Doing Research in Primary School: 
Information Activities in Project-Based Learning

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## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>I</td>
</tr>
<tr>
<td>SVENSK SAMMANFATTNING (SUMMARY IN SWEDISH)</td>
<td>V</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>IX</td>
</tr>
</tbody>
</table>

### PART ONE

1. INTRODUCTION

1.1 **AIM AND RESEARCH QUESTIONS**

1.2 **SWEDISH PRIMARY SCHOOLS – A BRIEF BACKGROUND**

2. THE RESEARCH TRADITION

2.1 **FROM INFORMATION BEHAVIOUR TO INFORMATION PRACTICES**

2.1.1 **STUDIES OF CHILDREN’S INFORMATION SEEKING AND USE**

2.2 **INFORMATION SEEKING AND LEARNING – INFORMATION LITERACIES**

3. THEORETICAL FRAMEWORK

3.1 **INFORMATION PRACTICES AND INFORMATION ACTIVITIES**

3.2 **INFORMATION ACTIVITIES AS COMMUNICATIVE ACTIVITIES**

3.3 **MEDIATED MULTIMODAL INFORMATION ACTIVITIES**

3.4 **THE SITUATEDNESS OF INFORMATION ACTIVITIES**

3.5 **LEARNING OF AND LEARNING FROM INFORMATION ACTIVITIES**

3.6 **INFORMATION ACTIVITIES AS STUDY OBJECTS**

4. METHODOLOGY AND METHODS

4.1 **AN OVERVIEW OF THE FOUR STUDIES**

4.2 **EDUCATORS’ PERSPECTIVES – THE DESIGN OF STUDY 1**

4.3 **CHILDREN’S PERSPECTIVES – THE DESIGN OF STUDIES 2, 3, AND 4**

4.3.1 **CHILDREN AS STUDY PARTICIPANTS**

4.3.2 **NEGOTIATION OF ENTRY**

4.3.3 **DOING FIELDWORK**

4.3.4 **LEAVING THE FIELD**

4.4 **RESEARCHERS’ PERSPECTIVES – UNITS OF ANALYSIS AND ANALYTICAL APPROACHES**

4.4.1 **STUDY 1 – ANALYSING IDEAS IN CONVERSATIONS**
PART TWO – THE STUDIES  

TALKING ABOUT THE GOOD CHILDHOOD:  
AN ANALYSIS OF EDUCATORS’ APPROACHES TO  
SCHOOL CHILDREN’S USE OF ICT  

STUDYING INFORMATION NEEDS AS QUESTION- 
NEGOTIATIONS IN AN EDUCATIONAL CONTEXT:  
A METHODOLOGICAL COMMENT  

COLLECTING AND COMPILING:  
THE ACTIVITY OF SEEKING PICTURES  
IN PRIMARY SCHOOL  

DESIGNING BY DECORATING:  
THE USE OF PICTURES IN PRIMARY SCHOOL
Abstract

The overarching aim for this thesis is to describe and illustrate how information literacies are enacted, and what opportunities for learning that children encounter, in the information activities in Swedish primary schools in the beginning of the 21st century. A starting-point is that information literacies are enacted in different ways in different settings. To describe what information literacies might imply in primary school is therefore treated as an empirical question.

In this research, information literacies are approached through the study of information activities in relation to project-based teaching and learning methods in three Swedish primary schools. Such methods are widespread throughout the Swedish educational system and have been introduced concurrently with the computerisation of the Swedish compulsory school. These parallel processes entail new challenges, questions and requirements in relation to information activities for primary school pupils as well as educators.

The aim of this thesis is fulfilled by means of four ethnographical studies of information activities in three Swedish primary schools, where project-based teaching and learning methods are used. The first study focuses on primary school educators’ descriptions of primary school children’s use of new information and communication technologies (ICT). The second study concerns how primary school pupils formulate their questions when working with project-based methods, and discusses how question-formulations can be studied empirically. The third and fourth studies concern primary school children’s information seeking and information use, with a special focus on how they seek and use pictures.

Together, the four studies describe and illustrate what project-based working methods seem to require from primary school pupils, in terms of information activities. Firstly, the studies show that the pupils are required to learn how to use ICT, especially for information seeking, when project-based teaching and learning methods are used. However, ambivalent approaches to ICT are identified in the studies. Even though the information activities studied include the children’s use of ICT, this use is not a given part of everyday activities in primary school. It is suggested that these approaches should not be seen as
unique for the participating schools, but as historically recurrent discourses on the negative effects of new tools for communication.

Secondly, the studies illustrate how the pupils are given responsibilities in quite complex communicative activities, when project-based working methods are used. For example, the studies indicate that the children have to learn how to formulate imposed questions as if they were not imposed. It is suggested that the pupils would benefit from more support in formulating questions that are suitable in a primary school context, rather than being left alone with such demanding and complicated task.

Thirdly, in addition to learning how to formulate questions, the pupils are required to look for, read, write and copy text, as well as look for, find, use and produce visual material. However, the studies indicate that written text is regarded as the most informative mode, whereas visual material is primarily seen as having decorative functions. If it is considered desirable for primary schools pupils to find and learn from pictures, then their opportunities for doing so could be increased.

On an overall level, the studies indicate that the introduction of project-based methods, together with the introduction of ICT in primary school, does not seem to be a frictionless process, as they seem to be in conflict with traditional teaching methods and traditional tools for communication still prevalent in primary school. Thus, the studies in this thesis suggest that in the information activities of project-based work in primary school, information literacies are enacted in relation to conflicting rationales.

The studies further exemplify how information activities can be understood, illustrated, and described within the research field of Information Needs, Seeking and Use (INSU) in Library and Information Science. The studies build on a neo-Vygotskian sociocultural perspective which has implications for how information activities are understood and studied. In the thesis it is questioned that people’s doings with information predominantly consist of and should be studied as private information processing. Furthermore, an interconnected idea is that which emphasises the multimodality and materiality of information activities. The theoretical basis of the studies entails a methodological shift; the studies exemplify how conversations and interactions taking place in information activities, as well as artefacts used and produced within these activities, can be analysed. Furthermore, ideas within the INSU field of children as a natural and given user group are questioned with the help of the research tradition of the New Sociology of Childhood.
These theoretical ideas do not mean that other possible interpretations and perspectives in the INSU field should be excluded. Instead, it is argued that the field would benefit from an ongoing discussion of how its basic concepts can be understood and (re)defined through different theoretical approaches. That is how the field can render nuanced pictures of the complex activities that are its object of study.
Svensk sammanfattning
(Summary in Swedish)

Det övergripande syftet med denna avhandling är att beskriva och illustrera hur informationskompetenser tar form, och de möjligheter till lärande som barn möter, i informationsaktiviteter under de första skolåren i början av 2000-talet. En utgångspunkt är att informationskompetenser tar form på olika sätt i olika miljöer. Att beskriva vad informationskompetenser kan vara under de första skolåren ses därför som en empirisk fråga.

I avhandlingen utforskas informationskompetenser genom studier av informationsaktiviteter vid tre svenska grundskolor som alla tillämpar projektbaserad undervisning. Denna typ av undervisningsmetoder är numera vanligt förekommande i det svenska utbildningssystemet, och har kommit att användas allt flitigare samtidigt som den svenska grundskolan har datoriserats. Dessa parallella processer har inneburit att både grundskoleelever och -lärare nu står inför nya utmaningar, frågor och krav i förhållande till olika typer av informationsaktiviteter.


Sammantaget beskriver och illustrerar de fyra studierna vad projektbaserade arbetsätt tycks kräva av eleverna i fråga om informationsaktiviteter. För det första visar studierna att eleverna måste lära sig att hantera IKT när dessa arbetsmetoder används, särskilt då i samband med informationssökning. Men samtidigt som de studerade informationsaktiviteterna inkluderar elevers användning av IKT, så var inte denna användning en given del av den dagliga skolverksamheten. De ambivalenta förhållningssätt till IKT som identifieras i studierna är dock inte unika för de deltagande skolorna; istället ses de som
exempel på historiskt återkommande diskurser om nya kommunikationsverktygs negativa verkningar.

*För det andra* visar studierna att eleverna ges stort ansvar i tämligen komplexa kommunikativa aktiviteter då projektbaserade arbetssätt används. Till exempel visar studierna på hur eleverna måste lära sig att formulerat ålagda frågor som om att de inte vore ålagda. Det föreslås att eleverna skulle ha nytta av att få stöd i att formulera frågor som kan vara användbara för projektbaserade uppgifter under de första skolåren, snarare än att bli lämnade ensamma med denna krävande och komplicerade uppgift.

*För det tredje* tycks det krävas av eleverna att de lär sig att söka, läsa, skriva och kopiera text, men också att de lär sig att söka, hitta, använda och producera visuellt material. Studierna visar dock att bilder främst får dekorativa funktioner, medan skriven text framhålls som det viktigaste redskapet att använda för kommunikativa syften. Om det anses viktigt att elever lär sig att söka bilder, och lär sig från bilder, borde de få avsevärt mer stöd i detta lärande under de första skolåren.

På ett övergripande plan visar studierna att införandet av projektbaserade arbetsmetoder, tillsammans med införandet av IKT i grundskolan är en inte helt friktionsfri process, eftersom de nya metoderna och de nya redskapen kolliderar med de traditionella undervisningsmetoder och traditionella verktyg för kommunikation som fortfarande används i grundskolan. Studierna visar att de informationskompetenser som tar form i informationsaktiviteter i samband med undersökande arbetssätt gör detta i förhållande till motstridiga krav.

Dessa teoretiska idéer innebär dock inte att andra möjliga tolkningar och perspektiv inom INSU-området bör uteslutas. Istället hävdas det att fältet behöver en ständigt pågående diskussion om hur dess grundläggande begrepp kan förstås och definieras utifrån olika teoretiska perspektiv. Det är på detta vis fältet kan skapa nyanserade bilder av de komplexa aktiviteter som är dess studieobjekt.
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Part One
1. Introduction

This thesis studies information literacies as they unfold in information activities in primary school. The empirical context consists of three Swedish primary schools, where project-based working and teaching methods are used. These kinds of methods are influenced by constructivist theories on learning and are also known as, for example, problem-centred learning, self-directed learning, student-centred learning, or inquiry-based learning.

These teaching and learning methods often start with the teacher(s) introducing an assignment and giving the pupils instructions on when, where and how they should go about it. The assignment usually includes the pupils’ own formulations of topics, sometimes within a broader predefined theme, which they are supposed to explore by means of different communicative means and eventually present in some sort of final product. The working process involves a wide range of information activities and the pupils often interact not only with their teacher(s) and other pupils, but also with librarians and other educators, who can help them to, for example, define their topics, find information on the topic and summarise their conclusions.

These kinds of constructivist-inspired teaching and learning methods have become widespread in Swedish schools during the past decades, even in the early school years (Carlgren, Klette, Myrdal, Schnack & Simola, 2006). Even though the ideas behind these methods are not new, some of their prerequisites have changed quite dramatically along with innovations in the landscape of information and communication technology (ICT), and through the computerisation of Swedish schools (e.g. Karsohn, 2009). The teachers’ and librarians’ monopoly on “having the right answers” has not only been challenged by project-based teaching methods, but also by the introduction of various tools for communication, especially Internet-based tools, which mediate different types of documents, with different modes of representation, in different formats (cf. Francke, 2008; Säljö, 2005). Thus, to be a primary school pupil today is different from what it was like a couple of decades ago, in terms of the information activities you need to learn to participate in, and learn from. Both pupils and educators are facing new challenges, questions and requirements in relation to the seeking and use of information in primary school.
Questions regarding what primary school children need to learn when working with project-based methods could be explored from a range of perspectives within several disciplines. In recent decades, scholars in Library and Information Science (LIS), and especially within the sub-field of Information Needs, Seeking and Use (INSU) (e.g. Kuhlthau, 1989; Limberg, 1999; see also Julien & Williamson, 2011), have contributed to our understanding of information seeking and use as discernable components of learning processes, something which has been neglected within other fields of research. Thus, by building on this tradition, it becomes possible to focus on information activities as objects of study in the myriad of activities in primary school.

The analytical focus of this thesis is the information activities that take place when primary school children work with project-based methods. An important part of the approach to the study of these activities is to regard them as ordinary activities, as they take place and unfold in classrooms and libraries during ordinary school days. This is done in order to give a credible account of activities and practices in Swedish primary school in the beginning of the 21st century. By describing and analysing such activities, it becomes possible to discuss questions related to the opportunities for learning to participate in information activities, as well as for learning from information activities.

Within LIS, learning of and from information activities is described by the term information literacies. In this thesis, it will be argued that information literacies unfold and are shaped within different social contexts. The term will be used in its plural form as information literacies are regarded as being enacted differently in different settings. To describe what information literacies might be in primary school is, according to this research, an empirical question. For example, below it will be described how the empirical studies of this thesis included the observation that pictures were used to a large extent in the children’s information activities. This observation, which has been further explored in two of the four studies, will be discussed in terms of information literacies as multimodal literacies.

However, activities in compulsory school, including information activities, are partly shaped by norms and values on preferable learning outcomes (Limberg, 2007). When looking at school related activities, it is therefore deceptively easy, from an outsider’s perspective, to criticise how activities within primary school are carried out, and to blame shortcomings on everything from obsolete power structures to the level of maturity of school children. As mentioned above, in this work, information activities are studied as they occur in primary school. Thus, the focus lies on what children and educators do in particular activities, and how these activities unfold in interaction. At the same time,
however, it must be acknowledged that primary school, as an institution, has a history and builds on old traditions, which shape the situations and interactions that take place there each day. The ambition behind this research is to look at the information activities in primary school as situated both in the immediate context as well as in a wider historical context, and thereby to be able to give a balanced view of information activities and information literacies in primary school, thus avoiding one-sided praise as well as one-sided criticism.

To conclude, the idea behind this research is to try to understand what the pupils and educators do, rather than to start by comparing their activities with ideals on what they should be doing. However, it has to be emphasised that this idea is grounded on a theoretical foundation which entails certain views on how information activities should be studied. This foundation, which will be presented in greater detail in the subsequent chapters, has its roots outside of the LIS discipline, within pedagogy and social linguistics.

1.1 Aim and Research Questions

In this thesis, information activities are studied as they unfold in a primary school setting. This is done in order to discuss what seems to be understood as reasonable ways of participating in and performing information activities in this setting, or in other words, how information literacies are enacted in Swedish primary school. The overarching aim for the thesis is to describe and illustrate how information literacies are enacted, and what opportunities for learning that children encounter, in the information activities in Swedish primary schools in the beginning of the 21st century.

This aim will be achieved by means of a set of studies of information activities that take place when project-based teaching and learning methods are used in Swedish primary school settings. The studies are guided by the following four research questions:

1) How do primary school educators describe primary school children’s use of ICT?
2) How do primary school pupils formulate their questions when working with project-based methods?
3) When primary school pupils work with project-based methods, how does the activity of seeking information, in the mode of pictures, unfold?
4) How is information, in the mode of pictures, used when primary school pupils work with project-based methods?
Each of the four questions corresponds to the four studies included in the thesis. Taken together, the four studies will answer two overarching questions, which will be addressed in the concluding chapter:

- In terms of information activities, what do project-based working methods seem to require from primary school pupils? How can these activities be understood, illustrated and described?

The thesis consists of two main parts. In the first part, the foundation for the studies will be presented in three chapters. The present chapter introduces the research problem and the empirical setting on a general level. In Chapter 2 the studies will be presented as situated within the LIS fields of Information Needs, Seeking and Use (INSU) and Information Literacies. Chapter 3 presents the theoretical perspective that has guided the studies; how these theoretical ideas have been operationalised in the design of the studies will be described in Chapter 4 and in Chapter 5, which summarise the four studies. Finally, the results are discussed and concluded in Chapter 6. In part two, the four studies are included in their entirety.

1.2 Swedish Primary Schools – a Brief Background

Empirically, the time span for this thesis is 2005–2008. At present (2011), Swedish compulsory schools are facing a number of reforms, including a new national curriculum. Since the time of the studies other reforms, regarding assessment and national examinations in year 3, have been implemented. The following description of the Swedish school system at the time of the data collection is, however, intended to provide a brief background to the empirical studies. Recent and current reforms will thus not be included.

Swedish compulsory school was at the time of the studies regulated by the Education Act (SFS 1985:1100); the national curriculum (Skolverket, 2006), national syllabi and time schedules (see Skolverket, 2011a), as well as local school and work plans (Skolverket, 2011b). According to the Library Act (SFS 1996: 1596), each compulsory school was also required to provide access to a library. However, how this access was guaranteed and modelled varied significantly between different schools and municipalities.

With the national curriculum (Skolverket, 2006) that was implemented in 1994, the earlier division of the Swedish compulsory school in three different levels or stages was dissolved; thus, within the Swedish school system there was no primary school in a formal sense at the time of the studies. However, primary school is still used in this thesis, as a general term for the first school years.
The Swedish compulsory school was (and still is) nine years, and most children started school the year they turned seven (Skolverket, 2011b). The academic year is divided into two semesters. The autumn semester, which is the start of the academic year, usually runs from August to December; and the spring semester usually runs from January to June. Since 1998, Swedish children at the age of six have the possibility to attend one year in the so-called pre-school class, an integrated class which is the joint responsibility of pre-school and compulsory school (Lumholdt & Klasén McGrath, 2007).

At the time of the studies, the vast majority of Swedish children attended public compulsory schools for which the municipalities were the principals (Skolverket, 2011b), even though independent schools have become more common in Sweden since the 1990s. Both public and independent schools were required to, according to the previous Swedish Educational Act (SFS 1985:1100), be open for all children of school age, which meant that they were normally coeducational.

However, during the past decades, the Swedish educational system has been subjected to a rhetoric on the “freedom of choice” (Alexandersson, 2011; Beach & Dovemark, 2009), which has included both independent schools as well as project-based teaching methods. Furthermore, at the time of the studies, each individual school had a considerable degree of freedom to model its activities, schedules etc., since the national policy documents were not formulated on a particularly detailed level. Therefore, many of the activities observed in the studies of this thesis cannot be linked to a specific syllabus, as they were designed to be interdisciplinary. Moreover, linking activities in classrooms and school libraries directly to current laws and other policy documents is a difficult and possibly impossible task. The regulations certainly offer a framework for school activities, but they must also be seen as situated in other historical traditions, as well as in specific local situations.
2. The Research Tradition

The studies presented in this thesis relate to two adjacent areas within LIS; on the one hand, the field of Information Needs, Seeking and Use (INSU) and on the other hand, the field of Information Literacies. These two fields are, in some respects, surprisingly separated (cf. Julien & Williamson, 2011; Limberg & Sundin, 2006), but in the intersection between them, there has arisen a research field that focuses on issues of information seeking and use in relation to learning.

The INSU field has a relatively long history within the discipline of LIS and has undergone several theoretical shifts during the past half century. These changes are reflected in the various labels used for the area, which, in addition to INSU, is called Information Behaviour and, more recently, Information Practices. The latter term indicates an influence from discursively oriented theories and better describes the kind of studies that are included in this thesis. What the two labels denote will be described in the first section of this chapter. It will also be discussed how children, as a special group, are often portrayed within the INSU field. As an alternative to the ways in which children are usually studied within the INSU field, the research tradition of the New Sociology of Childhood will be presented.

Information Literacies as a research field is younger than the INSU field, but is in part influenced by the same theoretical traditions. In the second section of this chapter, the relationship between the two fields will be commented on.

2.1 From Information Behaviour to Information Practices

Within LIS, user studies have been conducted since the beginning of the 20th century (Case 2007, p. 238; Wilson, 2008). However, the area of INSU, or Information Behaviour, is often described as the result of a paradigm shift in the 1980s which was initiated and introduced in publications such as Tom Wilson’s “On user studies and information needs” (1981) and Brenda Dervin’s and Michael Nilan’s chapter on “Information Needs and Uses” (1986) in the Annual Review of Information Science and Technology.
With this shift, the so-called *user perspective* appeared almost as a kind of slogan. This perspective was contrasted with a *systems perspective*, which was described as having had dominated earlier studies within LIS. Central concepts emerging within this field were *information needs*, *information seeking*, and *information use*, as seen and experienced by the user. As described above, these three concepts are sometimes put together and used as a label for the research field as such. This can be seen, for example, in the name of the Special Interest Group within the American Society for Information Science and Technology (ASIS&T) devoted to the study of users, called “Information Needs Seeking and Use”, or in earlier Information Seeking in Context (ISIC) conference proceedings (e.g. Vakkari, Savolainen, Malmström, Limberg & Dervin, 1997).

Despite this, there is no general understanding of how to define the concepts of information needs, seeking and use. In the field, there has been – and still is – an ongoing debate regarding what the three central concepts denote and how they could and should be operationalised in empirical studies. For example, in Donald O. Case’s extensive review of the research field (2007), a whole chapter is spent on presenting different models and understandings of the concept of information needs. Sometimes, for example in Kari (2010), this lack of a general and common understanding is regarded as a problem and a sign of how immature the field still is. Another way of understanding the plethora of models and attempts to define the central concepts of the INSU field is to see it as being influenced by different schools of thought, originating from different parts of the social and behavioural sciences.

In a special issue of the *Journal of Information Science*, where Wilson (2008) describes the history of user studies, he summarises the major difference between user studies conducted before and after the paradigm shift in the 1980s when explaining what the early user studies did not take into account: “what the *individual* reader read, how they read and why they read was not a subject of interest at the time” (Wilson, 2008, p. 458). This emphasis on the individual has later led to discussions of what the paradigm shift actually entailed.

In a paper from 2007, Sanna Talja and Jenna Hartel reread Dervin’s and Nilan’s seminal paper from 1986 and show how a particular type of user studies has been excluded from the review; that is, studies that focus on the information activities of groups rather than on the information needs of individuals. This former type of studies, Talja and Hartel argue, can still be described as having a user perspective rather than a systems perspective, even though the systems are not excluded in the studies. Talja’s and Hartel’s argument is that the paradigm shift was mainly a theoretical shift, and they conclude that “it is quite possible to study information needs sociologically and in
a user-sensitive manner also in the context of library-oriented, site-specific, and service-oriented research” (2007, no pagination). Talja and Hartel continue to argue for the reintroduction of theories which enable analyses on social and collective levels to the INSU field, which has, according to them, been overly inspired by theories focussing on individuals since the 1980s.

The theoretical differences within the field that Talja and Hartel (2007) pinpoint have also been illustrated by Reijo Savolainen (2007) in a discourse analysis of “information-seeking studies”, which is yet another label of the research field in question. In this paper, Savolainen distinguishes between research that focuses on information behaviour and research that is aimed at understanding information practices. The main difference between these two designations is their theoretical roots and histories. While research aimed at information behaviour often implies a foundation in psychologically oriented theories with an interest in individuals’ cognitive processes and abilities, information practice research designates a basis in social-psychological and discursively oriented theories which leads to an emphasis on users as well on the tools and artefacts used in specific social, cultural, historical and political contexts. Leaning on the analysis of theoretical foundations within LIS by Sanna Talja, Kimmo Tuominen and Reijo Savolainen (2005), it could be claimed that information behaviour research is typically based on constructivist and cognitive constructivist schools of thought, whereas information practices research is founded in collectivist, social constructivist and social constructionist theories.

Thus, in the field within LIS where the main object of study is people and their interactions with information, two major positions can be identified. These two positions have implications for how the basic concepts of information needs, information seeking, and information use are understood. Table 1 summarises these differences on a general level, as they appear in the readings of a selection of central texts within the field, such as Belkin, Oddy and Brooks (1982a; 1982b); Dervin (2003); Hjørland (1997); Kuhlthau (2004); McKenzie (2004); Savolainen (2009); Sundin & Johannisson (2005a; 2005b); Talja and Hansen (2006); Talja, Tuominen & Savolainen (2005), Taylor (1962; 1968); and Wilson (1981). The intention of this summary is to illustrate and identify important and general differences within the field in terms of how the central concepts are described and understood; generalisations and simplifications are therefore inevitable.
Information Needs are formed within the individual; they may or may not be possible to articulate. Information Practices Research states that information needs are socially constructed and formed in interaction.

Information Seeking is a cognitive, emotional and practical process where individuals or groups are looking for information in order to overcome problems and satisfy their need for information. Information Practices Research argues that information seeking is communicative and mediated activities that take place in situated social practices.

Information Use is a process within the individual’s mind where information sought is applied in order to overcome problems and satisfy the need for information. Information Practices Research suggests that information use is a primarily individual, and to a large extent cognitive, process.

Table 1. The main differences between the two main research traditions within the field of Information Needs, Seeking and Use

Underlying reasons for these different conceptualisations of information needs, information seeking, and information use can be found in ideas of human existence; the main divide between the two strands can be said to be the views of the human mind as being fundamentally individual or fundamentally social. While the information behaviour strand has presented the understanding of information needs as originating from individual minds, as in Taylor (1962; 1968), Belkin et al. (1982a; 1982b), Dervin (2003), and Kuhlthau (2004), the information practices oriented strand has argued for the idea that information needs are formed in and by social processes, as, for example, in McKenzie (2004), Hjorland (1997), and Sundin and Johannisson, (2005a; 2005b).

Furthermore, by means of the many models (see Wilson, 2010) within the information behaviour literature, an idea of information seeking and information use as a chronological and predictable process has – possibly unintentionally – been formed. This process is seen as being driven by an original information need and consequently understood as a primarily individual, and to a large extent cognitive, process. This emphasis on the individual mind has led to several discussions concerning the problems of capturing information.
needs, seeking and use in empirical studies; as such a process in part “exists inside someone’s head” (Case, 2007, p. 78).

This discussion on the intangibility of information needs, seeking and use becomes less significant for perspectives brought together under the label of information practices, as these approaches strive to avoid dualisms such as inner/outer, cognitive/material, and individual/social. This is done by emphasising social interaction, and especially language use, as “constitutive for the construction of selves and the formation of meanings” (Talja, Tuominen & Savolainen, 2005, p. 89). Moreover, language is seen as a common resource with material dimensions and consequences.

The role ascribed to language implies that information seeking and information use are seen as communicative activities that take place in social practices through the use of linguistic tools (e.g. Sundin & Johannisson, 2005a). Hence, from the information practices perspective, the focus lies on what happens between people who participate in different information activities, rather than on individuals’ cognitive predispositions and processes before and while seeking and using information. This also means that there are no clear divisions made between hands-on information seeking and inner cognitive information use. Furthermore, built into the idea of information practices is the view that information activities are part of wider social practices, but also that information practices are constituted by a whole range of information activities and not only by information seeking and use (e.g. Talja & Hansen, 2006).

In his analysis of the INSU field, Savolainen (2007) describes information practice research as a relatively new and alternative line. It can be discussed whether this is the case or not; similar interests and movements can be found in neighbouring research fields such as Collaborative Information Behaviour (e.g. Foster, 2006), Information/Knowledge Management (e.g. Wilson, 2002), and Document Studies (e.g. Francke, 2008). Perhaps it would be more accurate to describe the shift from information behaviour to information practices within the field of user studies as a return to theoretical starting points that have existed throughout the history of LIS (cf. Talja & Hartel, 2007). However, this return has, so far, mainly taken place on a conceptual level; it has generated relatively few empirical studies, compared to traditional information behaviour research.

This thesis is meant to be a contribution to the field of information practices as it presents empirical user studies which adopt a sociocultural perspective. This theoretical perspective, which emphasises that human practices are social, situated and material, will be presented in greater detail in Chapter 3.
First, however, a few words will be spent on studies of children within the INSU field, as well as on information seeking research that focuses on learning and information literacy.

### 2.1.1 Studies of Children’s Information Seeking and Use

Throughout the INSU field, studies are often directed at specific user groups, such as different professional groups and researchers (e.g. Huvila, 2010; Pile-rot & Limberg, 2011), or groups of people who share a certain hobby (e.g. Case, 2010; Hartel, 2010). Another distinctive group is that of “children” (Abbas, 2010; Case, 2007, p. 304), which is sometimes further divided into aged based subgroups such as “youth” (Gross, 2010), “tweens” (Meyers, Fisher & Marcoux, 2009), or “young children” (Spink, Danby, Mallan & Butler, 2010).

