Figure 8).

Fig. 8. Single case of the SLI project with embedded multiple units of eleven schools adopted from Yin (2009, 46).

By using this type of single case study strategy it was possible to learn from the shared experiences of the teachers and principals of the participating schools. The main purpose of the strategy was not to compare the schools and their performance with each other, but to find the features that characterize the case as a whole and the collective efforts to conduct a development project targeted at enhancing the development of school’s operating culture. The focus was placed on the perceptions of the teachers and principals participating in this process. According to Yin (2009), in this kind of single case study with embedded units of analysis it is important to maintain a holistic grasp of the case as a whole. The
structure of the school’s operating culture inspired by the AT provided the conceptual framework for the analysis of the case of the SLI project as an entity.

Data collection is presented in Sub-chapter 3.2.1, which contains a description of the schools under examination (embedded units of analysis) and the sources of data. The data were analyzed using the structure of the school’s operating culture already presented in Sub-chapter 2.2.2 and in Figure 5. The reliability and validity, limitations, and ethical issues of the study are considered in Sub-chapter 3.2.

3.1.1 Data collection

In the SLI project followed up in this study, fourteen schools were chosen as pilot schools to carry out the first phase of the development project during the years 2002 to 2004. Of these, eleven schools were elementary schools including grades 1 to 6 with 7–12-year-old pupils. These eleven schools were selected for this follow-up study. The three schools excluded from this study were combined upper basic and secondary schools. One school was excluded because it was divided into two different schools during the SLI project and the other two because they were not comparable with the elementary schools due to their teacher orientation (subject teachers) and the different age group of pupils – they were 13–19-year-olds.

During the project the development of the schools was reported by the teachers and the principals on a yearly basis. The reports included their descriptions of learning tasks and the teaching and learning methods applied. These reports were the first data set of this follow-up study (Data Set 1). As the project sought to enhance development at the schools, it was assumed that this development would continue in the schools. On the grounds of this assumption, the second data set of this study (Data Set 2) consisted of the teachers’ and principals’ group theme interviews in the same eleven schools, which were collected in 2009. The follow-up period in this study was seven years. The data collection is presented in Tables 3, 4, and 5.

Data Set 1 consists of the reports which described the progress of every single school in its own sub-project. Data Set 1 was not collected purposefully for this study; it consists of the schools’ yearly reports produced for the funding body of the SLI project, that is, the European Regional Development Fund. Every school wrote three yearly reports and some of them were written in two parts because of the summer vacation. The schools decided independently what they
reported about their implemented development activities. At the beginning of the SLI project in 2002 the report had to include the project plan of the school (Appendix 3.1). In 2004 the report had to include an assessment of the school’s project and the entire SLI project. This assessment included the following issues: the quantitative and qualitative results of the project, the strengths of the project, and the innovative and transferable elements of the project (Appendix 3.2). In 2004 the project teachers and principals published a joint book in which they described the learning assignments they had developed during the project or the progress of their sub-project (Kurttila-Matero 2004). For the analysis, this material was combined with the schools’ reports from the year 2004. This was justified by the decision made in the project meeting to publish a joint book containing descriptions of the sub-projects of the individual school’s viewpoints or the teaching methods and learning tasks developed by the teachers. Three schools wrote more than one article and two schools didn’t write their intended part of the book at all.

Table 3 summarizes the number of pages in the schools’ reports including the number of pages in the joint book, which is presented in a separate column. The number of participating teachers and principals is presented in the last column.
Table 3. Number of pages in the documents and publication and participating teachers and principals in each school during the SLI project in 2002–2004.

<table>
<thead>
<tr>
<th>School no.</th>
<th>2002 report¹</th>
<th>2003 report</th>
<th>2004 report</th>
<th>2004 publication²</th>
<th>total ³</th>
<th>teachers + principals⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>3</td>
<td>16</td>
<td>0</td>
<td>24</td>
<td>3 + 1</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>15</td>
<td>3 + 1</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>16</td>
<td>16</td>
<td>3</td>
<td>43</td>
<td>3 + 1</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>17</td>
<td>5 + 1</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>8</td>
<td>5 + 1</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>13</td>
<td>26</td>
<td>3 + 1</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>12</td>
<td>7</td>
<td>9</td>
<td>35</td>
<td>5 + 1</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>14</td>
<td>6 + 1</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>15</td>
<td>3 + 1</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>4 + 1</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>14</td>
<td>4 + 1</td>
</tr>
<tr>
<td>total</td>
<td>52</td>
<td>57</td>
<td>65</td>
<td>44</td>
<td>218</td>
<td>44 + 11</td>
</tr>
</tbody>
</table>

¹ including the schools project plan.
² number of pages of each school’s articles in the joint publication (Ed. Kurttila-Matere 2004). In the analysis this material was combined with the reports from 2004.
³ the number of pages was counted by first converting the font size to 12 points and spacing to 1.
⁴ number of teachers participating actively in the project and the principal.

The total number of pages in the documents in Data Set 1 was only 218. However, the documents were very concise and their information content was significant. The number of participating teachers ranged from three to six per school. The average was four teachers per school.

Data Set 2 – the group interviews – was collected between April 28 and November 5, 2009. The themes (see Appendices 5 and 6) for collecting Data Set 2 were generated on the basis of a qualitative analysis of Data Set 1 and the goals set for the SLI project in the project plan. The nine categories defined on the basis of the analysis of the first data set were grouped into two main themes for the interviews as follows:

1 Teachers’ conceptions of their work with information and learning:
   How do you describe your conceptions of teaching, learning, and working with information, including versatile use of information?
   With which kinds of learning tasks have you gained the best learning outcomes? How was assessment of learning outcomes carried out?

2 Possible impact of the SLI project:
   Has the project changed your attitude about your work?
What elements of the project have proved to be sustainable and how have they spread through the teaching staff?

Have the modes of collaboration changed between your school and the public library, and between your school and other schools?

How do you describe your school’s performance in comparison with the goals of the school library project? (Appendix 4)

The invitation to the interview was sent personally to the principals of the eleven participating elementary schools, with guidelines for further inviting two to three teachers who were involved in the project, for reserving 1.5 to 2 hours of time and a peaceful place for the interview. Every interview was opened by giving an interview guide with the themes of the interview to the participants (Appendix 4) and information about the follow-up study and the ways of using the data. The researcher had an interview guide of her own and the same themes with more detailed questions (Appendix 5). The informants were told that the schools and individual interviewees will be numbered randomly, but the people who are familiar with the project may recognize the schools because of their unique characteristics. It would be more difficult to identify the single interviewees because the report will be written in English. After getting this information, the group discussed their feelings about participating in the study. All the teachers and principals gave their consent without any exceptions.

The length of the interview data was 863 minutes in total (14 h, 23 min). The total number of transcribed pages was 195 after converting the font size to 12 points and the spacing to 1. The longest interview took 118 min (23 pages) and the shortest, 51 min (13 pages). The average duration of the interviews was 78.5 minutes and 17.7 pages. The duration of the interviews and the number of participants in each school are presented in Table 4.
Table 4. Length of the interviews and number of interviewees per school in 2009.

<table>
<thead>
<tr>
<th>School number</th>
<th>length minutes</th>
<th>length pages</th>
<th>teachers</th>
<th>principals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>63</td>
<td>14</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>89</td>
<td>16</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>76</td>
<td>21</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>51</td>
<td>13</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>67</td>
<td>17</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>58</td>
<td>14</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>118</td>
<td>23</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>110</td>
<td>22</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>81</td>
<td>22</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>73</td>
<td>19</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>77</td>
<td>14</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>total</td>
<td>863</td>
<td>195</td>
<td>23</td>
<td>11</td>
</tr>
</tbody>
</table>

\(^1\) converted to font size 12 and spacing of 1.

Some descriptive, statistical information was collected at the beginning of each interview which contained the number of teachers and pupils in the school and the floor area of the school library in square meters. These statistics are presented in Table 5.
Table 5. Size of the participating schools in 2009 (2004)

<table>
<thead>
<tr>
<th>School no.</th>
<th>teachers</th>
<th>pupils</th>
<th>library m²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2009 2002</td>
</tr>
<tr>
<td>1</td>
<td>30</td>
<td>534</td>
<td>55 (+ hall 20 m²) 40</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>376</td>
<td>300 30 (multiple use)</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>146</td>
<td>30 none</td>
</tr>
<tr>
<td>4</td>
<td>12 (20)</td>
<td>140 (300)</td>
<td>50 60 (multiple use)</td>
</tr>
<tr>
<td>5</td>
<td>13</td>
<td>187</td>
<td>120 none</td>
</tr>
<tr>
<td>6</td>
<td>20</td>
<td>300</td>
<td>74 59</td>
</tr>
<tr>
<td>7</td>
<td>16</td>
<td>237</td>
<td>110 110</td>
</tr>
<tr>
<td>8</td>
<td>20 (30)</td>
<td>360 (620)</td>
<td>60 30 (multiple use)</td>
</tr>
<tr>
<td>9</td>
<td>24</td>
<td>300</td>
<td>90 90</td>
</tr>
<tr>
<td>10</td>
<td>22 (10)</td>
<td>330 (140)</td>
<td>46 12 (multiple use)</td>
</tr>
<tr>
<td>11</td>
<td>20</td>
<td>298</td>
<td>55 56 (multiple use)</td>
</tr>
<tr>
<td>total</td>
<td>210</td>
<td>3208</td>
<td>1010 487</td>
</tr>
</tbody>
</table>

1. Major changes in the number of pupils in three schools (no. 4, 8 and 10) after the project (2004) and before the interviews (2009) took place. The number of teachers and pupils in 2004 is in parentheses.

2. Library space at the end of this study in 2009 and at the beginning of the SLI project in 2002.

At the time of the interviews, the number of pupils ranged from 140 to 376. The average number of pupils was 292, which indicates that the schools are very small in size. The number of teachers ranged between 9 and 30, the average being 19. The floor area of the school library ranged between 30 and 300 m². The average size of the school library was 91.8 m². This means the school libraries are smaller than the size recommended by the UNESCO guidelines, which is 158 m² even in schools with less than 250 pupils. The Finnish guidelines for the space of the school library are quite moderate and based on the state subsidy for school buildings: the space in elementary schools (grades 1–6) is 10 m² per every teaching group. The state subsidy is given for building school libraries with a maximum size of 110 m². Communities may build as big school libraries as they wish, but they have to pay for the extra square meters themselves (Tapaninen 2002). This explains well the rather small size of school libraries in Finland. In the SLI project, School 2 had a renovation project which included an extra wing for the gym. The school library was built in the former gym in the middle of the school building, which explains the relatively big school library in this particular school.
3.1.2 Data analysis

The qualitative data were organized and saved as a QSRNVivo project to facilitate management of the data analysis and reporting. The analysis was conducted on the basis of the theoretical framework of this study, presented in Chapter 2, and formulated as the dimensions of the school’s operating culture (see Figure 5, page 38). To determine the themes for collecting Data Set 2, Data Set 1 was tentatively analyzed to find out the essential dimensions of the development work and the potential changes in teachers’ and principals’ perceptions. Qualitative data analysis was administered by using QSRNVivo, which helps store the concepts, ideas, and categories in nodes that can be further explored, organized, and changed (Bazeley & Richards 2000). It also allows quantitative description of the data. Qualitative analysis was conducted according to Corbin and Strauss (2008).

According to Corbin, open coding means “breaking data apart and delineating concepts to stand for blocks of raw data” (Corbin & Strauss 2008, 198). Open coding of Data Set 1 produced 18 nodes (reduced expressions or concepts) as follows: collaboration with the public library, conceptions of learning, curriculum, evaluation, ICT, IL teaching, learning tasks, library space, materials, principal’s role, reading literature, resources, school library as a learning environment, school library’s pedagogical role, student collaboration, teacher collaboration, teacher education, and teaching methods. Axial coding goes hand in hand with open coding, because the researcher is constantly elaborating the relationships between the concepts when analyzing the raw data. Axial coding is “crosscutting or relating concepts to each other” (Corbin & Strauss 2008, 195). Axial coding was conducted to produce more abstract sub-categories. The eight sub-categories were: teacher collaboration, collaboration among pupils, collaboration with the public library, teaching IL, teaching (and learning) methods, conceptions of learning, resources, and the school library.

After collecting Data Set 2, the analysis was deepened by making several rounds from Data Set 1 to Data Set 2 and back to find out the attributes that were integral to the dimensions of the school’s operating culture. In the course of this process more concepts and sub-categories were formed. It was necessary to rearrange the new and original nodes hierarchically into a tree structure of the concepts. Thus, open coding produced 50 concepts and axial coding, 16 sub-categories, which means the number of both concepts and sub-categories doubled (See Figures 9 and 10, pages 77–78). The five dimensions that formed the
structure of the school’s operating culture were named the main categories. The tree structure of the nodes was created and all the material could be included in the categories as references. Some free nodes were created to understand the character of the references related to the goals of the SLI project; the references could express problems between the goals and reality, or elements of sustainability in the development in the operating culture. Moreover, some general aspects, like future insights, were classified as free nodes. These aspects were used to discuss the significance of the project on a more general level.

In the final stage of analysis the data were classified first into categories of division of labor, rules, tools, and community, which in the operating culture form the conditions for developing the object, namely the pedagogical practices of teaching literacies. After that, development in the object could be related to the evolution of these conditions.

The following Tables 6 and 7 present the analysis of the data in more detail through two examples. In Table 6 the development of the main category “Community” is demonstrated with a few examples. In the analysis the concept of community has a wider meaning than in the original structure presented in Figure 5 (page 38), because it combines the actors of the whole learning commons, described in Figure 7 (page 59).
Table 6. Example of the development of the main category “Community”.

<table>
<thead>
<tr>
<th>Original expression</th>
<th>Reduced expression or concepts</th>
<th>Sub-category</th>
<th>Main category</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the SLI project we participated in the school library meetings. Now the activity goes on independently and we principals have new themes in our meetings.</td>
<td>Principal’s role</td>
<td>School community</td>
<td>Community</td>
</tr>
<tr>
<td>I feel collaborative planning and integration is very useful. It facilitates our work considerably.</td>
<td>Collaboration among teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I as an English teacher get an idea of how to integrate art and Finnish and English, it may be experienced as stressful by the classroom teachers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When peers explain concepts to each other, they use words that help others understand better.</td>
<td>Collaboration among pupils</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents must be educated to understand that there are no textbooks.</td>
<td>Collaboration with parents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We LTs have regular meetings in different schools; our network of LTs developed during the project.</td>
<td>Collaboration between schools</td>
<td>City community</td>
<td></td>
</tr>
<tr>
<td>We have a concept of how to go forward, how to develop reading, literature, and information seeking, but we don’t talk on the same level with the City Administration.</td>
<td>Collaboration with the Department of Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The city library should be more active towards schools. The public library calls and informs about book talk.</td>
<td>Collaboration with City Library</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7 presents some examples of the development of the main category “Pedagogical practices of teaching literacies.” The sub-categories are inevitably overlapping and the analysis was very challenging. This is a sign of the parallels
in conceptualizations among different disciplines, in this case Information Studies and Educational Sciences.

<table>
<thead>
<tr>
<th>Original expression</th>
<th>Reduced expression or concepts</th>
<th>Sub-category</th>
<th>Main category</th>
</tr>
</thead>
<tbody>
<tr>
<td>We haven’t yet gotten into a comprehensive discussion about the learning and knowledge conceptions.</td>
<td>Knowledge conception</td>
<td>Conceptions of teaching and learning</td>
<td>Object: Pedagogical practices of teaching literacies</td>
</tr>
<tr>
<td>I think the culture of asking questions and remaining curious are a big challenge.</td>
<td>Inquiry-based learning</td>
<td>Conceptions of teaching and learning — and Information literacy</td>
<td></td>
</tr>
<tr>
<td>Children need very much help in finding good search terms.</td>
<td>Search terms</td>
<td>Information literacy</td>
<td></td>
</tr>
<tr>
<td>You must have varied information from many different sources before you are able to write.</td>
<td>Information use</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As a summary of the analysis, the tree structure of the operating culture is presented in Figures 9 and 10 (see also Figure 5 page 38). The four dimensions of the operating culture, namely, community, tools, rules, and division of labor, are presented in Figure 9.
Fig. 9. Analysis of the school’s operating culture from the viewpoint of community, tools, rules, and division of labor.

The tree structure of the object of operating culture, namely, pedagogical practices of teaching literacies is presented in Figure 10.
Fig. 10. Analysis of the operating culture from the viewpoint of the pedagogical practices of teaching literacies.

The analysis of the data was extremely challenging. Many of the categories were overlapping, and because of this, some concepts are included in two sub-categories: Inquiry is a part of both the conceptions of teaching and learning and information literacy teaching. Literacy teaching contains “understanding the content,” which has the same content as “making sense” in information literacy teaching. However, from the viewpoint of pedagogical practices, this issue is insignificant.

3.2 Reliability, validity, and ethical concerns

The research methods were chosen on the basis of the preliminary theoretical framework and the research questions. The qualitative approach was considered to be the most appropriate. The case study approach allowed rich data collection
and the structure of the school’s operating culture helped set the focus of the data analysis. The interpretation of the results and the validity and reliability of the follow-up study are discussed in more detail in Chapter 5.

The ethical issues of this study belong to five categories: the researcher’s position, the research permission, the informed consent of the participating schools and interviewees, the use of research methods, and the interpretation of the results.

3.2.1 Reliability and validity of the methodology

The case study strategy is appropriate for a comprehensive study of a complex phenomenon like the school’s operating culture. The researcher’s pre-understanding was that it is important to understand what teachers and principals think when they are developing pedagogical practices.

The atmosphere during the interviews was positive and relaxed, presumably because of the familiarity of the researcher and her thorough experience with the SLI project. The teachers and principals emphasized their open attitude also when dealing with negative experiences. They discussed freely and actively after receiving the interview guide at the beginning of the group interview, even asking questions and opinions from each other. The researcher avoided revealing her own visions, but asked some specifying questions every now and then.

In this study the interview method may be regarded as a limitation because the interviews were carried out by the researcher who herself participated in the SLI project. The Hawthorne effect may even be emphasized in a group interview where the participants may be particularly willing to prefer positive opinions. This may reduce the validity of the study. An important point to be taken into account especially during the analyzing phase is that the researcher may selectively choose positive statements from the data. In this study an attempt was made to avoid this bias effect by purposefully searching for negative statements and reporting them.

The rich content of the freely proceeding conversation gave such broad material that the data saturated in the analysis, which supports the reliability of the study.
3.2.2 Ethical issues

The researcher’s position was threefold: She was a co-worker with the participating principals and teachers, a leader and trainer in the SLI project, and a researcher responsible for this follow-up case study. Growing with and through all these roles took time and effort, but it also enhanced the development of a multifaceted understanding of the research object.

The Department of Education of the City of Oulu granted the licence to conduct this follow-up study in August 2006. The licence comprised permission to use the materials concerning the SLI project produced by the schools and other units involved. The researcher saved the documents of the SLI project on her personal computer.

