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Screen-based literacy practices in Swedish primary schools

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ABSTRACT

This paper contributes to the discussion of digital literacies in early literacy education. We focus on the nature of screen-based literacy practices in relation to print-based, paper-pen practices in the early years of schooling when pupils learn to read and write (aged 7–8). Our results show that pupils engage in several diverse screen-based practices, although they are conventional in nature. However, aspects of blogging and tweeting do approach the characteristics of “new literacies” as defined in previous research.

Keywords

New Literacies, Print-based Practices, Screen-based Practices, Primary School

INTRODUCTION

Literacy practices in contemporary society have changed dramatically with technologies that provide opportunities for active, participatory and creative processes of learning, such as wikis and other collaborative spaces. There is a great need for studies aimed at identifying and analysing the nature of screen-based practices in literacy education. Research on perspectives of reading and writing in the digital media age is connected to other closely related research fields, such as *New Literacy Studies* (e.g. Street, 2003, 2012), *multiliteracies* (e.g. New London Group, 1996; Kress, 2003, 2010; Cope & Kalantzis 2012, 2013), *digital literacies* (e.g. Casey, Bruce, Martin, Hallissy, Reynolds, Brown & Coffey, 2009; Casey & Bruce, 2011), and *New literacies* (Lankshear & Knobel, 2007, 2011). These approaches to literacy take a broad socio-cultural view with the realisation of a shift from print as the primary medium of dissemination towards that of digital media and an appreciation of social and cultural change (Jewitt, 2008; Thomas, 2011). The transformation of dominant print-based practices into digital practices raises questions about pedagogies and assessment in literacy education that enable “learners to become creative and



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collaborative producers, rather than simply consumers, of digital media texts in schools” (Mills & Levido, 2011, p. 81).

Curricula and other policies also play an important role in the context of school and education. Several studies report that government and school policies are often in conflict with technological and social change, focusing too narrowly on conventional reading and writing measures, grammar and language (e.g. Jewitt, 2008; Merchant, 2008; Warschauer & Ware, 2008; Jewitt, Bezemer, Jones & Kress, 2009; Luckin, Clark, Graber, Logan, Mee, & Oliver, 2009; Cope, Kalantzis, McCarthey, Vojak & Kline, 2011). Ultimately, curriculum targets for language education also separate literacy from technology, privileging print-based forms of instruction and regarding technology as something that might help promote acquisition of literacy. As Lewis and Fabos (2005) point out, if educators do not attend to digital literacy practices in school, “we may find ourselves schooling young people in literacy practices that disregard the vitality of their literate lives and the needs they will have for their literate and social futures at home, at work, and in their communities” (p. 498).

In this paper we present an analysis of literacy practices in three classrooms in three Swedish primary schools¹ (pupils aged 7–8) equipped with laptops or tablet computers during their initial literacy education. We focus on the nature of screen-based practices in relation to characteristics of new literacies as defined below. In the discussion section, we seek to view our results from contextual aspects such as teacher methodology. This paper is based on the following research questions:

- 1 What is the format and nature of screen-based literacy practices in early literacy teaching?
- 2 What are the characteristics of these screen-based practices in relation to the characteristics of new literacies as defined in earlier research? How and why do they differ?

THEORETICAL BACKGROUND: DIGITAL LITERACIES, NEW LITERACIES AND MULTILITERACIES

Research on children’s text activities focuses mainly on tools, text types and perspectives that are new or different in relation to an older text culture, such as discussions of multimodality (see Kress, 2003, 2010), social media, such as blogs, forums and chat communities (Karlsson, 2002; Richardson, 2006), or specific software and applications like wikis (Sofkova Hashemi, 2013). There are divergent views on what the term *digital literacies*, as the new communicative and text-producing digital media practices are called, really represents as a concept. Digital literacies are new social reading and writing practices result-