In fact, the study of children’s information needs, seeking and use can be seen as a developing subset, albeit small, of the information behaviour field (e.g. Abbas 2010; Chelton & Cool, 2004; 2007; Druin, 2005; Gross, 2010; Large, 2005). The prevailing perspective of this sub-field is that of information behaviour, rather than information practices. The aim of several studies within the field seems to be to describe universal traits of children as a user group, or to find generalisable factors that affect children’s information searching and seeking (e.g. Bilal, 2005; Bilal & Kirby, 2002; Cooper, 2005; Large, Nesset & Beheshti, 2008; Meyers, Fisher & Marcoux, 2009; Spink et al., 2010).

The reasons why children should be seen as a special user group are, however, not always articulated in the literature; that young age is a crucial factor for how information activities are carried out seems sometimes to be taken for granted. But there are clear arguments to be found, such as the following statement in a research review from 2008 on children’s information seeking by Andrew Large and colleagues:

> […] children differ from adolescents, as well as adults, especially in terms of their level of cognitive development and affective behaviour and therefore in their approach to seeking, evaluating, and using information resources. They should be perceived, therefore, as a distinct user community when it comes to information-seeking behaviour. (Large, Nesset & Beheshti, 2008, p. 121).

The view expressed in this quote entails an emphasis on similarities among children, as well as on the differences between children and other age groups. It has its foundation in theories of “ages and stages” from developmental psychology, notably those of Jean Piaget (Large, Nesset & Beheshti, 2008, pp. 122f). Similar theoretical foundations can be found in, for example, Linda Cooper’s (2005) formulation of design principles for digital systems intended
for children. Even though a base in theories of developmental psychology is not always as explicitly articulated as in these two examples, the idea of children as a special user group is rarely problematised within the literature on children’s information behaviour. One consequence is that children are portrayed as being significantly different from adults, and thereby appear as a quite homogeneous group.

The studies in this thesis build on quite different ideas, as they are influenced by a research tradition called The New Sociology of Childhood (e.g. James, Jenks & Prout, 1998). This tradition, which grew in strength from the 1970s and onwards (Kampmann, 2003), originated in a critique of previous research on children, especially within developmental psychology where, according to this new tradition, children were studied as incomplete human beings (see further section 4.3). This new tradition introduced ways of studying children in their own right, but also emphasised the problems connected to routine descriptions of children as a uniform group (Prout & James, 1997, p. 8).

This alternative perspective does not imply that differences between children and adults should be disregarded; but the interest is shifted from perpetuating the differences to studying their social consequences (Halldén, 2003, p. 15; James, Jenks & Prout, 1998, pp. 30f). Within the part of the INSU field where children are in focus, these kinds of approaches are rare. One example is a study of public library programs for young children by Pamela McKenzie and Rosamund Stooke (2007). The study is based on ethnomethodology and focuses on the communicative work and information work that children, caregivers and librarians do together to accomplish the project of “producing storytime”. Rather than describing the innate characteristics of children, the researchers start from the participants’ understandings of how children should be positioned within this activity. Even though the theoretical starting points of this thesis is somewhat different, it shares the interest of McKenzie’s and Stooke’s study (2007) in what the participants, children as well as adults, do together when coordinating information activities within an institutional setting.

2.2 Information Seeking and Learning – Information Literacies

Within the INSU field, a few researchers have explored the relationship between information activities and learning. In particular, Carol C. Kuhlthau’s work within this area, leading up to and exemplifying the Information Search Process (ISP) model, has indeed been pioneering (e.g. 2004; 2011). The well-known model builds on constructivist theories of learning and describes the stages of emotions, thoughts and actions of people when facing a task that
requires information seeking. The model was derived from studies of students working with school assignments, but has been tested and confirmed in other contexts as well (Kuhlthau, 2011).

Kuhlthau’s work opened up for LIS studies of students and other people in learning situations from the perspectives of the learners. However, the ISP model does not focus on learning as such; it shows how information searching processes in educational, as well as other contexts can be compared to learning processes. In their entry on research on information seeking and learning, Louise Limberg and Mikael Alexandersson (2010) claim that most research in this area does not focus on the learning that might be the result of information seeking, even though there are exceptions such as Limberg (1999) and Todd (2006). An area that has received much greater attention is the teaching and learning of information seeking, in other words information literacies (Limberg & Alexandersson, 2010).

The literature on information literacy differs from the INSU literature and could be described as being more fragmented. Ola Pilerot and Jenny Lindberg (in press) suggest that the literature on information literacy can be divided in three quite separate categories: 1) literature by practicing librarians, describing information literacy programs and user education activities; 2) policy-making texts stating the global need for information literacy; 3) research publications on information literacies as a theoretical construct. In the literature pertaining to the two first categories, information literacy is viewed as “a goal for educational activities”, whereas information literacy in the third category is seen as “a study object” (Pilerot & Lindberg, in press).

In this thesis, the concept of information literacies is clearly seen as a construct which can be used for theorising information activities in relation to learning. Furthermore, it is understood from a sociocultural perspective (see section 3.5). Whereas the skills approach to information literacy often seen in policy documents is based on individualistic and cognitivist ideas (Pilerot & Lindberg, in press), other theoretical approaches have been used in research on information literacy, especially outside US contexts. Three such approaches, phenomenography, sociocultural theory, and discourse analysis, are presented in an overview by the Nordic researchers Louise Limberg, Olof Sundin and Sanna Talja (forthcoming). These three approaches have different historical roots and when used in studies of information literacies they imply different foci; a phenomenographic perspective turns the interest towards how different groups of people describe their experiences of information literacies; a sociocultural perspective entails the study of how information literacies occur in different social practices; whereas discursively oriented studies
based on the Foucauldian notion of discourse are usually directed at the ways in which the concept of information literacies is socially negotiated and described (Limberg, Sundin & Talja, forthcoming).

Thus, studies of information literacies from these perspectives rarely start with predefined descriptions of the concept; instead they look at the variations in how information literacies are experienced or how information literacies are enacted or described. In this thesis, information literacies, as an object of study, will be approached in a roundabout way. The argument is that it is through the study of information activities that a discussion on how information literacies take form is made possible. As the studies are influenced by the INSU tradition, where specific information activities are of more interest than others, the emphasis will be placed on the formulation of questions and on information seeking and information use.

Empirical studies of people who experience or enact information literacies can vary in terms of how the participants and the practices are regarded; while some studies (e.g. Limberg & Sundin, 2006; Sundin, 2008b) are critical to how information literacies are enacted in the settings studied; others (e.g. Lloyd, 2006; 2007; O’Farrill, 2010) readily accept them. In general, this difference depends on the type of context studied; the former, more critical, view often applies to educational contexts where it is assumed that information literacies are an object of teaching (cf. Limberg & Alexandersson, 2010), whereas the latter concerns the workplace and other settings where learning is often not the primary goal of the activities (cf. Säljö, 2000). In the present work, both of these perspectives will be employed, as the aim of this thesis is to describe the enactment of information literacies in an educational setting, and to discuss the opportunities for learning that children encounter in this setting. In the subsequent chapter the theoretical base, which enables these double perspectives, will be described.

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1 This does not mean, however, that information literacies are defined as only involving the learning of these activities (for a discussion on this matter see Talja, 2010).
3. Theoretical Framework

The studies presented in this thesis are all informed by a theoretical tradition which is often referred to as a sociocultural perspective. This perspective has its origins in the Russian psychologist Lev Semenovich Vygotsky’s writings from the early 1900s, and has evolved in somewhat different directions during this and the last century. The ideas that will be discussed in the following, which all concern human communication, interaction and learning, will be presented with a basis in later interpreters of Vygotsky’s work, such as Roger Säljö (2000, 2005), and James V. Wertsch (1998). The sociocultural perspective will also be paired with a dialogistic perspective on human communication, as presented by Per Linell (1998; 2009).

In the present work, the sociocultural perspective is employed as a way of theorising information activities and information literacies. From a sociocultural perspective, information activities are seen as social activities. They involve people communicating with one another, sometimes directly through the use of spoken language, gestures and body language, sometimes indirectly, for example through the use of documents. Their communication is situated in specific historical and social contexts. Information activities are thus seen as complex and context-bound, which means that they cannot be summarised in general models or separated from related activities. This view on information activities might appear obvious when put this way; however, it has substantial implications for how people’s interactions with, around and through information are understood. In the following sections, the sociocultural perspective will be discussed as a foundation for understanding information activities and information literacies. The chapter will be concluded by a discussion on meta-theoretical issues related to a sociocultural perspective.

3.1 Information Practices and Information Activities

In the previous chapter, information practice was presented as a term that describes one of two major traditions within the INSU research field. However, Savolainen (2007, p. 123) points out that the term “has been simply taken into use without deeper reflection on its ultimate meaning”. From a discursively oriented perspective, such as a sociocultural perspective, it would be contradictory to try to fix concepts once and for all, as language is not viewed as a fixed system, but something that is also developed through use (cf. Linell,
None of the concepts used in this work are therefore seen as having “ultimate meanings”, but are given working definitions which are meant to be useful for the studies conducted.

In this thesis, however, information practice is mainly understood as a term that describes INSU research carried out with a basis in social constructivist and social constructionist theories, rather than as a concept that will be defined and operationalised in the empirical studies. Even though the studies in this thesis follow the information practice research tradition of the INSU field, information activities will be seen and used as a more central concept. The reason behind this choice has to do with the understanding of the practice part of the notion of information practice.

This understanding is based on ideas of the “double dialogicality” between two analytical levels in the study of communication presented by Linell (2009, pp. 51ff). One of these analytical levels is that of larger institutional and societal traditions or practices. Here, practices refer to “socioculturally established ways (‘methods’) of carrying out recurrent types of projects and activities” (Linell, 2009, p. 190). Thus, practices are viewed as being more stable over time than activities, which are to be found closer to the analytical level of interactional “situations” (Linell, pp. 49, 190). However, an important point is that these two levels are seen as having a dialogical relationship; practices are constituted by activities, while activities are influenced by and related to practices.

Consequently, according to this line of reasoning, information practices as well as information activities refer to people’s doings with information. However, as the main empirical interest of this thesis is to describe and analyse people’s doings on the interactional level, information activities is seen as the more useful concept to operationalise in the four studies. In the following sections, the concept of information activities will be elaborated on, and described as communicative, multimodal, mediated, and situated activities.

3.2 Information Activities as Communicative Activities
The sociocultural perspective employed in this thesis implies that the study of people’s doings with, around and through information can also be seen as the study of the communication that takes place between people. By tradition, certain aspects of communication between people are of greater interest to LIS researchers than others, for instance, information needs and question formulations, information seeking, and information use. However, the boundaries
between the interests of the LIS domain and the interests of other disciplines are not entirely clear in this regard.

In this thesis, information activities are seen as something profoundly social. From the theoretical perspective adopted, communication is not regarded as the exchange of preformulated messages between individuals, that which Linell (1998, p. 22) refers to as the “transfer-and-exchange model of communication”; nor, as it is often referred to within LIS, as “Information Theory”, which was derived from Claude Shannon’s “Mathematical Theory of Communication” (Case, 2007, p. 46). This is not to say that these models cannot be useful when describing, for example, technological aspects of information transfer (cf. Bates, 2010, p. 2348); however, as a description of the human mind and human interactions they do have shortcomings.

The description of communication as a social activity implies seeing communication as a fundamental part of the human condition. Instead of viewing the individual mind as the only starting-point for communication, as well as for thinking and meaning-making, the space in between people is seen as just as important as the processes that take place in their minds. This means that there is no distinct dividing line between the individual and the social from this perspective; even the act of thinking in solitude has social elements. As Kenneth Gergen (2009, p. 160), puts it, paraphrasing the French philosopher René Descartes: “we communicate, therefore I am!” (see also Tuominen & Savolainen, 1997, pp. 82f). Thus, this view emphasises that there is an interdependent relationship between the individual and the social.

The main point of this line of argument is to be found in the role ascribed to the human use of language. Whereas language can, according to a transfer model of communication, be seen as an obstacle to the exchange of preconfigured messages, it is seen as a necessity according to dialogical ideas on communication. Within the neo-Vygotskian sociocultural theory language is often described as “the tool of tools” (e.g. Ivarsson, Linderoth & Säljö, 2009, p. 203), through which we both communicate and think. Linell (2009, p. 136) explains this central role of language in the following way:

There is a rather close connection between “discourses” – different social representations: ways of looking at, thinking of and talking about particular topical domains […] – in society, on the one hand, and “voices” in the individual mind, on the other. These discourses and voices meet in the individuals’ minds, largely through the use of language. (Linell, 2009, p. 136).

Thus, according to this perspective, the human reality is mediated – at least to a large extent – through linguistic tools that are inherently social and shared.
So rather than understanding, on the one hand, thinking and meaning-making as solely inner, non-linguistic and private activities and, on the other hand, communication as an external, linguistic and social activity, these ideas emphasise how the use of language makes thinking and communication interconnected and intertwined activities.

So what do these ideas mean for how information activities are viewed? To understand people’s doings with information as social and communicative activities also means that they are understood as being partly discursive activities (cf. Tuominen & Savolainen, 1997). To insist that thinking and meaning-making, as well as communication, rely on the tool of language means that information activities are indeed regarded as involving language use. However, in this thesis, it is emphasised that information activities are not only based on spoken and written language, but also on other modes of communication and representation, such as images of different kinds.

3.3 Mediated Multimodal Information Activities

For the purpose of the studies of this thesis, the above line of reasoning implies that information is viewed as something that is used for communicative purposes. Furthermore, information is seen as being constituted by language and signs, or in other words, as mediated by cultural tools. This is a working definition; it is not to be understood as a general definition of information that can be useful in all possible contexts (cf. Bates, 2010).

Cultural tools or meditational means, as they are also called, are central in the neo-Vygostkian literature that builds on Vygotsky’s notion of “signs” (e.g. 1978, pp. 39f; see also Säljö, 2005). The concept of cultural tools is used to describe artefacts, but also intellectual devices created to overcome the cognitive as well as the physical limitations of humans. In the studies in this thesis, the working definition of information emphasises the multimodality of information, that is, the different linguistic and/or semiotic modes in which information can be mediated through cultural tools. Consequently, information activities, such as formulating questions, seeking information, and using information involve the employment of cultural tools.

Cultural tools are not innate, but social in their origins (Vygotsky, 1978). The emphasis on cultural tools as originating in the environment outside the individual might, however, be misleading, as cultural tools, according to a sociocultural perspective, are fundamental for human thinking, learning and acting. As already emphasised in the section above regarding language, cultural tools can be seen as a necessary link between the individual mind and the social and cultural world that it is a part of (Linell, 2009, p. 49). This is what lies
in the idea of mediation (Säljö 2000; 2005; Wertsch, 1998); that people’s access to the world is indirect as it involves the use of cultural tools.

For these reasons, human activities must be understood in relation to the tools used in these activities. As an example, Wertsch (1998, pp. 26ff) describes the futility of trying to understand pole vaulting without the pole – or the pole vaulter. The same thing could be said for different information activities; for example, school children’s information seeking in a school library would be difficult to understand if the books and websites used – or the children – were looked at in isolation.

The examples of the pole vaulter and the school children intentionally involve physical cultural tools. Other meditational means, especially language that is used for speaking and thinking, may seem less concrete. However, as Wertsch (1998, p. 31) points out, all cultural tools are to some extent material and used in relation to a concrete, physical world. Thus, the sociocultural perspective reminds us of the materiality of human activities and practices.

In relation to the empirical interests of this thesis, this reminder leads to an emphasis on the tools and artefacts that people make use of in their information activities. An understanding of information as something intangible is, as discussed above, not applicable when conceptualising information activities from a sociocultural perspective. Instead, an inclusion of the material aspects of meditational means provides a more comprehensive picture of information activities.

It has to be emphasised that cultural tools should not be understood as being constant factors in information activities. People’s doings with information are closely interrelated with – but not predetermined by – the tools and artefacts they have at hand and interact with (Sundin, 2008a, pp. 17f.). From a sociocultural point of view, the relationship between people and the tools and artefacts they use is seen as reciprocal; according to Wertsch (1998, pp. 38ff), tools and artefacts can therefore both constrain and enable action.

The idea of the reciprocal relationship between people, settings, and tools leads to at least three propositions in relation to information activities. Firstly, tools and artefacts shape the information activities in which they are used. In relation to information activities in school contexts, Helena Francke, Olof Sundin, and Louise Limberg (2011) exemplify this claim in their study of the Swedish upper secondary school. They find that students appear to be challenged when asked to include web 2.0 resources in their assignments and to assess the credibility of these sources in relation to print resources. When
meeting participatory genres on the web, the pupils have to reconsider traditional ways of judging source credibility. Francke, Sundin and Limberg (2011) illustrate how pupils create new strategies and look for new types of cues when confronted with the task of evaluating the credibility of, for example, blogs. It is suggested that the teaching of traditional ways of assessing credibility should be supplemented with “didactics for critical assessment of sources and their credibility that will also make it possible and meaningful to address participatory media” (Francke, Sundin & Limberg, 2011).

Secondly, tools and artefacts should not be seen as natural or self-evident; they are created and used by humans in specific historical, social and cultural contexts which shape the ways in which they are used. Another study of information activities in Swedish schools (Alexandersson & Limberg, 2003), in this case in primary school with 11-year old pupils, provides a compelling example of this second proposition. In their study of how pupils use different types of artefacts when working independently with project-based assignments, Alexandersson and Limberg (2003) find “few indications that the new technology, in itself, supports students’ learning or enhancement of knowledge” (Alexandersson & Limberg, 2003, p. 23). The conclusion of this study is that the social and discursive practices of primary school do not invite the children to explore complex and challenging questions; the focus is to create nicely presented facts, often copied from digital or printed sources.

Thirdly, no matter how well-designed they are, tools and artefacts can be used in ways that were not intended. This third suggestion is evident in Randy Bomer’s (2003) study of how physical tools are used in so called literacy workshops in a primary school in USA. Bomer (2003) discusses how the children, by arguing over the right to use a pointer, or playing with a pen as if it was a sword or underlining every word in a text, go beyond the affordances that are approved of in the social practices of school. These examples of unintended uses highlight “some of the difficulties inherent in teachers’ adopting tools for particular goals in thinking and learning” (Bomer, 2003, p. 236). In other words, it is impossible to fully foresee how a particular tool will be used in a particular practice; neither the tool itself nor the particular practice where it is used can be seen as the only determining factor. It is for this reason that the study of activities, such as information activities, needs to focus on the interaction between people and cultural tools.

3.4 The Situatedness of Information Activities

In sociocultural thinking, the idea of situatedness is closely linked to the concept of cultural tools. Taken together, the three propositions above entail the view that tools and artefacts are shaped by and shape social practices through
processes of negotiations (e.g. Ivarsson, Linderoth & Säljö, 2009; Sundin & Johannisson, 2005b). These processes can be described on several analytical levels; ranging from practices to activities, as described in section 3.1.

In a primary school setting, the negotiations of ways to look for information on a certain topic are influenced by ideas that have emerged through the history of school as an institution. For example, as a pupil your position within a school setting is by tradition defined in a different way than that of a school-librarian or a teacher. In a specific situation, however, the negotiations are also shaped by the people interacting; expected positions might be turned around in the course of activities.

Thus, some ways of seeking and using information might be sanctioned in a particular activity, whereas other ways might be seen as being inappropriate (cf. Bomer, 2003; Sundin & Johannisson, 2005b). This means that when people engage in new social activities and practices, they need, at least in part, to learn how to act like, and eventually become, competent participants in various situations and practices built on different traditions. Issues of how to learn to participate in situated information activities will be discussed below in relation to the notion of information literacies.

3.5 Learning of and Learning from Information Activities

So far, the notion of learning has been left without any explicit explanation or in-depth discussion. This lack of discussion has been intentional; the reason being that information activities, not learning, constitute the primary focus of this research. However, learning is a fundamental issue in sociocultural thinking and the descriptions of information activities as being communicative, mediated and situated entail certain ideas on learning. These ideas, which will be described below, have implications for how information literacies are discussed and understood in this work.

When Vygotsky (1978) added “signs” to the behaviouristic model of learning, where external stimuli are described as leading to behavioural responses, he highlighted that learning, for children as well as for adults, to a large extent involves learning how to handle cultural tools. Thus, Vygotsky questioned the early behaviourist claim that all human learning originates from external stimuli, while at the same time rejecting the idea that all human learning has its basis in innate abilities that develop as children become older (Säljö, 2005). What Vygotsky (1978) highlights is that “higher psychological processes” must be understood as being developed in relation to the kinds of cultural tools and artefacts available to them. Thus, in order to understand how and
why people learn, the social and material aspects of learning must be considered.

What people learn and how they learn is related to the tools and artefacts they have at their disposal (Säljö 2005, p. 73). The emphasis on the role of tools in learning processes also implies that learning is situated; different social activities and practices in different historical eras have entailed different requirements for what people have needed to learn. This also includes what people have needed to learn in relation to information activities. As Annemaree Lloyd (2010) notes in her paper on corporeal aspects of information literacies:

> Within an information environment, knowing is not just produced when people engage with encoded knowledge. Knowing is also produced when people engage with objects, artefacts, symbols, other people and practices. These things afford or furnish opportunities for engagement by producing a type of knowing that is localised, specific and nuanced to the setting. (Lloyd, 2010, no pagination).

Lloyd’s argument is that information literacies are *enacted* and *situated* in particular social activities in specific historical contexts. It is through participating and engaging in information activities that people can *perform* information literacies. Hence, from a sociocultural perspective, an individual cannot be regarded as being information literate per se, since information literacies are seen as taking place in relation to concrete tools and artefacts employed in situated activities. As already mentioned, it is for these reasons that the plural ending, information literacies, is preferred.

Furthermore, from a sociocultural perspective, learning is seen as the inevitable result of any human activity (Johansson, 2009; Säljö, 2000). In most contexts, however, and perhaps especially in school settings, some ways of learning are deemed more appropriate than others (cf. Limberg, 2007). Judgments on what is regarded as being appropriate and not appropriate in terms of learning by participating in information activities must be related to the social contexts in which these judgements are made. It is for this reason that the aim of this thesis is not to assess whether the children in the studies are information literate or not. Instead, the aim is to describe the information activities studied in order to be able to discuss how information literacies are enacted in primary school.

When learning is understood as something that takes place in and is shown through people’s participation in social activities, the question of how – or if – learning can be studied becomes relevant. As already mentioned, the focus of the empirical studies of this thesis is not learning, but information activities,
which in Linell’s (2009, p. 232) words can be seen as “opportunities […] for potential learning”. When people engage in such activities, they can also do it in ways that may be considered more or less purposeful within the practices studied. If and what the participants learn and are able to enact in other situations is, however, not the object of study. Yet, the opportunities for the pupils to learn in and through information activities can and will be discussed on the basis of the empirical studies.

3.6 Information Activities as Study Objects

The sociocultural perspective presented in this chapter helps us understand important aspects of activities where people communicate, interact and learn. The perspective guides the design of the empirical studies and the analysis of the empirical material in this thesis. It provides ideas about the nature of the object of study, but also how to approach it; in other words, it suggests how to conduct research in order to produce social scientific knowledge.

In this thesis, one basic idea is that scientific knowledge production belongs to a discursive genre that currently seems to be appropriate for discussing and solving particular types of problems (cf. Noddings, 2007, pp. 120f). The idea of mediation presented above suggests that knowledge cannot be derived from any neutral point of view or be expressed in a value-neutral way. This can be regarded as a problem or as an obvious necessity. In this research, the latter view is adopted. For the individual researcher, this precondition can be seen as a reminder of the importance of humility to the task of doing research.

This view of scientific knowledge production seems particularly reasonable if making a distinction between the “cultural sciences” and the “natural sciences”, as Linell does (2009, p. 29): “cultural sciences exhibit dialogicality at two levels, both at the level of subject matter […] and at the level of the analytic, scientific practices themselves”. This distinction highlights the difference between studying people only as physical beings in a physical world and studying people as physical and social beings in a physical and social world. Even though the aim of the latter type of studies cannot be to reach universal truths, they can express views of the world and thereby make it more understandable. This does not mean that every statement about the world is equally reasonable; to carry out research is to employ cultural tools – which take years of training to master and are also built on century-old traditions – within particular communities. The tools chosen for the studies in this thesis will be described in the subsequent chapter.
4. Methodology and Methods

In order to fulfil the aim of this thesis, four studies of information activities have been conducted in three Swedish primary schools. In the previous chapter, it was argued that information literacies are performed in communicative, multimodal and situated information activities through the use of cultural tools. In this chapter these ideas will be specified in relation to the four empirical studies. The first section will provide an overview of the studies and discuss overall methodological considerations. The following sections will describe the field-work phases of the studies, as well as the different analytical approaches employed in the studies.

4.1 An Overview of the Four Studies

The studies included in this thesis were conducted in three Swedish public primary schools between 2005 and 2008. The three schools were located in two different municipalities in south-west Sweden. Two of the schools were situated in the countryside, while the third was a suburban school. In total, ten forms participated in the studies (see Table 2).

The selection of participating schools was a process in several steps. To begin with, the guiding principle was to cooperate with public schools with different types of catchment areas (see Davidsson, Limberg, Lundh & Tyrén, 2007). Another selection criterion was that the school should be considered “ordinary” in terms of IT initiatives and IT related didactics; none of the schools were known for any explicit experimental working method. However, all of the three schools employed different kinds of project-based working methods. The two forms participating in the last three studies were chosen because the form teachers seemed to have well-developed ideas on these kinds of working methods. Three of the four studies focus on the information activities in these two forms. Other analyses of some of the material that was produced in 2005 and 2006 have been reported in Davidsson et al. (2007), Lundh and Limberg (2008), Davidsson, Lundh and Limberg (2009), and Lundh (2010).
As seen in tables 2 and 3, the main methods used for producing empirical material for the four studies in this thesis were focus group conversations, observations, and document collection. All phases of the data production were inspired by ethnographical methods. The analytical approaches did, however, evolve through the different studies, but the methods of analysis all allowed for detailed analyses of conversations, interactions and artefacts.
Table 3. An overview of the four studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Empirical Material in Focus</th>
<th>Author Contributions</th>
</tr>
</thead>
</table>
| 1     | Four focus groups from schools A, B, and C | AL, BD, LL designed the study  
AL conducted focus group conversations  
AL, BD, LL analysed the material  
AL wrote paper with input from BD, LL  
AL had primary responsibility for final content  
All authors read and approved the final manuscript |
| 2     | Two episodes from the video recordings in school C | The sole author had responsibility for all parts of the article. |
| 3     | 29 episodes from the video recordings in school C | AL designed the study  
AL conducted the fieldwork  
AL, MA analysed the material  
AL wrote paper with input from MA  
AL had primary responsibility for final content  
Both authors read and approved the final manuscript |
| 4     | 25 booklets produced by the pupils in school C | AL designed the study  
AL conducted the fieldwork  
AL analysed the material  
AL wrote paper with input from LL  
AL had primary responsibility for final content  
Both authors read and approved the final manuscript |

The approaches taken in the studies were not intended to be orthodox in relation to any existing and prescriptive methodology. Instead, the idea has been that the methods chosen should enable analyses of the interactions between people and artefacts in primary school information activities; and also allow the researcher(s) involved to approach such activities in ways that are respectful to the participants.

The first study of this thesis laid the foundation for the other three; while the first study had a broader focus and was conducted in a more exploratory way, the following studies were limited in the number of participants as well as in their empirical interest. The focus of the first study was the use of ICT and the role of information seeking during the first school years, as described by

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2 Within LIS it is not as common to state author contributions as it is in other research fields. The statements in Table 3 are based on instructions for authors of *The American Journal of Clinical Nutrition* (2011).
the educators at the schools. This study gave an overview and an initial understanding of information activities in the schools. In the three later studies, the focus was shifted to the children, as they were working with project-based assignments where information seeking, as well as the use of ICT was considered a key part.