The principals and teachers gave their consent after reading the themes of the interview guide and after the researcher had told them about the aims of the follow-up study and the principles of protecting the anonymity of the interviewees. They also understood that some features in the data might be recognizable to those who were familiar with the schools in the City of Oulu, but that didn’t cause any refusals.
4 Findings

In this chapter the findings on the different dimensions of the school’s operating culture are scrutinized in detail and summarized in the following order: 4.1 Tools, 4.2 Rules, 4.3 Division of labor, 4.4 Community, and 4.5 Development of the object. In this follow-up study the research interest was not to compare the individual schools or introduce a simple comparison between the two points in time, but to indicate development lines or trends that could be identified through analysis of the qualitative data. The study’s ability to answer the research questions is discussed in the light of the findings in Chapter 5.

4.1 Tools

Teaching and learning methods and the school library with all its possibilities are important tools for instructing and learning in elementary schools. When pupils learn how to learn, they adopt these tools for lifelong learning. Teachers need training to utilize the best tools effectively.

4.1.1 Teaching and learning methods

Development of student-centered teaching and learning methods can make a positive difference in students’ self-esteem, confidence, independence, and sense of responsibility in regard to their own learning. Important tools for enhancing student-centeredness are differentiation (for example, grouping pupils by their maturity, not only by age group), integration (for example, using learning tasks which combine different subject areas into larger entities that develop learning skills), and varied evaluation methods (for example, self-assessment and peer evaluation), which develop metacognitive skills.

The idea of conscious development of teaching and learning was expressed in a nutshell.

Our central objective has been to promote learning motivation. The pupils have been guided to assume responsibility for their own learning and find individual methods in their work. In the projects the outputs have varied individually, but the basic objectives have been kept. Different book summaries, essays, and other products have given the possibility to differentiate, which for its part has empowered feelings of success and
positive self-image. The evaluation system also promotes this when the midterm evaluation is carried out as a conversation between parents, the pupil, and the teacher in January. Integration as a comprehensive method has not been completely implemented in our school, but a true effort to combine different subjects has worked well. (S6r2004, *italics by researcher*).

Application of student-centered learning requires the use of new types of teaching methods. Concept maps are tools for making learning visible, thereby facilitating differentiation and evaluation.

**Evolving instruction towards pupil-centered methods**

Differentiation based on the pupils’ own maturity level, learning style, or strategy provides them equal opportunities to develop as learners.

I think older children – grades 5 and 6, maybe even 4 – are able to tell which strategy is good and why it is successful for them, but it is the most challenging thing in elementary school. (S1Pi2009).

*Differentiation* has become easier with the school library’s possibilities.

I use differentiation on pupils with weak capabilities. I may quietly say that you may write a little shorter essay, and use only one reference book. And give them concrete questions to answer, for example, the areas to cover about an animal, whereas a talented pupil knows from the beginning how to proceed. (S9T2i2009).

Differentiation is being developed further within the School of the Future project.

And now we have this new School of the Future project, which concentrates on pedagogical work and brings more equipment to the schools. We have divided the pupils according to their learning phase and used resources which are arranged by having certain subjects at the same time in different classes [block schedule]. (S2Pi2009).

We have differentiated teaching literacy in the first and second grades so that we have divided the classes into three suitable groups by literacy skills. With those who were already reading we could open texts in reference books, we were reading nonfiction on a totally different level, they produced their own texts, wrote essays for example about their own pets, used mind maps, concept maps, deriving concepts. (S6T1i2009).
**Evaluation** is an important tool in guiding pupils to self-directed learning. The teachers stressed self-evaluation, peer evaluation, and development of learning skills in their comments on evaluation: *Peer evaluation has increased during the SLI project* (S7r2004). The teachers shared their expertise and innovations during the project.

For evaluation we used Fordell’s (a teacher in another project school) list of pupils’ and teachers’ questions, which helped to quickly formulate good questions on essential points of the project work. The pupils also realized which were the important points in their own earlier presentations and asked about such things from other pupils in the evaluation phase, finding strengths and weaknesses in the presentations. (S2r2004).

Peer evaluation is learned step by step in the classroom, and the teacher’s role in this learning process is crucial.

Learning evaluation is also a process: when a smaller pupil is beginning such working methods he or she has usually quite poor basic tools. The more the pupils use them in different classes the more they learn, so that in the end they can give feedback to each other. They can also give negative feedback in a way that doesn’t hurt but is constructive. The teachers have a big role in guiding such a process, but they are able to do it. (S3Pf2009).

**Integration** was a theme that all the interviewees had used. Tension between the detailed curriculum and the demand for integration and use of cross-curricular themes was expressed in most of the schools. Integration was considered a challenge for teachers and a probable requirement of teacher training.

Every teacher considers topics that relate firmly to the curriculum and are suitable for developing information searching skills. At the same time it must be considered, whether or not the cross-curricular theme requires schooling oneself. (S10r2003).

All eleven schools presented examples of their integrative projects. The teachers seriously considered their responsibility of focusing learning on the core content of the curriculum.

In this context one should consider which are the topics or cross-curricular themes that are worth investing time and effort in at each grade level. The question is, (…) what is the priority? (S3r2003).
Integration liberated the teachers from the shackles of schedules and the strict hourly division of lessons into the different subjects. Also, a concrete example of the school’s arrangements to support development of the pupils’ learning skills was reported.

Our curriculum includes plans of weekly themes for different grades. The central topics of the themes are about environmental and natural studies, history, and religion. In connection with them, bigger cross-curricular themes like visual arts, global and cultural education, etc., are carried out. As a result, the time used for learning varies, depending on the situation. (S6r2004).

The same school looked back to the years before the SLI project and saw that integration as a working culture had developed gradually and tensions between the teachers and teaching practices had disappeared.

We have made sort of cross-curricular themes, bringing together Finnish, mathematics, visual arts… They all have been one big entity and it has not been so important that this is a Finnish lesson and now we are writing, because it is processing Finnish in its best form when you are practicing essay writing or asking questions or seeking answers. So this kind of operating culture was very widely accepted here and it was getting wider and more coherent during the SLI project. Confrontation faded away when we noticed that the question is not about persons but about learning. (S6T1i2009).

Integration was extended even to the classification system of the library, and this practice was adopted by five other schools, too.

We decided to break the traditional library classification because it didn’t serve our integrative teaching and learning paradigm. We had to build up these themes in the reference library that go beyond classification limits, and we marked different themes with color codes. (…) For example, we had cross-disciplinary history shelves. (S6T1i2009).

Integration along with organizing the schedules offers the possibility to learn outside the school in an authentic environment.

We have quite a few things that happen somewhere else than at school. We go to a concert, to a farm, or on a sightseeing tour to a landfill. It is really tiring, because we never have the traditional schedule, but (…) we stress that we
Concept mapping and inquiry

Concept mapping provides a tool for learning, self-evaluation, peer evaluation, and teacher evaluation, and also a way to develop metacognitive skills. This method was adopted either before or during the SLI project in every school that participated in the project. The teachers seemed to be convinced of its potential in the socioconstructive learning process.

We have two ongoing projects for fourth grade in Finnish and environmental studies, where we are practicing concept maps. Every pupil makes his/her own page in our encyclopedia or an essay using search terms. Pupils search for information from dictionaries and the Internet. We begin with a concept map and make our own encyclopedia for the class. (S8T1i2009).

One teacher described his own learning by using concept mapping as a tool for active learning. He found it a remarkable learning experience which has helped him solve the problem related to the use of the copy-paste technique.

But the thinking always happens in the individual’s brain – meaning what you learn and how you understand things. During the SLI project I got an insight that you have to try to do somehow differently than only use the copy-paste technique and then edit the text a little bit. At one of the [teacher training] courses (…) we learned how to use concept maps in learning so that the pupils can briefly and concisely explain how they understand the subject. (S10T4i2009).

The benefits of concept mapping in evaluation were also noted by another teacher at the same school.

When the children draw the concept map they uncover what they have learned right, and also the things that are in the wrong place, such as dinosauri lived on earth and then man came and hunted them or built a trap and so on… So the concept map works well in the opposite direction: it exposes flimsy constructions, like the era of emigration from Finland to the USA and tax-free shopping in that context. (S10T2i2009).
Building one’s own understanding is much more valuable than exactly memorizing text in a textbook or some other source. This is important when evaluating actual learning, as the teachers must understand this and go beyond text that is only learned by rote.

The text learned by rote may seem very good, but if you ask the pupils to write down their own understanding and draw a concept map, the pupil may say: But if I don’t have anything [in my mind]? It looks much better [misleadingly] if the pupil reads from the textbook and then answers the question, than if he/she builds his/her own construction from the very beginning. (S7T2i2009).

When the pupils adopt the concept map method, they also find new relevant ways to work further and show their metacognitive skills.

It is nice to notice that the children find meaningful things themselves. Today I gave them an assignment to make a mind map about mushrooms, and they discovered that they can express their own knowledge with different colors and use different colors for the new knowledge they find during the process, which becomes visible this way. (S7T2i2009).

4.1.2 School library

The school library combines the use of information and ICT, teaching and learning literacies, and reading fiction. The school library’s collection is small but well targeted to support learning. The school library serves as a learning environment and fosters teaching and learning methods that give room for differentiation and integration. However, a good environment for versatile activities doesn’t change teachers’ thinking as such — it needs long-term collaborative efforts to develop.

In the SLI project plan, the school library was supposed to be a tool for changing the school’s operating culture. Because of the need for better technological skills and new teaching methods, development of the school library proved to be a pedagogical challenge for the teachers.

In seeking to develop ICT along with the new pedagogical possibilities provided by school libraries, the SLI project generated tensions between traditional schooling and teaching practices and new technologies, which also forced changes in other activities of the schools.
One of the main motives for the SLI project was to enhance the use of ICT in learning. The teachers’ low ICT skill level was obvious when the SLI project began, and that was a serious concern also when developing the learning environment and learning tasks that required ICT skills. The problem of how to train teachers effectively was discussed.

Of course, the teachers have first educated themselves in the use of Riihi (a learning platform), and after learning the technology they have considered a suitable learning unit to bring into the platform. We found out that if the teachers didn’t immediately begin to use the platform with their pupils, the threshold to use it grew too high. Perhaps we should now repeat the course and combine it with developing a learning package which the teachers could directly use with pupils. This would perhaps ease implementation at the pupils’ level. (S11r2004).

Moreover, problems were also identified in the pupils’ basic skills of using ICT.

The level of ICT skills varies a lot – there are families with no computer and other families where the child has learned everything, in another words, the range of learning skills is wide on many areas (S4T2i2009). In some families there is an extreme attitude against children’s computer use at home (S4T1i2009).

It is a real challenge for the teachers to attain equality among the pupils in terms of their ICT skills, which in the teachers’ opinion are crucial skills in the information society. The relationship between reading books and working with the computer was considered a value issue.

There may be a child who doesn’t want to sit at the computer but would rather read a book. Somebody thinks that working with a computer is more valuable than reading books, but it is a matter of taste, how each one thinks about how important or valuable these issues are. (S8P12009).

There were serious technical problems with the equipment and database in all the schools and school libraries during the SLI project. These adversities didn’t discourage the teachers and principals, but instead made them search for solutions.
And the issue terminal has crashed often, and then people wonder why lending statistics are low. But if you try to use the station three times with the pupils and it doesn’t work, you don’t want to spend time with it any more. You simply take the books you need and mark them in a notebook, so they cannot be seen in the statistics. Now the computer was replaced, and we hope it will work now. (S10T1i2009).

The issue terminal is not easy to use for children, and sometimes the first pupil in the morning can make it crash — so we use the “old method” (S4T2i2009).

The safety issues in using shared computers bring practical pedagogical problems.

The use of personal passwords has been problematic when the first-graders are learning to use the school’s computers, and the teacher cannot overcome this time-consuming phase alone. We have the sixth-graders help the teachers when the first-graders are learning computer skills (S2T1i2009).

After many phases of developing the ICT system, it was functioning well in every school in 2009.

The use of auxiliary staff with good computer skills in library routines was successful in five schools.

It has been a very good solution that somebody other [a school secretary, a school assistant] than a teacher works with the computer programs, it really contributed to the project at our school. I am very grateful to the City administration that I got this, but I had to fight for it. (S2Pi2009).

The school library equipment helped the pupils borrow books independently and use the library freely.

Our borrowing and school library activity has been busy before, but now when we have the issue terminal, we don’t need staff for that, and I must thank the SLI project that this is very easy for the pupils (S1T2i2009).

The extra resources provided by the SLI project allowing the teachers to collaborate and co-teach helped the schools bring ICT as a learning resource to the school library. This developed the school library more towards a learning or media center.

We had an extra resource (a teacher’s work) 24 hours per week in the learning center in 2004, and we have the reference library and computers there. So,
teachers had no threshold to go to the learning center with their pupils because of the extra teacher there. Now the resource is not needed any more, because the teachers can come there with their pupils or send them there and they know what to do, the pupils know how to seek information from books and computers – they have all learned the computer skills. (S2Pi2009).

After the SLI project, every school had workstations for pupils’ individual or group work in the library. If the library space was too small for this, the schools arranged the computers and the reference library in one room and the fiction collection in another.

When ICT was brought close to every teacher, its implementation advanced more easily. Three schools had experienced the interactive whiteboard as a valuable new tool. The new equipment seemed to be acceptable to a wider range of teachers.

We have systematically developed our infrastructure further after the SLI project, and I think it is one of the best in the City: we have digital projectors and document cameras, Internet connections, and digital televisions in every classroom. Even the old teachers have been excited when they have gotten all the equipment in their classrooms. (S3T1i2009).

The teachers’ opinions about the use of ICT in learning are still realistic. It is only an instrument, not an end in itself, but in many cases it gives extra value to pupils’ learning.

Many things can be managed better and quicker with traditional methods. By experience we have accepted the fact that process-like activity combined with ICT takes much time. However, it adds so much value to learning that the time spent on it is worthwhile. (S3r2003).

The idea has been sustained for six years in that particular school.

Nobody wants to go back to workbooks. Ninety-nine percent of pupils like to work with a computer. The use of ICT has meaning when it is used on the terms of the subject to be learned. (…) First of all, it is a choice and a possibility. (S3T12009).
Collection

The SLI project provided good resources for improving outdated collections, and almost no negative thoughts on the development and sufficiency of the collections could be found in the data. Only one point of view was not taken into account enough: in some schools disposal of withdrawn material was perhaps too radical, and the historical and educational perspectives were not thoroughly considered by either the Information Specialist or the LT.

It really bothers me that we discarded loads of books when we established the school library, and now our school is celebrating its 40th anniversary. It would be lovely to find the textbooks from the sixties and show the pupils, for example, the math books with set theory. (S1T2i2009).

One school created its own classification based on pedagogical criteria.

The project enabled cataloging of the material and consideration of the classification from the curriculum’s point of view across the traditional class limits, which produced an easy-to-use pedagogical environment suitable for children. (S6r2004).

This was even adopted by five other schools in the City of Oulu.

We reorganized the collection so that the teachers’ material and fiction are separate and the reference books are in the same space as the computers. And there we have a classification for pupils so that they can easily find the mushroom books, for example, or other such things. (S9T2i2009).

The collections can also be developed collaboratively by teachers and pupils, which improves library training at the schools: “And we continuously get acquisition requests from the pupils” (S1T2i2009).

Although the budget is very tight, the schools want to invest some money in the collections on a yearly basis: “But anyway, we appreciate fiction and reference books, and we have a shared vision of investing in them” (S1Pi2009). However, this was standard practice in some schools even before the SLI project.

I think we have a good situation because every year we have got money for collections. I think our situation was better in comparison with other schools even before the project. (S4T2i2009).
This situation is explained by the school’s own budget for the school library, which practice was in force even before the SLI project started in 2002. The School Library’s Support and Steering Group (2008, 2010, 2011) yearly reports the lending statistics and investment in library materials of every school in the City of Oulu. This practice makes development and use of the collections transparent.

**Space**

The relationship between the library space and pedagogy was noted during the project. "As we have stated in many contexts, the existence or absence of a good school library is not the most important thing when exploring the new winds that blow in pedagogy" (S11r2003). Its impact on learning was also considered: "If some kind of change happens in the physical space, it has to have an impact on the teachers’ pedagogical actions with their pupils" (S11r2003).

Usually, the process of designing a school library, especially in schools which had no library space or where space and library materials were insufficient, followed conventional practice: the schools had (and wanted) to concentrate on creating the infrastructure first. After that they were ready to think about how to utilize the new library and its possibilities. However, the teachers well understood the necessity of developing pedagogy in relation to the school library space and materials.

Perhaps we didn’t get enough information from the project leaders about the core of the project – the pedagogical development. (…) Our tools were so weak that we didn’t succeed in working out a sustainable change. It was easier to consider the concrete physical school library environment and everything it involves. During the project we woke up to see how much unused possibilities our school has. At the moment, we have a hunger to get the books and space in such condition that we could begin to develop a new model to support learning. (S11r2004).

It is evident that the SLI project had an impact on the development of the school library space.

From the leadership’s and organization’s point of view, the system has developed a lot. We had a book depository before, and now we have a library
space. And now as we have got the furniture there, the learning environment looks like you could enjoy working there. (S11Pi2009).

Moreover, a school in an old-fashioned building with severe overcrowding solved the problems and carried out a good renovation plan after the learning experienced during the SLI project.

We have now got it, we really have our own small library, a place that we usually mean by a library, and we have quite a good collection, as well. Now we have a renovation there, and maybe it will be even better as a physical space after that (…), so the ICT would be integrated more with library use and information seeking. (S8Pi2009).

The slowness of the renovation processes also offered the possibility to consider thoroughly what the schools really wanted and what solutions served pedagogy best. This was found to be quite a fruitful situation.

I think we succeeded well in executing the SLI project. We really considered the operating culture all the way through the project. At the end we began to furnish and plan the library space. (S3T2i2009).

In some older schools the architecture limited planning of activities, although the teachers tried to overcome these difficulties.

The school’s physical conditions influence what you can do quite a bit, and our thoughts about teaching in a different building could be quite different. This kind of concrete bunker from 1970s sets its own limits. We have fine big classrooms, but no flexible spaces for collaborative learning where pupils could guide each other. All our classrooms are in use, and even the school library is used as a space for club activity in the afternoon. The former janitor’s home is our extra space. I don’t say it is impossible to work flexibly, but it requires extra arrangements. Or some activity may appear a little artificial if you cannot designate a place for it. (S9Pi2009).

In the same school the teachers even used the corridors as learning space. In contrast to closed classrooms, they emphasized the idea of an open learning environment, which in new schools is somehow present in the building itself.

Seven of the eleven project schools were renovated: one school began and one school completed the renovation during the project in 2002–2004. Two schools were renovated between 2004 and 2009 and three more schools out of the eleven elementary schools underwent a renovation after the interviews in 2009.
This means seven schools out of eleven could apply their knowledge and experiences in school library design gained during the SLI project.

**Learning environment**

Teachers need collaboration and help from their peers in order to assimilate the new ways of thinking throughout the teaching staff. Natural resistance towards change needs time to fade.

I remember that in the beginning of the project we had much opposition against utilization of the school library: the teachers were criticizing the idea that every teacher should go there and be forced to make up some kind of activity with the pupils. I think we have entirely broken out of that kind of thinking and taken huge steps forward. (S2T1i2009).

The discussions and ideas exchanged within the SLI project connected to the renovation process in the school building developed the school library as a learning environment and helped open the classroom doors.

I think the teachers have come out of the classroom more with their pupils to the school library [after we moved the school library to the middle of the old school]. Before the renovation there was some borrowing and reading activity there, but now classes do more different things in the library. (S4P4i2009).