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1. We use the term *class* when talking about the pupils’ as the populace (and grade) as opposed to *classroom* when talking about the physical space. For example, we refer to classroom observations but the class blog.

ing from the emergence of new technologies (Street, 1997), new strategies to master the internet (Leu et al., 2004, Luckin et al. 2009), new discourses (Gee, 2003), or new semiotic or multimodal contexts (Hull & Schultz, 2002; Kress, 2003, 2010). These views on literacy are subsumed in the definitions by Gilster and Martin, referred to in Casey et al. (2009)

The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers. The concept of literacy goes beyond simply being able to read; it has always meant the ability to read with meaning [...] Digital literacy is the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesise digital resources, construct new knowledge, create media (Casey et al. 2009, p. 20).

In this paper, we chose the term *new literacies* (Lankshear & Knobel, 2007, 2011), which merges several of these concepts and establishes the notion of text practices with a new character or “ethos” involving various kinds of social and cultural relationships compared to conventional literacies. Another argument for our choice is that Lankshear & Knobel have no ambition to equate technical aspects with the nature of new literacies as such. However, what exactly defines a new literacy practice is not self-evident. Lankshear and Knobel (2007) argue that it is necessary to separate new technologies from new practices, hence to distinguish between practices the technology allows, (the use of) “new technology stuff”, and the spirit of reading and writing in a digital society, what they call “new ethos stuff”:

We think that what is central to new literacies is not the fact that we can now “look up information online” or write essays using a word processor rather than a pen or typewriter [...] but rather, that they mobilize very different kinds of values and priorities and sensibilities than the literacies we are familiar with. (p. 7)

One example is mobile phone text messages (short message service, SMS). According to the definition by Lankshear & Knobel, there is no strong distinction between the technical “stuff” per se (i.e. the phone), and what it both shapes and constrains: the possible activities (i.e., the new ethos). Texting via mobile phone has given rise to a wholly new genre of writing. From the perspective of new literacies, we have analysed screen-based and print-based practices in the observed classrooms, i.e., the distinction between using digital artefacts or conventional pen and paper (Merchant, 2008).

New literacies is a broad concept that includes *actions, thoughts, functions* and *contexts* not present in the conventional text landscape. It may include text types (such as hypertext), the type of media or interface (blog, text message), the writing event, and participants’ experiences and roles. Digital literacies have the following characteristics: they are more *participatory* than conventional reading and writing activities because users do not just read content but

also interact with it, actively creating their own content. Users become active producers of content rather than passive consumers. Digital literacies are more *collaborative* due to their openness, for example, in wikis, which allow groups of users to create and share content. They can be shared easily and rapidly through less hierarchical forms of *distribution* (Lankshear & Knobel, 2011). Likewise, they offer a text design that is more *transparent* and *fluid*, where the user can always add, edit, and revert information with a single click. New literacies change so quickly that they can be thought of as *deictic*, or dependent on the context on which they are used at the moment they are used. All of these aspects are subsumed within a participatory culture (Jenkins, 1992).

Another component is the *multimodal* nature of texts where print, sound and image are combined in a single format. Of course, multimodality in the understanding of meaning making modes or semiotic resources (visuals, spoken and written linguistic codes, sound and gestures) does not describe new phenomena. Drawing, cutting and pasting pictures in addition to written text have been prominent in writing instruction for a long time in the early years of schooling (for example, in text types as cartoons and collage). However, it is only alongside the new conditions of contemporary society, the rapid technological development and an altered semiotic landscape that the notion of multimodality has been highlighted in research and education. Images in a broad sense have challenged print as the dominant mode of communication and the book as the dominant medium (as opposed to the screen); Kress, 2003, p. 1). How visual modes of communication combine and alter experiences of learning is discussed in the research fields of social semiotics (Kress, 2010), and Multiliteracies (Cope & Kalantzis, 2012, 2013, see further below).