The three latter studies were initially influenced by Visual Ethnography (Pink, 2007) and Interaction Analysis (Jordan & Henderson, 1995). Within traditional ethnography, field notes are usually seen as the conventional way of collecting and constructing empirical material. As its name suggests, Visual Ethnography (Pink, 2007) is to a greater extent based on visual and audiovisual collection methods, in addition to field notes. Expressed differently, Visual Ethnography can be said to be based on writing with sound, light, and letters. The use of a video camera during the field work creates opportunities to highlight visual aspects of the practices studied and to include visual elements in the analyses and the writing up phases.

Within Educational Science, Brigitte Jordan’s and Austin Henderson’s article “Interaction Analysis” (1995) has been influential. It has been used for “close readings” of interactions between people and between people and artefacts in various school settings (e.g. Klerfelt, 2007; Lantz-Andersson, 2009; Linderoth, 2004). As an overall analytical approach, Interaction Analysis has been useful when narrowing the analytical interest of the studies included in this thesis, but it has also been supplemented with analytical tools developed within linguistics and multimodality research.

One way of describing the data production of the four studies taken together would be ethnography with “a selective intermittent time mode” (Jeffrey & Troman, 2004, p. 540). In their paper, Bob Jeffrey and Geoff Troman raise the issue of how ethnographers of today are constrained by tighter deadlines and efficiency requirements than earlier generations of ethnographers, who could spend years doing fieldwork. They suggest three ethnographical time modes that are adjusted to current conditions for Social Science research, which “make a sustained 12 month minimum research period a luxury” (Jeffrey & Troman, 2004, p. 537). One of the modes is to follow up one or a few areas of special interest after an initial period when the researcher and the participants have gotten accustomed to each other. This type of mode is useful when one or a few aspects of a setting are of interest, for example, as in this case, the information activities in the setting.

In summary, the ethnographical approach can be said to have facilitated access to the local activities and practices of the participating schools and a local
understanding of everyday happenings, whereas the Interaction Analysis approach, coupled with linguistic and multimodal analytical approaches, permitted more distanced analyses of selected situations. The methods chosen for the data production and analysis created possibilities for analysing interactional situations, activities, and artefacts with a basis in an understanding of the social practices and traditions which the interactions and artefacts were parts of. What might be lost in this combination of methods is, however, the kind of cohesive and comprehensive description that could have been the result of a traditional ethnographic study. There is a risk that the four studies appear as a string of unconnected descriptions of disparate activities. One way to address this problem is through the summarising discussion on the overall results, presented in Chapter 6 of this thesis.

The above description of the choices of methods might also run the risk of implying that empirical material was collected in a way that is similar to data collection methods employed by biologists when describing and classifying specific species. In Doing Visual Ethnography, Sarah Pink (2007) questions such scientific-realistic approaches to the use of film as a tool for collecting social science data, where the researcher uses the camera as a way of collecting and securing “the reality” to bring back home to an academic ivory tower where the collected material is used to analyse and describe “the truth”. In this thesis, the activities studied are not regarded as being possible to capture in one single, objective way. Therefore, it might be more accurate to say that the empirical material was produced, rather than collected. For example, interviewing someone about what happens in a classroom is an activity in itself, which differs from the happenings as such (cf. Säljö 2005, p. 71). An interaction between two or several people would probably be a bit different if it was not video recorded. During the field work, the researcher(s) had to use tools used in other everyday situations, especially language, in order to produce the empirical material. This process did indeed require active participation from educators and pupils. However, no one but the researcher can be accountable for the design of the studies and the analysis of the material produced during the fieldwork. How this has been carried out in the four studies is the topic of the subsequent sections.

4.2 Educators’ Perspectives – The Design of Study 1

The focus group conversations in the first study, together with ethnographical fieldwork, provided an initial entry point to the three schools. The participants of the focus groups were all educators working with primary school children in the 10 forms included in the studies. The participants were invited to the conversations as they had pedagogical roles in relation to the children’s information seeking and use. The mix of professional groups reflects the circum-
stances in Swedish primary schools at the time, where pre-schools, primary schools and after-school recreation centres were often integrated to some extent and often shared premises (Skolverket, 2011b). In total nine primary school teachers, six pre-school teachers, three leisure-time pedagogues and two librarians participated in the focus group discussions.

The four focus group conversations included 4-7 participants each and were moderated by me (Anna Lundh). Each interview lasted for about an hour and was recorded with a digital recording device. A research assistant or an undergraduate student from the Swedish School of Library and Information Science was also present and took notes to facilitate the later transcription. The conversations took their starting-points in stimulus materials with short excerpts from Swedish literature on ICT and information seeking in schools (see Appendices 1 and 3). As the approach to the conversations was to see them as “the dialogue of ideas” (Marková, Linell, Grossen & Salazar Orvig, 2007, pp. 132f; Linell 2009, p. 128), rather than structured interviews, they did not follow a strict interview guide, but a checklist type of document was used (see Appendices 2 and 4). The role as moderator included ensuring that the conversations did not move too far away from the main topics; summarising themes that had been discussed; and at times introducing new thoughts into the discussions to keep them going.

### 4.3 Children’s Perspectives – The Design of Studies 2, 3, and 4

The three later studies entailed a shift of interest in terms of empirical focus. As already mentioned, the first study was directed towards discourses of ICT and information seeking in primary school, as they appeared in conversations with educators. The three other studies focussed on the children, and had an empirical interest in how information activities unfolded in the classrooms and in the school library. This interest was the reason for choosing a video camera as an important tool for the fieldwork, in addition to written field notes. By doing video recordings while observing activities in classrooms, a computer room, and the library, it became possible to analyse interactions in another way than if only written field notes had been taken. Moreover, documenting information activities this way opened up for the inclusion of visual and material aspects in the analysis.

As this part of the studies rendered the major part of the empirical material analysed in this thesis, it will be discussed in greater detail than the first study. Ethnographical work, as a method for data production, is often described as involving the negotiation of entry, fieldwork and leaving (e.g. Hammersley & Atkinson, 2007). This applies also to this case. The most intense period in
terms of data production was five weeks of fieldwork during the spring semester 2008, between two shorter holidays in February and at Easter. However, the planning of the study started before the academic year and a formal exit was made at the very end of the academic year, in June 2008. The different stages of these studies entailed several research ethical considerations and choices; particularly since most of the participants were children.

### 4.3.1 Children as Study Participants

Compared to the first study, which started from the educators’ descriptions of information activities at their schools, the second, third and fourth studies explicitly aimed at starting from the children’s perspectives on their information activities in school. It is thus reasonable to spend a few words on how “children’s perspectives” is understood in this work, as it has several connotations.

In many contexts the meaning of “children’s perspectives” is highly value-laden; during the latter decades of the last century the expression became imbued with a political and ideological meaning which was manifested and implemented through the UN Convention on the Rights of the Child (Halldén, 2003; Kampmann, 2000, p. 24ff). Even though this political and ideological discussion has been interrelated with a research agenda that stresses children’s perspectives, the two sometimes have to be separated. In this research, “children’s perspectives” refers to methodological issues, based in the research tradition of The New Sociology of Childhood (see also section 2.1.1).

When claiming that the three latter studies of this thesis have their starting point in the children’s perspectives, this should not be understood as an attempt to try to take someone else’s perspective completely; such an ambition appears neither possible nor desirable. Instead, it should be seen as a change of focus, from educators to children, and furthermore, as considering the children as participants just as reliable as adult participants (cf. Qvarsell, 2003).

One important methodological contribution of the New Sociology of Childhood is that of differentiating between regarding children as “becoming” or understanding them as “being” when conducting research on or with children (James, Jenks & Prout, 1998, p. 207). The former implies studying children as being incomplete and on their way to adulthood, whereas the latter means studying children whose present is just as important as their future. This dichotomy is, of course, a simplification; as Gunilla Halldén (2007) points out, all humans are at the same time both being and becoming. Still, the two concepts serve as a reminder of the possibility of studying school activities as they
unfold, without a fixed preconception of how they should be conducted or how the children should act.

One of the guiding principles of the design of Study 2, 3, and 4 was to see the children as being competent study participants (cf. Qvarsell, 2003). This resulted in a balancing act between regarding the children as a group just like any group of study participants, and regarding them as a special group. In one sense, the challenge for the researcher was the same as in any ethnographical study; that is using oneself as an instrument when trying to communicate and understand another group of people according to both their and your own abilities (cf. Corsaro & Molinari, 2000). Still, doing research with children has special research ethical consequences. The studies reported in this thesis followed the research ethical guidelines of the Swedish Research Council published in 2002\(^3\), where informed consent and confidentiality are two key pillars (Vetenskapsrådet, 2002). When carrying out a study which includes children, these issues need to be dealt with in several steps; the children and their parents/guardians, as well as the staff at the school needed to be considered. How informed consent and confidentiality were ensured through the studies is described in the following sections.

4.3.2 Negotiation of Entry

The discussions on conducting the three later studies started several months before the actual fieldwork started. In June 2007, at the very end of the academic year when the pupils had already left for summer holidays, a follow-up meeting was held with the educators in one of the schools which had been involved in the first study. During this meeting, the findings from the study were described and the possibilities of doing yet another period of fieldwork in two of the forms were discussed with the two form teachers who were interested in a continuation. These teachers were approached as they were using a project-based method of working which they called research\(^4\) and which they intended to develop further during the academic year to come. The headmaster of the school was also positive to the idea of the study and was kept informed throughout the study.

The next step in the negotiation process was to inform the parents. This was done at the beginning of the new academic year at a parent-teacher meeting, in September 2007. During this meeting, the parents were informed about the studies; their focus, the data collection methods, how confidentiality would be ensured etc. During this meeting a letter with information about the study was

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3 A new version of ethical rules has recently been published.

4 When written in italics, research refers to the working method used in the two forms participating in the three latter studies.
handed out, together with a form where the parents/guardians could either give their consent or refrain from letting their child participate in the study (see Appendix 5). In the end, one child out of 32 was not included in the study, as his/her parents did not give their consent.

After the parent-teacher meeting, a suitable period for the fieldwork was discussed with the teachers. A five week period later during the academic year was chosen. During this period, the teachers had planned to use the research method of working two days a week; Tuesdays and Fridays. On Fridays the children also had IT lessons which were focussed on the children’s research projects. These lessons were led by an IT assistant/technician.

4.3.3 Doing Fieldwork
The period of fieldwork began with me reintroducing myself to the two forms during an assembly. In the introduction I explained that I did “research on children who are doing research” and therefore appreciated their help; that I would always ask them before I filmed them; that they had the right to ask me to stop observing and recording; and that articles and a book about their activities would be published, but that their names and photos would not be included in these publications. These issues were brought up during the whole period of fieldwork, both by the participants and by me. However, the question which seemed to be of the greatest concern to the children was that I was not able to spend the same amount of time with each child, which I had also mentioned initially.

As the intention of the studies was to understand the information activities of project-based teaching and working methods, the ambition was not to follow the children’s individual trajectories. During the five week period I made sure that I had an overview of what kind of project each child was involved in, but I also followed some children more closely during the five weeks. The choice of children was, on the one hand, based on which children invited me to follow them; and on the other hand based on my wish to follow children who seemed to approach their assignments in different ways.

Within the ethnographical methods literature, the question of degrees of participation is often discussed and described as ranging between a distant observer and a full participant (Hammersley & Atkinson, 2007, pp. 82f). As an adult, doing fieldwork in a classroom, the researcher cannot be seen as a full participant by the children; however, it is possible to be seen in a role different from that of a teacher, as an “unusual type of adult” (Haudrup Christensen, 2004, p. 174). This was my aim when entering the field.
One way of describing the role I was ascribed during the fieldwork was that of “Researcher Anna with the video camera”; this was the way I was depicted by many of the children when they wrote and drew me goodbye letters at the end of the term. To become an “unusual type of adult” turned out to be less complicated than I had anticipated before the study, as adults other than the form teachers were often present during the lessons; such as leisure-time pedagogues, a remedial teacher, an older pupil undergoing a period of practical work experience and people from local organisations presenting their activities.

During the days I observed the forms, a range of organised activities were normally going on simultaneously, where the pupils were divided in different smaller groups; each child often had an individual schedule for the day. This meant that the classrooms were characterised by a constant flow of children and adults involved in or on their way to or from different activities; as a researcher it was therefore possible to “follow the rhythm”.

Another way of describing my role as a researcher would be to analyse how my position was negotiated in different situations. Bringing a camera to a classroom or a school library has implications for how you, as a researcher, interact with the participants (cf. Jordan & Henderson, 1995; Pink, 2007). The video camera was of a small and compact type. However, in order to stabilise it and to be able to easily adjust the angle, a monopod was used most of the time. When a specific child or group of children were recorded, a lapel microphone was used in order to reduce background noise. Thus, the participants always knew when they were being recorded.

The role of the video camera varied between situations (cf. Sparrmann, 2005). In some situations, for example during assemblies, the participants did not seem to acknowledge me or the camera. At other times, “acting” in front of the camera or showing me a web page or a piece of paper, appeared to be the main activity. Sometimes I initiated informal interviews in order to understand what the participants were doing; at other times, they used me as a discussion partner. When analysing the material it is obvious that the interactions involve at least two components that are not visible in the video frames, namely the camera and the researcher.

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5 Canon HV20.
6 Manfrotto Professional monopod 681B with a Manfrotto 234RC.
7 Sennheiser EW112P.
4.3.4 Leaving the Field
Exiting the two forms was fairly straightforward; the period of fieldwork ended when the Easter holidays started. At the time I borrowed and copied booklets from the pupils’ work that had been finalised. During the rest of the term I communicated with the forms by sending them a thank you letter (Appendix 6), and talking to the teachers about coming back and visiting them. At the end of the term I spent half a day with the forms, and showed them a slideshow with still pictures exported from the recordings made during the period of fieldwork. The children were also given a copy each of the slideshow which included pictures of all of the participants and was designed as a story of how I had done research on children doing research. This was intended as a practical way of “giving something back” (Pink, 2007, pp. 56ff) to the participants.

During the summer holidays I communicated with the children whose booklets I had not yet copied (Appendix 7). After this, the communication stopped. After the summer holidays, the children would start in new forms with new teachers; thus, the end of the fieldwork coincided with other school related endings. In ten cases however, the communication was taken up again in 2011, in order to obtain permissions from parents and children to publish the pictures included in Study 4. This communication was initiated through telephone conversations and followed up by mail correspondence (Appendix 8).

4.4 Researchers’ Perspectives – Units of Analysis and Analytical Approaches
The empirical material of the four studies has been approached in different ways and on different analytical levels, from the level of institutional practices to interactional situations (Linell, 2009, pp. 49, 190, see section 3.1). The first study sought to understand ideas and discourses on ICT use and children’s information seeking as they appeared in organised focus group conversations with the educators; the two following studies were oriented towards understanding how information activities unfolded through interaction and language use in classrooms and libraries (cf. Änggård, 2007, p. 144); and the last study focussed on the multimodal aspects of artefacts produced by the children. The units of analysis have thus been of various kinds in the different studies (see Table 4). All of the studies focus on aspects of mediated communication in information activities in primary school, but from different angles. Whereas the first, second and third studies involve the analysis of spoken language, the fourth study is an analysis of documents.
The four studies all focus on information activities as they take place as quite ordinary primary school activities. As will be described below, the illustrations of the studied information activities are different in character and employ different modes of representation. Taken together, the illustrations are meant to provide a varied description of information activities in primary school, which can in turn be used for discussing how information literacies are enacted in this setting.

### 4.4.1 Study 1 – Analysing Ideas in Conversations

The empirical material which was the subject of analysis in the first study consisted of four recorded and transcribed focus group conversations. Three of these focus group conversations were transcribed by me, and one of them by the research assistant who took notes during three of the conversations. All of the transcriptions were adjusted to written language conventions, and the quotations used in the study were translated from Swedish into English.

In the analysis, the focus groups were approached as conversations organised mainly for research purposes, in contrast to the conversations observed and recorded in the everyday activities of the three schools. Even though focus groups are usually designed by someone outside of the group participating in the conversations, they can be approached in different ways and on different analytical levels, ranging from an interest in the focus group as a special type of communicative activity (Linell, 2009, p. 190) to an interest in recurrent ideas or discourses expressed in the conversations (Linell, 2009, p. 128). In the first study of this thesis, the latter approach was employed; the analysis was
oriented towards the level of primary school practices, rather than that of interactional situations.

Thus, the analysis was directed towards what was said during the conversations, rather than how it was said. The analytical procedure was carried out by the team of researchers and based on the transcripts of the conversations; the analysis concentrated on the ideas or descriptions of children’s use of ICT that emerged in the conversations. Two overarching themes or descriptions of children and their use of ICT were identified. These ideas, which are summarised in the next chapter where the results of the studies are presented, are seen as examples of larger societal discourses on new communication technologies, which might have implications for the enactment of information literacies in Swedish primary schools.

4.4.2 Study 2 – Analysing Negotiations in Conversations

Just as in Study 1, Study 2 was oriented towards tools used in information activities. This study was, however, based on the video recordings made during the last phase of the fieldwork. It is characterised by an attempt to explore a type of methodology that is rare within the INSU field by approaching information activities as emerging in interaction.

To begin with, I described and classified the 20 hours of video recordings to get an overview of the material. This process was facilitated by summarising field notes which had been transcribed and edited after each visit at the school. One type of situation classified was that of negotiations around tools for information seeking. The idea was that the discourses identified in the first study would be possible to discern in the interactions between the children and the educators in the subsequent studies. However, in the end the analysis came to show something else.

When analysed in detail, with the help of concepts and tools from social linguistics in particular (Linell, 1998; 2009), situations that had initially been classified as negotiations of tools for information seeking, appeared as negotiations of questions as well. Detailed analyses of sequences of conversation between pupils and educators showed how questions which formed the bases for information seeking, emerged in interaction. Thus, prevailing models of how information needs arise seemed to be challenged by the analysis. This became the topic of Study 2.

During Study 2, I also found that written transcripts were not always sufficient as means of representing the video-based material. In some cases it was helpful to include visual clues in order to make the interactions analysed compre-
hensible. At this stage, sequential art (McCloud, 1994) was found to be a useful method of representing the interactions. Representing the interactions in stylised pictures, and organising them in ways that are typical to cartoons, enhanced the conception of the interactions being situated in everyday school activities. At the same time, this way of presenting the empirical material ensured the confidentiality of the participants, children as well as adults.

4.4.3 Study 3 – Analysing Unfolding Conversations and Interactions

Using a video camera during the fieldwork did not only allow detailed analyses of the conversations; it also opened up for discovering and exploring visual aspects of the information activities studied. During the fieldwork it became evident that a fairly large proportion of the children’s time seemed to be spent looking for and handling pictures, photographs, and images.

This observation was expressed as a question for analysis and a different classification of the video recorded material was that of “seeking pictures”. The analysis of these sequences is presented in the third study. Just as in Study 2, the analysis was carried out with a basis in the video recordings, and a focus on spoken discourse. The analysis was influenced by Interaction Analysis (Jordan & Henderson, 1995), and guided by an interest in the similarities and differences between the selected episodes.

Even though the analysis took single conversations as its starting-point, the conversations were also seen as examples of the activity of seeking pictures. The analysis led to a thematisation of the interactions in the episodes. The themes identified described the activity of seeking pictures on an overall level. The episodes included in the results of the study were represented in detailed translated transcripts. In this study, the situatedness of the activities analysed was enhanced by the inclusion of single stylised pictures based on the video recordings.

4.4.4 Study 4 – Analysing Multimodal Artefacts

The fourth, and final, study differed from the three earlier studies as it focussed on the booklets that the children had produced during the period of the fieldwork, rather than on spoken discourse. This analysis of documents was directed towards the use of information, in this case the use of pictures, in relation to the use of text. The results from the third study, which described the activity of seeking pictures, formed a basis for the analysis of the use of pictures.
This study best illustrates the multimodality of information activities. The method of analysis included a bottom-up coding process of all of the pictures in the collected and copied booklets. This process resulted in four categories, which were informed by categorisations of image-text-relations developed in earlier multimodality research (Bezemer & Kress, 2009; Martinec & Salway, 2005).

In order to illustrate the four categories, eight examples from the children’s booklets were included in the final results, with the permission of the 10 children concerned and their parents/caregivers. In principal, the analysis reinforced the results of Study 3 regarding the activity of seeking pictures, as well as previous research on information use in project-based teaching and learning methods. The results of this fourth study, as well as the three earlier studies, will be described in the next chapter, where the four studies are summarised.
5. Summary of the Studies

In order to fulfil the aim of the thesis, four studies have been conducted. Taken together, they describe and illustrate the enactment of information literacies in Swedish primary school settings in relation to project-based teaching and learning methods. These descriptions and illustrations also provide a possibility for discussing the opportunities for learning that emerge in the information activities studied.

When linked together, the four studies can be seen as parts of one coherent user study; the first part concerns ideas of information activities in the settings studied; the second discusses question negotiations and formulations; the third involves analyses of information seeking as an activity; and finally, the fourth concentrates on information use. The underlying linearity should not, however, be understood as an analysis of information seeking processes of individuals within a user group; it should be understood as an analysis of information activities, as they unfold in primary school.

The analyses of the studies operationalise the theoretical concepts introduced in Chapter 3. Information activities are studied as social and situated everyday activities; the four studies all focus on interaction and communication, mediated by linguistic and/or semiotic tools, as they take place in relation to project-based working methods in primary school. In this social practice, people interact and communicate from different positions which are largely related to the different roles ascribed to educators and pupils. As described in Chapter 4, the set of studies is designed in order to include both of these positions.

Below, the four studies will be summarised one by one, in order to lay a foundation for the discussion of the conclusions that can be drawn from them when seen as a whole.

5.1 Talking about the Good Childhood: An Analysis of Educators’ Approaches to School Children’s Use of ICT

This study addresses the first research question on how primary school educators describe primary school children’s use of ICT. The study takes its starting point in the technological and pedagogical developments of the past decades;
on the one hand, the development of ICT and, on the other hand, the prevalence of project-based teaching methods where the pupils’ own construction of knowledge has been put to the fore. These developments have altered the idea of literacies to include the notion of information literacies (Säljö, 2005; Andersen, 2006). It is not clear, however, what implications this understanding of literacies has had for activities in Swedish primary schools.

The study presents an analysis of primary school educators’ approaches to children’s ICT use, especially as tools for information activities. The empirical material consists of the four focus group conversations described in Chapter 4. The analysis focuses on ideas on ICT and childhoods, as expressed in the discussions, and it is based on three ideas: 1) information activities involve the use of cultural tools. Cultural tools are ascribed meaning in the practices in which they are used, and this has implications for how they can and may be used (Wertsch 1998, pp. 38ff; Säljö, 2000, p. 115). 2) The ways in which childhood is understood and described in a society shape the conditions for real children’s childhoods (cf. Buckingham, 2000, pp. 6ff.; Mayall, 2000, p. 120). 3) Focus group conversations can be understood as “the dialogue of ideas” (Marková et al., 2007, pp. 132f; Linell 2009, p. 128), and the discourses identified in the conversations may have implications for the possibilities and limitations for ICT use and information seeking – and thereby for information literacies – in primary school.

In the analysis of the four focus group conversations, an idea of how children have to go through a kind of “media progression” emerges; tools for information seeking were ascribed different meanings depending on conceptions of when and where the tools are appropriate for children to use. This idea is also related to two ideas of childhood: 1) the good childhood, in which there is room for traditional tools for information seeking, such as books; 2) the contemporary childhood, happening outside the school context, where digital tools for information seeking and other activities are used. These contemporary childhoods are described as being insufficient, and it is argued that one of the roles of primary school is to counterbalance them. One way of doing so is to provide tools that can be a part of the formation of good childhoods and, consequently, to avoid ICT.

The results might not be surprising, as they confirm earlier research on societal discourses regarding the introduction of new tools in schools and in children’s lives (cf. Drotner, 1999). However, the problems ascribed to ICT by the educators can be seen as being somewhat limiting. The idea that children in contemporary society first and foremost learn to read through the use of print material is not entirely helpful. Furthermore, the idea that children al-
ready use digital media outside school and therefore do not need to learn how
to use digital tools in school might conceal inequalities regarding children’s
possibilities for using ICT. As one of the roles of primary school is to prepare
children for practices beyond and outside primary school it would be prob-
lematic if primary school did not include possibilities for children to use tools
that are common in Swedish society at large, or if it did not prepare the chil-
dren for tasks and challenges that they might meet in the future.

5.2 Studying Information Needs as Question-
Negotiations in an Educational Context: A
Methodological Comment
This paper is, as its title suggests, written as a methodological argument, fo-
cussing on the concept of information needs, which is central within the
INSU field. The main aim of this study is to explore the methodological con-
sequences of discursively oriented theories when studying information needs.
A research question is also formulated in relation to this paper: How do pri-
mary school pupils formulate their questions when working with project-
based methods?

Within the INSU field Robert S. Taylor’s (1962; 1968) model of information
needs and question formations has been very influential. The model is divided
into four stages: from the visceral need (Q1), which is also described as the actual
need, through the conscious need (Q2), where the user can formulate the need for
him/herself, the formalized need (Q3), which is the need verbally expressed, and
finally the compromised need (Q4), which is the question formulated in a way sui-
table for an information system (Taylor, 1962, p. 392). Taylor’s idea of an inner
“actual need” as the basis for questions that lead to information seeking can
be found throughout the literature of this field. How such information needs
can be studied empirically is, however, something that has been called into
question; researchers influenced by discursively oriented theories have sug-
gested a focus on how information needs emerge in social interaction, as ex-
pressed in Taylor’s idea of question-negotiations (e.g. McKenzie, 2004).

In the paper, it is suggested that the sociocultural ideas (Linell, 1998; 2009;
Wertsch, 1998; Säljö, 2000; 2005) which guided the studies of this thesis entail
a methodological shift for the study of information needs and question-
formulations, where interaction and language use become the focal point. It is
argued that language should be regarded as a facilitator for the formulation of
questions that might lead to information seeking, not as a hindrance for actual
information needs.
Two empirical examples from the video recordings are used to show how questions that might lead to information seeking can be analysed as emerging in interaction. The first example, which is represented through traditional transcripts, shows how a question becomes imposed in the conversation between two girls and one of their teachers. Thus, this example suggests that the division between imposed and self-generated questions presented by Melissa Gross (2001) is not unambiguous in this school setting.

The second episode, which is represented through sequential art, exemplifies how a question is negotiated in the communicative genre of a reference interview. It shows how another two girls and the librarian negotiate how the girls’ question can be defined, and how they come to a temporary agreement which makes it possible for them to bring the reference interview to a close.

Both of the examples show how questions, which have the potential of leading to information seeking, are constructed and negotiated through situated language use. These negotiations take place in institutional contexts and in specific communicative situations, which create certain possibilities, as well as constraints for how questions can and cannot be constructed. In the setting studied, question-formulating can be seen as a cultural tool that the children have to appropriate.

As a methodological comment, the study shows the implications of a view of questions as the result of collective efforts and joint construction, and not only of individual thoughts and feelings. Instead of focussing on individual users’ accounts of their assumed information needs, the analytical gaze is moved to conversations and interactions in naturalistic settings. This type of analysis opens up for an understanding of situated activities, as well as the wider social practices of primary school.

5.3 Collecting and Compiling: The Activity of Seeking Pictures in Primary school

The third study focuses on information seeking, more specifically on the seeking of pictures, as it emerged in the analysis of the video recordings. The aim of the study is to further the understanding of the situated activity of seeking pictures. The research question related to the study is the following: When primary school pupils work with project-based methods, how does the activity of seeking information, in the mode of pictures, unfold?