A good, well-rounded school library as a learning environment helped pupils grow up as library users and citizens.

If I go to our school library in the middle of the school day it is lovely to see the pupils working hard when searching for information from books or the Internet, and on the other hand, reading just for fun. We have subscribed to some magazines and the children are reading there like in a periodicals reading room in the public library. I think this is great. (…) This is new in our school’s operating culture, which the school library created in the SLI project made possible. (S8Pi2009).

The impact of the SLI project on teaching and learning methods is evident, as the learning environment was being developed further after the project was over.

Now in the School of the Future project we have concentrated on the same thoughts even further, thinking about how to develop the physical learning
environment to respond to the demands of the 2000s, like collaborative learning and working methods (S3P2009).

This impact was further evident, as in three schools the idea of the school library as an intellectual space was noted. There are no shortcuts for achieving this – it is a question of learning over the course of time.

The concept of an open learning environment was launched in the schools during the SLI project: We were talking about going to the library and learning in a new way. (...) Nobody thinks any more that the learning environment is the library, but it is an intellectual environment in the whole school and in the classroom, it is not bound to the library space. In a LTs’ meeting I noticed one newcomer who was talking about how they go to the library to make inquiries. I understood that they are still in that phase where the idea has not yet spread to the whole school’s intellectual attitude of how to deal with learning and teaching. (S6T1i2009).

Moreover, the pupils have adopted a positive attitude towards working in different places in the building and they have the ability to concentrate on their work.

The school library really has reflections on the operating culture of our school, just like it was formulated in the project plan. If we think, for example, of movement in the corridors, it has calmed down. We have taken away the racks from the corridor outside the library and made an extra working area there. The pupils really like to come there. (S7Pi2009).

School library’s pedagogical role

The influence of the SLI project on the school library’s pedagogical role and its substance was widely accepted among the teachers and principals. The teachers began to think differently: “The overall change from the first meeting’s perception of the school library project as a library furniture project to a pedagogically established way of working was enormous” (S2r2004).

The IL was strongly embedded in learning skills. The school library is a place to develop these skills. The continuum from the conception of the school library as a space for communal pedagogical development work was noted particularly in one school.
Now we have very strong collaborative leadership and learning and communality in our school. I think it is a straight continuum from the starting point of a familiar construction or environment, for example the school library as a library. Little by little we have had the courage to go on to more abstract thinking and we understand that it isn’t a question of walls any more… (S3T12009).

The SLI project stimulated intellectual, but also affective, commitment to the learning process among the teachers. This may be a crucial feature for the sustainability of development.

I think it was written in the project plan that the school library is in the core of the learning process, and it is true, we are always in the center of it. We have the library space concretely in the middle of the school, but it is also central as an idea. And I am really happy to still be enthusiastic, I think this is fun, and it has been great to participate in the school library activity. (S7T12009).

This is the process of learning to learn, which is important for the teachers to understand. In the same school the pupils have learned IL and learning skills, too.

I think the use of the school library is a natural part of the school day, and when the children grow, it has become easier for them to also find sources other than the Internet – they find the books very cleverly. If I give an assignment to search for relevant literature about some subject, the pupils find it and they don’t react any more like wow, we are allowed to go to the library! but they go there, they work there and they come back, and there is kind of working peace that is a natural characteristic of the library. (S7T22009).

A project that comprehensively develops the school’s operating culture has the possibility to make a difference.

When I look backwards I think this project came at the right time. As a principal I liked to act on it, and all the teachers found their own fields there, it wasn’t a narrow sector but could be implemented in many subject areas. It was a valuable thing, where the culture and conception of learning were reinforced. We were developing learning environments, and the school library became a part of it. This wasn’t like many projects that begin and then end, this goes on. (S5Pi2009).
4.1.3 Teacher education

Teachers need education, and especially continuing in-service training, to gradually get a grasp of the pedagogical possibilities of the school library.

To promote the pedagogical development efforts, two in-service training courses with a scope of five study weeks (40 hours each) were designed in collaboration with The Learning and Research Services of the University of Oulu. These courses were funded by the Ministry of Education, and they were highest-level courses for teachers with the purpose of providing teachers with a deep understanding of the use of ICT in teaching and learning and the ways of guiding and training colleagues as well as working as a developer at school. The aim of the courses was to enable the teachers to develop ideas and concrete plans with their colleagues to enhance school library pedagogy and systematic teaching of information seeking in their own schools. The course topics were ‘The new role of the school library in promoting implementation of the curriculum’ (Knowledge 2003), including a benchmarking trip to Stockholm’s school libraries, and ‘Information seeking in the information society – from basics to comprehension’ (Knowledge 2004). These courses, with lectures and development projects in the schools, supported development of the teachers’ own thinking.

The teachers also learned from each other, and the project meetings always had an educative aspect, because the teachers wanted to learn from the experiences of their colleagues.

We would need education to understand the phases of project work and the planning of collaborative instruction. Changing one’s own teaching style takes time and is laborious and causes stress. (S2r2004).

The concurrence of the SLI project with the curriculum revision process was a motivating and stimulating situation, where the tailored training fit in excellently.

The timing of the project was excellent. In the beginning of the project, our developing team had not realized the challenges of the new curriculum to instruction. We think the project and the Knowledge 2003 course contributed significantly to our ability to respond to these challenges and utilize the school library’s possibilities in our instruction. (S5r2004).

The SLI project itself was a learning experience for the teachers.
For me, the SLI project has been the one that has taught me about these possibilities. According to my own experience, the official teacher education didn’t prepare me enough for this kind of work. (S9T2i2009).

It is difficult to free teachers from their daily work to participate in long courses and motivate them to get a deep understanding of the library teacher’s work.

[In Finland] we have had many very hard and long courses over the years, tens of study weeks. I have tried to persuade the teachers to participate in them, but nobody has wanted to. I am really pleased that one of our teachers has now begun a course, we really need it… (S8Pi2009).

On the contrary, short-term tailored training courses for teachers and LTs are motivating and effective.

This autumn (2009) we will have a course about the information problem solving model for all LTs [Tiedonportaat, a modification of the Eisenberg’s and Berkowitz’s Big6 model]. The school library’s Information Specialist is arranging the course together with us, the model school librarians. (S7T1i2009). And also the Centre for Learning and Resources [of the City of Oulu] is involved; the advisors from the Centre have been arranging these kinds of information skills courses. And they have received very good feedback, as far as I can judge. (S7Pi2009).

4.1.4 Summarizing the development of the tools

The teachers stressed self-evaluation, peer evaluation, and development of learning skills in their comments on evaluation. Sharing teaching and evaluation methods was common practice in the SLI project. Development of the pupils’ metacognitive skills was stressed in both the reports and the interviews. The school library made differentiation easier with its collections and space. Integration was considered a challenge for teachers and a probable requirement of teacher training. Integration liberated teachers from the shackles of schedules and the strict hourly division of lessons into the different subjects, but also revealed discrepancies between teachers. The teachers seriously considered their responsibility of focusing learning on the core content of the curriculum. The flexible schedules also gave more possibilities to learn outside the school.

Concept mapping was adopted as a learning and evaluation method in every pilot school either before or during the SLI project. The teachers seemed to be
convinced of its power in the socioconstructive learning process and its effectiveness in eliminating copy-paste problems. When the pupils adopted the concept map method, they also found new relevant ways to work further and show their metacognitive skills.

The teachers’ low ICT skills were obvious when the SLI project begun. This was a severe concern also when developing the learning environment and learning tasks that required ICT skills. Problems were also identified in the pupils’ starting points in their ICT skills. It is a real challenge for the teachers to attain equality among the pupils in terms of ICT skills, which they feel are crucial skills in the information society.

There were serious technical problems with the equipment and database in the schools and school libraries during the SLI project, and they continued until 2009. After many phases of developing the computer network system, the ICT functioned well in every school in 2009. These adversities didn’t discourage the teachers and principals, but instead made them search for solutions. The use of auxiliary staff with good computer skills to carry out library routines was a successful solution in five schools. During the SLI project the extra resources for teachers to collaborate and co-teach helped bring ICT as a learning resource to the school library. Moreover, bringing the technology into every classroom advanced overall implementation of the new technology. The teachers were still realistic in regard to ICT; it is only an instrument, not an end in itself, but in many cases it gives extra value to learning.

The SLI project provided good resources for improving outdated collections, and there were almost no negative thoughts noted in the schools. One school created its own classification system based on pedagogical criteria, and this was even adopted by five other schools in the City of Oulu. The collections can also be developed collaboratively by teachers and pupils, which means good library education in the schools. Although the budget is very tight, the schools want to allocate some money to the collections on a yearly basis.

Usually, the process of designing a school library, especially in schools which had no library space or insufficient space and material, concentrated on creating the infrastructure first. After that the teachers had energy to think about how to utilize the new library and its possibilities. However, the teachers well understood the necessity of developing pedagogy in relation to the school library space and material. Five schools in an old-fashioned school building, three of them with severe overcrowding, managed to solve the problems and make good renovation plans after the learning experienced in the SLI project.
A good environment for versatile activities doesn’t change the thinking of teachers as such. They need collaboration and help from peers to assimilate the new ways of thinking throughout the teaching staff. Resistance to change needs time to fade. The discussions and ideas exchanged during the SLI project helped design the school library and open the classroom doors. A good, well-rounded school library as a learning environment helps pupils get socialized as library users and citizens. The learning environment has been developed further in the School of the Future project to further enhance collaborative working methods. Three schools expressed the idea of the school library as an intellectual space which is present everywhere in the school. To attain this, the school and the pedagogical understanding must be developed for years. There are no shortcuts to getting there – it is a question of learning over the course of time.

During the course of the SLI project in 2002–2004, the teachers began to think differently about the goals of the project. They understood that developing the environment served the real goal of the project, namely pedagogical development. The SLI project stimulated intellectual, but also affective, commitment to the learning process among the teachers, which may be a crucial feature for the sustainability of development and change.

Two in-service training courses that developed teaching skills were tailored for the teachers who were developing school library activities. The teachers developed their own information searching skills and designed learning assignments for their classes. The concurrence of the SLI project with the curriculum revision process was a motivating and stimulating situation, where the tailored training fit in excellently. The teachers also learned from each other, and the project meetings always had an interwoven educative aspect.

4.2 Rules

According to prior research, the rules that direct and restrict work at schools are curriculum, textbook orientation, schedules, discipline, and the architecture of the school, which comes up together with the challenges within schedules and discipline. The teachers’ relationship with the rules and their willingness and ability to take possession of them was highlighted in the findings in different ways.
4.2.1 Curriculum

The curriculum is the official national guideline for teaching and learning. If the curriculum is loaded with detailed subject contents instead of pedagogical guidelines for how to enforce collaborative constructivist learning, it doesn’t really guide learning in schools but instead causes anxiety in teachers.

The last curriculum revision process aroused passionate conversation among principals and teachers. They severely criticized the new core curriculum (FNBE 2004). The hundred years’ tradition was seen in the actual core curriculum, which was stated clearly.

In the present curriculum we can see the early thinking going back a hundred years. We found a curriculum from the 1920s and, although it consisted of only a few pages, the content was the same as in the new curriculum [2004], which is only a hundred times broader, but it also concentrates on the subject matter, not on the working methods and tools for teachers. (S3Pi2009).

The former core curriculum (FNBE 1994) was quite suggestive, leaving much freedom to build local curricula. The curriculum stressed the role of teachers as professional specialists and the school’s role as a leader of change, not only as a reactive unit. Many teachers considered the revision process too demanding because of the lack of training in curriculum development, and the freedom led to big differences between schools and communities (Holappa 2007). The last core curriculum (FNBE 2004) was again a detailed document of content for every subject area, containing over 300 pages. Both teachers and principals criticized the new core curriculum for leading backwards to centrally planned enactment.

An example of a spontaneous conversation in one school during the interview clarifies the anxiety raised by the new curriculum.

If you take as an example the curriculum of visual arts, it has terribly comprehensive content (S4T1i2009). It would take the whole year to teach only that! (S4T2i2009). (…) If you would like to teach it in depth in a way that the pupils would really learn it. It is another thing if you only superficially touch something and think that now I have taught it. You only have to concentrate on something specific. (S4T1i2009). Yes, you have to choose (S4Pi2009). So you think there is too much specific content that you cannot follow through? (S4Ii2009). No, it cannot be followed. (S4T2i2009) No, there simply isn’t enough time (S4Pi2009).
This critique of the content of the curriculum also points out the curriculum’s impact on learning and teaching methods.

If all the facts in the curriculum should be taught (…), it means we should proceed in such a hurry that the only way to handle it would be by giving teacher-centered lectures (S3T1i2009). If a school has a tight engagement to textbooks and curriculum, it needs much support to move towards bigger entities of learning in its operating culture. (S3T2i2009).

The cross-curricular themes in the core curriculum, which should lead to a more integrated working culture, are perceived as a good thing. However, the curriculum as a whole doesn’t give room to conduct real integration.

At the end of the last curriculum revision we got these cross-curricular themes, which are at the end of the curriculum. They were brought into the curriculum a little bit like self-defense, like to have something that can be called integration. But still we didn’t get tools for handling these in the schools. We only got a pile of paper in our hands. (S3P12009).

According to the aims of the SLI project, the teachers sought to increase communal practices and collaborative planning, but in the biggest schools this proved to be difficult. However, they claimed that the concurrent curriculum revision process also supported the aims of the project (S1r2004).

The SLI project has empowered the teachers to make decisions to apply the curriculum in a more broadminded manner than before: “I believe many teachers have taken it easy, forgotten the current curriculum, and worked as their heart (head) says” (S3T1i2009).

Working in the project and discussing about teaching and learning have improved the skills of developing the curriculum. The collaborative working culture and learning from each other was understood to be very important for sustainable development.

I have to say that the SLI project specifically brought into my awareness the concepts of information seeking; the concepts began to live through our teachers who participated in the in-service training and we could include the concepts in our school’s curriculum, but we didn’t have the strength to affiliate them into the curriculum of the whole City of Oulu. (S7Pi2009).

Five schools discussed library pedagogy in relation to the conception of learning in the curriculum.
The curriculum development work is a good opportunity to consider library pedagogy and the conception of learning in it. It would be a big mistake if these aspects were discussed separately. Of course, the curriculum is much more, but considering the fundamental issues of learning and education through library pedagogy is a good alternative. (S6r2004).

For example, one school reported at the end of the SLI project that peer and co-learning included in the new curriculum would hardly have become alive without the project (S2r2004).

The teachers considered the relationship between the curriculum’s content and the different disciplines and pedagogy.

And often the thought the lesson didn’t cover all of the content of the environmental studies textbook comes to the teacher’s mind when he/she deviates from the familiar. Fortunately, there are more and more teachers who have the courage to choose a side track (not the wrong track). (S11r2004).

The curriculum’s content was developed in terms of information seeking and library skills: “We chose to make a school-specific curriculum with annual objectives both in teaching literature and information skills and in using libraries” (S6r2004). Another school reported incorporating gradually developing ICT skills with library skills into the curriculum.

In our school we have already made a tentative plan for teaching ICT skills in each grade. The development team is working on a corresponding plan for teaching library use and information seeking. Our intention is to reconcile these two plans into the most appropriate plan for teaching information skills, including fiction. (S5r2004).

Purposeful development work requires explication of tacit knowledge in the curriculum: “Progress has been made in curriculum work, among other things by writing intra-school tacit knowledge visibly into the curriculum. For example, reading weeks are a part of the Finnish language and literature curriculum.” (S7r2004).

A principal who is deeply involved in school library development stressed that information literacy has great potential in putting the curriculum’s conception of knowledge and learning into action.

However, the role of the school library in our present curriculum is rather marginal. It focuses too much on learning Finnish and literature and it surely
is a big obstacle to making the school library a common matter of the whole community, especially in the upper level of comprehensive school. And the last time we interlinked the information problem-solving model with our action and development plan, we stated among other things, that its function is to foresee the following curriculum cycle… I personally see that IL and information-seeking skills must have a very fundamental role in the next curriculum if we think the revision has some significance in relation to the recent conceptions of knowledge and learning. (S7Pi2009).

The revision process of the local curriculum revealed the problems connected to the detailed content of the National Core Curriculum (FNBE 2004). One teacher referred to a dissertation focusing on the curriculum revision process in the City of Oulu in 2004.

In her dissertation, Arja Holappa directly stated that the current curriculum is dragging behind badly because it is based on fragmented facts. She stated that we should focus on entities and first of all on developing information management and information-seeking skills so that the subjects act only as a platform. (S3iT12009).

The Department of Education has reacted to the problems related to a detailed core curriculum by advising the schools to concentrate on teaching fundamental skills. This corresponds to the understanding in schools.

Today we have to manage large entities; the details are always possible to get from the computer or the Internet. But, we have to have such knowledge and versatile literacy skills to know, for example, where to find the river in some country in a specific place. And our curriculum has specified terribly many details under every headline. I believe the next curriculum will go back a step or two. (S2Pi2009).

In the interview data, all eleven schools had a similar understanding of the shortcomings of the core curriculum.

### 4.2.2 Textbook

Textbooks are closely related to the curriculum, but they represent the publishers’ and editors’ view of it. Because the curriculum presents the required learning
contents in much detail, this has led to a situation where the publishers produce textbooks with exercises that fit in with the curriculum lesson by lesson.

Textbooks were strongly criticized by all the schools because of their too detailed contents, which make it difficult for both teachers and pupils to find the fundamental issues. “The exams are also constructed by the publishers and they are based on memorizing facts, not on evaluating learning skills” (S3Pi2009).

The schools have the last word in choosing the textbooks they use, or in choosing not to use a textbook in a certain subject at all. During and after the project, the teachers severely criticized textbook content and use.

It is a question of (…) prioritization. The textbook is not the curriculum. We should have the courage to move on from textbook engagement to learning engagement, where the textbook is one source of information among others. (S3r2003).

Especially social studies, environmental and natural studies, biology, and history book assignments were considered as concentrating on details, and they were strongly criticized and often abandoned.

On a wider scale (…) we probably would save a lot in textbook orders by working this way (using self-made learning material). There is no use in ordering exercise books any more. Many things can be done otherwise. But there is a problem if everybody produces the material alone or together with one or two workmates. It is not reasonable activity, but rather a waste of time and effort. In my mind it is up-to-date to do something just once and properly so that it can be further developed by others. (S10T4i2009).

Textbooks were perceived as stimuli for further inquiry if the teacher is sensitive to the good questions they arouse.

And often when we read the texts in a textbook, some critical comments come up from the pupils or me, and the pupils become interested and want to know more, and then we come to our Learning Center. We find something interesting and we address a problem and I give a hint for information seeking. So it begins from the theme, but it is the pupils’ own focus, and it is quite fruitful. (S2T2i2009).

The role of the textbook is not always clear to the pupils: “The pupils don’t see their own textbook as a source of information, but as a burden to carry in their schoolbag” (S2T2i2009). The teachers have considered placing textbooks in the
reference library more often than before. The teachers criticized textbooks for concentrating on unessential content.

In history there is so much stuff, but somehow the questions and exercises (...) are not getting to the point. The pupils come to the understanding that there are just these things to learn which are given in this exercise book, which are, however, quite unessential points. (S2T1i2009).