In the educational context, the learning space is physical, bordered by classroom walls and constrained by timetables and educational targets. Consequently, schools are particularly resistant to salient aspects of literacies in the sense of a new ethos. In the Swedish curriculum for Years 1–3 (Sweedish National Agency for Education, 2011), focus still lies on relatively conventional skills such as decoding developing knowledge of letter-sound relationships and working with traditional school genres such as narratives, instructions and explanations. The school genres are defined almost exclusively by linguistic characteristics (Johansson & Sandell Ring, 2015). Screen-based activities and semiotic modes of expressions, such as animations, film and pictures are only briefly and broadly commented on in passages separated from more extensive descriptions of the genres. For instance, in formulations such as “*Creating texts where words and pictures interact*”, or use of “*Pictures and other aids that can support presentations*” and targets relating to work with fictional and non-fictional texts that “... *combine words and pictures, such as films, interactive games and web texts*” (Sweedish National Agency for Education, 2011, p. 212). We will revisit this issue in the discussion.

Linguists working with reading and writing pedagogy have criticised new literacy scholars. Rose (2005), for example, asserts that new literacy scholars,

apart from the linguistic theories of writing such as those put forward by the Australian Genre School, often tend to lack a theory of language as the point of departure, and hence any real notion of what to say about the object of their expertise, language:

[...] The same absence lies in the discourse of ‘New Literacies’ theorists, whose perspectives tend to the social rather than cognitive (e.g. Gee, 2003; Street, 1997, 2003), but who lack a detailed understanding of the object of their expertise – language – and how to actually teach it. (p. 134)

This is an important critical point in relation to future literacy instruction. The characteristics of digital literacy practices in modern society need to be studied in relation to reading and writing instruction in school.² However, we may also see it the other way around, pedagogies such as those of the Australian Genre School need to integrate knowledge from the fields of new literacies and multiliteracies (c.f. Cope & Kalantzis, 2012). The Australian Genre School has influenced the Swedish curriculum in the last decade. Grounded in Systemic Functional Grammar (Halliday, 2004), literacy instruction focuses on purpose, generic structure and language features. Consequently, the written modes are the most important, referring to various metafunctions or uses of language structure: the ideational metafunction (constructing human experience, often realised as content words), the interpersonal metafunction (relations between the speaker and the writer, realised as speech acts, address and stance markers, etc.), and the textual metafunction (internal organisation realised as connectives, intonation, etc.).

If *new literacies* refer to literacies made possible by digital technologies and the user-oriented characteristics of text practices, *multiliteracies* concern the understanding of different modes of communication (linguistic, visual, auditory, gestural, spatial) working together without one being perceived as dominant. Research on multiliteracies asks questions such as how various semiotic resources like colour, images or gestures contribute in different ways to the construction of meaning and how texts may provide different ways or possibilities for learning (Bearne & Wolstencroft, 2007). Furthermore, to be multiliterate involves developing an ability to structure texts in accordance with what you want to express depending on the purpose and audience and mastering technical and communicative strategies while being able to reason and reflect about the choices made. Another important aspect of multiliteracies is the ambition to encompass the expansion and diversity of communication channels and media, as well as the growing importance of cultural and linguistic diversity due to migration and globalisation (Cope & Kalantzis, 2012). Studies on multiliteracies and classroom context are very important. Björkqvall & Engblom (2010) have shown that unofficial computer activities (their term) guided by the interests of the child have learning potential, for example in offering

2. For an overview of reading and writing pedagogies in relation to new literacies, see Andersson (2011).

alternative ways of exploring affordances and semiotic potentials of the written mode versus other modes and how various modes contribute differently to the construction of meaning (2010, p. 290). Godhe (2014) studies the relationship between technology, literacy and the educational setting by exploring the activity of creating and assessing multimodal texts in the subject of Swedish at upper secondary school. Her main conclusions are that it is mainly the spoken word that is negotiated and assessed in multimodal texts and that spoken and written words are still regarded as primary in meaning making. Other modes of expression are largely overlooked, which makes it difficult to evaluate the potential of multimodality in the educational setting. Jewitt et al. (2009) show that images and sounds became increasingly important in the educational context in Great Britain during the first decade of the 21st century, but teachers and pupils' use of multimodal resources reshaped that what was being learned. Several studies emphasise the tension between the need to use alternative modes of expression and the lack of educational design in digital environments (Cope, Kalantzis, McCarthey, Vojak & Kline, 2011; Luckin et al., 2009).