In addition to the sociocultural framework employed in the thesis as a whole, the aspect of multimodality (Jewitt, 2006; 2009) is elaborated on in this paper; it is argued that information literacies are situated and multimodal.
In the paper, 29 video-recorded episodes have been analysed. The episodes involve the searching for pictures and/or conversations about the seeking and use of pictures. Two themes were identified in the analysis: the first theme is called *Pictures as Non-Facts*, and the second *Seeking Pictures as a Collective Activity*.

The analysis suggests that the activity of seeking pictures seems to be shaped by the assumption that pictures are different from facts and information; pictures are seen primarily as having decorative functions. The activity is also characterised by playful, yet efficient cooperation between the children; they make the activity meaningful by transforming it into a play and game activity where pictures become important as physical objects, almost like trading cards.

The argument that information literacies are multimodal is reinforced by the analysis. However, the requirements for the seeking and use of pictures are different from the requirements for the seeking and use of text in the setting studied. Pictures are valued as decorative artefacts, but not as a semiotic means that can be used for learning about the topics explored by the pupils. In the activity of seeking pictures, the children evaluate and assess documents on the basis of their immediate appearance, but they are not encouraged to critically examine them. Hence, there seems to be room for exploring the possibilities of how pictures can be used in primary school as semiotic tools alongside other modalities, especially since the activity of seeking pictures seems to be an enjoyable activity for the pupils.

On a methodological level, the study shows how modes other than textual modes can be included in the study of information seeking, something that is often overlooked in the INSU literature.

### 5.4 Designing by Decorating: The Use of Pictures in Primary School

The fourth study is a continuation of the third and focuses on the use of pictures. The specific objective for this study is to enhance the understanding of the use of pictures in a school practice that is mainly dominated by texts. The study is based on the following research question: How is information, in the mode of pictures, used when primary school pupils work with project-based methods?

Information use, as one of the central concepts in the INSU field, has, just as the concept of information needs, been understood as being either an individual cognitive process or a social activity within particular practices (Savolainen,
As this paper follows a sociocultural tradition within the INSU field, information use is seen as an activity that takes place in the interplay between individual minds and social practices. This stance has implications for how information use is studied.

In the paper, information use is studied through a multimodal analysis of image-text relations (Bezemer & Kress, 2009; Martinec & Salway, 2005) of 25 of the booklets that the pupils produced. Through a bottom-up coding process four categories of picture use emerged in the analysis:

1. **Decorating.** The majority of the 500 pictures was placed in this category. It describes pictures whose main function is to make the booklets look nice; their insertion does not change the overall story.
2. **Illustrating.** This category is the second largest and, just as in the first category, pictures are subordinate to text. It describes pictures which illustrate something mentioned in the text.
3. **Explaining.** This category is the smallest of the four; here the picture makes the text more understandable.
4. **Narrating.** In this category, which is also small, pictures are used to create a narrative through the use of pictures and text on an equal footing; the text would not make much sense without the pictures.

To a large extent, the analysis of how pictures are used in the booklets confirms the results from Study 3; pictures work mainly as decorative additions and are usually subordinate to written text. In the paper it is argued that the use of pictures and drawings in this setting is shaped by school practice, which mainly builds on the use of linguistic tools. The analysis indicates that pupils are expected to use pictures as something other than narrative elements in the design of their final products; the result is commonly a much reduced pictorial language. In a sense, the use of pictures accentuates practices associated with alphabetic text in this setting; the focus seems to lie on the making of a product, not so much on what this product is supposed to mediate and communicate in terms of an understanding of a topic.

Even though the analysis shows that pictures are often used as decorative additions, it is not argued that the activities of seeking, using, and producing pictures in this setting are unimportant. The pupils obviously put a lot of effort into finding, producing and reproducing pictures in ways that are purposeful in the activities they participate in. The enactment of information literacies in this setting seems to involve valuing pictures and drawings as decorations that accompany facts. However, whether this is a desirable outcome could, of course, be a matter of discussion.
The paper also exemplifies a particular way of studying information use; not as a process solely taking place in individual minds, but as a social activity. Thus, the paper shows how a theoretically grounded understanding of information use as meaning-making action can be operationalised in an empirical study.
6. Discussion and Conclusions

This concluding chapter is structured into three parts. First, the results of the four studies will be discussed with the basis in one of the overarching question formulated in Chapter 1: In terms of information activities, what do project-based working methods seem to require from primary school pupils? The discussion applies the dual perspective on information literacies introduced in Chapter 2: it will be described how information literacies seem to occur in the settings studied, as well as discussed what opportunities for learning the children seem to encounter.

The second part of the chapter focuses on the theoretical and methodological choices of the studies and is based on the open-ended overarching question of how information activities can be understood, illustrated and described. Finally, the chapter ends with a discussion on new questions that have come to light through the work of this thesis, and suggestions of ways forward will be presented.

6.1 The Enactment of Information Literacies in Swedish Primary Schools

In this thesis it is maintained that information literacies are enacted in situated activities. It has been emphasised that the studies are not aimed at judging whether the children, or the educators for that matter, are information literate or not. Instead, the conclusions of the studies relate to the social setting studied, rather than to the single individuals. Thus, the Swedish primary school is seen as an arena where the pupils, together with the educators, enact information literacies in information activities. These activities are shaped by, and simultaneously shape, the primary school arena.

Furthermore, the information activities studied take place in the context of project-based teaching and learning methods, and the discussion on the enactment of information literacies should be understood against this background. These working methods are new in the setting studied, not only to the children, who are at the beginning of their careers as pupils, but also to the educators. In more than one sense, the educators’ role in controlling both the form and the contents of school activities is challenged, partly as a consequence of the teaching and working methods that they have chosen to em-
ploy. What we can see in the analyses of the four studies is a redistribution of the roles as experts and novices, as the educators as well as the pupils need to learn how to work with project-based methods. However, the main focus of the studies in this thesis is the requirements that seem to be placed on the pupils in the information activities studied. These requirements will be discussed below, in three overall conclusions.

Firstly, the pupils in the studies are required to learn how to use ICT, especially for information seeking, when project-based teaching and learning methods are used. However, even though the information activities studied include the children’s use of ICT, this use is not a given part of everyday activities in primary school.

In the studies, doubts regarding the appropriateness of letting young school children use ICT in school are expressed. At the same time, the studies illustrate how cultural practices from outside school, which involve the use of ICT, are imported into school information activities. This creates a tension between children’s roles as primary school pupils and their roles outside school. How primary school as an institution should respond to change in children’s childhoods related to the emergence of new ICT is, however, not self-evident.

The ambivalent approaches to children’s use of ICT identified in the studies can be seen as constraining in terms of the children’s possibilities for learning how to use digital tools for information activities. However, the educators’ ways of describing ICT must not be seen as being unique for the participating schools. Instead, the ideas expressed reinforce discourses on the negative effects of new tools for communication identified in earlier research (e.g. Buckingham, 2000; Drotner, 1999; Qvarsell 1988).

Neither should the educators’ approaches be understood as being exact representations of the information activities in the primary schools studied, but rather as historically recurrent discourses. However, these discourses still highlight the importance of discussing and scrutinising taken for granted ideas about children, childhoods, and tools used in information activities.

Secondly, in project-based working methods, the pupils are given responsibilities in quite complex communicative activities. One of these responsibilities is to learn how to formulate questions that guide assignments. However, project-based methods of working which involve highly individualised work processes are organised within the institutional school setting. One consequence is that the children have to learn how to reformulate imposed ques-
tions, as if they were not imposed. This conclusion should not be seen as implying that children should only work with so called self-generated questions (cf. Gross, 2001). Instead, the research indicates that the idea of a clear distinction between self-generated and imposed questions is not relevant, as questions originate from the interplay between individuals and social practices. This conclusion highlights the problem embedded in the often repeated idea that children should formulate their own questions. The pupils would benefit from more support in formulating questions that are suitable in the primary school context, instead of being left alone with this demanding and complicated task (cf. Alexandersson & Limberg, 2003; Limberg, Alexandersson, Lantz-Andersson & Folkesson, 2008).

Thirdly, in addition to learning how to formulate questions, the pupils are required to look for, read, write, and copy text, as well as to look for, find, use, and produce visual material. As a social practice, the Swedish primary school is in many ways text-dominated; however, the information activities in focus for this thesis are indeed multimodal. Digital tools for information seeking invite the children to seek information in different modes, and this is, at least to some extent, encouraged by the educators. However, the studies indicate that alphabetic text is regarded as the most informative mode, whereas visual material is primarily seen as having decorative functions.

In this way, the results of the studies in this thesis confirm what previous studies have shown (e.g. Alexandersson & Limberg, 2003), namely that when pupils work with project-based assignments, their information activities are often directed to designing and finalising nice-looking products. Their task seems to be to look for, produce, and reproduce text as well as images, but not much time seems to be spent on critical examination and discussion of the material found.

However, what the studies in this thesis suggest is that while texts at least seem to be supposed to mediate facts, pictures do not seem to be supposed to be used as communicative means to any significant degree. In other words, pictures and images are not regarded as being informative in the same way as texts. At the same time, the studies suggest that the information activities aimed at finding and using pictures are characterised by cooperation and enthusiasm among the pupils. The opportunities for learning how to find pictures, and how to learn from pictures, seem to be created mainly by the pupils themselves. If found desirable, these opportunities could probably be developed with the help of educators interacting with the children.
In conclusion, this threefold discussion points to an overall conclusion regarding the requirements placed on pupils in terms of information activities, when project-based teaching and learning methods are used. This conclusion can be formulated in the following way: The information activities in relation to project-based teaching and learning methods are characterised by conflicting demands, which stem from a collision between different schooling traditions. The introduction of project-based methods, together with the introduction of ICT in primary school, does not seem to be a frictionless process, as they seem to collide with traditional teaching methods and traditional tools for communication still prevalent in primary school.

The tasks that the pupils, as well as the educators, are facing are demanding. The project-based teaching methods adopted, paired with tools for communication that are still reasonably new in this setting, sometimes leave the educators and the pupils in positions where they have to try and navigate through information activities without a chart. The educators’ have to redefine their roles as deliverers of information and instructors, and the children need to be able to direct themselves through their assignments. However, the idea of letting the children freely explore an area of interest through the cultural tools available is complicated, as this free exploration is supposed to take place within the institutional setting of primary school. For example, while the pupils are supposed to formulate their own questions and to work independently, they must still adjust to the educators’ expectations, which are not always clearly articulated (cf. Boström, 2011, p. 115).

Thus, the studies in this thesis suggest that in the information activities of project-based work in primary school, information literacies are enacted in relation to conflicting rationales. When seen in this light, the information activities studied appear comprehensible, as both teachers and pupils negotiate how the children are expected to learn, but also what they are supposed to learn. Both pupils and educators put efforts into making the activities meaningful; they indeed work hard, even though the expected outcomes – or the why behind the activities – are not always clear.

6.2 Understanding, Describing and Illustrating Information Activities

The studies in this thesis build on traditions within the Library and Information Science field of Information Needs, Seeking and Use. However, they also build on a sociocultural perspective and ideas from the New Sociology of Childhood, which both offer alternatives to some common assumptions within the INSU field.
Initially, it should be stressed that the following discussion in relation to the INSU field of research is not intended to exclude other possible interpretations and perspectives. Theorising and studying information activities are also situated activities. This idea encompasses an approach to the field’s object of study as such. In a broader sense, this object of study can be defined as people doing something by and with information. These doings, which in this thesis are called information activities, are complex social activities.

Therefore, in order to render a nuanced picture of information activities, different approaches and perspectives are required. Nevertheless, it is not uncommon for discussions on the core concepts of the field to be characterised by the ambition to define those concepts once and for all. The view of this work is quite the opposite. For example, even though the activities studied in this thesis are portrayed in a linear way, where question-formations seem to precede information seeking and information needs, this does not imply that this is a generalisation valid for all kinds of information activities in all types of settings.

The argument of this work is that the INSU field must engage in ongoing discussions on its main concepts. Problems will arise if the field itself does not problematise how it defines the concepts of information needs, information seeking, and information use. The field’s object of study is of a social character and discussions on, for example, information behaviour versus information practices; on units of analysis; on the relationships between individuals, groups, institutions, and society at large; or on why and how people seek and use information should be seen as a sign of maturity, rather than as a sign of weakness. Instead of trying to produce general definitions of the concepts, a more fruitful approach would be to allow them to be understood and (re)defined through different theoretical lenses.

One of the ideas within the INSU field that has been questioned in this work is that people’s doings with information predominantly consist of private information processing. The four studies suggest that information activities are not made up by individual minds acting in isolation, but by people acting and participating in a social world. It is maintained throughout the studies that information activities are profoundly social activities. This view entails an understanding of information literacies as enacted in information activities, which are formed by societal and institutional discourses, as well as by the people who participate in the activities. If looked at as solely individual and isolated activities, the forming of questions, and the seeking and use of information in primary school would probably appear obscure or even irrational. However, to study them as situated everyday activities which are socially and
discursively formed, as well as historically situated, opens up for seeing and understanding their grounds, without necessarily evaluating them.

An interconnected idea is that which emphasises the multimodality and materiality of information activities. The presented analyses of people’s doings in naturalistic settings emphasise that information activities include concrete and material aspects. On the basis of the empirical studies in this thesis, it would be difficult to argue that information activities are wholly intangible, and to be regarded as information processes in people’s minds. To acknowledge and highlight the material aspects of people’s information activities provides opportunities to understanding how different modes are related to how information is sought, used, and valued within a social practice. Thus, to address questions of materiality does not mean that people’s doings with information are reduced to mere behaviours. Neither does it mean that individual minds are taken out of the equation. To study what people physically do with artefacts and tools in information activities is to study the social activity of communication, an activity which indeed involves individual, but not isolated, minds.

The study of the social and material aspects of information activities requires methods which take these aspects into account. The theoretical perspectives of this thesis have had methodological consequences. The studies have given examples of how conversations about and interactions within information activities, as well as the artefacts used and produced within such activities can be analysed. Together with socially and discursively oriented theoretical starting-points, these types of methods offer possibilities to identify and formulate new problems within the field of INSU.

Finally, another assumption that has been contested through this work is the idea of children as a natural user group. In the four studies in this thesis, children are viewed as a specific group, but this categorisation is constructed from categorisations operating within the practices studied. This is not to deny the special biological and physiological prerequisites of children; however, it means that the social prerequisites of children as a group are not taken for granted. In the society where the children of the studies live, children have certain rights as well as certain obligations, including attending compulsory school. In compulsory school, children take on the role of pupils, and it is as pupils that they enact the information literacies which are the focus of this thesis. However, in this research it has been suggested that information literacies in primary school are enacted in information activities which are carried out together with other people, such as librarians and teachers; thus, the information activities in primary school are constructed jointly by children and adults.
6.3 Looking Ahead

On an overall level, this thesis suggests some theoretical and methodological ways forward in the INSU and information literacies research fields, as discussed in the previous section. It has also raised new questions which are related to the empirical context studied.

One problem area that has been defined is that of the introduction of new tools for information activities in the school context. In contemporary society, we witness and are a part of a time of rapid change in terms of tools for communication. Several of the tools that many primary school children use in their everyday life today (in 2011) were unknown to most people a few years ago, when the studies of this thesis were conducted. Primary school, which has traditionally had a role of teaching children how to use quite stable tools for communication, is undergoing a transformation in which this role is challenged. How children’s opportunities for learning are changed – or not changed – when tools for information activities change is an area which continually needs attention, especially in relation to issues of equality.

Another question, which has been introduced in this work, is the joint construction of reference questions in conversations between librarians and school children. By looking beyond the idea of actual information needs or the distinction between self-generated and self-initiated questions, and instead focussing on the interactional work that librarians and children do together, new insights regarding, for example, the professional roles of school and children’s librarians might emerge.

As exemplified in the studies in this thesis, digital tools for information seeking have implications for how pictures and visual material are sought and used. However, within the INSU field, multimodal analysis is still in its infancy. Children’s use of pictures is, for example, often regarded as a pathway to alphabetic literacy, and in relation to information literacies other modes than the textual are often neglected. With the view that information activities are multimodal activities, the field would need further analyses and studies where visual modes are approached as communicative means in their own right. Such analyses might for example lead to a better understanding of the enactment of information literacies in contemporary societies.

Finally, a set of problems related to project-based teaching methods has been discussed throughout the studies in this thesis. In the studies, it has been highlighted how the pupils focus on “doing right” and adjusting to institutional expectations, but without clear directions on how to go about it. This theme
could indeed be explored further, for example in relation to questions of how different pupils might meet and handle these requirements in different ways. Implied expectations are not a new phenomenon in educational practices, regardless of the teaching method used. However, within the area of LIS where the rationales behind people’s ways of approaching information activities are of interest, explorations of such implicit expectations and how they interact with the forming of questions, information seeking, and information use in educational settings is an area that deserves more attention and thorough exploration.
References


Appendix 1. Stimulus Material for Focus Groups 1-3, Study 1
Appendix 2.
Checklist for Focus Groups 1-3, Study 1

1. Dela ut namnskyltar. Sätt igång bandspelaren.

2. Kort presentation av projektet. Att projektet bl.a. syftar till att undersöka vuxnas (lärares och bibliotekariers) föreställningar/uppfattningar om användningen av IKT men också undersöka hur man konkret arbetar med yngre barn.

3. Berätta hur intervjun kommer att gå till:
   I. Min respektive Lenas roll. Vad Lena antecknar.
   II. Poängtera att vi inte är ute efter ”rätta eller felaktiga” uppfattningar eller handlingar, utan deras samtal kring IKT och dess roll i undervisningen bland barn i åldern 6 – 8 år. Hur de gör idag.
   III. Presentationsrunda.

4. Dela ut stimulusmaterialet. Se till att alla hinner läsa.

5. Inledande fråga: Vad väcker det ni har läst för tankar hos er?

6. Frågeområden som skall täckas in:
   - Hur vill ni **beskriva och definiera** IKT och IKT-redskap?
   - Vilken **betydelse** menar ni som lärare/bibliotekarie att olika former av redskap/ informationssökning har i barns arbete och lärande?
   - **Vilka** redskap brukar ni använda i undervisningen?
     - Dator
     - Böcker
     - Bilder
     - Annat ….
   - **Hur och i vilka sammanhang** kan barnen använda de olika redskapen?
     - Temaarbete
     - Forskning
     - Skriv- och läsutveckling
   - **Hur och när** introduceras olika redskap för barnen? Skiljer det sig mellan olika åldrar? Tar barnen egna initiativ?
   - **Vad görs** med den information som hittas? Vad lärs?

7. Är det någonting ni vill lägga till innan vi slutar?
   Hela tiden: Be om konkreta exempel på hur de faktiskt gör.
Appendix 3. Material for Focus Group 4, Study 1


Lena Skoglund

Klass 2 – själv

Textlyft och sökmaskin


Louise Limberg
Appendix 4.
Checklist for Focus Group 4, Study 1

Namnskyltar. Eventuellt foto.

Bandspelaren

Första gången frågade ni mig vad syftet var med undersökningen, jag ska påminna er: Undersöka era föreställningar om ett undersöknings- och lärlärande, användning av olika medier i skolarbetet och användning av IKT-redskap (som webben, olika dataprogram).

(Artiklens syfte är skapa en fördjupad förståelse för hur förskolans, skolans och bibliotekets diskursiva praktiker kan skapa möjligheter för eller hindra yngre skolbarns lärning av informationskompetens.)

Syftet med intervjun: Inte att ge mig ”rätta svar”. Jag vill lyssna till hur ni diskuterar kring vissa givna ämnen för att på så vis öka förståelsen för er verksamhet, särskilt då vissa delar av den. Min del i det hela är att introducera diskussionsämnen, ni är dock huvudaktörerna. Ellins roll är att anteckna talarordning, inget annat.


Kör igång med en presentarationsrunda: var och en uppger namn och arbetsuppgifter.

För att skapa ingångar till olika diskussionsämnen eller väcka era tankar har jag valt ut några textstycken som jag tänkte att ni kan läsa. Ta god tid på er.

När alla är färdiga: Vad väckte detta för tankar? (Låt var och en börja med att säga vad de fastnade för om det går trögt)
Teman att täcka in

1. **Lena Skoglunds text.**

   Håller ni med henne?
   Både läslust och söklust?
   Arbetar ni med söklust? Hur då? När?

   Hur arbetar ni med elevernas läs- och skrivelärning?
   Någon särskild metod?
   Några nya metoder?

   Vilken betydelse har elevernas ålder?
   Vilka medier?
   Vad resulterar det i för eleverna?

2. **Skolbibliotekets pedagogiska roll.**

   Vilka roller har biblioteket här på skolan? (Viktigt att alla involveras)
   Till vad används biblioteket?
   Vad gör eleverna när de är här?
   Hur används biblioteket?
   I vilka syften används biblioteket?
   När används det?
   Rutiner?
   Vilken betydelse har elevernas ålder?
   Vilka medier?
   Vad resulterar det i för eleverna?

3. **Textflytt.**

   Känner ni igen er i den här beskrivningen? På vad sätt?/Varför inte?
   Hur går era temaarbeten till?
   Vilken betydelse har elevernas ålder?
   Vilka medier?
   Vad resulterar det i för eleverna?

4. **Fjärde basfärdigheten.**

   Ser ni det som en utmaning att jobba med den fjärde basfärdigheten som Rask kallar det?
   På vad sätt?
   Vilka konsekvenser får den utmaningen för undervisningen?
   Vilken betydelse har elevernas ålder?
   Vilka medier?
   Vad resulterar det i för eleverna?
Appendix 5. 
Information for Parents, Studies 2-4

Information till föräldrar med barn i klass NN och NN på NNskolan 2007-09-05


Uppgifter om såväl barn som verksamhet kommer att behandlas enligt regler om anonyminhet och sekretess. Det innebär att varken barnets namn eller namnet på skolan kommer att framgå i några rapporter eller sammanställningar och att filmerna endast kommer att ses av de forskare som är inblandade i projektet. Att visa filmerna för någon annan kräver särskilt tillstånd av er som vårdnadshavare och om så skulle ske, återkommer jag till er.


Med vänlig hälsning,

Anna Lundh, doktorand  
E-post:  
Telefon:  
Mobil:  

Mina handledare är:  
Louise Limberg, professor  
E-post:  
Telefon:  
Mobil:  

Mikael Alexandersson, professor  
E-post:  
Telefon:  
Mobil:
NEJ, jag/vi tillåter INTE att mitt/vårt barn

…………………………………………………………………………………
(Barnets namn)

blir filmat och intervjuat.

………………
Datum

……………………………………………………………………Tel: …………………
(Målsmans/målsmäns underskrift)
JA, jag/vi TILLÅTER att mitt/vårt barn

……………………………………………………………………
(Barnets namn)

blir filmat och intervjuat.

………………
Datum

…………………………………………………………………….Tel: ……………………
(Målsmans/målsmäns underskrift)
Hej mina kära vänner i klass NN och NN!

Här kommer era forskningshäften som jag fick låna med mig. Tack så mycket för att jag fick ta med mig dem! NN och NN har sagt att jag ska få låna med mig de andra häftena också. Jag kopierar häftena för att kunna titta på dem igen. Är det någon som inte vill att jag ska kopiera just deras så är det bara att säga till!


Ha det riktigt bra allesammans!
Hälsa gärna NN och NN från mig också!

Hälsningar,
Forskar-Anna
Appendix 7.  
Example of Letter to the Children,  
Studies 2-4

Hej NN!

Jag skriver för att tacka för din fina teckning som jag fick i häftet ni i NN och NN hade gjort till mig.


Hoppas att du har ett skönt sommarlov!

Hälsningar,  
Forskar-Anna

PS. Undrar du över något kan du ringa mig på . DS.
Appendix 8.
Information for Parents, Study 4

Kompletterande information till föräldrar med barn i före detta klass NN och NN på NNskolan (läsåret 2007/2008)

Hej!


Om ni, efter en diskussion med NN, vill ge ert medgivande till att kopian används i vetenskapliga publikationer och presentationer inom ramen för mitt forskningsprojekt, vänligen fyll i blanketten och posta i bifogat svarskuvert (portot är redan betalt).

Tveka inte att kontakta mig om ni har några frågor!

Med vänlig hälsning,

Anna Lundh, doktorand
E-post:
Telefon:
Mobil:

Mina handledare är:

Louise Limberg, professor
E-post:
Telefon:
Mobil:

Mikael Alexandersson, professor
E-post:
Telefon:
Mobil:
JA, jag/vi TILLÅTER att mitt/vårt barns
…………………………………………………………
(Barnets namn)

bild och text används

………………
Datum

……………………………………………      ………………………………………….      Tel: ………………………
(Målsmans/målsmäns underskrift)

……………………………………………      ………………………………………….      Tel: ………………………
(Målsmans/målsmäns underskrift)
Part Two – The Studies
Talking about the Good Childhood: An Analysis of Educators’ Approaches to School Children’s Use of ICT

Anna Lundh, Birgitta Davidsson and Louise Limberg

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Abstract
This paper presents a study on how primary school educators describe children’s use of ICT. This is done in order to lay a foundation for an understanding of how information literacies may be enacted in Swedish primary schools. The empirical material consists of four focus group conversations conducted with 20 educators at three Swedish primary schools. The analysis is focused on how the educators discuss and describe ICT as tools for information activities and as parts of children’s childhoods. Two descriptions of childhoods are identified in the analysis: 1) the good childhood, in which there is room for traditional tools for information seeking such as books; 2) the contemporary and insufficient childhood, happening outside the school context, where digital tools for information seeking and other activities are used. The task of primary school is described as counterbalancing contemporary childhoods and therefore avoiding ICT. The authors discuss how the implications of these approaches could be limiting for how information literacies may be enacted in primary school.

Keywords ICT, primary school, children, information literacies, information seeking, focus groups

Introduction
The background of the study presented in this paper is twofold. Firstly, during the past decades ways of teaching have changed in Swedish compulsory schools. Traditional teaching-centred teaching methods have in part been replaced with working methods where pupils work independently on projects within different domains. These methods include the pupils’ own information seeking and use. Secondly, the conditions for these ways of working have changed quite dramatically through the implementation of digital media and information and communication technologies (ICT) in Swedish schools, as well as in the rest of society.
In this article, we will present some of the findings from a research project on information literacies that was conducted at three Swedish primary schools. With a starting point in the pedagogical and technological changes of the past decades we will present a study of how primary school educators talk about children’s ICT use, especially as tools for information activities, but also for other purposes. As we see it, the ways in which ICT is described have implications for how information activities take place and how information literacies are enacted in primary school.

We concur in the view that information literacies differ between different social practices (e.g. Lloyd, 2007; Sundin, 2008; Tuominen, Savolainen & Talja, 2005) and we find that it is reasonable to assume that information literacies in primary school, at least to some extent, are enacted differently to information literacies in the later school years. One reason for the differences is the focus on children’s literacies in most school activities during the first years of school.

As Säljö (2005) discusses, literacies today include not only the ability to decode text and basic writing skills, but also the mastering of a whole range of activities such as information seeking, selecting, sharing, producing and organising – both in electronic and print-based environments. This does not mean that information activities have been of less importance in previous historical eras, but rather that written language has become more important for many information activities in contemporary society. In parallel with these changes, however, we can also see that other semiotic means are becoming increasingly important which has led to an emphasis on visual and multimodal literacies (Jewitt 2006; 2009). Taken together, these changes mean that the expectations placed on reading and writing skills today include abilities to manage a variety of genres, formats and modes. One could also say that the literacies requirements of many of today’s societies include information literacies (cf. Andersen, 2006).

One might assume that these renewed understandings of literacies, which are connected to changes within the ICT landscape, would have implications for activities in primary school as they are often oriented towards children’s literacies. However, earlier research suggests that the uptake and introduction of ICT in Swedish schools has been a complicated process and that working methods have not changed as much or in ways as one might think.