The use of textbooks helps in following the curriculum’s detailed content requirements, but the teachers thought it is necessary to be critical about the emphasis on different subject matter: “Sometimes it is good to keep textbooks at arm’s length and do something else on the topic. This can promote learning much more.” (S8T2i2009).

The teachers looked carefully at the textbooks and used them selectively. The teachers often abandoned history exercise books, but some environmental and natural studies exercises were very welcome, and the teachers even searched for additional material to differentiate teaching and learning. (S2T1i2009, S8T1i2009, S11T2i2009).

However, in some core subjects like languages and mathematics, textbooks were considered very useful.

As an English teacher I make learning material and teach the books made by myself. (...) Now I realize that there is really good material in teacher’s guides and exercise books which is thought through by a big group of people, so that I dare to use it much more now. (S11T1i2009).

The primer and the math textbook play an important role if you think from the first-graders’ point of view (S11T2i2009).

The teachers felt they should move on from textbook engagement and the teacher-centered teaching tradition to learning-centered teaching.

A breakaway from textbook engagement and the teacher-centered learning tradition requires an awful lot of courage, but it is awfully liberating by allowing you to count on your professional skills and to realize that things can be done in another way (S3T1i2009).

This issue has been developed further in the School of the Future project in order to break the textbook tradition, despite discrepancies with the publishers.
Particularly within our School of Future program, we have challenged the publishers to invest more in the production of digital material. Their answer is that it cannot be produced because there is no demand. Textbooks and the profit obtained from them serve as the backbone of the publishing sector. (S3Pi2009).

The publishing business is clinging to the school system as a gigantic customer and is involuntarily considering radical choices. Changing the tradition of using textbooks as the main teaching material needs not only schools’ negotiation with publishers, but also the involvement of the FNBE, with new visions and radical curriculum development.

4.2.3 Schedule

Flexible scheduling and/or use of block scheduling (meaning that the whole grade has, for example, math or Finnish lessons at the same time) offers possibilities to differentiate teaching by dividing pupils into groups according to their learning styles or learning difficulties. This is also an issue to be learned by both teachers and pupils.

All eleven schools used flexible scheduling or block scheduling, and most of them used both. The schedule is one feature of traditional schooling which is taken for granted by both teachers and pupils: “Somehow, after having tried it [the flexible schedule] I have the feeling the pupils have an even higher threshold than the teachers for that kind of working practice” (S10T4i 2009).

In the same school the architecture of the school building restricts an open learning environment if flexible schedules are adopted.

I have been thinking that one reason for our being somehow in our own boxes is the daily schedule. While our lunchtime is flexible, there is traffic in the corridor all the time from ten to twelve o’clock. It is almost necessary to shut the door. (S10T2i 2009.)

The operating culture of using the learning center has become common practice among the whole teaching staff in one school. Therefore, it isn’t easy to get there spontaneously when the class has a project lesson but more accurate scheduling is required: “But now, when I listened to a discussion of teachers, they often have a situation of not getting to the learning center because it is occupied, this should
be taken into account when planning the schedules” (S2Pi 2009). Two other schools had already developed a reservation system for their school library.

Thorough consideration of scheduling from pedagogy’s point of view produces a collaborative working culture.

Actually, during this project we began to have lessons that are 45 minutes or 90 minutes long with 30-minute pauses. So we have half as many transitional situations as in a conventional school. A change to longer lessons necessarily brings changes to teaching methods and forms. It also creates more collaboration and thereby lightens your own work. (S6Pi 2009).

4.2.4 Discipline

Discipline problems are related to the school architecture, which may limit or support pupils’ freedom to use the school library. If the library is a closed space, discipline problems are more likely to arise.

Some of the teachers were deeply committed to the mind-set that the children need discipline, and their behavior in the school library is not appropriate if they can go to the library alone: “Pupils act in the school library under the guidance of a grown-up person. We do not have such an open learning environment where anybody can come whenever he or she wants to.” (S4T2i2009).

In three other schools which couldn’t situate the library in a central or open space, the problem with discipline was emphasized, too.

All pupils cannot be admitted to the library alone, because they, even older pupils, have not learned how to act there without messing up places or doing something else that should not be done. Such an operating culture is the result of the physical location of the library. If people are moving there all the time or there is a glass partition [between the library and the corridor], it is easier to control. (S11T1i2009).

Recognizing discipline problems forced the teachers to think about teaching the children to use the library.

Concerning the objectives of library use, one thing is to learn to behave in a library. The school library is a good place to practice: to put a book back in the right place if you don’t check it out, to comport oneself quietly, not to disturb those who are busy reading or working. (S8T2i2009).
Another school had a systematic program for guiding users’ behavior in the library. They thought it was not problematic to have the library open all the time.

Our borrowing and school library activity have been busy before, but now when we have the issue terminals, we don’t need staff for that, and I must thank the SLI project that this is very easy for the pupils (S1T2i2009). Now you have to emphasize your own role, or ours, because it is we who are straight away teaching the first-graders to use the library. We say how to check books out and tell and show concretely and teach it, so it is becoming natural behavior to go and borrow books and go to seek what is needed. It has great significance! (S1T1i2009).

However, the SLI project made the principals and teachers aware of the important features of the school library as a space and a learning environment, so that they can take these issues into account in future renovations. With relatively small improvements an older school could ease watching over the pupils: “Now use of the school library during breaks will become physically easier when the walls will vanish in the renovation project, so the pupils in the library are constantly under our eyes” (S8Pi2009).

After moving from one project school to another, one teacher had experienced that the pupils did not have the right understanding of the library’s function and misused the library. So, she took the responsibility of educating them.

When I came here a year ago, there was quite obvious misuse of the library. They [pupils] were always hanging on to my sleeves asking permission to go to the library or reading corner. Then they spent three quarters of an hour there and came back without having found anything to check out. If you do not find something to borrow within three quarters, you have not tried hard enough. I put a total stop to such kind of hassle. (S10T2i2009).

Understanding the value of the school library’s collection in relation to the discipline paradigm was well expressed by the same teacher.

It is important that it does not turn into watching over the collection. (…) It is more important to use the material, and a loss is always connected to use. Books vanish, they are damaged, lost, and stolen, but in my opinion it is a minor harm compared with a lot of unused books in a locked glass case not accessible to anybody. What to do with them. The value of books is their utility value. (…) Let’s buy some more of them! (S10T2i2009).
The SLI project had an impact on the teachers’ attitudes by encouraging them to find the balance between desirable behavior and freedom.

4.2.5 Summarizing the development of the rules

The teachers and principals severely criticized the National Core Curriculum (FNBE 2004). The hundred years’ tradition was seen in the actual core curriculum. The former curriculum was quite suggestive, leaving much freedom for building local curricula. It led to big differences between schools. As a reaction to this development, the last National Core Curriculum was again a detailed document of content for every subject area, containing over 300 pages. Both teachers and principals criticized the curriculum for leading backwards to centrally planned enactment. As a consequence, the publishers produce textbooks with exercises that fit in the curriculum lesson by lesson. The exams are also constructed by the publisher, and are based on memorizing facts, not on evaluating learning skills. The National Core Curriculum (2004) is driving schools and education in the wrong direction, despite the explicitly stated constructivist conception of learning.

The critique towards the curriculum emphasizes its impact on learning and teaching methods. The cross-curricular themes in the core curriculum should lead to a more integrated working culture, but the curriculum as a whole doesn’t give room to conduct real integration. According to the aims of the SLI project, the teachers tried to increase communal practices and collaborative planning, but in the biggest schools this proved to be difficult. However, they claimed the concurrent curriculum revision process also supported the aims of the project. The SLI project has empowered the teachers to make decisions to apply the curriculum in a more broadminded manner and improve skills of developing the curriculum. A collaborative working culture and learning from each other were understood to be very important for sustainable development.

The teachers discussed library pedagogy in relation to the conception of learning in the curriculum. They came to the conclusion that peer and co-learning included in the new curriculum would hardly have become alive without the SLI project. The curriculum’s content was developed in relation to information seeking and library skills. Purposeful development work required explication of the teachers’ tacit knowledge in the curriculum. Information literacy proved to be key in turning the curriculum’s conception of knowledge into pedagogical practice.
During and after the SLI project, the teachers expressed severe criticism of textbooks’ content and use, criticizing textbooks for concentrating on unessential content. Especially social studies, environmental and natural studies, biology, and history book assignments were considered as concentrating on details, and they were strongly criticized and often abandoned. The teachers felt they should move on from textbook engagement and the teacher-centered teaching tradition to learning-centered teaching. On the other hand, textbooks might well serve as stimulants of further inquiry if used selectively. In core subjects like languages and mathematics, textbooks were considered very useful.

The taken-for-granted schedule, which is one feature of traditional schooling, was developed towards pedagogically justified scheduling. Discipline needed in the school library divided the schools into two categories: Schools which had a library built in a central location within the school and/or a program which included the rules of desired behavior could keep the library open all the time without disturbance. In three schools which couldn’t build the library in a central or open location, problems with discipline were emphasized.

4.3 Division of labor

The school library needs proper resources if school library pedagogy is to be developed and sustained. If the LT has no resources to co-teach with other teachers, his/her know-how remains as untapped potential.

The SLI project brought the schools financial resources with which to strengthen collaboration and practice different tasks in the school library. The division of labor (human resources) was defined from the school library’s point of view: who would do the routines, who would mentor the teachers in pedagogical problems, and how willing were the teachers to get involved in the new way of working. The division of labor between auxiliary staff and teachers, and teachers and the LT, was identified (including know-how), as was the autonomy of the teachers.

4.3.1 Auxiliary staff

The schools had both school secretaries and school assistants as auxiliary staff. Five schools out of the eleven had auxiliary staff for doing library routines and keeping the library open. This helped the teachers concentrate on pedagogical work: “We have had a real good school assistant who really sat down and
worked in the school library; she had a big role in the library” (S9T2i2009). A school secretary who is willing to extend his/her competence may free the LT from doing the routine work of the school library.

For our school, it was crucial to get a school secretary employed in the beginning of the SLI project. It was a good concession from the City of Oulu in that economic situation, that she has had the possibility to continue until these days. All the routine work in the library has been a part of her job specification. Usually the LT does that work, which takes a lot of time, about six to nine hours per week. The LT doesn’t have such a time resource for this. So the LT can concentrate on pedagogical work. (S2Pi2009).

The new way of dividing labor in schools sometimes met resistance to change: “If a school secretary has done his/her routines for years in the office, he/she may not accept new tasks involving working with pupils” (Secretary in S2i2009).

The most important benefit of having auxiliary staff in the school library was the possibility to keep the library open. One school had found a new practice for having a full-time school assistant in the library.

Fortunately, after the end of the SLI project we got an unemployed person to work in the library. The salary was paid through the employment project. She helped both pupils and teachers by collecting books on certain subject matter. We’ll try to get the same kind of an employee after our school renovation process is over in the autumn. (S8Pi2009).

The four schools that used short-term staff in the library were quite satisfied with this practice, but considered the repetitive training of new assistants a waste of time.

4.3.2 Library teacher

The time resource for LTs is from 1 to 2 hours per week to maintain the library routines, which is a matter of the collective labor agreement. The problem is in the agreement as a whole, because it specifies teachers’ work only as teaching hours. All the resources for planning and collaborative teaching (including the LT’s work) must be shared, and the amount of these resources is relatively small, depending on the size of the school. During the SLI project the teachers learned what it means to have time for collaborative planning.
We got time and money to strengthen the development work of the school library that we had begun before. The time for collaborative planning was crucial for producing new ideas. For example, the teacher librarian alone would hardly have invented the idea of pulling down the wall to get an excellent space for computers. Another collaborative idea was to build a reading balcony over the library space. In school library activity today we have recognized that the lack of time is even more irritating for the LT; two hours a week isn’t enough. (S5r2004).

Another school also expressed concern over the continuity of school library activity in a report from 2004.

From the point of view of sustainability, the school library needs a constant staff or money from the City Administration. Even maintaining the library requires daily work. If you need to guide pupils’ information seeking and teach library skills besides the maintenance work within one hour, you have practically no time at all. One Information Specialist for the whole school library of the City of Oulu doesn’t reduce the needs of individual schools, but it is a prerequisite for the professional support which the LTs need to continue their work. (S6r2004).

During the SLI project the schools considered national-level problems in developing school libraries in Finland, for example, in implementing the new curricula.

It is very ambiguous that the FNBE arouses a need for school library development through new curricula without any financial support. School library activity is not like playing an Air Guitar, where you act on mere imagination. (S7r2004).

The resource problem remained unsolved also after the SLI project was over.

The LT should have more resources to be present in the library. Now we have only half an hour’s time [a small school] for her, so she spends it on everything else but that. The teacher librarian’s professional know-how relates to instruction of pupils, she doesn’t help give material to pupils, but rather guides pupils to ask the right questions. (S3T2i2009).

However, after the SLI project, one school expressed thankfulness for the good resources provided by the project, because it produced working practices in which such resources are not required any more (S9Pi2009). Because the schools do not
have full-time LTs, many teachers have learned to use the equipment and guide the pupils in searching for information, so they simply take their class to the library and go on with schoolwork there.

If I remember right, from the very beginning we had the idea of teaching in the library, that every teacher would work there with his/her pupils, not bring his/her pupils to another teacher who assumes responsibility for the class. So, it is a natural part of each other’s work. (S10iT42009).

As the decision-making concerning the use of quite small extra resources has been delegated to schools, there is quite strong competition between many development projects. The teachers thought the only way to get resources for employing a full-time teacher librarian would be based on earmarked money. (S5T1i2009).

Teachers also adhered to their right to contractual (extra) resources which are allocated for work that is not their primary work as teachers and brings in extra money.

Now, when the amount of pupils has diminished, finances have dictated that our LT has the library resource in her teaching hours (S4Pi2009). Yes, it isn’t an extra resource any more. The same work with a smaller salary – it doesn’t motivate very much. (S4T2i2009).

During the SLI project the teachers claimed that the LT’s professional know-how was not appreciated enough nor was it used adequately to mentor colleagues and teach pupils.

The LT’s time goes mostly into planning the school library’s orders and acquisitions and practical arrangements. To have the school library learning environment which we intended and wanted to have, we would need much more resources for supporting teachers and instructing pupils. (S7r2003).

The problem of not using each other’s expertise for professional development was recognized even in 2009.

This year we have been talking about mentoring and exploiting our know-how. But, if the teacher doesn’t ask a question about a work-related problem, there is no discussion inside the grade and at the school level. If pedagogical problems are discussed, then we deliver the best practices and the system begins to nourish itself. But, if somebody doesn’t get in on the discussion, it is the responsibility of the mentor to take the initiative. (S1Pi2009).
4.3.3 Teacher autonomy

Teachers have a very autonomous role in Finnish schools and society. Teachers have a high academic education and they can independently decide on the teaching and working methods in their classes. On the other hand, this autonomy may serve as an obstacle to development work in schools.

One school reported on the efforts that are needed to change the autonomously thinking and working group of colleagues: “You need strong tools to change the school’s ways of acting and to influence teachers’ minds. Believe it or not, that this is a good idea doesn’t necessarily make any difference, even though it is true.” (S11r2004).

Teachers may also make decisions that are contrary to general practices, for example using the Library Route, which is a library education program for pupils in the City Library jointly designed by the library and the schools.

We have offered the possibility to all teachers to participate with their class in the Library Route, but the teachers have the opportunity to consider if they think it is important, and if not, the teacher has the freedom to decide not to participate. (S4T2i2009).

Because the school library’s material is limited, collaboration with branch libraries offers better possibilities to work with information.

I think quite a few of our teachers use the branch library by asking if the library collects material about a certain subject (S9T1i2009). Yes, of course they can, but if there is somebody that likes not to act that way, so has anything changed in his/her class? (S9T2i2009).

A LT in one of the elementary schools in the SLI project was concerned about changing the more autonomous subject teachers’ thinking.

It [teacher autonomy] may be a real challenge in the subject teacher system [upper comprehensive school]. I myself am also a subject teacher, and I know in that education we adopt the mind-set that there is my subject and my lessons – this conceptual world is quite challenging to break down, I mean when the lower and upper comprehensive school levels will be united. (S6T1i2009).

Even the local curriculum isn’t strong enough to bind teachers to follow it.
It was decided that one hour per week of Finnish lessons, which were nine in total, should be used to teach media literacy in the City of Oulu, but when it was surveyed, not a single school followed the curriculum. (S8Pi2009).

The teachers’ autonomy may become an obstacle when the project schools try to spread the idea of the school library as a learning environment to other schools. The teachers have to become initiated to the possibilities of the school library – otherwise it does not make any difference in the school.

On the level of the City of Oulu, we had 14 schools in the SLI project that were motivated and they were chosen for the project on the basis of their development ideas – so they had a wholly different starting point than the schools that came along in the second group. We brought the library system into their schools without their quest. We blew it, so we had to step back. In one school the library computers were carried to other use and the teachers said they do not need anything like this. (S7Pi2009).

4.3.4 Summarizing the development within the division of labor

The division of labor is a problematic question in an expert organization like a school, where on one hand there are strong institutional traditions that include teachers’ high level of autonomy and on the other hand an agreement system which constricts the possibilities of flexibly changing the division of labor. The autonomous status of teachers may cause situations where a teacher acts against generally agreed practices.

The auxiliary staff was used in five schools to carry out routines in the school library and simply to keep the library open. This significantly decreased the LT’s workload, but it didn’t solve the problem of the inadequate resources of the LT. On the other hand, the rigidity of changing the customary division of labor extends easily to the whole community. The teachers also adhered to their right to contractual (extra) resources which are allocated for library routines that are not their primary work as teachers, but give a small amount of extra money. This has nothing to do with the pedagogical work of the LT.

As a whole, the SLI project didn’t have the strength to solve the problems related to scarce resources. A possible explanation for this is that these problems originate from the communal and national levels (legislation and strategies), and the schools do not have tools with which to solve them.
However, after the SLI project one school expressed thankfulness for the good resources provided by the project, because it produced good working practices. Because the schools do not have full-time LTs, many teachers have learned to use the library’s equipment and guide the pupils in searching for information, so they simply take their class to the library and go on with schoolwork there. The problem is that if the LT isn’t present in the library, her/his know-how remains partly unused.

4.4 Community

Development of schools cannot be promoted as an isolated activity in society. It is important to foster the advancement of pedagogy in individual schools, but collaboration and parallel efforts between schools and other actors like educational authorities and public libraries — which together form the learning commons — are crucial for the success of reforms.

The community in this study was formed on one hand by the school and its internal relationships and working culture, including the parents of the pupils, and on the other hand by the partners, which were other pilot schools, the City Library, and the Education Department of the City of Oulu. Both of them are essential for the school’s success in its basic task of empowering pupils to take over the citizenship of the learning society.

The results of the community component of the school’s operating culture are presented in two sets of sub-chapters. First the focus is placed on the school community in (4.4.1): Principal’s role, Teacher collaboration, Pupil collaboration, and Collaboration with parents. Secondly, the focus is on the City community in (4.4.2), which consists of Collaboration between schools, Collaboration with the City Library, and Collaboration with the Education Department of the City.