We describe our classroom practices from the perspective of multiliteracies elsewhere, and show how young children choose semiotic modes in relation to various school genres (Lyngfelt et al., in press). In this paper, we are primarily interested in how screen-based practices in three different classrooms relate to the characteristics of new literacies as described in previous research.

DATA AND METHODOLOGY

As a part of the longitudinal project [DILS]³, the study is designed as a multiple-case (Yin, 2012) and follows three Year One classrooms at three public primary schools (named South, North and West) in western Sweden through Year Three of schooling. When observing the literacy practices in these three cases, the empirical material was collected in accordance with Heath and Street's (2008) methods of relating educational issues to ethnography in education, situating literacy in the context of social practices. The ethnographic techniques include video recordings of participatory classroom observations, field notes, photographs, semi-structured interviews and collections of pupils' text compositions (Kawulich, 2005; Emerson et al., 2011).

In this paper, we present analyses of literacy activities in these three classrooms during the first year of the project based on the classroom observations and texts produced by twelve focal pupils (aged 7–8), four from each class, equally distributed with regard to gender and academic achievement. The collected text-material consists of about 500 screen-based and handwritten texts. The observation sample was collected during focus periods following selected writing projects that were part of the syllabus for the classes. Altogether, 19

3. *Digitala arenor i läs- och skrivpraktiker i grundskolans tidigare år* (Digital Arenas in Reading and Writing instruction in Swedish Primary School), funded by Marcus & Amalia Wallenberg Foundation 2012–2015.

days of observations of approximately 40 hours of video recording and a corresponding amount of close-up video clips were collected, making it possible to closely examine specific practices at both micro and macro levels (Walford, 2008) – see Table 1. During each classroom observation, two researchers were present to collect data, which not only enriched the empirical material with field notes and close-up videos of the teachers and pupils' work, but also increased the validity (Silverman, 2006) and trustworthiness of the settings (Shenton, 2004).

The nature of literacy practices was analysed in an iterative process with progressive refinement of findings within and between each category of data material (texts, observations). By broadening the observational material (field notes and copious video data) with text productions of focal pupils, we were able to capture the nature of composition practices over the whole time period rather than being limited to the selected observations (Walford, 2008).

TABLE 1. OVERVIEW OF PARTICIPATING CLASSES AND OBSERVATIONAL MATERIAL.

School	No. of students	Initiative	Content of observations	No. of visits*
South School:	25	Laptops	Water cycle	2
			All-about-texts	5
North School:	20 (L2-students)	Laptops	Post on blog	1
			Learning about professions	2
			Water-theme	5
West School:	37	Tablets	Christmas fairy-tales	4

* Corresponds to classroom observations of varied length in time.

The pupils in the three classrooms have access to laptops or tablets in school and the teachers have previous experience using technology in their literacy teaching. Two of the schools are situated in socioeconomically privileged areas (South School and West School). We describe the material and pedagogical context of the participating classrooms in the following sections.

South School

The class at South School has “a class set” of laptops and the pupils have their own accounts and access to the internet and the school’s Learning Management System (LMS). The laptops are equipped with standard software for word processing and presentations, as well as cameras that make photographing, filming and recording possible. This school is in a socioeconomically privileged area. Inspired by Lucy Calkins and the Teachers College Reading and Writing Project (TCRWP)⁴, reading and writing instruction in this class is generally process-oriented and based on workshops with explicit modelling

4. *Teachers College Reading and Writing Project* is a research and training project at Teachers College, Columbia University, New York.

from the teacher (Calkins, 1994; 2001). Whatever the content or subject, the lessons followed the model of an initial mini-lesson, during which the teacher models and gives explicit instructions on the learning point of the lesson, followed by independent work.