**Discourses on Children and ICT**

The basis for this study is a conception that primary school educators’ approaches to ICT might have implications for the enactment of information
literacies within the institution of primary school. For this reason, our analytical focus lies on how educators discuss and describe ICT mainly as a tool for information activities, such as information seeking, and children’s abilities and possibilities to use these tools.

With a few exceptions such as Enochsson (2005), most studies of ICT based information seeking in educational settings have focussed on secondary school and university level students (Abbas, 2010, p. 931; Case, 2007, p. 301f; Large, 2005). However, on a more general level, much has been written on the topic of the introduction of ICT in schools. In a Swedish context, several studies depict the introduction of new ICT in public schools as a complex process which has not always been embraced by teachers and other educators (e.g. Karlsohn, 2009; Karlsson, 2004; Centrum för Marknadsanalys CMA, 2003). For example, in his analysis of the rhetoric around ICT in the two major Swedish professional journals for teachers during the 1990s, which was a period of expansion in terms of the computerisation of Swedish schools, Thomas Karlsohn (2009) discerns a techno-deterministic approach. This approach includes a portrayal of teachers as unwilling to engage in a seemingly inevitable change and therefore in need of being convinced of the blessings of ICT. In the material analysed ICT is rarely discussed in a critical way, but mainly described in an overly optimistic tone.

This kind of techno-determinist approach has been described previously in both educational science (e.g. Qvarsell, 1988) and media studies (Buckingham, 2000) in relation to the introduction of ICT in children’s lives; these studies have shown that approaches to children’s ICT use have included both scepticism and praise, often in a black and white manner; ICT has either been described as dangerous, threatening and harmful for children, or as empowering, necessary and solely positive. In the present study we are starting from a view where ICT is not seen as inherently good or bad, but as socially negotiated within specific settings. However, we should not disguise the fact that we do subscribe to a view of contemporary Swedish society as a society where it is useful to have a basic knowledge of how ICT can be used for various information activities.

**Empirical Setting**

The empirical material analysed in this article was collected in a larger project conducted at three Swedish primary schools in the years of 2005, 2006 and 2008. Ten forms with children in preschool class, first and second grade participated in this larger project which included interviews with educators and children, as well as observations of activities in classrooms and school libraries.
The material in focus for this article consists of four focus group conversations carried out at the three schools in 2005 and 2006 with staff that had pedagogical roles in relation to the pupil’s ICT use and information seeking. In total nine primary school teachers, six preschool teachers, three leisure-time pedagogues and two librarians participated in the discussions. The participants as a group are referred to as educators.

The focus groups were led by a moderator and were facilitated by a so-called stimulus material where various aspects identified in earlier research of ICT use, information seeking and project-based working methods were formulated. The dialogue in the focus groups was recorded and later transcribed in a way where spoken language was adjusted to conventions of written language. The transcription process was supported by notes on speaker order made by a researcher or an appointed undergraduate student who observed the focus groups. The quotes used in this paper have been translated to English from Swedish. The participants have been anonymised and are referred to by job title (teacher, preschool teacher, leisure-time pedagogue, and librarian) and focus group (A-D).

**Theoretical and Methodological Framework**

In order to discuss approaches to ICT as they are manifested in dialogues between educators we base this study on a sociocultural perspective (Säljö 2000, 2005; Linell 2009; Wertsch 1998). From this perspective information activities, in which information literacies are enacted, are seen as social and discursive and involving the use of different cultural tools, including formal information systems and documents as well as communication through the use of spoken language (Sundin, 2008).

Furthermore, the use of a specific tool for information seeking is (as the use of any cultural tool) partly shaped by how the tool is given meaning in the setting where it is used. We assume that in specific settings possibilities and constraints are ascribed to different tools for information seeking which have implications for how they can and may be used (Wertsch 1998, 38ff; Säljö, 2000, p. 115). As we see it, educators’ ways of talking about and describing tools for information seeking have implications for how these tools are understood and used in classrooms and school libraries.

A research tradition that has been helpful in gaining insights into how ICT is understood in relation to primary school children is that of the New Sociology of Childhood (e.g. James, Jenks & Prout, 1998). One of the key ideas within this research tradition is that of the concept of childhood as historically, so-
cially and culturally constructed. This means that understandings of what childhood is and should be vary between different contexts. Furthermore, the ways in which childhood is understood and described in a society also forms the conditions for real children’s childhoods (cf. Buckingham, 2000, p. 6ff., Mayall, 2000, p. 120). For example, ideas of children as either becoming or being, that is, as immature and in the need of protection or as competent in themselves can form the basis for how institutions for children are shaped. As we seek to understand how ICT is understood as a tool for children’s information seeking in Swedish primary schools we are particularly interested in how these tools are seen as appropriate or inappropriate elements of children’s childhoods. These approaches, we suggest, may have implications for how information literacies can be enacted in the early school years.

The analysis is carried out on a discursive level, the unit of analysis being “the dialogue of ideas” of four focus group discussions (Marková et al. 2007, p. 132f; Linell 2009, p. 128). The views of ICT expressed in the focus group conversations include ideas on what school activities should include or not and thereby what the desirable and undesirable ways of acting may be in the specific activities described. The situated expectations that are expressed in the discussions partly shape what in this setting is seen as accepted and expected ways of using ICT, and as it turns out, other tools for information seeking.

Our analysis is focussed on the contents of the discussions rather than interactional patterns such as turn-takings. Still, it has to be noted that the results of our analysis should be seen as ideas that have emerged in interaction, rather than as predefined messages and opinions delivered one by one by single individuals. Furthermore, we must remember that focus groups as such are activities in themselves which differ from the daily activities in the three schools. (cf. Marková et al. 2007). The relationship between the ideas expressed in the conversations and other activities taking place in the school setting cannot be seen as self-evident; the conversations do not give exact representations of the educators’ actions outside the conversations themselves. Still, we maintain that the approaches identified in the conversations have implications for possibilities and limitations for ICT use and information activities— and thereby for the enactment of information literacies – in classrooms and school libraries.

**Results**

One idea that stands out in the four focus group conversations is that of ICT as unfamiliar and without clear roles in the primary school setting. It seemed as if the participants had various experiences of using ICT, both personally
and professionally, and the discussions were often dominated by explanations of why more familiar tools were superior to newer ICT.

In the following we introduce an idea emerging in the discussions of the need for children to go through a kind of “media progression”; tools for information seeking were ascribed different meanings depending on conceptions of when and where the tools are appropriate for children to use. Furthermore, we can see how these meanings are related to ideas of “the good childhood”.

**Tools for Information Seeking in Primary School**

Descriptions of project-based ways of working functioned as a basis for the focus group conversations. Even though the working methods were described as somewhat differently structured at the different schools and in the different classrooms, the idea of finding the “right” answers through the use of the appropriate kinds of information sources was predominant in the discussions. The problems associated with the traditional view of school work as being about finding the “right” answers have been discussed in previous research (see Alexandersson & Limberg, this issue) and were also brought up in the discussions. Moreover, a large part of the discussions was related to the “right” kinds of tools for information seeking when working with problem-based assignments, but also in general. Some tools were described as appropriate for primary school children to use whereas others were talked about as more or less inappropriate.

In relation to project-based assignments certain tools for information seeking were described as more useful for children than others in the classrooms and in the libraries. Here, the differences between digital and non-digital tools were stressed; in the transcript below one teacher describes why digital tools, in this case “the computer”, are not as frequently used as print-based tools in the school setting. Her explanation seems to be backed up by the others in the group who are humming in an agreeing way:

**TEACHER A1:** Well, in a way you think that books are easier because you can sit them by themselves and then they manage themselves for a while, but at the computer you have to stand there with each of them and help them and you don’t have the time and I suppose that’s what you feel, and therefore you might just skip it altogether instead.

*Man tänker ju lite så att böcker är lättare för det kan man sätta var och en så och så sköter dom sig själva en stund så, men vid datorn måste man stå med var och en hjälpa och man har inte den tiden och det är väl det man känner kanske, därför struntar man i det helt och hållet istället.*
Central in this quotation is the description of the constraint of not having the
time to help children one by one. This constraint is described as having impli-
cations for the choice of tools for information seeking; the idea of leaving
children alone with books, but not at the computer seems to be agreed upon
in the discussion. Accounts of why non-digital tools were preferred to digital
tools were articulated throughout the four conversations. Two recurring ex-
planations can be found in the discussions; the first has to do with control and
the second is about children's reading skills.

In part, the educators expressed a fear of losing control if children were al-
lowed to use digital tools, and especially the Internet, for information seeking.
Stories of how children had found unsuitable material when using search en-
gines were told and fears of such encounters were expressed in the conversa-
tions. The use of the Internet was described as an activity that needed to be
carefully supervised in other ways than the use of print material. Books, as
opposed to material found on the Internet, were described as reviewed and
approved, both by others and by the educators themselves.

Another idea expressed was a difference in the reading skills required between
digital and non-digital tools for information seeking. Printed books were de-
scribed as an outstanding tool for children to use when learning to read, while
the Internet was described as a tool that required a higher level of reading
skills. Why and to what extent the requirements differed was not articulated,
but as in the discussion below, there seemed to an agreement that this was the
case:

**PRESCHOOL TEACHER A2**: And on the computer you just don’t search
a lot really, I feel like, with our little ones...
Och på datorn blir det ju inte att man söker speciellt mycket, kan inte jag känna, med våra
små...

**LIBRARIAN A1**: No, I also think… six year olds and year one, I mean most
of them can’t read at all, so…
Nej, jag känner lite också… sexåringar och år ett, jag menar dom flesta kan ju inte läsa
överhuvudtaget, så det...

**PRESCHOOL TEACHER A1**: You have to be able to read too to go
online.
Det kräver ju att läsa att gå in också.

In this quote, the educators seem to be agreed upon a quite traditional notion
of how reading skills are something children acquire through the use of pur-
pose-designed tools. Thus, we can see that tools for information seeking were
described as best introduced to children in a certain order, according to what
we call a media progression, where digital tools and especially the Internet were placed after printed materials.

This media progression was described in relation to primary school; as far as school activities were concerned the children were expected to learn how to use books before they could start using the Internet. That digital tools were used for information seeking, as well as for other purposes, outside the school context was another issue brought up in the conversations. The concerns expressed regarding children’s use of digital tools in other contexts had further implications for how tools for information seeking were described.

The Compensatory Role of Primary School

In the focus group discussions, different tools for information seeking were related to ideas of various physical places. It seemed as if the material characteristics of different tools for information seeking were important for how they were valued in relation to different locations and activities (cf. Sundin & Francke, 2009). Certain information activities which included certain tools were described as suitable for school work, whereas other mediated activities and tools were clearly related to children’s lives outside school hours. Furthermore, different tools were associated to ideas of different childhoods. Digital tools were associated to ideas of contemporary childhoods, ideas which included stories of the shortcomings and problems of these childhoods. These stories were also contrasted to ideas of how primary school could and should have a compensatory role by providing possibilities for “a good childhood” (cf. Halldén, 2009a).

A common story in the discussions was that of children using digital tools for information seeking and personal communication in their homes, which were different from the stories of how digital tools could be used within school. These stories of use outside the school context often included negative characteristics, such as physical inactivity, bullying, non-play and harmful popular culture (for example, playing computer games was defined as non-play in some of the discussions). Children’s use of digital tools outside school was also associated with problems such as stress, and with the fear of a loss of imagination and a rich language, as in this quite direct description of children using instant messaging and online chat applications:

**LIBRARIAN C2:** But what I think I’ve seen when people are online chatting is that their language is deplorable.

*Men det jag tycker jag sett av folk som när dom chattar så är ju språket bedrövligt.*

**SOMEONE:** Yes indeed.

*Ja, det är det.*
LIBRARIAN C2: The intellectual ability is terribly low, right.

Den intellektuella förmågan är ju fruktansvärt låg alltså.

SOMEONE: Yes, that’s true.

Ja, det kan man hålla med om.

LIBRARIAN C2: When you see what they are chatting about. It’s quite a lot of “uh” and “um” and things like that, isn’t it? And all those figures, smileys and all. So… it’s like a minimisation of language in a way, isn’t it?


LEISURE-TIME PEDAGOGUE C1: It’s important not to lose the real language.

Det gäller att inte tappa det verkliga språket.

LIBRARIAN C2: That’s why I tell them that they should read. See things in writing. To know how and not get out of the habit.

Det är därför som jag är så stenhård på att man ska läsa. Se det i skrift så. För att kunna och inte vänja sig av med detta.

SOMEONE: It is important.

Det är viktigt.

LIBRARIAN C2: That’s my constant hobbyhorse, this thing about reading. And to use their imaginations too. Especially not to lose your imagination.

Det är mina käpphästar hela tiden, det här med att läsa. Samt att uppleva fantasin alltså.

A central idea emerging in the conversations was that of good children’s literature as a pivotal part of good childhoods. Concurrently, concerns were raised that there is little room for children’s literature in children’s everyday lives in contemporary society. By providing encounters with good children’s literature, primary school not only supported children on their way to becoming literate,
but also created opportunities for the fulfilment of the good childhood. Digital media, on the other hand, was often described as an obstacle hindering children from becoming literate and as a threat to the good childhood.

Thus, in the making of a good childhood within school, some tools for information seeking were described as more suitable than others. At times the argument was that children need non-digital tools in a world of digital tools, here the arguments sometimes referred to children’s “nature” as in the discussion below:

**PRESCHOOL TEACHER A3:** But if you ask the kids as we have done at times: "How do you go about finding out things?", then they often have very different ideas, they would ask mum or dad or grandma and grandpa, or someone else who knows a lot or they use books. They have a lot of confidence in books. Then if they are up-to-date or not, I don’t think children always know that, but…

Men frågar man barnen som man har gjort ibland: "Hur ska man få reda på saker och ting?" så har dom ofta helt andra föreställningar, dom skall fråga mamma eller pappa eller farmor och farfar eller någon annan som kan mycket eller så går de oftast till böcker. De har väldigt stor tilltro till böcker. Sedan om de är aktuella eller ej, det tror jag inte barn kanske alltid vet, men…

**LIBRARIAN A1:** Books are like more concrete to hold and flip through the pages.

*Boken är mer konkret liksom att hålla i den och bläddra i den.*

In this quote the sensory experience of a book is mentioned as an important aspect of why children are described as choosing books before digital tools. The idea that children prefer to address their questions to authorities such as parents and grandparents is also expressed. Similar ideas are articulated in one of the other groups, where the use of a designated forest area, a so called “school forest”, is described as a tool for information seeking. In this discussion, the children’s visual, sensory and first hand experiences are stressed as important:

**TEACHER B3:** Me and Preschool Teacher 4, we’ve actually been searching for information outdoors and we actually just went out and looked at the reality, we were learning about conifers. Now, the good thing is that in our forest, the school forest, there are three kinds of conifers.

*Jag och förskollärare 4, vi har ju faktiskt sökt information ute och vi gick faktiskt bara ut och tittade på verkligheten, vi skulle lära oss om barrträd. Nu är det så bra att i vår skog, skolskog, så finns det tre sorters barrträd…*

**PRESCHOOL TEACHER B5:** Mm, four.

*Mm, fyra.*
TEACHER B3: Right, there might be four, yes we have junipers too.
Fyra kanske det är, ja en har vi också.

TEACHER B2: Yeah, a single one.
En enda.

TEACHER B3: Yes, exactly. Anyway, we have three types of conifers at the windbreak and we took the children there and then they were looking and feeling and collecting cones and comparing and talking about similarities and differences and things like that and then today we went outdoors again and then they were painting pictures of at least two kinds of conifers. And then we had this with pictures again [inaudible] reality and we have hung them, so I thought we should talk about and see, compare those pictures. So... at times we seek information like that.
Ja, precis. Ja, i alla fall vid vindskyddet så har vi tre olika barrträd och så vi tog med oss barnen dit och då fick dom titta och känna och samla kottar och jämföra och prata om vad som är likheter och skillnader och sådär och så sen idag då så var vi ute igen och så fick dom måla av då minst två barrträd. Och då kom det här med bilen igen, [obörbart] verkligheten och så har vi satt upp den då, så tänkte jag att vi skulle prata om och se, jämföra dom här bilderna. Så att det... ibland så söker vi information på det sättet.

In this quote we can also see how an outdoor environment is described as a suitable tool for information seeking. The idea of nature as a symbol of the good childhood, especially in the Nordic countries, has been a topic in an edited volume by Halldén (2009a). In an analysis of the discourses of nature in a Swedish professional journal for pre-school teachers, Förskolan, Disa Bergnér (2009) shows how “nature” and “outdoors”, which often mean a forest close to the pre-school, are described in solely positive terms. “Nature” is described as an authentic and outstanding pedagogical tool, as opposed to the artificial tools used indoors. These discourses can also be found in the focus groups of our study. They can further be connected to the discussions of good children’s literature where the theme of nature is common (cf. Halldén, 2009b), as in the following quote:

TEACHER D7: But they need this, to sit and light a candle and listen to this, just the descriptions of nature too, just a little bit…
Men dom behöver det här att sitta och tända ett ljus och lyssna på det här, bara naturbeskrivningar också, lite grann…

In this quote the teacher refers to the reading aloud of the book Mio, My Son by the Swedish children’s author Astrid Lindgren during a discussion on children and stress. The combination of the experience of listening to a classical children’s book and an experience of nature is here described as a counterbalance to the children’s stressful lives.
In the focus group conversations tools for information seeking were described as useful for children and trustworthy in the school setting because of their material characteristics. Some tools were ascribed characteristics valued in school and as mediating contents suitable for children, whereas others were ascribed obstacles and problems. Children were described as needing as well as preferring non-digital tools; at the same time it was acknowledged that they chose to use digital tools, especially outside the school setting. Hence, what we see in the analysis is two ideas of childhoods. On the one hand we see the idea of a good childhood in which traditional tools for information seeking are important, and on the other hand we identify an idea of a contemporary and to some extent frightening childhood where the use of digital tools is common. In the focus group discussions, the role of primary school often became to provide conditions for good childhoods to prosper, and in that way create an alternative to the harsher conditions found outside of primary school (cf. Fast, 2007, p. 219).

Discussion and Conclusions

In conclusion, what implications might the above described approaches to children’s use of ICT and other cultural tools have for the enactment of information literacies in primary school? Two overall lines of reasoning related to ideas of childhood have been identified in the analysis. Firstly, we find the idea of the good childhood, which is described as having little room for ICT, but plenty of room for traditional tools for information seeking such as books. Secondly, there is an idea of contemporary childhoods, which are described as taking place outside the school context. In these childhoods, digital tools for information seeking and other purposes are viewed as used to a too large extent. Furthermore, these latter childhoods are described as insufficient, and it is argued that one of the roles of primary school is to counterbalance these childhoods and providing tools that can be a part of the forming of good childhoods.

These ideas or approaches are not unique for the four focus group discussions analysed here. According to Drotner (1999) similar descriptions of how children’s childhoods are threatened by newly introduced media can be found throughout history. That children’s experiences of media use outside the school context are neglected rather than incorporated during the first school years has also been discussed in previous research (Fast, 2007).

Furthermore, the lines of reasoning identified in the focus group discussions include a type of techno-determinism discussed by Qvarsell (1988), Buckingham (2000) and Karsohn (2009). In the focus group conversations ICT is discussed as something unavoidable that eventually will be used by the children.
as they progress through the educational system, even though the use of ICT in primary school can be controlled and counterbalanced by the use of other tools. The negative effects of ICT which are described are seen as possible to limit, but not to prevent in a longer-term perspective.

Thus, the approach to ICT as something undesirable for primary school children to use which emerges in the focus group conversations can be seen as an example of historically recurrent ideas on the negative effects of new technologies. The results from this study might therefore be seen as confirming earlier studies on societal discourses regarding the introduction of new tools in schools and in children’s lives. Even though the constraints ascribed to ICT in the discussions may not be surprising, the negative approach to ICT can be seen as limiting in some respects.

For example, given our understanding of the expanded meaning of literacies in contemporary society, where the diversity of media formats, genres and modes entail new demands on people’s abilities, we find that the idea that children’s reading and language development is threatened by ICT and that they first and foremost need to learn to read through the use of print material is too restricted. Furthermore, the idea that children use digital media outside school and therefore do not need to learn how to use digital tools in school can be questioned. This idea not only deprecates children’s lives outside school, but it also conceals inequalities regarding the accessibility of ICT outside the school context.

However, the idea of the good childhood in the discussions can be seen as a way of describing children as being here-and-now and not merely as becoming mature for the future (cf. James, Jenks & Prout, 1998, p. 207). At the same time, in the approach to contemporary childhood children’s here-and-now outside the school context is described in a mainly negative manner. It would be problematic if the enactment of information literacies in primary school did not include possibilities for children to use tools that are common in Swedish society at large or if they were not prepared for tasks and challenges that they might meet in the future. Primary school as an institution cannot avoid paying attention to children as becoming, as well as being.

These objections should not be understood as arguments against the use of children’s literature or firsthand experiences of natural phenomena in primary school, or as a derogation of the educators’ concerns expressed in the focus groups. However, if one of the roles of primary school is seen as preparing children for practices beyond and outside primary school, the idea that ICT should not be used for any purposes in primary school and that ICT should...
not be part of children’s childhoods at all can be seen as quite limiting in terms of how information literacies can be enacted in primary school.

The study presented in this article provides an understanding of some of the ideas that may have implications for information literacies in primary school. However, the ideas and approaches identified in the analysis should not be seen as straightforwardly transferred into the activities taking place in Swedish primary school classrooms and libraries. If we want to create a further understanding of how information literacies are enacted in primary school, other kinds of studies are required, such as ethnographical studies of everyday information activities in primary school. Furthermore, these studies would also have to clearly take the children’s perspectives into account, as the enactment of information literacies in school settings indeed requires children’s active participation.

Acknowledgements
The writing of this paper has been conducted at The Linnaeus Centre for Research on Learning, Interaction and Mediated Communication in Contemporary Society (LinCS) and was made possible by funding from Stiftelsen FöreningsSparbanken Sjühårad and Södra Älvsborgs Forskningsstiftelse. The authors would like to thank Sanna Talja for her insightful comments on this article and Frances Hultgren for her eminent assistance on issues concerning the English language.

References


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This article is a revised version of a book chapter originally published in Swedish by Davidsson, Lundh and Limberg (2009).

The preschool class was introduced in Sweden in 1998. It is supposed to bring preschool closer to school for children who are in the transition between the two institutions. The introduction of the preschool class meant that preschool teachers and primary school teachers needed to start working more closely together. (Lumholdt & Klasén McGrath, 2007)

The Swedish term for leisure-time pedagogue is fritidspedagog. As Swedish public schools and leisure-time centres often are coordinated, leisure-time pedagogues can be involved in both school and after-school activities.

Anna Lundh.

Lena Tyrén or Elin Olson.

In Sweden, a school forest is “an area that is being used for educational purposes, over which the school and the land owner has reached an agreement of how the school may utilize it.” (Bergquist, 2008, p. 4) The programme behind the idea of school forests, “The Forest in School”, is supported by a range of organisations within the Swedish forestry sector (Skogen i Skolan, 2010-08-17).
Studying Information Needs as Question-Negotiations in an Educational Context: A Methodological Comment

Anna Lundh

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Abstract

Introduction. The concept of information needs is significant within the field of Information Needs, Seeking and Use. How information needs can be studied empirically is however something that has been called into question. The main aim of this paper is to explore the methodological consequences of discursively oriented theories when studying information needs. The discussion takes its starting point in the model of information needs and question formations presented by Robert S. Taylor in the 1960s.

Method. The empirical material used for exemplifying the proposed methodology consists of video recordings from an ethnographical study conducted at a Swedish primary school.

Analysis. The analysis is guided by concepts based in sociocultural and dialogistic theories and is directed towards question-negotiations in conversations and interactions in naturalistic settings.

Conclusions. Earlier studies of information needs are often based on the idea of an individually constructed actual need as it is presented in the first level in Taylor’s model. With an interest in the two latter levels of the model the analytical focus is shifted to question-negotiations which are seen as the results of situated discursive and collective efforts. This shift entails a methodological shift in the study of information needs.

Introduction

The concept of information needs has been used in several models within library and information science, and especially in the field of information needs, seeking and use, to describe triggering factors for information seeking processes (e.g., Wilson 1981; Krikelas 1983; Leckie et al. 1996; Byström & Hansen 2005). However, it has been acknowledged that information needs as such are difficult to study empirically and that most user studies focus on information seeking activities, rather than on actual information needs (Wilson 1981: 7; Krikelas 1983: 7f; Case 2007: 78).
The main purpose of this paper is to explore methodological consequences of discursively oriented theories when studying information needs. This will be done by employing concepts based in sociocultural and dialogistic theories in analyses of question-negotiations in a primary school setting. I will argue that the idea of information seeking processes as driven by actual, true, inner and individual information needs is not useful when studying information needs. As a basis for the discussion of how information needs have been and can be studied the model of question formations published in the 1960s by Taylor (1962; 1968) is presented. It will be shown how different theoretical lenses provide different foci on the four levels in Taylor’s model which has methodological implications for the study of information needs and question-negotiations.

Information Needs and Question-Negotiations

Taylor’s model of how individuals’ information needs are manifested has been very influential since it was published in the 1960s (Case 2007: 72). It describes information needs or question formations as evolving in a four step process: from the visceral need (Q₁) which is also described as the actual need, through the conscious need (Q₂) where the user can formulate the need for him/herself, the formalized need (Q₃) which is the need verbally expressed and finally the compromised need (Q₄) which is the question formulated in a way suitable for an information system (Taylor 1962: 392).

Taylor’s model takes its point of departure in the individual user and his/her actual need which might not be accordant with the need as it is presented to an intermediary or an information system. The model has been criticised for being too focussed on the role of the individual in the construction of information needs (Hjørland 1997). Still, the model implies that a “process of negotiating” (Taylor 1968: 179) is unavoidable when a user is interacting with a librarian or a formal information system to satisfy his/her information needs. Hence, Taylor’s model consists of two parts (see Kloda and Barlett 2009: 3f); on the one hand the individual user’s original information needs which are described as originating from within the individual (Q₁ and Q₂) and, on the other hand, the process where the individual has to (re)formulate his/her question in interaction with an intermediary or an information system, in other words, in a question-negotiating process (Q₃ and Q₄).

In the following section this division between the individual’s inner information needs and the social question-negotiating process will be used when discussing some of the literature on information needs published after Taylor’s model was introduced. In several models and studies the two first levels in Taylor’s model, that is, the individuals’ recognition of his/her information needs and question-negotiations, are treated as distinct processes.
need, are emphasized. When employing discursively oriented starting points, such as sociocultural and dialogistic perspectives, the latter two levels where the negotiations and formulations of questions take place, come into focus. The methodological implications of these different stances are described below and also summarised in table 1.

**Studying Information Needs and Question-Negotiations**

Since the user-centred paradigm shift in the 1980s (e.g., Talja and Hartel 2007) a number of models have been published where information seeking is seen as originating from individuals’ more or less conscious information needs. Three well-known examples are the Anomalous States of Knowledge (ASK) model (Belkin et al. 1982a; 1982b), the sense-making approach towards the study of information seeking and use (Dervin 2003) and the Information Search Process (ISP) model (Kuhlthau 2004; 2009). Even though the models diverge in terms of theoretical starting points and intended applications, they share common assumptions regarding how information needs can be described, understood and studied.

In the models, information needs are described as shortages experienced within the individual (cf. Tuominen 1997: 360f), as “an inadequate state of knowledge” (Belkin et al. 1982a: 62), a gap or a stop on the journey of life (Dervin 2003: 277) or “a gap in knowledge or a lack of understanding” (Kuhlthau 2009). Hence, they all build on the idea of an actual, inner need as described by Taylor in level Q. With such a point of departure the individual user becomes the unit of analysis in studies of information needs. The aim of such studies is then to gain an understanding of individuals’ experienced actual information needs. This understanding is supposed to be reached through analysing individual users’ accounts of their thoughts, feelings and perceptions of their information needs as expressed in, for example, interviews and questionnaires.