4.4.1 School community

The actors in the schools’ operating culture are the principals, teachers, pupils, and their parents, who altogether form the school community. The principal as a pedagogical leader has an impact on selecting the individual school’s focal areas and resourcing core activities, and the teachers as teaching professionals have the capability to creatively develop their work. The pupils grow and learn in interaction with the teachers and each other within the physical and intellectual environment of the school. The parents have an important role as companions of
the teachers and supporters or opponents of the school’s pedagogical choices, especially in elementary school.

**Principal’s role**

The principal has an important role as a leader and a supporter of teachers’ teams and project work and in initiating new activities. The principals started up the process which led to the SLI project. They educated themselves and acquainted themselves with school libraries in Finland and abroad.

The principal’s role is always important in these development projects. We had a principals’ education group where we listened to [Kai] Hakkarainen’s lectures and we processed the ideas when talking with colleagues. And we also participated in the school library meetings during the SLI project. Now the activity goes on independently and we principals have new themes in our meetings. (S5Pi2009).

Because of their initiator’s role in the SLI project, there were only a few references to the role of the principal in the data. Leaving the staff members alone in charge of development work in a big school was a reason for critique: in one school the LT had no colleagues with which to share the thoughts and responsibility of developing school library activities, and she felt anxiety and stress when working alone.

When we speak about the operating culture, I felt it didn’t work well enough from the beginning (…), because I was alone in this project. As the only teacher in this kind of big school I felt quite distressed, because I tried to communicate to the principal that I needed a teacher peer, but there were no resources to collaboratively develop the information search process for our school, although I brought the information from the course to my colleagues. (S9T2i2009).

This kind of solution not to provide resources for collaborative efforts to bring new ideas to the school may have been caused by the teachers’ autonomy being respected too much in that school; many teachers continued to work as they had always done, and they did not learn to use the library facilities in their teaching (S9T2i2009). (See Sub-chapter 4.3.3 Teacher autonomy.) The principal is responsible for allocation of resources, and his/her attitude is crucial.
In general, the principals’ role has been very supportive during the SLI project. Their work in this project has been criticized very little.

**Collaboration among teachers**

The findings of the analysis of the first data set (reports from 2002–2004) indicated that the SLI project had enhanced collaborative working methods and understanding of IL. The teachers had collaborated in planning the school library space, its collection, and also cross-curricular learning tasks, which often had been comprised of projects with other schools in Finland and abroad.

The teachers emphasized an interactive atmosphere in the teachers’ room, including collaborative planning of schedules and learning tasks and collaborative teaching and curriculum development.

In every conversation related to teaching, the importance of developing and enhancing teacher collaboration was also emphasized as a way of promoting learning. In spring 2004 we are planning to have a shared theme for the whole school, where we are going to test new working methods. (S1r2003).

The funding for extra resources during the SLI project gave teachers an opportunity to interact with each other on a new level. The teachers appreciated this opportunity.

The project enabled the teachers to have a colleague in the school library working with them and helping in teaching. This led to completely new interaction and sharing of teachership in our school. (S7r2004).

The teachers’ collaboration with each other provided a role model of adults’ behavior for the pupils to collaborate with their peers.

Active interaction and pedagogical discussions between teachers is realized as increased collaboration between teachers, shared planning and coeducation. (…) The change in the teachers’ ways of collaborating with colleagues reverberates to the pupils’ ways of collaborating with each other. (S7r2004).

Usually, the SLI project enabled schools to have a team or at least a pair of teachers to develop the school library.

I have worked a long time as a LT. The most important thing during the project was that I got a colleague (T1) to cooperate with me so that we could share the responsibility. Always, when you have to work alone, you feel a bit
isolated, but it helps a lot when you can decide together what to do. (S11T2i2009).

The teachers claimed that both teachers and pupils benefit from collaborative planning. It helps in adopting more pupil-centered working methods and thus enhances learning.

I feel collaborative planning and integration is very useful: when we thought some theme is well presented in the textbook we used it, but then we did something else related to the theme a little bit differently. We taught and the pupils taught each other, and I think they acquired knowledge and skills well from such activity, I mean real knowledge. (S2T1i2009).

Sometimes the tension between subject teachers’ and classroom teachers’ resources for planning integrative projects restricted collaboration.

If I as an English teacher get a project idea on how to integrate visual arts with Finnish and further with English by seeking information from Australia, it may be stressful for the classroom teachers. Maybe the time spent with planning wasn’t so worthwhile if you had to execute the project in a great hurry in the middle of daily work. (S11T1i2009).

From most principals’ point of view, it is exceptional that teachers work alone.

As a principal I would say that I could count the teachers that prefer working alone on a couple of fingers. Those who were earlier asking why they must collaborate now say collaborative planning facilitates their work significantly. That it is a splendid thing. But of course, those that get along well with each other collaborate most easily, although this cannot determine the pupils’ learning. (S2Pi2009).

One principal estimated that the proportion of teachers who collaborate flexibly with each other is ninety percent (S5Pi2009).

The teachers’ collaboration was also manifested in arranging open learning environments. In 2009, as a leading principle, every school emphasized keeping the school library and the doors of classrooms open all the time. However, the architecture of older school buildings restricted freedom of movement in the corridors because of noise caused by poor acoustics (S10i2009 and S11i2009). Most of the schools started to use flexible schedules, which allowed the pupils to finish up their work without disturbance. Fixation on the traditional schedule with 45-minute lessons was common. Therefore, the use of flexible schedules was an
educational challenge for the teachers and also a problem for the pupils and their parents.

In one school, the teachers revised elementary instruction by having no classrooms of their own and only one teacher in each class, and by having five or six teachers responsible for the whole age group from the very first grade. It is very interesting to note that this kind of division of labor prevents quarrels between pupils.

We have a community where fisticuffs have disappeared, which is unusual in the first grade of school, where pupils are searching for their positions within their group of peers. When they belong to this community with 5 to 6 adults who are responsible for their education, the pupils also learn to help each other. (S6T1i2009).

These kinds of pedagogical practices where there are many teachers for every child in elementary instruction have been developed further in the School of the Future project, which followed the SLI project with emphasis on pedagogical development. The teachers claimed that after learning to collaborate in the SLI project, it was very easy to adapt to a new project (School of the Future 2007).

During the SLI project the teachers learned in a concrete manner how important it is to share information and other resources of different projects to find synergy between them.

Another problem relates to the size of the school. Developing one large project is one of many major things. We have learned that we cannot separate the library project and development of the curriculum and the ICT strategy. We see development of collaboration as a big challenge. It affects the operating culture and the learning environment of the whole school. (S1r2003).

During the SLI project the teachers took a clear step towards a comprehensive collaborative operating culture. However, the high level of professional autonomy has been an obstacle to embedding it thoroughly in teaching practices. On the other hand, knowing that collaboration is voluntary and that the teachers have the freedom to do so if they wish may have an empowering effect on work in schools.
Collaboration among pupils

In all eleven schools the pupils had some collaborative approaches to work, depending on the individual school’s emphasis: in most of the schools the pupils had book talks and they read fiction together. The pupils collaborated with each other and the teachers by assuming responsibility for the school library’s functions and teaching each other as peers and across age boundaries.

In one school, the library’s collection was expanded with the Oulu City Library’s collection by borrowing books with a teachers’ library card. Lending books to the class has been the pupils’ responsibility, and no books have disappeared. In many schools the pupils have had some responsibility for maintaining order in the school library, and this has led the pupils to appreciate the freedom of using the library whenever they need to. (S3T2i2009). Tutoring each other has become regular practice in the schools: “A new thing which has been seen in our school this year is pupils tutoring each other – this is becoming regular practice, and I suppose this is a good thing” (S1T2i2009).

Concept maps (see also Sub-chapter 4.1.1) are used in every school as orientation to new learning assignments, means of evaluation, self-evaluation, communicating, explaining, and asking questions among pupils. Pupils’ collaboration is important in learning new concepts.

When peers explain concepts to each other, they very often use words that help others to understand better (S10T2i2009). Pupils collaborate across age boundaries; usually, older pupils help younger pupils, for example, when beginning to work with computers and by reading books together (S2T1i2009).

Collaboration with parents

In ten schools the interviewees posed the question of parents’ role in developing the operating culture. Parents are an important part of the school community, which had to be taken into account: “Parents must be educated to understand that there are no textbooks, because they look in the book for what the pupil has to learn, and [they wonder] how it is possible to study if there is no textbook at all”. (S2T2i2009).

The new working culture in schools broke the traditional class division and enabled dividing pupils into groups in different ways according to their needs.
Many parents were strongly against this in one school, claiming that the children must have their own desk and teacher, and their parents must know the exact schedule. The idea of how the school acts is deeply rooted in the public mind. (S6T1i2009). Parallel grades have their own ‘nests’ where the teachers and children work together. This also enhances the pupils’ working together and helping each other.

On the first school day, we don’t divide the children into classes, telling them that here is your teacher, and here is our classroom, and then close the door. We don’t give the old practice to the parents. It irritated some parents very much, when they didn’t know who the teacher was. They have to know that there are many teachers for the child. But now, the parents who were most against this new culture don’t want the old way back once they have seen what possibilities it opens up for their child. (S6T1i2009).

When the parents got acquainted with the new practices, where teaching and learning are tailored on the basis of the maturity level of each child, not on his/her age, they understood that this kind of education prevents marginalization and bullying.

Trust between the school and the parents must be supported when traditional schooling is undergoing change.

One question is the problem of assessing pupils’ learning: Many teachers do not have courage not to give numeral assessment on a study module because of the parents. The parents must have trust in the school’s ability to assess learning also by using other methods for assessment. (S3Ri2009).

Most of the interviewees’ comments related to the parents were considerations of the parents’ role in promoting reading, which was stressed in five schools. These schools focused on the parents’ role in taking their children to the public library (three schools) and taking care of the habit of daily reading of literature (one school). An idea to invite the parents to the school library was introduced in one school (S4r2004).

4.4.2 City community

Collaboration on the level of the municipality in the context of developing school libraries is crucially important, especially in Finland where the support of school libraries in the Basic Education Act is very weak. In the City of Oulu,
collaboration was enhanced between schools, with the City Library, and with the Department of Education.

Collaboration between schools

During the SLI project the basis for an LTs’ network was established and the good experiences with it encouraged the schools to continue the practice even when the project was over and resources were diminished.

The visits to the other project schools have broadened our understanding of the different pedagogical solutions to space problems and operating models. We have applied them in our own school and in our own insights for developing our own school library. Likewise, other schools could come to visit the project schools to acquaint themselves with their practices, and thus get ideas and solutions for their own library activities. (S11r2004).

The curriculum revision process was concurrent with the SLI project, and the schools collaboratively planned instruction in information skills step by step, coinciding with the objectives of the curriculum. Otherwise, the teachers were quite critical about collaboration between the schools: it doesn’t work out if you don’t have a real social network with each other. However, regional school meetings held in different schools, with teacher librarians and public librarians dealing with school library development, resulted in new pedagogical ideas, helped enhance the collections, and were considered very beneficial in all the schools. This was stated by one principal as follows: This LTs’ network kind of developed during the SLI project (S5Pi2009), and it was described further by a teacher from the same school.

There we get nice know-how at the grass roots level; for example, the last time there were teachers from both elementary and upper-level comprehensive schools presenting their own ways of teaching literature. I got very good information from there to be introduced in our own school. (S5T2i2009).

The schools had a good basis for collaboration because they were involved in the application process to be admitted to the SLI project – the teachers and principals were motivated and willing to cooperate. After the project, the simple idea was to continue cataloging and equipping the second wave of schools. It was disappointing for the School Library’s Support and Steering Group to realize that
the schools were not ready to use these resources, and after this experience the application procedure was taken into use again. (S7Pi2009).

Expansion of school library collaboration has begun by introducing the library teachers’ network to newcomers.

I could say the new LTs get into the activity quite well, because twice a year we have a meeting led by the Information Specialist, and then we have these regional meetings, which we have now had twice. So I think this way we will have closer relationships and the threshold will hopefully get lower. (S1T2i2009).

It is important to share grass-roots-level expertise with new teacher librarians.

...sometimes we have teachers in the LTs’ meeting who were forced to take up the baton of the school library and feel unfamiliar with the work. I have noticed that for them the meeting is very fruitful, as they have the opportunity to ask how to do this and that… (S5T1i2009).

In all four school districts, one of the project schools’ libraries has the status of a model school library. This means its LT has an outstanding responsibility to mentor newcomers.

**Collaboration with the City Library**

The historical difficulty of building a mutual understanding on collaboration between public libraries and schools was mentioned in three interviews.

Even though we had been developing cooperation for ten years, we felt it didn’t proceed… at some point the attitude came up that we are competitors with the public library. This is not true at all – we are constantly educating new users for the City Library. When the pupils practice in our own school library, they can easily use the public library, too. (S7T1i2009).

After the SLI project was over, collaboration between the City Library and the schools got a new direction. Collaboration with the City Library was valued in each of the eleven schools.

In general, the consultative role of the public library has evolved from competitive interests to collaboration and shared visions. Today, the manager of the Children and Young People’s Department has taken development work to heart. (S7Pi2009).
Development has proceeded at various speeds in different branch libraries: “Within the SLI project, collaboration with the branch library has come alive. Together we have planned teaching of library use to all classes. We are going to link this development work to the curriculum.” (S9r2004). Although collaboration between the school libraries and public libraries has become more regular, some negative comments have been given by the public library – the pupils’ use of the City Library has diminished (S11i2009 and S1i2009). This can be explained with the better collections and more active use of the school library than before the SLI project. Three schools proposed that the public library should more actively contact the schools: “The City Library should even peddle its services and attract classes to visit... they could simply use an e-mail list, which would reach every teacher at school.” (S3T1i2009) However, in some branch libraries this idea is already common practice: “For example, the public library calls and informs about book talk or sends e-mail to inform about services they offer to schools.” (S4iT22009). The regular book talks are an important information channel for the teachers (S10T3i2009, S2T1i2009).

The schools without a branch library nearby praised the mobile library services of the City Library: “It is even better than a branch library when it comes in front of the school’s door. And you can order what you need the day before, and the mobile takes the materials to you.” (S5T1i2009).

Teachers can also be active towards the public library by informing it about the topics of the pupils’ assignments before a library visit. This kind of collaboration opens up the possibility for deeper consideration of search terms and focusing of searches. (S3T2i2009).

The teachers praised the SLI project for the decision to choose the same database for the school library as the public library has. It helps pupils move to the City Library if the school library’s collection does not meet their needs.

A pupil asks if we have a certain book in our school library and I ask her to look in the database. She comes back and says we don’t have the book, but she found it in the public library’s catalog. So they can act also this way. (S1T1i2009).

The City Library of Oulu together with the Oulu School Library has designed a Library Route (Kirjastoreitti), which contains public library visits, an information-seeking program for different grades, and book talks. Moreover, a librarian from the branch library can be invited to teach information seeking at the school library together with the classroom teacher. In the new collaborative
practice the Oulu City Library participates in the school districts’ school librarians’ meetings twice a semester.

Collaboration with the Education Department of the City of Oulu

In an extensive development project with multiple actors, it is important to have a clear organization with explicitly articulated distribution of work. The Education Department organized the project activities during the SLI project in 2002–2004. A steering group with representatives from the Department of Education, the city administration, the city library, teachers, and principals organized and monitored the execution of the SLI project from the viewpoint of both activities and finances. A project coordinator and information specialist with one advisor from the education department took care of the daily organization of the project.

The Centre for Learning and Resources took over the administration of school libraries after the SLI project, and a full-time Information Specialist was appointed to catalog the collections and new materials of the schools joining in the school library network. The Information Specialist helps schools with any practical problems in collection management and database use. The Education Department is responsible for maintaining the database and organizing collaboration between the four school districts’ school libraries.

After the SLI project there was a one-year delay (2005) in development work. The teachers and principals in the schools were waiting for some kind of response and resources for further work, but they felt disappointed: “I was waiting for some kind of continuum to the project, but it kind of flagged” (S1Pi2009). “We had a hiccup in development work after the project, but now we have seen a tremendous upturn during the last two years ” (S1T1i2009).

The schools criticized the City Administration for the lack of strategic planning.

Our regional collaboration has a very low profile but we have meetings and contacts where we share good experiences. On the level of the City, a clear strategy and even a vision of overall educational development which includes the school library is missing. (…) And the next level of the school library strategy is the level which determines resources. We have a concept for how to go forward, how to develop reading, literature, and information seeking, but we don’t talk on the same level with the City Administration. We are
frustrated because we cannot act despite our having the know-how. (S1Pi2009).

The same kind of guardedness is distinctive in the strategies and curriculum work of the FNBE, too.

### 4.4.3 Summarizing the development within the community

This sub-chapter very briefly discusses the development of collaboration, because this phenomenon is so interwoven with the other components of the operating culture of the schools.

The principal has an important role as a leader and a supporter of teachers’ teams and project work and in initiating new activities. Generally, support was high because the principals started up the process which led to the SLI project. They educated themselves and acquainted themselves with school libraries in Finland and abroad. Both the principals’ and teacher-librarians’ conceptions of the principal’s role in developing school libraries were well aligned. This may explain the minimal amount of discrepancies regarding principals’ actions. In one school the principal couldn’t offer a colleague to the LT to share the responsibility of developing school library activities, which caused anxiety and stress in the beginning of the project. The situation was redressed later, but the problem delayed progress. This may also have been caused by the teachers’ autonomy being respected too much in that particular school; many teachers continued to work in the same manner they had always done, and they did not use the library in their teaching. In general, the principals’ role has been very supportive during the SLI project and very little critique has been expressed about their work.

The teachers collaborated in planning the school library space, its collection, and cross-curricular learning tasks. The teachers emphasized an interactive atmosphere in the teachers’ room, including collaborative planning of schedules and learning tasks as well as collaborative teaching and curriculum development. The funding for extra resources during the SLI project gave the teachers the opportunity to interact with each other on a totally new level, which the teachers appreciated. The SLI project enabled the schools to have a team or at least a pair of teachers to develop the school library. The teachers claimed that both teachers and pupils benefit from collaborative planning that helps adopt more pupil-centered working methods and thus enhances learning. Sometimes the discrepancy between subject teachers’ and classroom teachers’ resources for
planning integrative projects restricted collaboration. As pointed out by most of
the principals, it was exceptional that teachers worked alone any more. The
teachers’ collaboration was also manifested in arranging open learning
environments. In 2009, as a leading principle, every school emphasized keeping
the school library and the doors of classrooms open all the time.

Most of the schools started to use flexible schedules, which allowed the
pupils to finish up their work without disturbance. Fixation on the traditional
schedule with 45-minute lessons was common. Therefore, the use of flexible
schedules was an educational challenge for the teachers and also a problem for
the pupils and their parents.

In three schools the teachers assumed responsibility for the whole age group
as a team, so the pupils got used to working together and having several teachers.
These pedagogical practices have been developed further in the School of the
Future project (2007), which followed the SLI project with emphasis on the
learning environment and pedagogical development. The teachers claimed that
after learning to collaborate in the SLI project, it was very easy to adapt to a new
project. The teachers took a step towards a comprehensive collaborative operating
culture, and the interactive atmosphere in the teachers’ room encouraged
pedagogical conversations. However, the high level of professional autonomy has
been an obstacle to embedding it thoroughly in the teaching practices of the
teaching staff. On the other hand, professional autonomy may be an empowering
element in schools, because the teachers have good self-confidence and rely on
their own professional know-how to make good decisions in their daily work.