North School

The class at North School has a set of computers, laptops that they share with the class next door. Pupils work offline and have limited options for storing their work digitally on the computers. All of the pupils are non-native and speak Swedish as a second language. Teaching at North School takes the approach of retelling (shared) experiences, often including directed dialogue to the pupils and modelling. The lessons we observed generally began with an introduction of the learning point addressed to the entire class. Writing tasks are based on texts the pupils are familiar with and experiences they have in class, such as a visit from the fire and rescue service and the equipment used by firefighters. Their work with computers is inspired by the Writing to Read program (WTR-model, Trageton, 2005). Handwriting is postponed to Year Two and pupils work in pairs in different configurations and write on computers using a word processor. They print their composed text, paste it into their composition book and add a hand-drawn picture to the text. Thereafter, they read their texts aloud.

West School

West School is a new primary school that aims to provide pupils with a variety of digital tools from preschool on. Starting in Year One, pupils have access to individual tablets with access to the Internet and the school's LMS. Two teachers, one specialising in maths and science and one in Swedish and the social sciences, share responsibility for the class. The teachers are not strictly bound to one method of reading and writing instruction, so they use a blend of methods. They refer to influences such as the WTR, the Whole Language Approach and sociocultural approaches to literacy with respect to Strandberg's attempt to concretise and implement the theories of Vygotsky in Swedish schools (Strandberg, 2009). As at North School, handwriting is not taught during the first year of schooling.

RESULTS OF THE STUDY

Our study of the characteristics of and progression in the approach of introducing screen-based practices in early literacy teaching is based on analysis of observations of classroom activities and texts produced by twelve focal pupils during the initial years of schooling. The observed screen-based practices are then discussed further in relation to the central characteristics of new literacies as defined above.

Approaching screen-based practices

The ways pupils are introduced to and engage with screen-based practices differ significantly in the three classes. At South School, pupils are introduced to screen-based activities by recording themselves while they read aloud. They begin composing digital texts after a term of handwriting and letter and word exercises. On computers, the pupils begin by composing colourful word lists and experimenting with fonts and type styles, writing single sentences and poems. The pupils produce narrative stories over a period of several weeks in a process of planning, writing and revising a text on a computer. Mind-mapping is introduced as a print-based presentation of the seasons of the year. The pupils also try text messaging for an assignment on explaining the water cycle by sending a personal instant message (PIM) on the school's LSM to the teacher using the words *evaporate*, *vapour* and *cloud*. In Year Two, a theme called "All about texts" is introduced, where the pupils choose to write about facts they already know a lot about. Mind-mapping and presentation software are introduced on separate occasions when pupils experiment with the software. Texts and software are introduced gradually at South School in an exploratory phase of the genre in print (e.g. mind-mapping). Various text types are further "attached" to certain digital activities and software. For narrative texts, a word processor is used only for writing, whereas when reporting on facts, digital presentations are used with written facts and images as complements. Almost all texts are produced individually.

North School and West School apply a digital approach to literacy instruction from the outset without first involving print-based technology or handwriting. At North School, pupils often compose short screen-based texts in a word processor and use the computer as a typewriter. Literacy activities in this class are conducted as collaborative efforts where pupils type in pairs to compose in a word processor, print the final text and paste it into individual paper books, then each draws a picture for the text. The composed texts are further used as reading material when the pupils practice reading and read their texts aloud in front of the class. As all pupils in this class are non-native speakers, images play a central role in literacy instruction. A majority of the texts are based on an image that the teacher prepares in advance. Furthermore, the content vocabulary is often prepared by the entire class by drawing and writing words on the interactive board. The initial texts follow a pattern of recurring phrases such as "*We like*" and "*We do not like*" and recount events they have experienced at school or during leisure time, such as "*We have seen*", "*We played football*", and "*Visit from a firefighter*". Some texts are individual and some are co-produced with a classmate. During the second term, the teacher introduces the class to blogging with a class blog that has posts of class activities and homework as well (see next section).