The idea of the individual as a starting point in user studies, as well as the view of language as a tool for gaining access to users’ inner lives have been called into question during the last decades from perspectives that can all be said to be discursively oriented (e.g., McKenzie 2004; Talja et al. 2005; Tuominen 1997; Sundin and Johannisson 2005; Savolainen 2007). A central idea within discursively oriented traditions is that humans’ use of language is a fundamental part of the construction of social reality (Talja and McKenzie 2007: 98). This means that the unit of analysis in user studies shifts from the individual to the interaction between individuals. With such starting points the idea of information needs as something private and originating from within the individual is contested. Instead, information needs are seen as best understood and studied as emerging in interaction (McKenzie 2004) or in other words as
evolving in processes of negotiating expressed in levels \( Q_3 \) and \( Q_4 \) in Taylor’s model.

<table>
<thead>
<tr>
<th>Main concept</th>
<th>( Q_1 \rightarrow Q_2 \rightarrow Q_3 \rightarrow Q_4 )</th>
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<tr>
<td>( Q_1 \rightarrow Q_2 \rightarrow Q_3 \rightarrow Q_4 )</td>
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<tr>
<td><strong>Main concept</strong></td>
<td>Information needs</td>
</tr>
<tr>
<td><strong>Unit of analysis</strong></td>
<td>Questions as emerging through social interaction and language use</td>
</tr>
<tr>
<td><strong>Researcher’s task</strong></td>
<td>The role of the researcher is to understand/diagnose the actual information needs</td>
</tr>
<tr>
<td><strong>Unit of analysis</strong></td>
<td>Questions as emerging through social interaction and language use</td>
</tr>
<tr>
<td><strong>Researcher’s task</strong></td>
<td>The role of the researcher is to analyse how questions emerge in interaction</td>
</tr>
</tbody>
</table>

Table 1. Methodological implications of different emphases on the four levels of Taylor’s model of information needs and question formations

At this point there are still few studies that show on a more detailed level how question-negotiations may take place in naturalistic settings. Studies directed towards the latter two levels in Taylor’s model require a methodological framework that encompasses possibilities to study question-negotiations in interaction. Such a framework, founded in sociocultural and dialogistic theories, will be presented in the following section.

**Studying Question-Negotiations from a Sociocultural and Dialogistic Perspective**

The sociocultural perspective employed in this paper is based on a school of thought that originates from the writings of the Russian psychologist Vygotsky (e.g., 1978; 1997). It has contemporary representatives such as Wertsch (e.g., 1998) and Säljö (e.g., 2000; 2005) within educational science; a closely related perspective is presented in Linell’s dialogism within linguistics (e.g., 1998; 2009). A basic assumption within this sociocultural perspective is that learning is a part of all human activities (Säljö 2000: 28; Lave 1990) and, therefore, some of the core concepts and ideas are illuminating and useful when discussing and studying question-negotiations.

A central idea within these perspectives is that *cultural tools or mediational means* (Vygotsky 1997; Wertsch 1998: 17) need to be taken into account when hu-
man actions and practices are studied. Mediational means are created and used for overcoming both physical and cognitive limitations and can therefore be both material and/or intellectual. As humans we need to appropriate or master certain cultural tools to be able to function and participate in different social practices (Wertsch 1998: 53). One important (albeit not the only) shared tool for carrying out tasks in human practices is language. It is through the use of language that people can negotiate, act upon and thereby form questions; it is in interaction that questions materialise and become possible for researchers to study (cf. Kloda and Barlett 2009: 3f). Thus, when studying question-negotiations the focus becomes what Frohmann (2004: 394) describes as “practices with words”. Frohmann’s expression refers to Wittgenstein’s notion of language games which is central in his later works (e.g., 1973). Questions are formed through the use of language, in interaction with others, and if we want to understand question-negotiating processes, we must study such interactions.

The notion of language games has been used in various ways; in this paper it is used to emphasise that language use takes place in specific practices where utterances are created and become comprehensible (cf. Alexandersson and Limberg 2009: 90). In sociocultural theory, the idea of situatedness (Säljö 2000: 128-156; Lave 1990: 311f) implies that human action always is enacted in specific contexts and settings. This means that an understanding of the immediate context created in the interactions between people, as well as of the wider sociocultural and historical context forms the basis for analyses of human actions (Linell 2009). An analysis of how questions are constructed in interaction therefore requires an understanding of when and where the interaction takes place, as well as of the roles of the people that are engaged in the interaction. The social practice described in the empirical examples in this paper is that of doing a certain type of assignment in a Swedish primary school where individuals are acting and negotiating in different roles (cf. Linell 1998: 74), e.g., pupils, teachers and librarians. Still, this does not necessarily mean that these roles are rigid and self-evident; rather, these roles and their positions are also negotiated and contested in the interactions.

Empirical studies based on the idea of question-negotiations as situated language games require tools for analysing social interaction and spoken language. A way of operationalising this idea is to employ concepts developed within dialogistic discourse analysis described by Linell (1998; 2009). Below, it will be shown how such an analysis may be carried out. The two empirical examples used will be described as episodes where certain topics, in these cases certain questions, are in focus.
The two episodes can also be described as different communicative projects carried out in the context of children seeking and using information in primary school. Linell (1998: 217ff; 2009: 188ff) describes communicative projects as collective activities where the participants are trying to accomplish one or several goals through the use of language. Communicative projects can be of different kinds, one of the episodes presented below will be described as a specific communicative genre used in institutional discourse activities. According to Linell (2009: 202; 1998: 238ff) communicative genres are specific language games often employed within institutional settings for carrying out activities such as: “court trials, police interrogations, school lessons, academic seminars, doctor-patient interactions, social worker-client interactions, job interviews, speech therapy sessions” (Linell 1998: 240). In these kinds of institutional discourse activities the participants, or at least some of them, have an understanding of how such activities usually are accomplished. Still, all institutional discourse activities are not matters of routine in the same sense, as we will see in the first episode presented below.

**Introduction to the Empirical Examples**

The situatedness of question-negotiations which is stressed in the framework presented above implies that question-negotiating processes may look different in different contexts. Therefore, some of the contextual characteristics of the setting in focus are described below. Also, the data collection methods used for the empirical examples are presented; methods which make an analysis of social interaction and spoken language use possible.

**Doing Research in Primary School**

The two episodes used in the analysis below occurred in an ethnographical study conducted 2008 at a Swedish public and coeducational primary school. Two third-year forms, where most of the children were nine years old, participated in the study. The children were observed when working with what, in this setting, was called research. Research written in italics refers to a way of working where the children were supposed to explore an area of interest through their own information seeking and use. Other ways of describing research could be problem-centred assignments or children-centred ways of working. In this paper, the activities studied are described as research since this was the term used by the participants.

The five week period of the children’s research began with an introduction in each classroom where the teachers explained for the two groups of children how they should carry out their tasks. The children had been working with research before (see Lundh and Limberg 2008), but new elements in the way of working were also introduced. Especially, the importance of choosing a topic based on one’s own interests was stressed by the teachers. The children’s re-
search processes usually began with the children choosing a topic and creating a mind-map of different aspects of, and questions about, this topic, then seeking information and finally presenting their findings in written booklets and in oral presentations. Throughout the whole process the children were supported by their teachers, a librarian, an information technology assistant (who taught information seeking on the Internet) and sometimes by a remedial teacher.

Some characteristics of similar school activities and assignments have been identified in previous research within information science and education. One recurrent theme within this area is how the imperative of finding and creating one’s own knowledge clashes with traditional school practices (e.g., Alexandersson and Limberg 2003). This means that the students have to adjust to contradictory expectations. Limberg (2007) highlights the “ever-present norm in the discursive practice of school, expressed in assessment and evaluation” as a typical feature of school assignments. However, in assignments characterised by a certain degree of freedom, such as assignments where students are supposed to find a problem area and explore this area in an independent way, this ever-present norm and the assessment criteria may become somewhat concealed for the students.

This concealment might also be a problem for librarians; Gross (2001) describes the difficulties when pupils and students ask so-called imposed questions at reference desks. Imposed questions derive, according to Gross, from external demands, rather than personal curiosity, and school assignments are seen as typical bases for such questions:

It is easy to conceptualize the teacher as imposer and the student as the agent, asked to respond to a question he or she did not think up, but is responsible for (Gross 2001).

The imposed query model can be said to be binary; a question is seen as either individually self-generated or imposed by someone else. This division can be questioned from the sociocultural and dialogistic framework presented above and below it will be shown how imposed questions are actually imposed through interaction between a teacher and two pupils. However, as Limberg (2007) points out, Gross’s model highlights the fact that school children have to adjust to certain expectations when they are doing school assignments which require information seeking.
**Data Collection**

The study in which the empirical examples below are taken from was a continuation of an earlier study (Lundh and Limberg 2008), which means that the process of getting access to the field started long before the fieldwork began. In other words, the study can be seen as a part of an ethnography with “a selective intermittent time mode” (Jeffrey and Troman 2004: 540ff) where the focus is quite specific. The study was informed by visual ethnography (Pink 2007) which is based on visual and audiovisual collection methods in addition to field notes which usually are viewed as the main data collection method within traditional ethnography. When working with video with children some ethical considerations need to be taken into special account. The implementation of the study has followed the ethical principles set out in the Swedish Ethical principles for humanistic and social scientific research (Forskningsetiska principer... 2002).

Empirical materials that consist of spoken language and social interaction can be presented in more than one way. Traditionally, transcripts are used; this is the case for the first episode below (the transcript notation can be found in the Appendix). However, in the second episode the understanding of the conversation is facilitated by the inclusion of non-verbal elements to get the picture, for example, of how the participants are moving in the room and how artefacts are included in their conversation. For this purpose sequential art (McCloud 1994) or comics has been found useful. The pictures used in this paper are all based on frames from the video recordings. These frames have been digitally edited to ensure confidentiality, before they have been structured as comic strips through the use of the software Comic Life. Within information science this way of representing empirical material is unusual, but it has been used within educational science in a few cases (e.g., Plowman and Stephen 2008; Ivarsson 2010).

**Question-Negotiations in the Classroom and in the School Library**

The two following episodes have been chosen in order to show how question-negotiations can be analysed as situated language games. The analysis will show how questions emerge as topics for negotiation in the conversations in a primary school setting. As mentioned above, a significant feature of this setting is that the children are supposed to formulate questions in their assignments; this makes the episodes suitable for showing how question-negotiating processes may proceed.

In the first episode, we will see two girls and a teacher discussing what questions the girls’ ongoing work should be based on. In this episode the negotia-
tion between the children and the teacher is characterised by conflicting agendas; the teacher is trying to convince the girls that certain new questions are of importance. In the second episode the participants, two other girls and a school librarian, are discussing useful sources for information seeking; a discussion that implicitly concerns what questions the girls should be working with.

**Imposed Questions that Take Form in Interaction**

The first episode takes place in the middle of the children’s research period and it can be described as an institutional discourse activity where one of the participants, the teacher, drives the conversation. In the episode two girls, Maja and Fanny, are working with their research project about Guinness World Records at a desk in a classroom as their teacher, Pernilla, approaches them. Additional questions are introduced by the teacher and the episode is the first of several where she is trying to persuade the girls to include questions about the history of Guinness World Records and the rules and regulations for setting records. In this episode we can see how new questions are brought up as topics in the conversation, how these questions are put forward and negotiated, and how they are finally accepted by the girls. When compared to the second example below we will see that there is less agreement on what the outcome of the encounter should be; in this sense, the teacher’s questions can be seen as imposed in the interaction. The first of the new questions is introduced in transcript 1 below:
To start with, the teacher asks the girls what they have been doing so far (line 1-7 in transcript 1). In this initial part of the conversation the focus is on what the children have done and written; it is not obvious from their reply that their information seeking and use have been guided by any specific question. However, in line 8 Pernilla introduces a new question and thereby lays the foundation for the continuing question-negotiation.

After the teacher has introduced the question of the history of Guinness World Records the girls explain that they already have tried to find information about that, but without any success. The teacher continues by asking them about which sources they have used and also suggests a new source, but
this does not lead to any immediate information seeking activity. Instead, the conversation continues and in line 9 in transcript 2 below, the teacher herself points the girls to a paragraph in one of the record books they have at the desk and she underlines that she finds that information to be “very important” for the girls to use. By doing this, the teacher introduces yet another question:

<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
</table>
| 9  
Pernilla: ‘cause look here (.) what does this mean? (.) look there (.) I think it’s very important to include that too (.) what does it say?  
Maja: ((tries to read)) () (.) I I can’t  
Fanny: [records]  
Pernilla: it’s it (.) Guinness records- (.) ((reads: does rigorous examinations before a record is approved)) (.) what does that mean?  
Maja: ((försöker läsa)) () (.) jag jag kan inte  
Fanny: [rekordbok] |

Table 3. Transcript 2

Hence, the questions the teacher introduces are of a somewhat different character; in the beginning of the discussion she introduces the idea of the history of Guinness World Records, but during the course of the conversation, by using one of the books on the desk, the question concerning the rules and regulations of setting records comes into focus.

Before the Pernilla leaves the desk she makes sure that the girls understand what the text says by using an example. Then, in line 13 in transcript 3 below she persists that it is ”important” to include the information in the text in the girls’ research. The girls’ response is however fairly half-hearted. In line 16, the teacher creates some room for resistance by saying ”do I cause you trouble now?” which Maja answers by saying ”no”. Again, the teacher underlines that she finds the question or the questions she has introduced to be ”important” in line 18. She also makes sure that Fanny, who did not reply to Pernilla’s question in line 16, knows where to find the paragraph they have discussed. In lines 25 and 27 the teacher demonstrates that she understands the girls’ resistance, but
she also makes it clear that she expects the girls to include the last question
she has introduced, or possibly both of the questions, in their work.

<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 Pernilla: read a little about that because (.) it is really good that you write like this but I think it is important that you also write a little about why you are doing it and that not anyone (.) don’t you?</td>
<td>Pernilla: läs om det lite för (.) det är jättebra att ni skriver lite så här men jag tycker att det är viktigt att man skriver lite också varför man gör det och att inte vem som helst (.) tycker inte ni det?</td>
</tr>
<tr>
<td>14 Maja: mm</td>
<td>Maja: mm</td>
</tr>
<tr>
<td>15 Fanny: [mm]</td>
<td>Fanny: [mm]</td>
</tr>
<tr>
<td>16 Pernilla: [do I cause you trouble now?]</td>
<td>Pernilla: [ställer jag till det fö er nu?]</td>
</tr>
<tr>
<td>17 Maja: no</td>
<td>Maja: nej</td>
</tr>
<tr>
<td>18 Pernilla: no (.) look at that a little too and then you continue do some more (.) but I find that important too</td>
<td>Pernilla: nej (.) kolla lite det också och så fortsätter ni och gör lite mer (.) men det tycker jag också är viktigt</td>
</tr>
<tr>
<td>19 Maja: okay</td>
<td>Maja: okej</td>
</tr>
<tr>
<td>20 Fanny: yes</td>
<td>Fanny: ja</td>
</tr>
<tr>
<td>21 Pernilla: I think you’ll find it in the beginning of your book too</td>
<td>Pernilla: jag tror att det står längst fram i din bok med</td>
</tr>
<tr>
<td>22 Fanny: yes I just have to (.) find a page</td>
<td>Fanny: ja jag måste bara (.) hitta en sida det är bara det</td>
</tr>
<tr>
<td>23 Pernilla: ((reads: about this book))</td>
<td>Pernilla: ((läser: om den här boken))</td>
</tr>
<tr>
<td>24 Fanny: mm</td>
<td>Fanny: mm</td>
</tr>
</tbody>
</table>
Pernilla: and a bit of this (.) it doesn’t look much fun but I know you can read it

Fanny: okay

Pernilla: mm (.) you can do it later if you like (.) but I want it to be included in your re- research

Fanny: mm (.) ni kan ta det sen annars (.) men jag vill att det ska komma med lite på eran forsk- forskning

Table 4. Transcript 3

In this episode there is what Linell (1998: 254ff) calls *asymmetries of participation*, where Pernilla, as a teacher, can interrupt the children’s current activities and start to guide them into another direction. Her attempt to introduce new questions is not immediately embraced, however. In the discussion there seems to be competing goals (Linell 1998: 224f; 258) as the girls are interested in the records as such, whereas the teacher wants them to work with other questions as well.

The encounter could be said to be an example of how questions become imposed (cf. Gross 2001). Still, it has to be noted that the imposition occurs in an interaction where the girls have some room for resistance; for instance, Fanny uses this room by not responding to the teacher’s question in line 16. When looking at this single episode we can also see that the responsibility for the questions is actually not the girls’ until they accept it in the conversation. Furthermore, when the teacher ends the conversation by leaving the desk it is still uncertain whether the girls will do what they are asked to do or not. Still, because of the asymmetries of participation which has its base in the different roles of teachers and pupils, we can see this episode as an example of how imposed questions are created. However, the distinction between imposed and self-generated questions is ambiguous. As noted above, the rationale behind the research way of working is that children are to do work that is grounded in their own genuine interests. The children are told to find questions they are interested in and that seems to be what Fanny and Maja are doing when writing about different records. At the same time we can see that the girls have to adjust to certain institutional expectations expressed by their teacher. This makes the division between self-generated and imposed questions less self-explanatory in this setting.
A related way of looking at this episode is that the teacher manifests the assessment criteria for the girls’ assignment in the conversation. By underlining that the inclusion of the new questions is important she demonstrates her expectations as a teacher with regard to their research. As we will see in the next example, this is not an option in the same sense for all of the professionals interacting with the children.

**Questions that are Gradually Determined in Interaction**

The second episode is taken from the very beginning of the period followed. Here two girls, Maria and Jessika, are going to the school library with a mind-map of their research on beverages and drinks. At the library they find the librarian Kristina and the dialogue that takes place can be regarded as a communicative genre or a specific language game well-known by librarians, namely a reference interview. However, it has to be noted that even though reference interviews can be seen as a specific communicative genre, every encounter of this kind must also be seen as a part of the making of the genre of reference interviews; the participants have been involved in similar encounters before, but as in any conversation they can never be certain of what the exact outcome might be.

When the girls find the librarian in the library they introduce "drinks" as a topic in the conversation. In this kind of communicative genre "drinks" is understood as an embryo for a question that should lead to information seeking. The three participants seem to share the understanding that the encounter should result in finding at least one book for the girls to bring back to their classroom. To begin with the topic of "drinks" is fairly vague, but as the discussion unfolds there are several attempts to turn "drinks" into a defined question. This is done through negotiation between the librarian and the girls who are discussing which tools the girls can use for information seeking. The first instances where the topic of drinks are negotiated as a question are seen in frames 1-5 below when the librarian has moved to one of the library shelves where cookery books are ranged.
In frames 2-3 and 5 the librarian is using books from the shelves for introducing ideas of how "drinks" can be understood. A first attempt to define drinks as a question in relation to the available books is when Kristina introduces the idea of "Christmas drinks" in frame 3. This suggestion is however declined immediately by the two girls, who are exchanging dissatisfied looks and who then turn their attention to another girl who approaches them. Later (in frame 9), they also explicitly say that they do not want to borrow the first book. Dur-
ing the course of the conversation, in frame 5, Kristina makes another suggestion, with a basis in another book. This time it seems as if a question becomes temporarily defined, when the girls agree with this suggestion.

One way of looking at this encounter is to see it as a gradual determination of an indeterminate topic (see Linell 1998: 200ff); in this case an indeterminate question. In the conversation, the topic or the implicit question is described as "it" or "this" (frame 1 and 8) when tools for information seeking are discussed. This way of describing the question implies vagueness (cf. Garfinkel et al. 1981: 157); the participants do not articulate what the "it" or "this" is, rather the whole conversation can be seen as directed towards defining "it" and "this".

During the encounter the question of drinks evolve and the participants put efforts into trying to find a shared understanding of this question in relation to the available sources. Even though a determination of the question is not explicitly articulated by any of the participants the action of accepting a book, a tool that will be used in the girls’ information seeking and use, shows that a question has been temporarily defined.

However, the negotiation of present and non-present information seeking tools, as well as the question, continues between Kristina and the girls. In frame 6 below, Jessika concludes this discussion by saying that they also can use "the net" for seeking information. Here the discussion becomes more future-oriented (Linell 1998: 230ff); it concerns what the girls could do somewhere else rather than in the library with tools for information seeking other than books. This also implies that the question of "drinks" will continue to be negotiated elsewhere.

![Figure 2](image-url)
Even though the girls and the librarian seem to have defined a question, they still do not express the exact same description of the question of drinks. In frame 7 Kristina’s and the girls’ interpretations of the question diverge; while Kristina suggests a focus on how drinks are made, the girls ask for the ingredients of drinks. The different interpretations are however not acknowledged by the participants. Instead, the discussion is brought to a close with the joint establishment that the girls also will use “the computer” and borrow the book about fruit drinks, in frames 8 and 9 below. This means that the communicative project shared by the two girls and the librarian is finalised; the girls leave and borrow the book and Kristina continues to help the other children who have come to the library during the conversation with Jessika and Maria.

\[\text{Figure 3. Frames 8 and 9}\]

This episode can be seen as an example of question-negotiation in the communicative genre of reference interviews. In this setting, visits to the library are usually supposed to result in finding at least one book and this seems to be a common goal for the girls and the librarian. The girls have an assignment where they have to come up with one or a few questions to explore and this is accomplished, at least to some extent, in their encounter with the librarian. But their question is only temporarily defined in relation to the available sources and through the decision to borrow the book about fruit drinks; as we can see in the episode the question is not understood in one single way. Compared to the first episode above, where questions are imposed in the interaction between the girls and the teacher, this example is characterised by a higher degree of vagueness. During the five week period of the children’s research the question became even more ambiguous. However, for the purpose of this specific communicative project, a solution is found.
Discussion
The two episodes described above show how questions, which have the potential to lead to information seeking activities, can be analysed as constructed and negotiated in social interaction, rather than constructed within individuals outside of social encounters. As McKenzie has (2004) suggested, the focus is moved from the users’ accounts of their inner thoughts and feelings about their assumed information needs to people discussing and interacting in naturalistic settings. This shift opens up for a detailed analysis of questions as emerging between individuals in the local context created through the interaction, but also for an analysis of the wider context in which the interaction takes place (cf. Linell 2009: 62f).

When comparing the two episodes we can see how different roles create different possibilities and entail different expectations regarding participation in the interactions. In the first encounter, where questions become imposed the negotiation is characterised by competing goals (Linell 1998: 224f; 258) where the position as a teacher gives some control over the outcome of the communicative project. As a teacher, Pernilla has other possibilities as well as other responsibilities in the interaction with the pupils than Kristina has, as a librarian, in the second encounter where the negotiation and determination of one or several questions is implicit rather than explicit and clearly articulated. Nonetheless, both the librarian and the teacher contribute to, and are thereby partly accountable for, the formulation of questions in the interactions.

According to the framework presented in this paper questions are seen as proposed, discussed, accepted or resisted in specific social settings and this creates certain possibilities and constraints for how questions can and cannot be constructed. The two examples above show how question-negotiating processes can proceed as communicative projects when children are doing research in a primary school setting. The projects are carried out in different ways, but both of them are situated in an institutional context where the formulation of questions is an important part of the activities. In other words, in the role as a pupil in this setting you are expected to learn how to formulate questions that can lay a foundation for information seeking; question-formulating can be seen as a cultural tool that the children have to appropriate. This expectation underlies both of the episodes described above.

Even though the analyses build on two episodes, they raise issues that could be explored further, such as how assessment criteria are made visible and used to direct action in the interactions; how the genre of research is constructed and enacted; and other questions that relate to information practices in primary school. Thus, what you chose to focus on as an analyst can vary; even though
spoken language is the primary unit of analysis above, other aspects of the interactions might be relevant for analysis. One way of representing empirical material for such analyses is to use sequential art, which has possibilities far beyond how it has been used here. In this paper, this form of representation has mainly been used to enhance the understanding of the conversation itself, but it can also be used for analysing, for example, material and corporeal aspects of information practices.

Conclusions
From the theoretical framework presented in this paper the idea that people are the carriers of actual information needs which they have difficulties in expressing is not seen as useful; from this perspective it is not feasible to think of information needs as something existing outside the realm of language and social interaction. Language is the cultural tool which humans use for thinking (Säljö 2005: 44; Linell 2009: 110) and instead of seeing language as something that might distort actual information needs it is seen as the facilitator of the formulation of questions which might lead to information seeking. These questions could, of course, also be negotiated within individuals through the use of language, but for an analyst, question-negotiating processes are accessible and possible to study in social interactions.

It is for this reason the analyses in this paper are built on empirical material produced in naturalistic settings where actions and accounts are visible to all participants, including the analyst. This does not mean that the analysis is diminished to a mere recording of people’s behaviour (cf. Hjørland 2007); the actions and utterances are understood as meaningful for the participants, for the practices they are a part of and as having practical implications (cf. Linell 2009: 414f).

The examples above are meant to demonstrate an alternative way of creating an understanding of users’ questions which differs from the methods traditionally employed within the field of information needs, seeking and use (see, Talja and Hartel 2007). With an interest in the latter levels in Taylor’s model (Q₃ and Q₄) rather than the two first (Q₁ and Q₂) questions are seen as the results of collective efforts and joint construction and not only of individual thoughts and feelings. This does not mean that information needs are seen as less real; they are seen as important parts of concrete, social, material and situated information practices and therefore as relevant to study within LIS.
Acknowledgements

The writing of this paper has been conducted at The Linnaeus Centre for Research on Learning, Interaction and Mediated Communication in Contemporary Society (LinCS) and it was made possible by funding from Stiftelsen Paul och Marie Berghaus donationsfond and Signhild Engkvists stiftelse.

The author would like to thank Louise Limberg and Mikael Alexandersson, as well as colleagues at seminars at the Centre, the Swedish School of Library and Information Science, Queensland University of Technology and Charles Sturt University for valuable comments on this paper. Also, a warm thanks to Frances Hultgren for her eminent assistance on issues concerning the English language and Rebecca Landmér for her invaluable help with editing the pictorial material.

References


**Appendix: Transcription Notation**

After Antaki (2002)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>( )</td>
<td>Pause</td>
</tr>
<tr>
<td>[ ]</td>
<td>Marks overlapping talk</td>
</tr>
<tr>
<td>( )</td>
<td>Unclear or inaudible, sometimes with a suggestion</td>
</tr>
<tr>
<td>=</td>
<td>Represents occurrences where there are no notable pause between two utterances</td>
</tr>
<tr>
<td><strong>.*.</strong></td>
<td>Represents quiet speech</td>
</tr>
<tr>
<td>Underlining</td>
<td>Represents loud speech</td>
</tr>
<tr>
<td>-</td>
<td>Represents abrupt breaks</td>
</tr>
<tr>
<td>( ( ) )</td>
<td>Describes sounds and ways of talking that are hard to transcribe directly</td>
</tr>
</tbody>
</table>
Collecting and Compiling: 
The Activity of Seeking Pictures in Primary School

Anna Lundh and Mikael Alexandersson

Accepted for publication in *Journal of Documentation*, vol. 68, no. 2

Abstract

**Purpose:** The aim of this study is to further our understanding of the situated activity of seeking pictures. It relates to an ongoing discussion on how multimodal information literacies are enacted in different social practices.

**Design/methodology/approach:** In order to understand the characteristics of the communication and interactions in the activity of seeking pictures, video recordings from an ethnographic study of primary school children working with problem-centred assignments have been analysed.

**Findings:** The analysis reveals how the activity of seeking pictures is shaped by the assumption that pictures are different from facts and information; pictures are seen primarily as having decorative functions. The activity is also characterised by playful, yet efficient cooperation between the children; they make the activity meaningful by transforming it into a play and game activity where pictures become important as physical objects, but not as a semiotic means of learning.

**Research limitations/implications:** The study is limited to the activity of seeking pictures in a specific primary school; however, it shows how modes other than textual modes can be included in the study of information activities.