The power of the collaborative model for the pupils was one benefit of the
increased teacher collaboration. The pupils collaborated by assuming
responsibility for keeping things in order in the school library. With this increased
responsibility, the freedom to use the school library independently could also be
increased. Pupils’ tutoring and helping each other increased, too. This practice of
tutoring has been developed further in the School of the Future project. Concept
maps are used in every school as orientation to new learning assignments, means
of evaluation, self-evaluation, communicating, explaining, and asking questions
among pupils. Pupils’ collaboration is important in learning new concepts: when
peers explain concepts to each other, they very often use words that help others
understand better. Pupils collaborate across age boundaries; usually, older pupils
help younger pupils, for example, when beginning to work with computers and by
reading books together.
Some parents were first strongly against the new working culture in schools, which breaks the traditional class division and makes it possible to group children in different ways according to their needs. When the parents got acquainted with the new practices, where differentiation in teaching and learning is tailored on the basis of the maturity level of each child, not on his/her age, they understood that this kind of education prevents marginalization and bullying.

During the SLI project collaboration between schools was created on the basis of the LTs’ network for supporting the development of single school libraries. The good experiences gained from this encouraged the schools to continue the practice even after the project ended and resources diminished. The curriculum revision process was concurrent with the SLI project, and the schools collaboratively planned instruction in information skills step by step, coinciding with the objectives of the curriculum. Regional school meetings held in different schools between teacher librarians and public librarians dealing with school library development resulted in new pedagogical ideas, helped enhance collections, and were considered very beneficial in all the schools. The schools had good motivation for collaboration and development work because of the application process they had to go through. After the SLI project the simple idea was to continue cataloging and equipping the second wave of schools, but the attempt to get the schools involved in the development work failed. The schools were not ready to use these resources, and after this experience the application procedure was taken into use again with good results. In all four school districts, one of the SLI project school libraries has the status of a model school library. This means the LT of the model school library has an outstanding responsibility to mentor newcomers.

The historical difficulty of building a mutual understanding of collaboration between the City Library and schools was recollected in three interviews. During the years after the SLI project the relationship between the City Library and the schools has gotten a new direction from competition towards collaboration. The competitive attitude comes up every now and then: according to four interviews, some concern has been expressed on the public library’s side about the pupils’ diminished use of the public library. This may be a consequence of the enhanced school library collections. Some schools expected the public library to be more active towards schools. The teachers praised the project for the decision to choose the same database for the school library as the public library has. This helps the pupils move to the City Library if the school library’s collection does not meet their information needs. The City Library of Oulu together with the Oulu School
Library has designed a Library Route to structure library education. The librarian from a branch library can also be invited to teach information seeking at the school library together with the classroom teacher. The City Library has a representative in the school library’s Support and Steering Group, which plans and follows the development of the Oulu School Library. In the new collaborative practice the Oulu City Library participates in meetings of the school districts’ librarians twice a semester.

After the SLI project there was a one-year delay (2005) in development work in the schools, where the teachers and principals were waiting for some kind of response from the Education Department of the City of Oulu, but no resources were appointed directly to the schools for further development work. However, one significant investment was a full-time Information Specialist who was appointed to catalog the collections and new material of the schools joining the school library network in order to make them available to all the schools. Moreover, the Education Department has established the Centre for Learning and Resources with different learning material and literature series which schools can borrow. The Information Specialist helps schools with any practical problems in collection management and database use. The Education Department is responsible for maintaining the database and organizing collaboration between the four school districts’ school libraries. The schools criticized the City administration for the lack of strategic planning.

4.5 Development of the object

The pedagogical practices of teaching literacies form the object of the activity system of the school’s operating culture. The common denominator in this sub-chapter is learning to learn. The fundamental motivation of school activity executed by teachers and principals is formulated as an effort to transform the traditional teacher-centered culture towards a pupil-centered culture where the children are learning to learn. This moves the emphasis of teaching and learning from memorizing facts towards learning new literacy skills. Teaching literature as a part of the cultural heritage and learning Finnish is an integral factor in teaching literacies. An analysis of the school’s operating culture from the viewpoint of the object of the activity system was presented in Figure 10 (page 78).

In the SLI project the teachers understood the contemporary situation: the school is not the only place to learn. Therefore, the school has the unique mission of spreading equality among pupils who come from different social and physical
environments and thus have different bases for their learning and personal development.

4.5.1 Teaching literacies

The broad concept of ‘new literacies’ expresses the changing nature of literacy brought about by rapid technological change and connects the many concepts of literacy, such as information literacy, media literacy, and digital literacy, with each other. Because of the open access to the Internet and the possibility to widely distribute also biased information, critical literacy is a central dimension of the new literacies. Learning literacy becomes more collaborative by nature, and students who lean on social learning strategies may show more progress than those who adhere to individual, independent strategies. The role of teachers will be changed, but it will become even more important in supporting students’ critical thinking and introducing them to the new literacies. Teachers in elementary school have the fundamental mission of teaching literacy to pupils. This means literacies are present in all learning situations. The change towards this practice has been rapid during the last ten years.

Teaching information literacy

The findings of the analysis of the first data set (reports from 2002–2004) indicated that the teachers have a rich understanding of information literacy (IL), although they don’t use the same terminology (or they use it otherwise) as information professionals or IS researchers. In the analysis, the following eleven aspects of ‘IL teaching’ emerged: IL as creating knowledge (creating knowledge), IL as finding the right answers (finding answers), IL as finding a focus (finding a focus), IL as finding sources (finding sources), IL as information use (information use), IL as inquiry-based learning (inquiry), IL as making sense (making sense), using IL models (model use), IL as a search process (search process), IL as finding search terms (search terms), and IL as criticism of sources (source criticism). The analysis indicates that the teachers wrote most about their information search process, inquiry-based learning, and IL as creating knowledge (see Figure 11).
The analysis of the reports showed that the teachers concentrated on the process where pupils are learning to search for information to create knowledge by using inquiry-based learning. This finding also supports the interpretation that the teachers were writing about their conceptions of learning. In this context the definitions of information literacy overlap with the conceptions of learning. They emphasized the importance of teaching pupils to find well-rounded sources for their projects.

During the SLI project, the teachers discussed deeply about teaching and learning information skills.

At the same time the pupils have learned to seek information, always beginning from the pupils’ own former knowledge, expanding the ‘rings of knowledge’ all the way to the Internet and the library. The main tool has still been the textbook, but only as one source among others. We have collected information sources and other material for every project from the school’s collection and from the Oulu City Library. The fundamental principle has been that you must have varied information from many different sources before you are able to write. In this context, information skills have emerged:
condensing, the value of the information, the accessibility and nature of the information, validity… (S3r2002).

The process of information seeking was considered a possibility for evaluation.

Students can assess the sources by comparing their relative trustworthiness and attainability, and their ease and speed. At the same time, the teacher gets important information about what kind of information seeking skills should be practiced further. On one hand, through the information seeking tasks the pupils practice seeking information, but on the other hand the teacher acquires an understanding of the pupils’ skills. (S10r2004.)

During their in-service training the teachers developed tools for teaching and learning information skills. They further incorporated these issues into the new curriculum.

We have applied different methods from our own learning at the in-service training courses and the need to develop teachers’ working practices. (…) Learning to seek, organize, and manage information is challenging. It is perhaps the most important skill for our pupils in the future. The school’s duty is to give them the prerequisites for attaining equality and avoiding marginalization in the rapidly changing world. At the end of the project (2004) we wrote the Information Problem Solving Model into our school’s curriculum. Our purpose is to systematically guide the pupils in information seeking and use. (S7r2004).

In another school, curriculum development was also seen as a possibility to spread the use of the school library to the whole school: “In our new curriculum we are developing our operating culture into a direction where the school library has a more important role in information seeking” (S11r2003).

Inquiry-based learning became an object of purposeful development of teaching and learning.

Now as we have theorized inquiry-based learning, we can adapt some models which bring an organized backbone to our work. Four of our teachers have been developing this backbone of our school at the in-service training course. (S9r2003).

The City Library’s collections are excellent, but their distance and potential unavailability caused practical problems in using the public library’s collections as a resource for projects.
The pupils have searched for material for their own project and the teacher has ordered the material from the City Library and borrowed it. The biggest problem is the availability of the material. I think it is very important to use printed material, but if there are obstacles to getting the material, I often have to drop it. As bad as it sounds! (S3T1i2009).

The school library’s reference books were used together with Internet sources by all the classes in one school.

We have information seeking, and also use of reference books in our curriculum. And I can see that when a class has an ongoing project, the books disappear from the library. So the school library is used. The teachers don’t think all the needed information is in the textbook. And then we have projectors so we can also see additional information from the Internet in the classroom. (S5T1i2009).

The teachers learned to use different Internet databases and search engines and now believe in their further development. In the future, the emphasis will be on the accessibility of resources.

During the SLI project I became most conscious about databases and search engines – and how much they have developed during these seven years. You cannot go back anymore to searching for information from books. I am quite convinced that the Internet will be a more and more credible and better information source. Now the question is how do you know where the information can be found? (S10T1i2009).

Teachers’ and principals’ consciousness of the terminology of IS and its application in education increased, meaning that during and after the project an interdisciplinary approach became concrete to some extent in all the schools, but especially in five schools.

I have to say that the SLI project specifically brought to my awareness the concepts of information seeking; the concepts began to live through our teachers who participated in the in-service training courses and we included the concepts in our school’s curriculum. And then the concept of information literacy, which also includes media literacy, needs sort of a new effort to get into it. (S7Pi2009).
A comment on information use was expressed by a LT who criticized the teachers’ superficial attitude towards information use as a practice related to a kind of copy-paste technique.

In the beginning of the SLI project we got comments from some teachers that we have always done this, but I argued that the common way has been to take the information, edit it to make it a little different, and move it to another place. But we have moved ahead from the starting point. (S7T12009).

It would be possible to guarantee the equality of the pupils when the Information Problem Solving Model is written in the curriculum to systematically guide the pupils in information seeking and use (S7r2004).

The gradually proceeding Library Route developed in collaboration with the City Library supported the same effort.

We have tried to guarantee the advancement of information skills grade by grade, which has been the basic principle of the Information Problem Solving Model, regardless of the individual teacher. The child should have the right to a certain level of knowledge of information skills. This should move as a continuum from lower to upper-level comprehensive school. (S6T12009).

Information literacy as one of the literacies – or as a learning skill – has great potential for promoting constructive learning. These skills should be welded to a stage so that they would have a transfer effect in new learning situations.

I could compare information skills and information problem-solving skills with the decimal system, which we have to teach children so well in elementary school it doesn’t ever disappear from their heads. The information skills and information problem-solving skills help them acquire information whether somebody reinforces it or not. (S7P12009).

Teaching literacy

The teachers considered teaching of literacies from many points of view.

There are learning objectives that must be internalized so that the pupils become conscious of them, and then we can season them with some content like in environmental and natural studies with grasshoppers or ants. What they read is not important, but how they learn to seek information, understand the information, and make choices. I think every teacher knows the most
important things to stress in her grade. For example in second grade it is the multiplication table and fluent reading. And of course, media literacy is important today. (S4T1i2009).

(...) Seven years ago we had to teach pupils to search for information on the Internet. Now (...) they learn to Google at the same time as they learn to read and write. But, fourth grade pupils don’t necessarily know the alphabetical order. They cannot use the phone book but they can find telephone numbers from the Internet by using Google. (S10T2i2009).

Conversations during the SLI project provided much food for thought: “(...) I became conscious of what understanding the content of a text actually can be (S10T4i2009). (...) we were talking about opening a text” (S9T2i2009).

The teachers faced special challenges in teaching literacy in schools with pupils from different ethnic backgrounds.

The concepts are in a central position in teaching in our school, which has many immigrant pupils. I have all the immigrant pupils in my class when we are learning environmental studies. We underline the new concepts beforehand so the pupils know what should be explained. We were studying sheep, and the underlined word was clip, which refers to cutting the wool. But because the word wool wasn’t underlined, the pupils didn’t understand what part of the sheep should be cut off. (S9T2i2009).

Moreover, new challenges of teaching foreign languages were also noted.

Last year I had a Chinese and a Russian pupil and they had done their English homework well and learned that the beaver is majava in Finnish. But neither of the pupils knew what a beaver is. So, they had learned their lesson by heart, but they didn’t understand a word. This really woke me up! (S9Pi2009).

Concept maps are included in the new Finnish language textbooks, which promote learning skills. Literacies are also taught from reference books and the Internet.

In the new primers, concept maps are strongly stressed in literacy studies. It helps to find the core content of the text. (S8Pi2009). It also helps pupils who cannot find the thread to write stories (S8T2i2009). We have also brought traditional reference books into our classroom so the pupils learn to find information there, and they may supplement the information from the Internet.
and then combine all the information. Literacy there means the pupil understands the content. (S8T1i2009).

And when we talk about media literacy, we have to have good literacy skills first. You have to consider where the information comes from so that you can evaluate it critically, and search from different sources of information about the same topic. You have to read different books and different texts to gain good literacy skills. (S8T2i2009)

I had the possibility to bring a class from first to sixth grade. I constantly used all the subject areas to teach literacy. (S7Pi2009).

### 4.5.2 Teaching literature

In modern society we are surrounded with texts which lead to constant reading. The extent to which books are borrowed from school libraries shows a strong relationship with reading achievement. Moreover, free voluntary reading of fiction is the best predictor of comprehension, vocabulary growth, spelling and grammatical ability, and writing style.

In the SLI project two development lines, namely enhancing the use of ICT for teaching and learning purposes and promoting reading, were interconnected. The financial support for creating and improving the collections with new interesting literature and the welcoming school library space provided impetus to enhancing the reading activity of the pupils.

The use of the school library changed quite radically, especially regarding fiction. Before the project we had a school library with long shelves, and the pupils didn’t use the school library at all to find fiction. When we were able to change the physical space and bought new material, the use of the school library began to be quite active and all the classes used the fiction section. This was the biggest change in this school caused by the SLI project. (S9T2i2009).

In another school the practices of teaching literature got sustainable patterns, which included active use of the public library to expand the school’s own collection. The attitude towards the school library was positive with regard to further development of the practices.
Many teachers said that (...) certain practices became established. We ordered [from the City Library] baskets of a certain book; we knew beforehand that we would try to read certain books in certain classes. So we adopted a kind of systematic practice for teaching fiction. Yes, at least teaching fiction became more systematic. (S8T2i2009).

Overall enthusiasm for promoting reading was apparent in every school: “Anyway, the appreciation of fiction and non-fiction is a shared mission, and we want to invest in that by developing our collection (S1Pi2009). Our borrowing figures are increasing, so all the teachers are reinforcing reading as a hobby and every single pupil reads.” (S2Pi2009).

When I came to this school [after the SLI project] I was surprised how enthusiastic readers the pupils were. Most of our pupils read a lot. And it can be seen in their essays and how they tell a story. The whole class can easily produce stories and they use surprisingly rich language. (S3Pi2009).

4.5.3 Conceptions of teaching and learning

The conceptions of teaching and learning are presented in the curriculum. They are expressed explicitly in a couple of sentences that stress a socioconstructivist approach. Regardless of that, the assumption of frontal teaching is a built-in quality in the remaining hundreds of pages, meaning that the curriculum concentrates on listing the content of different subject areas, not on working methods. This has received severe criticism from the teachers and principals.

The teachers were convinced of the need for long-term or continuing in-service training for themselves. The teachers realized the necessity of the teachers’ own learning process in order to change their thinking, and they stressed a collective effort to achieve that change.

The “new learning conception” cannot be integrated seamlessly by itself as a part of the ordinary working model of a school without guided and time-consuming training. Training is needed particularly to understand about the stages of project work and to learn to plan/instruct in the context of collaborative teaching. Changing your own way of teaching takes time, feels laborious, and induces stress. Why change the style if you are controlling the situation and running the show? (...) Help is also needed for concrete
understanding of the new patterns so that the renewals would not remain as some teachers’ messing around. (S2r2004).

Three schools reported that they had conducted a survey among the teaching staff to obtain authentic material for writing the reports of the SLI project. For example, one teacher wrote about her conceptions of learning, which reflected internalization of the idea of inquiry-based learning.

Inquiry-based learning at its best is conceptualization, sharing expertise, and creating knowledge; in primary school the pupils can learn good skills in inquiry-based learning: I think an activity where the pupil must, in collaboration with his/her classmates and the teacher, consider and reflect on his/her own thoughts, is inquiry-based learning at its deepest. (S1r2003).

The usefulness of inquiry-based learning came up even in learning foreign languages.

When you apply inquiry-based learning to teach languages, knowledge of a language (the understanding of the text read as well as pupils’ own creation of text) advances kind of unnoticeably. The actual substance [of the text] is emphasized and the language turns into a tool which helps shape perceptions of things. The pupil perhaps learns the fundamental function of the language, that it is a tool for thinking. (S3r2004).

The teachers enthusiastically described successful teaching and learning experiences. The persistency of following through the learning process and discussing it with the children gave satisfaction about the value of purposeful development of pedagogy.

We had a four-hour collaborative learning unit with the class. We had four pupils’ groups and every group studied their own wild animal. I gave them some questions that were obligatory to answer, so it was kind of guided work, but what made the difference was that they were talking, they talked one by one about their animal and some pupils were very good story tellers. They used a concept map, which made the information search process visible. (S7T2i2009).

Conceptions of learning have occupied the teachers’ minds. However, a long time is needed to reach a stage in the learning community of a school where the teachers are ready to discuss these questions.
In one sense the curriculum is awfully broad, in my opinion almost impossible to carry out. Maybe because of that we have not gotten to talk through the conceptions of learning and knowledge to the extent that would be important to get ahead. We haven’t yet gotten into a comprehensive discussion about the learning and knowledge conceptions, even though it was very important in the SLI project. (S1Pi2009).

Inquiry is a prominent learning skill which is encouraged at the elementary level and offers the possibility not only for learning but also for evaluation. One teacher described his attitude towards inquiry, which also requires good self-confidence in the teacher.

I think the culture of asking questions and staying curious are a big challenge. We have to make the children understand that there are no questions so stupid that you dare not ask (...) to have the courage to ask even senseless questions and even about such issues that the teacher didn’t have the faintest idea of… (S3T1i2009).

A small pedagogical experiment in information use in learning was described in detail. It supported the conception of learning as a collaborative process where the guidance of the teacher was very important. Moreover, it showed that to strengthen learning skills, self-evaluation and peer evaluation must be included in the process. (S7T1i2009). This was an example of a guided inquiry.

I had a project on Middle Ages with a sixth grade class. Every pupil was given a role, a profession, and they began to search for information on it. Some questions were given for guidance and they wrote answers in their notebooks. They adopted the role of the worker and wrote a story about it. In visual arts they made an icon which somehow related to the story. They wrote a self-assessment in the notebook. The children struggled with the difficulty of finding information and a little bit with each other, too. The teacher’s assessment concentrated on how much information the pupil had found, how much he/she used the information, and how believable the story was. The last step was to make a Power Point presentation and tell the story to the class. Each pupil produced a work which resembled him/herself. Everybody could do the work, some were of course modest, but we also saw positively surprising works. However, also some talented pupils were not able to get absorbed in their work. This was an extremely hard task for a teacher.
I went through a similar process without using the notebook technique with another sixth grade group who had followed the work of the first group. They did not use notebooks in their work like the first group did. When they were presenting their works, I asked them if they understood what they had written on the slides. Some of them said no, we don’t understand. So I told them this is the meaning of the notebook – you collect information and process it, and try to make sense of it. And if it doesn’t make sense, you discard the information. They had only used the worthless copy-paste technique. They were beginning to understand what it means to know something. In these two processes, I experienced successes and failures and learned a lot about my work. (S7T1i2009).