**Practical implications:** The study reveals the need for developing methods for enhancing children’s possibilities to critically examine and learn from visual material, such as pictures.

**Originality/value:** Research on information seeking and information literacies rarely focus on multimodal aspects of information activities or the seeking of pictures outside special collections, despite the increased significance of visual material in the contemporary media landscape. This paper shows how studies of multimodal information activities can be designed.

1. Introduction

Information activities are multimodal. When seeking, using, sharing, organising, reviewing and producing information people not only engage with tools and artefacts that include alphabetic and numerical text, but also with pictures,
photographs, moving images and drawings. Furthermore, people use their bodies when seeking and using information (Lloyd, 2010a); they gaze, they point, they type and they talk. These types of bodily actions are also often on display in interactions with other people. However, in many models of information behaviour, information seeking and use is portrayed as solely cognitive information processing where the material aspects and consequences of information activities are overlooked (cf. Francke, 2008, p. 97).

In this article we take an interest in the activity of seeking pictures in a specific social setting. Whereas problems related to organising collections of visual material are acknowledged within the fields of Knowledge Organisation and Information Retrieval, there are still relatively few user studies specifically focusing on the seeking and use of pictures outside of special collections (Enser, 2008). The aim of this study is to enhance the understanding of the situated activity of seeking pictures in primary school, an activity that includes, for example, digital pictures available on the web.

Our study also relates to an ongoing discussion on information literacy which is characterised by the ambition to understand how different information literacies emerge in social practices, rather than to the objective of defining information literacy in generalised and standardised terms (e.g. Lloyd, 2010b; Sundin, 2008; Tuominen, Savolainen & Talja, 2005). The setting forming the focus of this article is that of a Swedish primary school where children are engaged in a project-based method of working. This working method will be described in detail in section 3 below.

For creating an understanding of how information literacies were enacted in this setting, especially from the children’s perspective, we conducted an ethnographical study where a video camera was used during the fieldwork. This presented us with the opportunity to analyse the interaction between the participants when involved in information activities, as well as to discern differences between types of interactions. Some of these differences seemed to depend on the type of tools and artefacts the children were using. It seemed as if the seeking of pictures differed from the seeking of textual information; pictures were described differently than texts and the interaction between the children when looking for pictures was of another character than when they were looking for textual artefacts. The seeking of pictures also took up a lot of the children’s time during the period of study; pictures were obviously an important part of the information activities of this primary school.

Thus, in this article we will explore information seeking activities of a certain kind; activities that evolve around artefacts and tools where the main mode of
representation (Francke, 2008, p. 128) is images. This will be done through an analysis of material that involves different modes of communication, even though we mainly focus on verbal language use.

2. Information Literacies from a Sociocultural Perspective

In this paper, the concept of information literacies is understood in the light of sociocultural theory as presented by neo-Vygotskian scholars such as Säljö (2000; 2005) and Wertsch (1998). This means that we connect to recent understandings of information literacies where aspects of materiality and situatedness are emphasised (e.g. Andersen, 2006; Lloyd, 2010b; Sundin, 2008; Sundin & Francke, 2009; Tuominen, Savolainen & Talja, 2005). In addition, we also argue that information literacies are multimodal, thus involving a whole range of modes, which include, but are not limited to, alphabetic text (cf. Jewitt, 2006; 2009).

From a sociocultural viewpoint information literacies are seen as enacted through the use of cultural tools in concrete social practices. Cultural tools (Vygotsky, 1997; Wertsch 1998, p. 17) are the physical and intellectual means which humans use for meaning making, communicating, thinking, acting and learning. It is through interaction with cultural tools humans make sense of the world. As a novice in a social practice you need to learn and understand how to use tools that are valued and sanctioned within that practice (Ivarsson, Linderoth & Säljö, 2009). For example, as a primary school pupil, you have to appropriate or master (Wertsch, 1998, pp. 53ff) certain tools, including tools for information seeking and use. Therefore, an analysis of information activities must include the cultural tools used within this setting.

Furthermore, one of the most important cultural tools is that of spoken and written language. Language permeates and builds the foundation for information activities (Talja, Tuominen & Savolainen, 2005, pp. 89ff; Frohmann, 2004); it is impossible to envision how questions could be formulated (Lundh, 2010; McKenzie, 2004) or how information could be produced and shared (Turner & Allen, 2010) without the use of language.

Albeit, this emphasis on language use does not imply that other tools are unimportant in information activities (cf. Ivarsson, Linderoth & Säljö, 2009). To become information literate in a specific social practice people need to learn how to employ and understand various tools, artefacts and modalities. This has always been the case, but perhaps even more so in contemporary society because of the implementation of information and communication tools that build on several modalities, including pictures, images and photographs (cf.
Moreover, the enactment of information literacies does not look the same across all types of social practices; instead information literacies must be seen as situated in specific contexts (Lloyd, 2010b; Sundin, 2008; Tuominen, Savolainen & Talja, 2005). For this reason, it is more plausible to talk about information literacies in the plural than as one single type of literacy (Limberg, 2010). Thus, in studies of the enactment of information literacies one needs to focus on how certain tools for information activities are valued and used in the practice studied.

In our study we focus on how pictures are valued, sought and used in primary school. The analysis builds not only on the idea that information activities are multimodal, but also on the idea that the information activities studied are shaped in and by the primary school context. Primary school as an institution builds on historical traditions which include ideas of how children become literate and what it means to be literate. At the same time, situational activities taking place within primary school also contribute to the forming of this institution (cf. Linell, 2009, pp. 49ff). Thus, when we study how different modes are valued and used in the activities studied, we analyse communicative situations as they unfold, within an institutional setting.

3. Empirical Framework
In order to analyse information activities engendered in a primary school setting, we have chosen to study activities connected to children working with research. In this paper, the term research written in italics denotes a certain method of working in the studied setting.

The research method of school work entails an expectation that the children will independently conduct projects on topics they have chosen themselves and includes their own information seeking activities. The topics chosen by the children may be varied, for example, topics on pets and animals, nations and ethnical groups or historical epochs. Their work is conducted individually or in pairs and they are expected to produce a booklet as well as an oral presentation of their findings.

When working with their research assignments the children made use of three sites at their school: the classrooms and nearby smaller rooms where they were supported by their class teachers and sometimes a remedial teacher and an older pupil undergoing a period of practical work experience; the school
library where they searched for books, often together with the school librarian; and, the computer room in the library where they had one lesson a week on information seeking on the Internet with an ICT-assistant. When observing the later lessons it became evident that the seeking of pictures was an important part of the children’s research processes.

3.1 Data Collection
The empirical material of this paper was collected during a period of ethnographical fieldwork in the beginning of 2008. The participants were 31 pupils of two third-year forms (which means that most of the children were nine or ten years old), two form teachers and one IT assistant at a public coeducational school in Sweden. The research method of working had been observed in an earlier study of information seeking and ICT use in primary school (see Lundh & Limberg, 2008) and became the main focus of the follow-up study.

The pupils’ work was observed during a five week period, where two days a week were devoted to research. The data collection methods were informed by a visual ethnographical approach (Pink, 2007) and included a number of data collection methods; field notes were taken, but the major part of the observations and also informal conversations were documented with the help of a small video camera. In addition, copies were made of the booklets produced by the children. In the following analysis the video recordings are in focus.

The study followed the then-current Swedish Ethical Principles for humanistic and social scientific research, published by the Swedish Research Council (Forskningsetiska principer…, 2002), where issues of informed consent and confidentiality are stressed. In this study consent was obtained from both parents/guardians, who filled out a written form, as well as the children, who were informed about the study and gave their consent verbally. All names used in this article are aliases, and the pictures used have been edited in order to ensure the participants’ confidentiality; the stylised pictures capture the participants’ positions and gestures, but the faces, hairstyles and clothes have been changed significantly.

3.2 Analysis
After having noted that the children’s seeking of pictures seemed different from other information activities the first step of the analysis was to identify episodes within this activity (cf. Linell, 1998, pp. 187f). In total we discerned 29 episodes, most of them just a few minutes long, where searching for pictures or conversations about the seeking and use of pictures were central in the interaction. The major part of the identified episodes of picture seeking took place during the lessons in the computer room, but other examples were
also found. Most of the episodes were filmed in a way that focussed on the children rather than the staff.

The analysis was inspired by Interaction Analysis (Jordan & Henderson, 1995), which implies detailed analyses of activities in naturalistic settings. The analytical focus lies on unfolding conversations and interactions. In the analysis we were interested in the spoken discourse that revolves around the seeking of pictures as it takes place in situ. The analysis entailed working with an everyday understanding of what constitutes a picture or an image; pictures/images are discerned as a specific mode through how they are described by the participants. Furthermore, the episodes included in the results have been represented in detailed transcripts and in two cases also been supported by pictures, in order to facilitate the understanding of the situations as they appeared in the video recordings. Even though the analysis is mainly directed towards the conversations, the pictures are meant to give sense of the setting – the “people and place” (Sligo & Tilley, 2011) – and thereby enhance the idea that information literacies happen in and are shaped by everyday activities.

The episodes were then thematised through a process where we worked on the basis of the material as a whole: Firstly, we identified similarities and differences in the episodes and, secondly, these similarities and differences were organised in themes. Two major themes in the participants’ interactions and communication in connection with pictures were identified. The first theme, pictures as non-facts shows how the tool of pictures is described. The second theme, which builds on the first, is called seeking pictures as a collective activity. The two themes are described in the following sections.

**4. The Activity of Seeking Pictures**

In this section, characteristics of the activity of seeking pictures will be described and illustrated through detailed empirical examples. One reason for initially considering the seeking and use of pictures as different from the seeking and use of textual material was that the participants themselves made a distinction between, on the one hand, information and facts, and on the other hand, pictures and images. Thus, the seeking and use of pictures and images was described in other terms than the seeking and use of alphabetic text. Furthermore, it seemed as if the interaction between the children when looking for pictures was of another, more cooperative, character than when they were seeking textual material. Pictures were also ascribed an importance as material artefacts in other ways than texts; pictures seemed to be artefacts to gather, show and exchange.
4.1 Pictures as Non-Facts and Decorations

One of the premises for the activity of seeking pictures concerned ideas for how pictures should be used in the children’s research. Overall, we find few examples in the analysed episodes where pictures are described as having functions beyond decorative ones. Instead, they are described as neutral physical objects that are not supposed to communicate any specific message on the children’s topics or answers to any of the children’s research questions. As we will see, this idea has consequences for how pictures are sought.

Excerpt 1 (for transcript notation see Appendix 1) is an example of how the expectations concerning the use of pictures are articulated by one of the teachers in a conversation with her young students. The conversation was recorded during an assembly in one of the classrooms where the teacher showed her pupils an example of how pictures had been used in one of their booklets (a drawing of the teacher showing the page in question can be seen in Picture 1).

![Picture 1](image-url)
In this sequence the picture is described by the teacher as a readymade object that can be copied and inserted into the document. Hence, the main function of the booklet seems to be to mediate written alphabetic text, rather than pictures. The document should be “fun to read” and it is important that there is room for lines to write on beside the picture. The role of pictures is described as filling space rather than as content; they are expected to be subordinated (Bezemer & Kress, 2009) to the written text.

This solely decorative function of pictures is confirmed in the interactions and conversations in the classrooms and in the computer room. Both the staff and the children make a distinction between information or facts and pictures, where the former is represented by alphabetic text. One example of this distinction is provided in the conversation represented in Excerpt 2. Here, one of the teachers helps a pupil when he is searching on the web for information about Harley-Davidson motorbikes. In line 2 the teacher dismisses pictures, since they are not “information”.

<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Majken: [...] you can do it like Felicia has done, you can insert (.) you know on the computer it says insert picture (.) you’ve seen that, haven’t you?</td>
<td>Majken: [...] man kan också göra så här som Felicia att man infogar (.) det vet ni på datorn så står det infoga bild (.) det har ni sett va?</td>
</tr>
<tr>
<td>2. Someone: mm</td>
<td>Någon: mm</td>
</tr>
<tr>
<td>3. Majken: insert that’s when you put (it) here and there (.) and then you put in a small picture and in that way you’ll get lines next to it (.) I think this is pretty smart because then it’s a bit more fun to read when the picture is placed like this</td>
<td>Majken: infoga det är ju när man sätter (den) lite här och var (.) så då sätter man en liten bild och då får man ju rader här bredvid (.) det tycker jag är lite smart för då blir det lite roligare att läsa när bilden sitter så här</td>
</tr>
</tbody>
</table>

Excerpt 1

Excerpt 2

<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. William: which page there (.) mm here (.) Harley [Davidson]</td>
<td>William: vilken sida där (.) mm här (.) Harley [Davidson]</td>
</tr>
<tr>
<td>2. Pernilla: [perhaps it was] tricky to find information it was only pictures</td>
<td>Pernilla: [det kanske] var svårt att få information det var bara bilder</td>
</tr>
<tr>
<td>3. William: nope we’ll have to do another search (another possible translation can be we’ll have to do a search about (.)</td>
<td>William: nä vi får söka om (.)</td>
</tr>
</tbody>
</table>
A similar division between facts and pictures is made in the dialogue in Excerpt 3 where the ICT assistant is approaching a group of boys who are working in the computer room. The ICT assistant’s tone implies that the searching for facts is preferable to pictures. The response by one of the boys in line 2, which can be seen as a defence or an explanation, reinforces the distinction between pictures and facts, where the latter can be found in books.

<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anders: hey you should have something else not just pictures [right]?</td>
<td>Anders: hörni ska väl ha lite annat än bara bilder också [va]?</td>
</tr>
<tr>
<td>2. Erik: [but I have a whole book at home]</td>
<td>Erik: [men jag har en hel bok hemma]</td>
</tr>
<tr>
<td>3. Anders: [you should search for facts as well]</td>
<td>Anders: [ni ska söka fakta också]</td>
</tr>
</tbody>
</table>

Excerpt 3

This division between pictures as non-facts and alphabetic text as facts is also a part of the discussions among the children themselves. One illustrative example is the interaction between two girls where one of them is doing a Google search for the other in Excerpt 4. In line 1 the girl at the computer (Felicia) asks the other girl (Matilda) if she wants her to print a picture. After Matilda has chosen another picture in line 2, Felicia maintains that they also have to print (“take”) the facts too. ”Facts” refers to the text surrounding the pictures, which Felicia marks on the screen. In this example the connection between “facts” and written text is clear, as well as the distinction between text as facts and pictures as non-facts.

<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Felicia: do you want that one?</td>
<td>Felicia: vill du ha den?</td>
</tr>
<tr>
<td>2. Matilda: nope (I don’t) (;) I want that one</td>
<td>Matilda: nå (det vill jag inte) (;) den vill jag ha</td>
</tr>
<tr>
<td>3. Felicia: but then we'll have to take this as facts and this too</td>
<td>Felicia: men då får vi ta det här till fakta och det med</td>
</tr>
<tr>
<td>4. Matilda: yes (;) what kind of facts is it? (;) okay that’s alright</td>
<td>Matilda: ja (;) vad är det för fakta? (;) okej det blir bra</td>
</tr>
</tbody>
</table>

Excerpt 4

In Excerpt 4 the pictures are referred to with a personal pronoun “that one”. This way of labelling pictures, along with using nouns which describe what the
pictures represent, such as “grapes”, “bag of coffee”, “bandy field”, recurs throughout the analysed episodes. The ways in which pictures are discussed emphasises the idea of pictures as objects that can be printed and gathered – as collector’s items. However, there are rarely any in-depth discussions in the material on how the pictures can be interpreted or how they could be used to respond to the children’s research questions.

There are a few exceptions though, as can be seen in Excerpt 5 where a girl is sitting in the computer room looking for pictures of Sami cots as she is talking to the researcher who is behind the camera. The dialogue is driven by the researcher’s question in line 2, so in this respect it differs from most of the other episodes. Nevertheless, when the girl is discussing what the picture might depict she is referring to things she has learnt and read about the Sami people while doing her research. In this case the picture is ascribed meaning beyond being decorative; a story is being told with a basis in the picture (even if the story is not completely accurate).

<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Johanna: I think I’ll take that one</td>
<td>Johanna: tror jag tar den</td>
</tr>
<tr>
<td>2. Researcher: and what’s that?</td>
<td>Forskare: vad är det för nånting då?</td>
</tr>
<tr>
<td>3. Johanna: mm (...) I think it is like a (...) they had their own gods you know</td>
<td>Johanna: mm (...) jag tror det är nånt sån här (...) dom hade ju egna gudar</td>
</tr>
<tr>
<td>4. Researcher: mm</td>
<td>Forskare: mm</td>
</tr>
<tr>
<td>5. Johanna: then I think it might be (...) something similar (...) maybe something like they (...) a drum or something (...) I can’t really tell from the picture</td>
<td>Johanna: då tror jag det kan vara (...) nåt liknande (...) kanske nånt sån här dom (...) trumma eller nåt (...) det syns inte riktigt</td>
</tr>
<tr>
<td>6. Researcher: no</td>
<td>Forskare: nå</td>
</tr>
<tr>
<td>7. Johanna: I’m not sure what it is (...) really ((sighs)) there is some (a pause of about 7 seconds) (I might) (...) ah but (...) when I have read they had them to store food in</td>
<td>Johanna: jag vet inte vad det är (...) riktigt ((suckar)) där är nån (ca 7 sekunders paus) (jag k) (...) äsch men (...) när jag har läst så hade dom det förvara mat i såna där</td>
</tr>
<tr>
<td>8. Researcher: really</td>
<td>Forskare: jaha</td>
</tr>
<tr>
<td>9. Johanna: so the wolverines wouldn’t take the food</td>
<td>Johanna: för att järven inte skulle kunna ta maten</td>
</tr>
<tr>
<td>10. Researcher: okay</td>
<td>Forskare: okej</td>
</tr>
<tr>
<td>11. Johanna: something like (...)wolverines probably couldn’t climb up there so it was like a store (...) that’s what I’ve read in other books about Sami people</td>
<td>Johanna: (nåt) sånt där (...) att om järven kunde nog inte klättra upp där så var det som ett förråd (...) har jag läst i andra böcker om samer</td>
</tr>
</tbody>
</table>

Excerpt 5
The girl in Excerpt 5 does not choose to print or save the picture she is talking about. Instead, another picture catches her interest and this picture is also commented on as a fun picture by the ICT assistant who passes by. After his comment, the girl hurries to print the picture.

In the first theme of the analysis, we can see that pictures, images and photographs mainly have a role as decorations in the research method of working. They are not treated as pedagogical tools from which the children can learn about their chosen topics. However, the activity of seeking pictures seems to be regarded as important by the children and is at least not seen as unnecessary by the staff. Furthermore, the communication and interaction involved in the activity of seeking pictures is lively, especially among the children. This is the second theme emerging in the analysis.

4.2 Seeking Pictures as a Collective Activity
The activity of seeking pictures in this setting is characterised by a high level of interaction and dialogue among the children; it can be seen as an animated and at first glance even a noisy and unstructured activity. However, a closer look makes evident that the children’s seeking of pictures is undertaken systematically and efficiently.

Our analysis shows that an important part of the activity is to find the “right” kind of pictures. The children often scan a large number of pictures from the results of web searches for pictures and they make quick decisions when choosing pictures to print. An example can be seen in Excerpt 6 where one girl is starting to look for pictures for her and her writing partner’s research on sports. The sequence starts with the girl typing something into the search field in Google image search. About 14 seconds later she has chosen a picture to print. While she is talking to the researcher about which printer to choose her writing partner arrives; he is a bit late for the lesson in the computer room. When he has given his excuses the girl asks him if they should print, “take out”, the picture she has found and he quickly agrees; from the time he arrives it takes less than a minute for them to agree on a picture to print.

<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Moa: [Emil] should we take out this one?</td>
<td>Moa: [Emil] ska vi ta ut den?</td>
</tr>
<tr>
<td>2. Emil: bandy field?</td>
<td>Emil: bandyplan?</td>
</tr>
<tr>
<td>3. Moa: mm</td>
<td>Moa: mm</td>
</tr>
<tr>
<td>4. Emil: okay () I’ll go and get it</td>
<td>Emil: okej () jag går och hämtar</td>
</tr>
</tbody>
</table>

Excerpt 6
In the sequence represented in Excerpt 6 the girl and the boy display confidence in knowing what they want and what they need in terms of pictures for their research. They are working under pressure; the IT lessons are only 20 minutes long and in this particular situation they have even less time since the boy was late. Through a clear division of labour and working well together their picture seeking is carried out in an efficient way. Without actually articulating any expectations Emil’s role as being the one who rushes off to the printer is agreed upon. The children’s evaluation of the picture also seems to be based on a tacit understanding; as a spectator one cannot tell from the children’s interaction how they arrive at their decision between themselves.

Excerpt 6 reveals ways of working that seems to be common when the children work together doing web searches for pictures. A similar example, where the division of duties also seems to be clear, where decisions are made quickly and where the printing of pictures is important is provided in Excerpt 7. This excerpt, which comprises the dialogue taking place while two girls are working together at the computer, can be seen as a bit silly and giggly; the sequence starts with one of the girls formulating a query where she combines her own topic (Idre, which is a Swedish skiing resort) with the other girl’s topic (rabbits). However, in line 7 one of them (Matilda) actually finds an image she wants to use. The other girl (Felicia), who is in charge of the mouse, prints the picture while being urged by Matilda to go back to the result page where they both see pictures they find suitable for Matilda.
<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Matilda: that was a cat not a rabbit (.) but type baby rabbits not baby rabbits in Idre (.) no (type out) in Idre</td>
<td>Matilda: det var (ju) en katt ingen kanin (.) men skriv kaninunger inte kaninunger vid Idre (.) nej (skriv bort) det vid Idre</td>
</tr>
<tr>
<td>2. Felicia: ((laughs)) () that wasn’t a baby rabbit</td>
<td>Felicia: ((skrattar)) () det var ingen kaninunge</td>
</tr>
<tr>
<td>3. Matilda: it (was wait) oh please take that one</td>
<td>Matilda: den (var ju vänta) åh den ta den</td>
</tr>
<tr>
<td>4. Felicia: no take that one</td>
<td>Felicia: nej ta den</td>
</tr>
<tr>
<td>5. Matilda: ((laughs))</td>
<td>Matilda: ((skrattar))</td>
</tr>
<tr>
<td>6. Felicia: ((laughs))</td>
<td>Felicia: ((skrattar))</td>
</tr>
<tr>
<td>7. Matilda: can I see it? () can I see it? () oh</td>
<td>Matilda: får jag se den? () får jag se på den? () åh</td>
</tr>
<tr>
<td>8. Felicia: do you want that one?</td>
<td>Felicia: vill du ha den?</td>
</tr>
<tr>
<td>9. Matilda: ohohohoh</td>
<td>Matilda: åhåhåhåh</td>
</tr>
<tr>
<td>10. Felicia: print</td>
<td>Felicia: skriv ut</td>
</tr>
<tr>
<td>11. Matilda: press that one () quick () and then press-</td>
<td>Matilda: tryck där () fort () och så tryck-</td>
</tr>
<tr>
<td>12. Felicia: Matilda look here</td>
<td>Felicia: Matilda se här</td>
</tr>
<tr>
<td>13. Matilda: I want that one</td>
<td>Matilda: den vill jag [ha]</td>
</tr>
<tr>
<td>14. Felicia: that one is really cool</td>
<td>Felicia: [den] var ju cool</td>
</tr>
<tr>
<td>15. Matilda: yeah but I want that one</td>
<td>Matilda: ja men den vill jag ha</td>
</tr>
</tbody>
</table>

**Excerpt 7**

In Excerpt 7 the activity of seeking pictures is characterised by playfulness; in this respect it differs from episodes when the children are looking for facts and texts. At the same time as the girls are joking and playing word games, they are nonetheless determined in their search for pictures.

The activity of seeking pictures is also characterised by cooperation and information sharing. When seeking pictures the children both show each other pictures they have found as well as carry out searches for each other. “Look at this”, “look here” etc are phrases often used in the interactions, as in Excerpt 8 where five boys are sitting by three computers looking for pictures, and showing each other what they find. Picture 2, showing the five boys looking at one of the screens, is taken during the same IT lesson.
<table>
<thead>
<tr>
<th>English translation</th>
<th>Swedish transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Carl: look lo- come and have a look it’s Baloo</td>
<td>Carl: kolla kol- kom och kolla det är Baloo</td>
</tr>
<tr>
<td><strong>Erik gets up from his and Johan’s computer to look at Carl’s screen; William is approaching them to.</strong></td>
<td></td>
</tr>
<tr>
<td>2. Carl: look there it is</td>
<td>Carl: kolla det är den</td>
</tr>
<tr>
<td>3. William: no</td>
<td>William: nå</td>
</tr>
<tr>
<td>4. Carl: look</td>
<td>Carl: kolla</td>
</tr>
<tr>
<td>5. Erik: Baloo</td>
<td>Erik: Baloo</td>
</tr>
<tr>
<td>6. Viktor: Erik come here</td>
<td>Viktor: Erik kom</td>
</tr>
<tr>
<td><strong>Erik stays at Carls computer and give Carl instructions:</strong></td>
<td></td>
</tr>
<tr>
<td>7. Erik: no but I think () don’t take that one go back</td>
<td>Erik: nej men jag tycker () ta inte den gå bak</td>
</tr>
<tr>
<td>8. Viktor: [Erik Erik]</td>
<td>Viktor: [Erik Erik]</td>
</tr>
<tr>
<td>9. Carl: [the Gummi Bears]</td>
<td>Carl: [bumbibjörnarna]</td>
</tr>
<tr>
<td>10. Viktor: come here</td>
<td>Viktor: kom</td>
</tr>
<tr>
<td>11. Erik: yes</td>
<td>Erik: ja</td>
</tr>
<tr>
<td><strong>Erik moves from Carl’s computer to Viktor's computer</strong></td>
<td></td>
</tr>
<tr>
<td>12. Viktor: look () a lego figure</td>
<td>Viktor: titta ()legogubbe</td>
</tr>
<tr>
<td>13. Erik: ((laughs))</td>
<td>Erik: ((skrattar))</td>
</tr>
<tr>
<td>14. Johan(?) can I see</td>
<td>Johan(?): jag får se</td>
</tr>
<tr>
<td><strong>Johan also gets up from his computer to look at Viktor's screen</strong></td>
<td></td>
</tr>
<tr>
<td>15. Erik: a zombie lego figure</td>
<td>Erik: zombielegogubbe</td>
</tr>
</tbody>
</table>

**Excerpt 8**

Johan takes a look and then goes back to have another look at Carl’s screen. At the same time William comes and looks at Viktor’s screen.
In the sequence it seems as if the boys compete in claiming Erik’s attention. Erik is the one giving instructions about what picture Carl should choose in line 7 and he is also the one Viktor wants to show his pictures to in lines 8-13. In this interaction it is as if showing fun pictures of toys and fictional characters to Erik carries a certain status within the group of boys. Similar interaction patterns can be found in other groups of children as well; pictures and images are used as a way of impressing children who for some reason are the centre of the others’ attention.

As a final comment on interaction and communication among the participants when seeking pictures it can be noted that one of the main topics discussed in the interactions between the children and the ICT assistant is printers that are out of order. Even if digital tools often are used when pictures are sought the children spend time and effort on saving and storing the pictures one by one as paper copies. Included in the time spent is waiting time, often because of technical problems. Hence, one of the characteristics of the activity of seeking pictures is that of printing pictures together with expressions of frustration when technology is not working as it should.

5. Discussion

Based on our analysis, the activity of seeking pictures can be summarised as follows: It is shaped by the overall assumption that the primary function of pictures in the children’s research assignments is to be decorative. The activity is characterised by a playful, yet efficient cooperation among the children when they are searching for pictures to print or copy in the computer room.

The seeking of pictures in this setting could be described as an activity which in many respects resembles a game and play activity, with its own set of rules. Even though the children discuss the pictures as representing objects and situations relevant for their research they do not seem to seek pictures solely to enhance their understanding of their topics. Rather, the primary goal of the play and game like activity seems to be collecting and compiling artefacts.