The teachers saw the concept of learning to learn as a solution to the information flood, the exhausting content of the curriculum, and the goal of integration.

Teachers can perhaps in some way try to structure everything the pupils are doing, but when the world appears partly as chaos, maybe it is teaching to learn [that is important] and that learning is a matter of a lifetime (S1Pi2009).

Teachers have an important role in striving for equality as they realize that pupils have different bases for learning outside the school, depending on the attitudes and beliefs or the socio-economic status of their families.

Teachers often think learning skills are easier to practice in subject areas such as history and natural sciences. They may also avoid subject areas which are emphasized in the matriculation examination at the end of upper secondary school and in entrance examinations of universities. (S11T1i2009).

### 4.5.4 Teachers’ own learning in the SLI project

At their best, teachers are professionals and investigators of their own learning — they constantly reflect on and develop their own work.

The SLI project was a significant learning experience for the teachers who actively participated in the project in all eleven schools. The interviews made the teachers’ retrospection possible.

Surely the SLI project strengthened our conceptions of learning. We had had lectures on the curriculum and others, but when you learn it in practice you adopt it bit by bit. I do not know where we would be now without the project, but we could be on a lower step than we are now. (S5Pi2009).
The teachers answered the question, “Was there any change which perhaps would not have taken place without the SLI project?” in several very intimate ways which reflected the deep process they had gone through in their thinking related to their own conception of teaching and learning. The teachers considered their own learning experiences the most important.

I would barely have known about such things like socioconstructive patterns of thinking in my own thoughts. They are results of the SLI project as well as pupil-centeredness, too. (S9T2i2009).

During the SLI project some kind of insight occurred in my mind that you have to try in another way than merely copy-paste or suitably connect and edit existing text. In the in-service training we got the idea that concept maps are excellent tools if you want to make the pupils to briefly and concisely tell how they understand the matter. (S10T4i2009). I became conscious of what it really means when we say that the pupils understand what they are reading (S10T1i2009).

I came to this school and straight into this project in 2002 as quite a young teacher. The SLI project gave me some kind of channel to lead my own teachership into a certain direction... Afterwards I have gained the best fruits of it and found the ways of working that I know produce good results. (…) It is more like conception of learning and formation of working skills as versatile as possible. (S3T2i2009).

Some examples clarify the individual learning of the teachers. The project didn’t touch all the teachers in the project schools, although that was the goal. The diffusion of a new way of working in a community takes time, and good examples of the benefits of the new working culture are needed to get the slower adopters to join the enthusiasts. The teachers described some situations of slowness in adopting the new way of thinking.

But I am already so fossilized that if I want to change something in my own work, the change must take place inside of my head. Then you find solutions (…). I think those who [actively] participated in the project got the most benefit from it. I myself began to think a little differently. But if you think about other teachers who only saw that here they bustle and there they catalog and somewhere they organize shelves. I do not think it has any influence on such a person’s thinking or pedagogical approach at all. You get the most if
you are involved yourself in the activity and in the chaos, as it sometimes was. (S10T2i2009).

The different traditions of using teaching methods between subject teachers and classroom teachers may emerge during the development process. This became concrete also in the SLI project.

In the latest renovation we got a new cafeteria and school library and a wing for elementary instruction. We got money for furnishing the whole school. Then we took this communal furniture from a certain firm. Our English teacher did not want it in her own classroom, but instead wanted to go on with conventional desks. Now she has been asking if she could get it too, because when the pupils come into her class, they gather the desks together anyway. So, she has caught the point: Pupils want to work together. (S3T1i2009).

4.5.5 Summarizing the development of the object

The teachers developed a rich understanding of IL and the in-service training aroused the teachers’ and principals’ consciousness of the terminology of IS and its application in education. In teaching IL the teachers concentrated on the process of inquiry, where the pupils learn to search for versatile information to create knowledge. Understanding the information search process also offered a good possibility for evaluation. The development of the curriculum was seen as a possibility to spread the use of the school library over the whole school. The development of inquiry-based learning became an object of purposeful development of teaching and learning. It also caused the pupils’ to actively use reference books and the Internet as sources. The teachers learned to use different databases and search engines and trusted in their development. In the future, the emphasis will be on the accessibility of resources. The teachers criticized the superficial attitude towards information use as a kind of copy-paste technique.

It is possible to guarantee the equality of the pupils when the Information Problem Solving Model is embedded into the curriculum. The gradually proceeding Library Route developed in collaboration with the City Library supports the same effort. Information literacy was seen as promoting constructive learning. The teachers even thought IL could be transferable to new learning situations. Teachers in elementary school have the fundamental mission of teaching literacy to pupils in all learning situations in all subject areas. The
change has been rapid during the last ten years. New challenges in teaching literacy have emerged in schools which have many immigrant pupils.

Teaching literature received a strong impetus from the creation and improvement of good fiction collections in the schools. The pupils’ use of the public library increased and overall enthusiasm for promoting reading was evident in every school.

The conceptions of teaching and learning are presented in the curriculum. They are expressed explicitly in a couple of sentences that stress a socioconstructivist approach, but the traditional assumption of frontal teaching is a built-in quality of the actual content of the curriculum. This was severely criticized by the teachers and principals. The teachers’ conceptions of learning reflected internalization of the idea of inquiry-based learning, and they were purposefully developing their pedagogy in many schools.

The teachers realized that the community needs time to mature to the level that it is possible to discuss the conceptions of learning. The teachers saw the concept of learning to learn as a solution to the information flow, the exhausting content of the curriculum, and the goal of integration. Teachers have an important role in striving for equality, as they realize that pupils have different possibilities to learn outside the school. The active role of learners which is manifested in inquiry requires the teacher’s tolerance of uncertainty. Teachers often think learning skills are easier to practice at the elementary level and in certain subject areas like history and natural sciences. They avoid teaching learning skills in the subjects which are emphasized in the matriculation examination at the end of upper secondary school and in entrance examinations of universities.

The teachers were convinced of the need for long-term or continuing short-term in-service training for library teachers. They realized the necessity of their own learning process in order to change their thinking and they stressed a collective effort to achieve that change. During the in-service training the teachers developed tools for teaching and learning information literacy, which they incorporated into the new curriculum. The SLI project was a significant learning experience for the teachers as such.
5 Discussion and conclusion

In this chapter the research questions are answered on the basis of the findings described in detail in Chapter 4 in relation to the AT model put forth by Engeström. The reliability and validity of the study are discussed in Sub-chapter 5.5. After that the study’s contribution to Information Science and school library development is discussed and some ideas for future research are presented.

The aim of this follow-up (2002–2009) case study was to increase understanding of the dimensions of the school’s operating culture in general and pedagogical practices in particular during and after the SLI project conducted in eleven elementary schools. The study was inspired by the Activity Theoretical model presented by Engeström (1987), which provided the structure for the analysis of the school’s operating culture in the context of school library development. The purpose was to describe the development of the school’s operating culture in the course of school library development in the SLI project as perceived by the teachers and principals who participated actively in the project. Engeström’s model was used to frame the phenomenon of the school’s operating culture and to indicate the challenges which needed solutions. The dimensions of the school’s operating culture identified in the beginning of the study were comprised of tools, division of labor, community, and rules. The SLI project activity was focused on developing these dimensions in order to enhance the practices of teaching literacies, which was the object in the activity theoretical structure of the school’s operating culture.

The main research question of this study was formulated as follows: Did the school’s operating culture in eleven elementary schools develop during and after the school library project as perceived by teachers and principals? The main question was divided into two sub-questions:

1 Did the teachers and principals of the eleven participating elementary schools perceive any development in their school’s operating culture? If they did, which dimensions of the operating culture were involved?

2 Did the teachers and principals of the eleven participating schools perceive any development in teaching literacies, especially information literacy, during and after the development project? If they did, how did teaching develop?

Application of Engeström’s model in this study was challenging. The model was very applicable in this context and helped to structure the phenomenon of the
school’s operating culture and its dimensions for analysis of the data and presentation of the findings in Chapter 4. In this chapter the main findings are discussed in relation to previous research by answering the research questions in Sub-chapters 5.1, 5.2, and 5.3. The main findings are summarized school-specifically in Subchapter 5.4. The credibility of the study is discussed in Subchapter 5.5 and the contribution of the study in Sub-chapters 5.6 and 5.7.

5.1 Development in the dimensions of the school's operating culture in the SLI project

The dimensions of the school’s operating culture were the tools, which are comprised of the school library, teaching methods, and teacher education; the rules, which consist of curriculum, strategies and visions, architecture, schedules, and discipline; the division of labor, meaning human resources; and the community within and between the schools and their nearest partners in cooperation. These dimensions formed the conditions for the enhancement of pedagogical practices, which were the object of the activity in the SLI project.

5.1.1 Tools

The tools for teaching and learning which emerged from the data were teaching and learning methods, school library with its space, collections, and infrastructure, and teacher education.

The most valued method for teaching and learning in the teachers’ thinking was concept mapping (Åhlberg 1990, Novak & Gowin 1995). It made learning visible and possible to be evaluated, promoted peer teaching and evaluation, and developed the metacognitive skills of the pupils. Inquiry-based learning was often mentioned in the interviews and the teachers emphasized that in the learning process questioning, concept mapping, and creating knowledge are interconnected. Gordon’s (2000) comparative study on concept mapping’s effects on searching behavior revealed deeper and more thorough and efficient searching skills among concept mappers in comparison with other students. Gordon’s results support the perceptions of the teachers and principals in this study.

Flexible scheduling, collaborative teaching, and IL offered possibilities for differentiation and they also promoted integration. The use of these tools increased and became established. Integration of different subjects using cross-curricular themes is a central idea of pedagogical development work in OECD
and EU countries, such as Finland, and in development of schools’ curricula towards supporting learning skills instead of merely learning individual facts (Hautamäki et al. 2005).

One reason for the advancement of the teaching and learning methods was the fact that the SLI project allocated a reasonable amount of money for the teachers’ purposeful development work, which resulted in discussions, introduction to each other’s teaching practices, co-teaching, and an overall attempt to collaboratively learn new methods (Kurttila-Matero 2004).

The use of ICT in the school library and in classrooms increased, and teachers with minimal skills were encouraged and helped to use the equipment by their colleagues. The advantages of this kind of dissemination of ICT skills among teachers through intensive projects offer teachers the possibility to learn new competences and apply them meaningfully in their pedagogical work (Ilomäki 2008). According to Lonsdale’s review (2003), a strong computer network connecting the library’s resources to the classroom and laboratories has an impact on student achievement.

Some technical problems during the SLI project made it difficult to use the library equipment and the Internet, but in recent years the network has improved. After the SLI project the use of ICT has increased considerably in classrooms where interactive white-boards are in active use. The school library’s collections were strongly developed in collaboration with the public library and the overall learning environment was considered from the pedagogical point of view. Renovation processes in the different schools have continued to this day, and the teachers and principals have had time to learn from the best practices to design their own school library as well as possible. The average area of the library space in the project schools increased 48%.

In the five most advanced schools of the SLI project, the pupils’ everyday use of the library as a learning environment was an organic part of the learning process. According to Lonsdale (2003), school libraries can make a positive difference in students’ self-esteem, confidence, independence, and sense of responsibility in regard to their own learning.

Teachers’ in-service courses gave them a good possibility to plan new learning tasks to enhance their pupils’ work with information. The SLI project as a whole was an enormous learning experience for the teachers. Williams et al. (2001) underlined both librarians’ and teachers’ training in raising mutual understanding of each other’s contribution and roles within a school library setting.
5.1.2 Rules

The rules that guide or restrict activities in schools consist of laws, strategies, architecture, curriculum, schedules, discipline, and unwritten rules (hidden curriculum). Financial resources may also have characteristics of rules as they set limits for acquisition of materials and employment of staff. The most important is the curriculum, as it determines the content of the education and the conceptions of learning and knowledge (Cochinaux & deWoot 1995, FNBE 2004, Todd 2010). The National Core Curriculum was strictly criticized for its concentration on the detailed content of different subject areas without any guidelines for teaching. Hakkarainen (2002) has noticed the same problem of the curriculum’s weaknesses: connecting teaching to the curriculum revision broadens the concept of the curriculum. Because the curriculum revision process was ongoing concurrently with the SLI project, the schools could include concrete parts of IL and school library activities in the school-specific curriculum. The SLI project empowered the teachers to apply the curriculum in a more broadminded manner and concentrate on the fundamental content and cross-curricular themes. The teachers claimed that IL helped them purposefully develop the school library program to be included in the curriculum. Textbook critique was parallel to curriculum critique, and the teachers used textbooks selectively. Scheduling developed towards flexibility in all the schools, which supported the pupils’ concentration on inquiry.

The school library’s role and information skills were written in the curriculum of the City of Oulu in the 2004 curriculum revision. This also opened up the possibility to write a more detailed school library program in the school specific curricula. Four schools (3, 8, 10, and 11) had a brief school library program and four schools (schools 1, 2, 6, and 7) wrote a more comprehensive program in their own curriculum, which means the school library is an organic part of daily learning in these four schools.

The principals criticized communal strategic planning for inadequate resourcing of pedagogical school library activity. This problem was seen in a broader context of national legislation and strategies, which is difficult to solve regionally and school-specifically.
5.1.3 Division of labor

The resource problem of the library teachers (LTs) remained unsolved except for the very important professional service provided by the Information Specialist of the School Library in the form of cataloging and material acquisitions. The division of labor was explored from the school’s human resources’ point of view, meaning the LT’s work and know-how and the use of auxiliary staff. The division of labor in Finnish schools differs from the division of labor common in Anglo-American countries, where full-time teacher-librarians (TL) or School Library Media Specialists are important actors on the school staff. The research questions in those countries concentrate on questions about the TLs’ pedagogical role, appreciation of the expertise of the TLs, and sharing of leadership within the school (Oberg 2009, Montiel-Overall 2008, Meyers 2009). In five schools library routines were assigned to auxiliary staff, but the resources needed for pedagogical development and co-teaching remained as a school-level problem. The competition for extra hours for different development projects was tough.

5.1.4 Community

According to previous research, the most important element of successful school improvement is the amount and quality of collaboration at different levels of the community (Fullan & Hargreaves 1992, Lonsdale 2003, Montiel-Overall 2008, Scholastic 2008 and Oberg 2009). Collaboration within every single school in this study increased clearly. The principals’ positive attitude beginning from the initiation of the SLI project was crucial for the success of the development work in the schools. A collaborative planning culture was established in the schools, which was found to enhance learning through pupil-centered working methods. According to Hakkarainen (2002), crossing over the boundaries of a single teacher and classroom, teaching work must be considered from the viewpoint of the whole community. The curriculum should guide how pedagogical collaboration is organized, how teachers can support each other, how to discuss teaching and learning, and how to develop new working methods (Hakkarainen 2002). The intensive collaboration within and between schools was seen as good training for future development projects. The pupils’ collaboration was enhanced through crossing of class and grade boundaries and collaborative inquiry-based learning became more organized. The schools took responsibility for making these radical pedagogical decisions in spite of some parents’ resistance, and after
they produced good results the parents accepted them with satisfaction. Collaboration between the schools involved became established and also continued after the actual project.

Dissemination of the ideas and experiences to all the schools in the City of Oulu was and still is challenging. There are no shortcuts to reaching the level which the project schools attained in more than seven years. It is not possible without high motivation and continuing in-service training. Even the SLI project didn’t necessarily touch all the teachers in the project schools during the project, although this was the goal. This can be explained by the diffusion theory (Rogers 2003), which states that a new way of working in a community takes time, and practical examples of the benefits of the new working culture are needed to get slower adopters to join the enthusiasts. Adopting an innovation requires both resources and expertise, which within the SLI project were adequate to guarantee adoption to such an extent that sustainable practices were established for further dissemination. The teachers learned to use the possibilities and resources of the school library and collaborate with colleagues as a learning organization. However, dissemination of the new practices to new schools will be difficult because of the lack of such resources for the schools that will enter the school library network in the future.

The model school libraries were established (Frantsi et al. 2002) and the mentoring of new LTs was arranged in collaboration with the City Library and the Education Department of the City. The collaboration with the City Library increased and became regular. The collaboration with the Education Department was also enhanced in terms of the school library’s administrative practices: maintenance of the database, offering the Information Specialist’s services and mentoring of the LTs, organizing short training courses for the LTs, and establishing the School Library’s Support and Steering Group, which also connects the City Library closely to the development work. Regular meetings are held and annual reports that include an evaluation of school library development are compiled by the steering group (School Library’s Support and Steering Group 2008, 2009, 2010, 2011). The model school libraries were chosen from among the SLI project schools so that one model library mentors the development work in each school area. To plan this activity, the LTs from each model school library held meetings with the School Library’s Information Specialist. This way they are also continuously in contact with the Steering Group. This is an important result of the project, because the model school libraries’ LTs have an important role of speaking about the pedagogical significance of the school libraries and of
engaging school leaders in the development work, too. This aspect was highlighted by Limberg (1996) in a study of model school libraries in Sweden.

The SLI project produced an organized development program for all the school libraries in the City of Oulu. The operating culture extended to cover regular collaboration and development work with the City Library and with all the schools in Oulu on a regional basis and the Education Department’s Centre for Learning and Resources. The SLI project had an impact on collaborative practices among the teachers, among the pupils, between the schools, and with the City Library, and even with the Education Department of the City of Oulu.

5.2 Answering the first research question

Did the teachers and principals of the eleven participating elementary schools perceive any development in their school’s operating culture? If they did, which dimensions of the operating culture were involved?

The dimensions of the operating culture were the tools, rules, division of labor, and the community. The answer to the first research question can be encapsulated as follows:

As perceived by the teachers and principals:

The tools were collaboratively developed by transforming the methods of teaching literacies through integration, differentiation, and evaluation towards pupil-centered methods like inquiry-based learning and concept mapping by exploiting in-service training and each other’s expertise. Meetings with other LTs gave new insights for purposefully developing effective methods. The school libraries in every school were developed to a level where the pupils enjoy using the space and materials.

The rules were developed by incorporating the information search process into the local and school-specific curricula, but otherwise the core curriculum remained too detailed until the next revision process. However, only four of the eleven schools could integrate the information search process comprehensively into their own curriculum. The teachers’ and principals’ attitudes towards following the curriculum in detail became critical and they relied on their professional judgement in choosing the essential content to teach in depth. The hidden curriculum was uncovered by crossing class and grade boundaries and increasing flexible scheduling.

The problems in division of labor – meaning predominantly resourcing the LT – remained unsolved, but some good practices were developed. All the
teachers had to learn to search for information with their pupils, which may be seen as a strength for elementary education. The problem of not having a full-time LT was partly solved by extending the responsibility of the school secretary or school assistant to library routines.