Thus, the activity of seeking pictures is temporarily separated from the research method of working. In our study, it seems as if the institutional “norm zone” of the primary school is temporarily converted to something that can be described as a “free zone” (see Lieberg, 1995) where the utilitarian dimensions of school activities are bracketed and a more play-like set of rules apply. The computer room becomes a site where the activity of seeking pictures is detached from the overall research practice; it resembles cultural patterns which usually emerge at the borders of and outside of school, in game and play activities.
This comparison between the activity of seeking pictures and game and play activities can be done in at least three respects. Firstly, on a general level, play and game activities include imaginary situations; a child can play when he is able to “act independently of what he sees” (Vygotsky, 1978, p. 97), thus giving something a meaning beyond its immediate appearance. In our examples, the children seem to act as if they are looking for pictures for other reasons than only to include them in their school assignments.

Secondly, Vygotsky (1978) argues that all play and game activities are based on more or less formalised rules. The emphasis on the rules and principles of organisation as one of the key characteristics of game activities and which separate them from other activities is also noted in the writings of the French sociologist Roger Caillois (2001; see Linderoth, 2004, p. 25f). In his categorisations of games, Caillois makes a distinction between games based on *agon*, competition or struggle, and games based on *alea*, chance and hazard. In our analysis we can see how the activity of seeking pictures is transformed to a kind of game activity with its own set of rules based on *alea*. When the pupils in our study are searching for pictures there is an element of chance involved; they type in a few terms without a clear idea of what kind of results this might lead to. It seems as if this aspect of chance creates a dimension of a game, not unlike a lottery or a tombola where you might or might not win.

Thirdly, on a more specific level, an analogy can be drawn between the activity of seeking pictures and activities connected to the collection of trading cards. The collection of trading cards also involves elements of hazard created by the idea of having complete sets and not being able to know the contents of a package of cards before purchasing it (Buckingham & Sefton-Green, 2004, p. 26; see also Nelson & Steinberg, 1997). The activity of seeking pictures in our examples becomes a matter of collecting physical artefacts and just like trading cards, the pictures seem to be ascribed an emotional value and used for impressing one another (cf. Brougère, 2004, pp. 196f). The activity of seeking pictures seems to be taking place in an intersection between school activities and leisure time activities in the same way as trading card activities during school hours often do (Fast, 2007, p. 217; Brougère, 2004, p. 206).

The children’s transformation of the activity of seeking pictures into a type of game activity could perhaps be seen as a form of resistance to school work or as a sign of laziness. However, we would argue that the collector’s culture created among the children is in line with the idea of written text as the significant mode of communication when working with research and pictures as solely decorative additions. With these types of assumptions about picture use,
where the communicative potentials of pictures are not thoroughly explored, the children’s way of acting can be viewed as a constructive way of making the activity meaningful, interesting and challenging.

6. Conclusions

In this paper we maintain that information literacies are not merely text-based but must be regarded as multimodal literacies. This argument is supported by our empirical material; the analysed episodes show that primary school children are engaging in information activities that include the seeking, use, sharing and organising of pictures, in addition to alphabetic text. However, the requirements for the seeking and use of pictures are different from the requirements for the seeking and use of text in this context.

Our study shows that even though the seeking of pictures is an activity that is valued at this primary school, texts are seen as the prime tool for the research method of working. Within this social practice, pictures are valued as decorative artefacts, but they are not used as a communicative way of answering the children’s research questions. Communication around pictures is often focussed on showing each other artefacts and deciding whether they are “winning tickets” or not. Thus, what the children do is to evaluate and assess documents on the basis of their immediate appearance, but they do not critically examine them; there seems to be room for exploring the possibilities of how pictures can be used in primary school as semiotic tools alongside other modalities.

However, the resemblance to play activities discussed in the previous section should not be regarded as a problem, but rather as having potential in an educational setting. The seeking of pictures is an activity that seems to catch the children’s interest, not only in relation to their own work but also in each other’s work. Furthermore, it relates to practices outside the school context and it shows how the children in this way are able to make a school activity meaningful. What we do not see in our empirical material are pedagogues who help the children to explore the semiotic potentials of pictures.

On a methodological level, we have in this paper emphasised that multimodal aspects are often overlooked in studies of information activities, even though most information activities include several modalities. Our study shows that in order to understand and question multimodal aspects of information activities, methods that make multimodal analyses possible must be employed. This study is limited to the activity of seeking pictures and the analysis is mainly directed towards spoken discourse, but it can still be seen as one example of how other modes besides textual modes can be studied to gain a deeper and
richer understanding of the enactment of information literacies in various contexts.

Acknowledgements
The writing of this paper has been conducted at The Linnaeus Centre for Research on Learning, Interaction and Mediated Communication in Contemporary Society (LinCS). The authors would like to thank the study participants who generously shared their activities with us. We would also like to thank Louise Limberg for valuable comments on this paper; Frances Hultgren and Keith Hampson for their assistance on issues concerning the English language; and Rebecca Landmér for the editing of the pictorial material.

References


### Appendix 1, Transcription Notation
After Antaki (2002)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(.</td>
<td>Pause</td>
</tr>
<tr>
<td>[ ]</td>
<td>Marks overlapping talk</td>
</tr>
<tr>
<td>( )</td>
<td>Unclear or inaudible, sometimes with a suggestion</td>
</tr>
<tr>
<td>=</td>
<td>Represents occurrences where there are no notable pause between two utterances</td>
</tr>
<tr>
<td><em>0</em> <em>0</em></td>
<td>Represents quiet speech</td>
</tr>
<tr>
<td>Underlining</td>
<td>Represents loud speech</td>
</tr>
<tr>
<td>-</td>
<td>Represents abrupt breaks</td>
</tr>
<tr>
<td>(( ))</td>
<td>Describes sounds and ways of talking that are hard to transcribe directly</td>
</tr>
</tbody>
</table>
Designing by Decorating: The Use of Pictures in Primary School

Anna Lundh and Louise Limberg

Submitted

Abstract

Introduction. This paper concerns information use and more specifically the use of pictures in primary school. Information use, as one of the central concepts within the field of Information Needs, Seeking and Use (INSU), has been described as an under-studied and under-theorised concept. This study follows a sociocultural tradition within the INSU field and information use is seen as a social activity. Method. The theoretical stance has implications for how information use is studied; in this case through the collection of documents during an ethnographical study of information activities of Swedish primary school pupils working with project-based assignments. Analysis. Image-text relations in 25 booklets produced by primary school pupils were coded. Results. Four dimensions of picture use are identified in the analysis. The pictures are used in the main as decorative additions and are subordinate to written text. Conclusion. Given earlier research indicating that project-based working methods are text-dominated and tend to be focussed on the reproduction of facts and the making of products rather than on contents, it could be argued that the children’s use of pictures in this study is purposeful. Whether or not this use of pictures is a desirable outcome could be a matter of discussion.

Introduction

In the literature on information literacy there is no consensus on what the information part of the concept denotes; however, it is often the case that it is implicitly understood as textual sources and documents (Limberg, Sundin and Talja in press; Lloyd 2007). Concurrently, in the neighbouring fields of literacy studies changes in the technology and media landscape have led to an increased interest in multimodal aspects of literacies and in how children, as well as adults are becoming literate in relation not only to alphabetic text, but to a range of modes (Buschman 2009; Jewitt 2009).
Although the assertion that people need to learn how to “read” pictures and other types of visual material may not be a new and revolutionary idea it would not be exaggerating to suggest that educational settings are still often text-focussed, not to say text-dominated. In a recent study of the activity of seeking pictures in a Swedish primary school Lundh and Alexandersson (in press) found that pictures were seen as subordinate to text, as additional decorations. The present article presents a follow-up analysis of this study, with focus on how pictures are used and produced in the same setting.

Thus, our study concerns information use of a certain kind. It relates to the overarching aim of a set of studies (Lundh 2010; Lundh and Alexandersson in press; Lundh, Davidsson and Limberg 2011), namely understanding how information literacies are enacted in Swedish primary schools. In order to do this, several information activities within a Swedish primary school have been analysed. The specific objective of this paper is to enhance our understanding of the use of pictures in a school practice that is mainly dominated by texts.

**Information Use and Learning**

The social practice in focus for this study is that of Swedish primary school children working with a project-based method of learning. This type of working method is common within Swedish schools; throughout the educational system children and young people engage in activities that require them to independently seek, use and produce information.

The information activities connected to these types of work methods have been the focus of research conducted at the intersection between Library and Information Science (LIS) and Educational Science (e.g. Erstad 2005; Kuhlthau 1991; Limberg 1999; Todd 2006; Sundin and Francke 2009). Within this field, central questions concern the relationships between information seeking, information use and learning; such as how information seeking and use can lead to learning, but also how information seeking and information use is learnt (Limberg and Alexandersson 2010).

A number of studies conducted over a 10 year period in Swedish contexts (e.g. Alexandersson and Limberg 2003; Limberg 1999; Limberg and Alexandersson 2003; Limberg, Alexandersson, Lantz-Andersson and Folkesson 2008) have shown that there are interrelations between ways of approaching and understanding information seeking and use and the ways in which school tasks are solved. In a summary of these studies Limberg (2007: no pagination) highlights the “interaction between students’ approaches to information seeking as fact-finding and a poor learning outcome”, as well as “information seeking as analysing and scrutinizing coinciding with qualified learning out-
comes” when pupils are working with complex tasks such as project-based assignments. Thus, these studies have shown the benefits of including not only issues of information seeking, but also issues of information use and learning in studies of information activities in educational settings. This broader focus has led to conclusions that underline the importance of including aspects of information use in information literacy instruction and user education.

Furthermore, these Swedish studies have shown that project-based working methods are often reduced to procedures of “transport and transformation of text” (Alexandersson and Limberg 2003: 23) where the contents of what the students are supposed to learn tend to disappear. Alexandersson and Limberg (2003) and Limberg et al. (2008) identify an underlying problem in a conflict between traditional school practices where correct answers to factual questions are central; and research-like working methods where solutions and outcomes are not given. In conclusion, it is evident that “information seeking practices as well as information literacy education in school are shaped within the discursive practice of schooling” (Limberg et al. 2008: 90) and that students “act in accordance with their assumptions of what is expected from them both explicitly and implicitly” (Alexandersson and Limberg 2003: 27).

Similar conclusions were also drawn from the above mentioned study (Lundh and Alexandersson in press) on primary school children’s seeking of pictures; the children, as well as their teachers, regarded information as being facts captured in alphabetic text. Pictures were mainly seen as collector’s items rather than as semiotic means for the children to explore, analyse and learn from. Nevertheless, the seeking of pictures cannot be described as a peripheral activity; a considerable amount of time was spent on it and it was valued by both the children and the educators. Even though pictures as pedagogical tools were subordinate to texts, pictures still seemed to fill important functions in this setting. What these functions are will be further explored in the following, where we focus on the children’s use of pictures. How one can go about this object of study will be discussed in the two next sections.

**Studying Information Use**

Within the LIS research field of Information Needs, Seeking and Use (INSU) information use is obviously one of the central concepts. A general idea of human information behaviour within this field, seen, for example, in Tom Wilson’s seminal paper from 1981, can be described in the following way: information seeking processes ensue from individually experienced information needs, and if successful, the information seeking processes lead to information use. In spite of being one of the core concepts of the field, information use
has been described as an under-studied and under-theorised concept without a clear definition (Wilson 1981; Kari 2010).

During the last decades, however, this has started to change, not least through the work of Reijo Savolainen. In a series of papers Savolainen and colleagues (Kari and Savolainen 2010; Savolainen 2009a; 2009b; 2006; Tuominen and Savolainen 1997) have reviewed how different theoretical underpinnings lead to different understandings of the concept and hence to different methodological implications for the study of information use. In our opinion, one of the fundamental differences between approaches within the field is whether information use is seen as an individual cognitive process, where “the individual mind is the most important arena of information use”, or if it is seen as “an integral component of action or practice” (Savolainen 2009a: no pagination).

Following a sociocultural tradition within the INSU field (e.g. Alexandersson and Limberg 2003; Lloyd 2007; Sundin and Johannis 2005a) we maintain in this study that information use is an activity that takes place in the interplay between individual minds and social practices, in communication through cultural tools. Furthermore, we also see that there are close relationships between the notion of information use and the notion of learning (cf. Kari and Savolainen 2010; Limberg 1999). This sociocultural stance within INSU springs from pedagogical and educational research traditions building on the Russian social-psychologist researcher Lev Vygotsky. With reference to Säljö (1996), Sundin and Johannis (2005a: 35) describe learning as a result of “individual’s appropriation of the physical or linguistic tools within different practices”. Hence, given that information use is carried out through the use of cultural tools, then learning, intentionally or unintentionally, would be its outcome (cf. Johansson 2009: 250). However, it has to be noted that in this study we do not claim that we are studying learning per se, but rather “opportunities (as well as types of opportunities) or mechanisms for potential learning, but not if learning of any kind of permanence takes place” (Linell 2009: 232). The possible permanence is something we can only speculate about.

The distinction between information use and information seeking is in some respects problematic and even adverse (cf. Limberg 1999). For example, the distinction might conceal “that information seeking is not carried out for its own sake but to achieve an objective that lies beyond the practice of information seeking itself” (Sundin and Johannis 2005b: p. 107) or that information seeking and use processes rarely are linear (cf. Foster 2005). Furthermore, in everyday terms information use activities could probably be more reasonably described as “writing up”, “reading”, “solving a task” etc. For analytical
reasons it can be useful to separate the two concepts; however, we also emphasise the importance of not seeing the distinction as absolute.

From a sociocultural perspective information use is seen as a social and concrete activity that is situated in specific practices. This stance does not mean that individual minds are not involved when information is used, but it has implications for how information use may be studied. In 1997 Tuominen and Savolainen proposed, from a social constructionist framework, how information use can be regarded as discursive and taking place in social interaction. We share this point of view, which entails a methodological focus on language use. So, when Tuominen and Savolainen (1997) describe information use as discursive action, they present spoken and written language as the suitable units of analysis.

As Ivarsson, Linderoth, and Säljö (2009) point out, this is also the case within neo-Vygotskian sociocultural theory where spoken and written language is upheld as the most important tool for human thinking, communication and meaning-making. However, the authors present an approach where other mediational means, such as visual tools, are seen as intrinsically connected with linguistic ones and therefore should be taken into account when studying social activities and practices (Ivarsson, Linderoth and Säljö 2009: 202f). In our study, we employ multimodal approaches towards the study of communication when analysing the use of pictures. The pictures are analysed in relation to other forms of representation in the artefacts, especially written text. Thus, we wish to highlight that our aim is not to uphold the use of pictures as semiotic devices in school as an end in itself, but as a mode that is interrelated with other modes.

**Methods and Empirical Setting**

The empirical material of this paper was collected during an ethnographical study of the information activities at a Swedish primary school. One part of this study, conducted in 2008, included the observation of two third year forms (children aged 9-10) when they worked in a project-based form, according to a working method that in this setting was called *research*. To separate this use of the term *research* from others, we use italics when referring to this working method.

During a five week period, the two forms were engaged in the *research* way of working two days a week. It included the children’s own choice of topics to explore, as well as their independent information seeking related to this topic. The children’s assignment was to conclude their findings in a booklet and in an oral presentation.
**Data Collection**

The material analysed in this paper consists of copies of the booklets that the children produced during the period of *research*. Our understanding of these booklets is informed by the analyses conducted in earlier phases of the study (Lundh and Alexandersson in press); these analyses were mainly based on video recordings of the children’s information activities.

Twenty-five booklets created by the children individually or in pairs during the study are included in the present analysis. These booklets contained about 500 pictures. Most of the pictures were printed from the web or copied from books or magazines and sometimes coloured by the children; about a quarter of the pictures were drawn by hand by the children themselves.

**Method of Analysis**

The analysis has been influenced by multimodal approaches to the study of communication, based in social semiotics (e.g. Jewitt 2009). This kind of approach, which is aimed at analysing visual signs, can in some respects be seen as corresponding to the linguistic dialogical approach to the analysis of spoken language, employed within other analyses in the research project (Lundh 2010; Lundh and Alexandersson in press; Lundh, Davidsson and Limberg 2011).

The view of language use as socially situated is one important aspect that the approaches have in common. For our analysis of the use of pictures, this means that we are interested in how the pictures in the children’s booklets relate to the booklets as wholes, but also to the social practice of doing *research*.

In the analysis, we focus on the compositional aspects of these artefacts; the pictures are analysed in relation to other forms of representation in the artefacts, especially written text. Our aim is to understand how pictures are used – or not used – as communicative resources.

A starting-point for the analysis was the assumption that the pictures in the booklets would mainly be used as decorations, as this was how the function of pictures was described by the participants (Lundh and Alexandersson in press). Our working definition of a decorative picture is a picture that does not “tell a story” or is carrying “a story” forward and that the text in the booklet could be understood without the inclusion of the pictures (cf. Bezemmer & Kress 2009: 252).

The analysis started with a counting of pictures in the booklets. This included decisions on what would count as a picture, and how to separate adjacent pictures. It is not always self-evident how to discern one picture from another;
for example, the page seen in Picture 1 below could be seen as one big picture or 9 smaller pictures. In the counting process, we chose the latter alternative. However, because of the difficulties of making objective judgements, we do not discuss our results in exact numbers (cf. Bezemer & Kress 2009).

The next step of the analysis was a bottom-up coding process. Even though we did not start with a set of fixed categories on relations between images and text, we found Martinec’s and Salway’s (2005) and Bezemer’s and Kress’s (2009) classifications of image-text relations useful in our descriptions of the analysed material. These classifications will be further presented and applied in the following section, where four dimensions of picture use that emerged in the analysis will be described in detail. These dimensions are described as four categories. The pictures used in the following section are included with the permission of the children and their parents/caregivers.

**The Use of Pictures**

Just as we expected, the analysis showed that the major part of the pictures had decorative functions, with no clear relation to the text mediated in the booklets. These pictures were categorised as *decorating*. However, some of the pictures were more intertwined with the surrounding text and were placed in one of three categories: *illustrating*, *explaining* or *narrating*. These labels might give the impression of unambiguous distinctions between the categories; but rather than seeing them as mutually exclusive or exhaustive, they should be understood as dimensions on a continuum as illustrated in figure 1. In the following sections we will explain the four categories in detail and illustrate them with copies from the booklets.

![Figure 1. Categories of relations between pictures and text (cf. Martinec & Salway, 2005).](image-url)
**Decorating**

This category includes pictures whose main function seem to be to make the booklets look nice. The pictures are not commented in the text surrounding them, even though they usually depict something that reflects the overall theme of the booklets. The important story is told by the text, not by the pictures. The major part of the pictures analysed can be described as being decorative; their insertion does not change the overall story.

One example of this decorative type of picture use is picture 1 from one girl’s booklet on her research about rabbits. The page is found in the middle of the booklet, between a page where the text is about young rabbits and another page where the text concerns wild rabbits. The page with pictures differs from the previous and the following pages, not only in the absence of alphabetical text, but also in the quality of the paper, i.e. the pictures are glued to a coloured sheet of paper which is thicker than the ruled sheets of paper surrounding it. Even though the nine pictures portray young rabbits, which is the theme of the preceding page, the text would still be understandable without the page with pictures. In Martinec’s and Salway’s (2005) and Bezemer’s and Kress’s words (2009) the images are subordinate to the text. The images seem to mainly add an aesthetic dimension through the use of colours and the layout, but they do not add any extra dimensions of meaning in relation to the understanding of the topic of rabbits.
This decorating function is also seen in picture 2 which shows one page from another girl’s research about the Maldives. The text on the page continues from the previous page and says “[There is a tropical] climate. The Maldives previously belonged to Great Britain; the country became independent in 1965”. Hence, the text describes (and probably reproduces) facts about the climate and the history of the group of islands in a neutral tone. The pictures, one copied/printed and one drawn by the girl herself, do not reflect the contents
of the text, apart from what might be seen as an exemplification of what a tropical climate might be like in a style we usually find in travel and holiday advertisements. Again, the colourful images are subordinate to the text; the story they bear about the Maldives as a tropical paradise does not seem to have an obvious relation to the brief factual statements in the text.

**Picture 2.** A page from a booklet on the Maldives
Illustrating
The pictures in this category are similar to the pictures in the category *decorating* in that the pictures are subordinate to the text. However, although the pictures are not mentioned in the text surrounding it, they illustrate visually something mentioned in the text. Martinec and Salway (2005) and Bezemer and Kress (2009) describe this relation as the pictures exemplifying the text.

For example, in picture 3 one girl has written a text about the history of the Swedish skiing resort Idre; a translation of the heading would be “Development 1965-2007!” and the text describes a few milestones in the history of the resort. Whereas the drawing in yellow and blue has a decorative function, the copied black and white photograph illustrates, on a general level (cf. Martinec and Salway 2005) historical skiing activities. In the other parts of the girl’s booklet, which describe the skiing resort either as a part of her own newly experienced skiing holiday trip or in a more factual general tone, the girl has used more contemporary pictures. Thus, the black and white picture in picture 3 can be said to exemplify what is said in the text.
Another example where the links between text and picture are closer, and the pictures in a way enhance the text, but are still subordinate to it, is the two pages in picture 4. In a booklet on the Second World War, a boy has listed the countries that participated in the war. Next to the name of each country he has also drawn the countries’ national flags. Given the heading that says “Countries involved” the text must be seen as superior to the pictures; the
case would have been different if the heading had been “Ensigns of the countries involved”.

**Explaining**

In this category the pictures are more intertwined with the text; or as Martinec and Salway (2005) describe it; the relation between the text and the picture(s) is complementary. In our material we have found some examples where the pictures are used to explain a point made in the text or where the text can only be seen as explanatory when combined with a picture, or when the text is understood more easily with the support of the pictures.

In picture 5 a boy has used a photocopied picture of an armadillo and labelled four of its body parts; “soft furry skin”, “tail”, “carapace” and “ear”. The labels are more general (Martinec and Salway 2005) than the photo, but would not function without the relation to the image. The picture lower down on the page thereby carries out a different type of work than the image of a young armadillo above it which does not have any clear relation to the text and therefore is placed in the category *decorating*.
Another example is that of two girls who describe how to make a battery out of lemons in their booklets (picture 6). In this case the text would be comprehensible without the pictures, so the pictures are subordinate, however, the pictures reinforce the text.
In this final category the important story is told through the use of images and the text would not make much sense without the pictures. Here, pictures are used to create a narrative where pictures and text are on an equal footing (Bezemer and Kress 2009: 252). As in the category explaining, narrating is rare in the material.
A unique case is that of a boy’s comic-like drawing in picture 7. The text and picture as a whole is informative as regards the topic of the booklet, at the same time as it tells a story about a snake slithering away in the heat (illustrated by a sun and a thermometer). Through a thought bubble the reader is informed that snakes have difficulties in surviving in extreme heat: “Doesn’t the sun know that snakes can die in temperatures over 40 degrees?” This fact is also accentuated by a drawing of a skull. This is an example of equal footing; the text would be less comprehensible without the pictures and the pictures would be uninformative without the text.

![Picture 7. From a booklet on reptiles](image)

A different use of comics is seen in picture 8 which shows a printed page of the Disney character Scrooge McDuck in a booklet made by two girls. The booklet is on Guinness World Records and consists mainly of pictures and factual text on different records set over the world. However, the combina-
tion of the printed picture and the text added by the girls “The World’s richest man” in picture 8 breaks away from the style of the rest of the booklet; it is inserted as a bit of a joke. The picture and the text are equally important for making this joke; the picture would not have communicated the same message without the text and without the picture the text would not have been exemplified. Hence, the picture and the text are on equal footing.

Picture 8. A page from a booklet on Guinness World Records
Discussion

In summary, what functions do pictures fill in information activities conducted in primary school? To a large extent, our analysis of how pictures are used in the booklets confirms presumptions stemming from our earlier analysis (Lundh and Alexandersson in press); pictures mainly work as decorative additions and they are most often subordinate to written text. Given our understanding of how pictures were sought in this practice, the results of the analysis of the use of pictures is not surprising. Expectations concerning the functions of pictures expressed by both educators and pupils (in Lundh and Alexandersson in press) seem to shape the conditions for the activity of seeking pictures, as well as the activity of using pictures in the booklets produced.

Even though the booklets contain plenty of images and drawings they are part of a text-dominated practice; there are a lot of pictures on display, but it is primarily the alphabetic text that communicates the contents of the children’s research projects. Images are copied or printed and moved from one type of document to another, but there are only rare examples of pictures being used as meaning-making devices in relation to the contents of the children’s research projects.

An important part of the sociocultural perspective adopted in this study is that of situatedness (Säljö 2000: 128-156). This means that the use of cultural tools is seen as always taking place in specific practices which shape the conditions for how the tools are used; at the same time as usage itself shapes the practice. Our analysis shows how the use of pictures and drawings is shaped by the school practice which to a large extent builds on the use of linguistic tools. Just as Alexandersson and Limberg (2003: 27) argue, the pupils can actually be described as having a “school-cultural competence” in relation to the task they have to solve and by using this competence they are forming a practice where images are subordinate to text.

One might question, however, what “opportunities [...] for potential learning” (Linell 2009: 232) the seeking and use of pictures in this text-dominated primary school context could offer. Whilst we can see examples of texts that seem to have been transported and transformed (cf. Alexandersson and Limberg 2003: 27), text is still the mode that communicates the main contents of the booklets. Even though the written texts in the booklets can often be seen as facts lined up on a page, they still have more of a communicative function than most of the pictures.
Our analysis indicate that the pupils are expected to use pictures as something other than narrative elements in the design of their final products; the result is most often a much reduced pictorial language. In a sense, the use of pictures reinforces practices using alphabetic text in this setting; the focus seems to lie on the making of a product, but not so much on what this product is supposed to mediate in terms of an understanding of a topic.

Earlier studies of school pupils working with project-based assignments have shown that information is often equated to reproducible and objective facts in these contexts (Limberg 1999; Francke, Sundin and Limberg 2011). This can also be confirmed in the above analysis. In addition, however, we can also show how pictures and drawings are usually not equated with facts in the information activities in primary school. In the children’s (re)productions of narratives on different topics, pictures do not seem to be supposed to do much work beyond being decorative.

**Conclusions**

Even though our analysis shows that pictures are often used as decorative additions, we would not argue that the activities of seeking, using and producing pictures in this setting are unimportant. Firstly, even if they are relatively few, there are examples where images and drawings are used as semiotic signs, where the function of pictures goes beyond being decorative and where the relation to written text is coordinated differently. In these examples, pictures are not used solely as less advanced cultural tools, but as communicative means that can be used in creative ways and learnt to master. Secondly, the children obviously put considerable effort into finding, producing and reproducing pictures in ways that are purposeful in the activities they are participating in; the enactment of information literacies in this practice seems to involve valuing pictures and drawings as decorations accompanying facts. Whether or not this is a desirable outcome is of course a matter of discussion.

On a methodological level we have in this paper exemplified one way of studying information use; not as a process solely taking place in individual minds, but as parts of concrete and social activities (cf. Savolainen 2009a). This was accomplished by studying the artefacts produced and used in a specific setting; the analysis was also informed by our understanding of the activities where the material for these artefacts was sought. Thus, information use is seen as being an integrated part of a social practice, and not as an isolated process disconnected from other information activities.

This approach has proven to be fruitful; our analysis shows how pictures as artefacts are valued in the setting studied, how information seeking and in-
formation use are interlaced activities and also what opportunities for potential learning that are created – or not created – by these activities. However, we do not claim that we in this paper have defined the concept of information use on a general level. Such ambitions would be, as we see it, counterproductive; different questions and different empirical settings require different approaches since human information activities are complex and multidimensional. Therefore, we would claim that we have successfully operationalised a theoretically grounded understanding of information use as meaning-making action in an empirical study.

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