The community developed to a new level through enhanced collaboration within the schools, between the schools, between the schools and the City Library, and between the school libraries and the Education Department’s Centre for Learning and Resources. Collaborative planning and teaching increased within the schools. It is unusual today that a teacher works alone. The continuity of the collaborative development of the school library was guaranteed by establishing the extensive School Library’s Support and Steering group to plan and report on school library development in the City of Oulu. The overall development of communal collaboration supports the idea of learning commons drafted in Figure 7 (page 59).

5.3 Development of pedagogical practices in the SLI project

Purposeful development of pedagogical practices in the schools was the object of the activity. This was defined as teaching literacies and literature and developing the teachers’ own conception of learning.

The teachers defined the core goal of the teaching and learning process as learning to learn. This stresses acquiring learning skills instead of learning a huge amount of facts (see Hautamäki et al. 2005, Hoskins & Crick 2010). This shifts the emphasis of teaching and learning from memorizing facts towards learning new literacy skills (Lankshear & Knobel 2003, Leu et al. 2007).

Literacies are in a central role in elementary school pedagogy. The new viewpoint adopted by the teachers was IL, which they saw as an inquiry process and creating knowledge (Kuhlthau et al. 2007, AASL 2007, Todd 2010, Lipponen 2010). IL is understood as a constructive learning skill, which is gradually replacing the superficial information transfer model (e.g. Talja 2005), which easily leads to use of the copy-paste technique. This can be connected with the development of collaborative teaching and learning practices and knowledge building. The information search process was used for learning and evaluation and it was included in the curriculum of every school, but its emphasis varied. The pedagogical practices of teaching literacies were deepened in the SLI project by connecting the different literacy conceptions with critical literacy and
collaborative learning within tIS and ES with new literacies (Lankshear & Knobel 2003, Leu et al. 2007).

Reading literature is crucial to attaining literacy skills in their deepest meaning. Active literary teaching stimulated the use of the school library, and lending rates increased in each of the eleven schools during and after the SLI project, which indicates a good reading culture. Teaching literature received a big impetus from the renewed collections and the Reading Finland project which coincided with the SLI project.

The teachers’ own learning process was emphasized in several interviews; it may also need long-term training. Important signs of development of the teachers’ conceptions of learning could be seen: they were fighting against use of the copy-paste technique and emphasizing the use of concept maps for constructing knowledge. This practice was in use in each of the eleven elementary schools at last at the end of the SLI project in 2004.

For the teachers and principals, the SLI project was the arena in which to discuss and share experiences and best practices. The extra resources gave the teachers time to collaboratively plan, teach, and purposefully develop new learning environments and tasks. The school library project was an intensive development period that was long enough for the teachers’ collective efforts to attain sustainable changes in their thinking, teaching, and learning practices. Signs of collaborative knowledge building emerged in the light of the interviews (Scardamalia & Bereiter 1999, Paavola & Hakkarainen 2005, Talja 2005). The project answered to the schools’ demand for building a learning environment and methods by providing both theoretical and practical impetus to the teachers. Connecting the two developing lines – the use of ICT and promotion of reading – produced an excellent contribution to pedagogical development. The SLI project empowered the teachers to make decisions in applying and developing the curriculum. The in-service training periods supported achieving the goals of the SLI project, and the project itself was a learning period long enough to effect a sustainable change in the teachers’ thinking.

5.4 Answering the second research question

Did the teachers and principals of the eleven participating schools perceive any development in teaching literacies, especially information literacy, during and after the development project? If they did, how did the teaching develop?
As perceived by the teachers and principals:

Teaching literacies was scrutinized from the viewpoints of teaching literacy and information literacy, teaching literature, and the conceptions of teaching and learning.

According to the teachers’ and principals’ perceptions, teaching literacies was integration of multiple literacies. They talked about fundamental reading and writing skills, but on the other hand about finding and using information, media literacy, source criticism, making sense, and creating knowledge. Elementary school teachers understand literacy teaching as a cross-curricular theme which includes information skills. As a result, the Eisenberg-Berkowitz model is already written in the curricula of four schools as an information skills learning plan.

As perceived by the teachers and principals, teaching literacies developed in all eleven schools, depending on the starting level of the schools. The most prominent feature of all the teachers’ and principals’ perceptions was the emphasis on promoting reading literature. The SLI project offered the possibility to increase acquisition of fiction for outdated collections. Reading literature was a regular practice in all grades with both teachers and peers. The concurrent Reading Finland project promoted this effort along with the SLI project.

From the viewpoint of conceptions of teaching and learning, inquiry-based learning was stressed in all the schools. The teaching methods, including the learning tasks, varied in practice, which could be seen in the reports, but it was impossible to compare the levels of application without observation. One example is presented in detail in Sub-chapter 4.5.3., which shows deep understanding of teaching inquiry. The difficulty of thoroughly discussing the conceptions of learning and knowledge between teachers was obvious from the interviews. As a critique towards the curriculum’s detailed content, the teachers emphasized learning skills.

The SLI project had a significant impact on the conditions of pedagogical development in the project schools. However, the Basic Education Act, the National Core Curriculum, and the resources for the LT were conditions which could not be influenced much at the local level.

5.5 Credibility of the study

The credibility and ethical issues of the methodology were tentatively covered in Sub-chapter 3.2.
The credibility of the entire study indicates that the findings are trustworthy and believable in that they reflect the participants’, researchers’, and readers’ experiences with a phenomenon, but at the same time the explanation is only one of many possible ‘plausible’ interpretations of the data (Corbin in Corbin & Strauss 2008).

In case study projects, reliability can be increased by developing a formal, presentable database, so that in principle, any other investigator can review the evidence directly and not be limited to the written report (Yin 2009). In this case study, the data were organized as a QSRNVivo database and saved as a project. The NVivo database is quite flexible for creating and organizing concepts and categories from the data, and for making queries to determine the occurrence of different concepts and sub-categories in the data. Using Engeström’s model gave an excellent structure for the main categories of the school’s operating culture. The final structure consisted of five main categories (tools, rules, division of labor, community, and object), 16 sub-categories and 50 concepts in total. In this report reliability is ensured by multiple citations from the data to confirm the transparency of the conclusions of the investigator. Stress is placed on categories with the most references in the data. The sub-categories with the most references in the data were, for example, conceptions of teaching and learning (164), IL teaching (284), curriculum (120), teaching methods (259), school library (432), school community (576, of which teacher collaboration was the biggest portion with 322 references), and city community (163, of which collaboration with the City library was the biggest portion with 137 references).

Validity can be considered from three different angles, which are construct, internal, and external validity. The construct validity of this study is ensured by using multiple sources of evidence (11 schools and multiple data) within a long follow-up period, by relating the concepts to the original objectives of the study, and by citing published studies that match the construct definitions. The construct validity of the study could be tested by giving the draft study report to the key informants for review (Yin 2009). This was not done in this case, but instead the construct validity received some support from a few oral presentations and peer-reviewed articles published during the course of the study (Kurttila-Matero et al. 2010, 2011). The study’s internal validity is difficult to assure, because all the data were produced by the participants of the study, but their activities were not observed by the researcher. Some internal validity may be evident because of the fact that the researcher was involved as the project coordinator in the SLI project under examination and was organizing the activity which is the object of this
study, which gives real insight into the case. The use of the activity theoretical model gives external validity to the study. Also the case of 11 schools working together gives evidence of multiple units of analysis, although they are presented in this study mostly as a whole. (Yin 2009).

The validity of this study may be criticized by arguing that the teachers were willing to report as they were supposed to. This may explain the rather positive findings of Data Set 1. On the other hand, it is obvious on the grounds of the reports that the teachers within the project grew to think about pedagogy and their own performance. Another issue related to validity is the fact that the researcher was known by all the teachers interviewed. The advantage of knowing each other beforehand was that the discussions were quite relaxed, but on the other hand, the teachers may have discussed about the interview themes as they thought the researcher was hoping to hear. In the beginning of many interviews the teachers and principals emphasized that they are not afraid of giving also negative statements. This attitude may originate from the typical organizational structure of Finnish comprehensive schools: the teachers and principals have the same education, and in general, teachers think about themselves as autonomous professionals. Despite this articulated attitude, the number of negative comments was quite small and they concentrated on curriculum, textbooks, ICT problems, division of labor, and city administration. These are elements that are partly controlled outside the schools and thus easier to criticize in comparison with the school’s own practices.

5.6 Contribution to IS and developing school libraries

This study provides a perspective on teachers’ thinking and teaching of literacies in a school culture where there are no qualified full-time LTs in the schools. Because of this fact, many teachers learned to use the equipment and information search methods to guide the pupils in creating knowledge from information. They simply took their class to the library and continued with the schoolwork there, thus developing the whole school towards a comprehensive learning environment. This may be one of the success factors which had a deep impact on the operating culture in the project schools and made the change sustainable. As a consequence, the SLI project’s efforts to change the traditional school culture developed the schools towards knowledge building organizations which have the potential to educate citizens of the learning society. (Scardamalia & Bereiter 1999).
In IS, in the context of school libraries, Engeström’s AT model has been used before by Meyers (2007), who applied the developmental work research methodology and expansive learning in an intervention study on teacher-librarians to find out how to design instruments collaboratively for better learning.

This study contributes to Information Studies by adding knowledge about the dimensions of the school’s operating culture that have an impact on pedagogical development in the context of school libraries. In this study, the strength and contribution of the AT model put forth by Engeström is its applicability in examining and understanding the complex phenomenon of a school’s operating culture and in framing it for the follow-up analysis of a seven-year period. Moreover, the model allows examination of the school’s operating culture in a broader context of learning commons and thus enables critical analysis of collaborative development within and between the schools and within the community as a whole. This idea for a model of learning commons, inspired by the AT model, is presented in Figure 12.

![Fig. 12. Learning Commons Model for schools inspired by the AT model.](image-url)
5.7 Ideas for future research

Application of the AT model presented by Engeström to examine provision of information services in general could open up valuable perspectives on their development. Application of Engeström’s developmental work research approach in the context of school libraries in Finland would offer the possibility to guide and support development work in a more in-depth manner than has been done previously. The explanatory power of the Learning Commons Model presented in Figure 12 should be examined, as it may serve as an analytical instrument for developing school libraries.

In addition to this, a follow-up study on school libraries that applies the Diffusion of Innovations Theory presented by Rogers (2003) would give further understanding of how the adoption of new collaborative practices is rooted in schools’ activities. Moreover, studies that support the development of school libraries should be included in plans to develop the Finnish information society towards a knowledge society and finally to a learning society.
References


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Appendices
Appendix 1

SCHOOL AND LIBRARY COOPERATION WORK GROUP

In 1996 Director Matti Rossi from the Education Department of the City of Oulu appointed a school and library cooperation work group which included Lecturer Raimo Niemelä (ch.), School Director Yrjö Harju, Library Manager Terttu Keränen, Department Manager Päivi Lehmusvuori, Department Manager Mervi Pekkala, Lecturer Helena Pohjanmäki-Karemo, and Secretary Sirkka Niemelä from the Education Department. The work group’s job was to

- compile a report on the possibilities of cooperation between school and library, also on the part of computer systems
- compile a proposal, based on the report, for measures needed to initiate systematic cooperation, taking economic effects and responsibilities into consideration.

As an outcome of its work, in the spring of 1997 the work group proposed eight theses based on a questionnaire sent to Oulu’s libraries and schools:

Theses for Oulu’s schools and libraries:
1. Reading experiences and information acquisition skills are schoolchildren’s basic rights.
   The work group proposes annual visits to the library by the schools; the content of the visits could concentrate on providing inspiration to read and teaching how to acquire information. A proposal on the content of the visits for different grade levels was also enclosed.
2. Cooperation between school and library is a pedagogical challenge that requires vision, will, and money to succeed.
   The work group proposes that teaching information acquisition skills and use of the library should be included in the curriculum. The work group supports new forms of area cooperation between school and library.
3. Common rules of the game are needed.
   The work group proposes establishment of area school and library work groups which plan forms of cooperation, content, and rules of the game.
4. The school’s own library requires appropriate space.
5. The library should be stocked with the most essential literature and other material that is in continuous use.

The work group proposes that the education department should reserve a special annual appropriation for material with which to develop school libraries (approx. 200,000 FIM). To receive the appropriation the schools would have to appoint human and material resources for systematic arrangement of information management. The work group proposes that the library should reserve an annual appropriation (approx. 75,000 FIM) for the purchase of scientific literature for children and youths.

6. Creating a common library database for comprehensive and secondary schools will make school library management rational, efficient, and effortless.

The work group proposes creation of a common library database for Oulu’s schools. For this purpose the work group proposes using employment funds to hire a person with library training for such a project. The person’s job would be to acquire a library system, create a library database, and make an inventory of the collections of e.g. six pilot schools and transfer them to the database. The person would also teach the people in charge of the libraries how to use the system.

7. Schools’ connections to the material databases of the city library should be implemented via the Internet.

The work group proposes that the city library’s collections should be available via the Internet as soon as possible.

8. Hire a joint information specialist for schools and libraries.

Implementation of the proposed measures requires hiring a person in charge. The work group proposes hiring a joint information specialist for the schools and libraries.

(Cost approx. 140,000 FIM/year)

The work group proposes hiring a joint information specialist for the schools and libraries. The work group expects constructive work by the specialist, creation of the schools’ joint library database, and creative, interesting collaboration between the schools and the City Library in the recognized technological information-oriented City of Oulu.
Appendix 2. Activity theoretical dimensions (Engeström 1987) of the school’s operating culture in this study as summarized on the basis of previous research.

<table>
<thead>
<tr>
<th>Component of activity</th>
<th>Content in former research</th>
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</table>
Appendix 3. Report instructions

3.1 Instructions for making a school-specific project plan

18.10.2002 was agreed on as the deadline for making your own plan. Hopefully we will be able to create a common operating culture where unfinished material is presented and comments are requested. In other words, I hope to see much material and comments presented before the deadline. This way it is possible to find the closest partners, and on the other hand, people who can draw on their own experience to help others. Now is the time to support each other with questions and comments: give comments on at least three plans by 2.12.2002. At the same time, look for natural partners. Also make sure all the schools receive help in the form of comments!

A quote from the project plan: “After the pilot schools are selected, the schools’ plans will be finalized with the project staff. Most important is to outline the project’s school-specific goals and development work to be done without project funding. During the spring of 2002 the school will also specify how it will utilize the time resource it receives. During the autumn of 2002 the developer-teachers will address operational problematics in their own school. Experiences and problems will be shared with others at developer-teacher meetings arranged by the project manager and by means of email lists. The pilot schools’ plans for utilizing the new environment and integrating it with the school’s practices will be finalized in 2002, so actual practical experimentation can be started in the beginning of 2003.”

3.2 Instructions for writing a final report

1 Project outcomes: Quantitative and qualitative results. What were the project’s most significant strength factors?
2 Project’s innovative elements: For example, what new things were developed; what permanent things were created; who is responsible for new/permanent operation after the project ends; new methods and contents in project implementation; new partnership structures; etc.
3 What can be transferred/spread to other functionaries like SMEs, schools, or authorities?
Appendix 4. Interview guide for interviewees

1. TEACHERS’ CONCEPTIONS OF THEIR WORK, LEARNING, AND WORKING WITH INFORMATION
You participated in the school library project that ended in December 2004. What changed as a consequence of the project? How has the process continued thereafter? Through this interview I am looking for your views on teaching, the school’s operating culture, and the role of the school library and use of information in learning.

CONCEPT OF KNOWLEDGE – CONCEPT OF LEARNING
WORKING WITH INFORMATION
diverse use of information
in your opinion, what kinds of learning exercises have produced the best learning outcomes? How have they been assessed?

2. RECOGNITION OF POSSIBLE IMPACTS OF THE SLI PROJECT
Has participation in the SLI project changed your attitude towards your work, and if so, how?
Which elements of the project have “withstood use” and spread more widely among the teaching staff?
Collaboration with other schools; with the city library?

GOALS OF THE SLI PROJECT
development of the learning environment
pedagogical significance of the school library – it is at the core of the learning process
development of the use of IT in teaching
expansion of the concept of literacy

[Quote from the project plan 2001, p. 11: In practice, a good school library has repercussions throughout the school’s operating culture, for it questions work methods used previously in the school. It forces reconsideration of how time resources are distributed, what type of material is acquired, how students can move around in the hallways between classes and after school, among other things. Thus, the school library becomes an object of development that affects the entire staff. The changed conception of information and its management are given a central position in the information and communication strategy. The methods of acquiring and processing information have a central role, where technology is seen as an additional resource.]
Appendix 5.

Interview guide for the interviewer
Only for use by the interviewer

School’s background information and key figures:
School:
Interviewees:
number of teachers: ____ number of students:____ library’s floor area: _____

You participated in the school library project that ended in December 2004. What changed as a consequence of the project? How has the process continued thereafter? Through this interview I am looking for your views on teaching, the school’s operating culture, and the role of the school library and use of information in learning.

THEMES
1. TEACHERS’ CONCEPTIONS OF THEIR WORK, LEARNING, AND WORKING WITH INFORMATION

CONCEPT OF KNOWLEDGE – CONCEPT OF LEARNING
How would you describe the work of learning? How do you support it?
How do you define knowledge? Information? How does information produce knowledge? How do you guide this process?
What do you seek to achieve by possibly working together? What is the teacher’s role in this? (social constructivism) Does the teacher interact with the student/group of students during the entire process?

WORKING WITH INFORMATION
How do you guide:
diverse use of information; how can students be guided in learning to use information; how can they learn to use information effectively in their learning?
the process in which students learn by using diverse sources?
literacy from the viewpoint of understanding content? How is this skill integrated in the contents of the curriculum? What types of material are used in learning to read?
the process, do you apply the concept of inquiry-based learning or something else?
How do you define it?
do you take different styles of learning into consideration? How?
freedom – freedom of choice - freedom to make errors?
ways of using the Internet?
criticalness, ethicality, honesty (copy-paste – how do you prevent this possibility?
The nature of learning exercises?) →
the nature of learning exercises: searching for facts, or more complex questions?
The student’s own interest? (interest grows as research progresses) The teacher’s guidance in selecting a topic, using a think tank in seeking to understand the topic area (social constructivism), concept maps
in your opinion, what kinds of learning exercises have produced the best learning outcomes? How have they been assessed? (reflection, self-assessment…)
How have the school’s operating methods and your attitude towards the use of information in teaching changed? What kinds of challenges, contradictions, and stumbling blocks have you encountered along the way? How have you resolved them?

2. RECOGNITION OF POSSIBLE IMPACTS OF THE SLI PROJECT
Has participation in the SLI project changed your attitude towards the following, and if so, how?
teaching
learning
information – information sources – textbooks
the role of the library and learning to use it
curriculum
cooperation between teachers
the school’s operating culture and your work as a whole
how has it spread among your school’s teaching staff – what methods have you used – experiences of success – setbacks – which elements of the project have “withstood use”?
collaboration with other schools; with the city library?

GOALS OF THE SLI PROJECT
development of the learning environment
pedagogical significance of the school library – it is at the core of the learning process
development of the use of IT in teaching
expansion of the concept of literacy

176
95. Niemelä, Maarit (2011) Resonance in storytelling: Verbal, prosodic and embodied practices of stance taking
102. Sarkki, Simo (2011) ‘The site strikes back’: multi-level forest governance and participation in northern Finland

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Eeva Kurttila-Matero

SCHOOL LIBRARY: A TOOL FOR DEVELOPING THE SCHOOL’S OPERATING CULTURE