At West School, pupils are introduced to all kinds of screen-based writing and imaging applications that promote multimodal digital composition and flexibility in the choice of composition software: word processing, simple text applications, text applications with speech synthesis, presentation, book cre-

ating, etc. Pupils are also given strategies and instruments to handle images digitally and save their work early on. They learn how to search for and insert images into a text and how to take pictures on their own using a tablet. During the first term, the pupils are introduced to sending email and in the second term to creating folders and uploading files on the learning platform to document their work. The class also has a Twitter account where they write about events of the week. The first texts produced are factual reports about things like animals and trees, as well as images recounting whole-class readings when the teacher reads aloud. At the end of the first term of Year One, the pupils compose digital narratives with a Christmas theme with all kinds of elves as main characters, combining writing, images, drawings and in some cases even sound files when pupils read their texts. Texts are produced individually and in pairs and are used as reading material in the class or as homework.

In summary, digital approaches in early literacy assume diverse forms of sequential or infused ways of introducing pupils to digital composition depending on the role of digital media assigned in teaching, the pupils' needs and the technological prerequisites, i.e. which technology is used and how it is organised. When paper and pen are seen as a necessary prerequisites to creating texts on screen at South School, the instruction begins with writing by hand on paper and the pupils are only later and gradually introduced to working on computers. Digital literacy is still a goal in this class and pupils learn to handle various applications, but it is not a means to literacy development. At the other two schools, when pupils produce digital texts from the very beginning in order to decode, it is instead a matter of the infusion of screen-based practices that use digital media as a means for literacy work. The goals may, however, still differ. With the necessary focus on developing communication and language in non-native pupils at North School, digital skills are not the goal per se and the class is confined to word processing. The technical situation of having computers with no accounts or access to the internet also ensures simple use of the computer as a typewriter. By including digital skills as a goal in literacy instruction and by guiding pupils in the use of applications at West School from the very start, they encourage pupils' awareness about choice of media. Pupils develop a greater sense of responsibility and control over their learning.

TABLE 2: DISTRIBUTION OF SCREEN-BASED PRACTICES

School/ Term	South School: laptops	North School: laptops	West School: tablet computers
I.	Video-reading	Word processing	Word processing Presenting Book creating Pasting images Audio-recording Video-recording Tweeting Mailing Archiving
II.	Word processing Text messaging Video-reading	Word processing Blogging	Word processing Presenting Book creating Pasting images Audio-recording Video-recording Tweeting Mailing Archiving
III.	Word processing Mind-mapping Presenting Video-reading	Word processing Blogging	

Screen-based practices and new literacies

In this section, we discuss screen-based practices in relation to the central characteristics of new literacies. At South School the pupils mainly work with word processing during Year One, focusing on conventional tools for producing letters, words and sentences. Text-producing tools such as the iWork applications *Pages* and *Keynote* include “new technology stuff” in the sense meant by Lankshear & Knobel (2011) because the pupils can rather easily learn to use a strictly finite set of physical operations or techniques such as keyboarding, clicking, cropping, copying, inserting and dragging. The applications allow the pupils to enhance and edit the design of texts rather easily. However, the writing activities are conventional in the sense of genre and individuality and with regard to the nature of the writing task, with the teacher being the main recipient. Word processing activities at South School mostly emphasise conventional print-based activities. The LMS used at South School has some tools built in, such as the PIM function. For the task of writing explanations of the water cycle, the pupils collaborate in front of the computer similar to the way pupils work in pairs on the computer in the WTR approach (Trageton, 2005). However, such collaboration is bound to the physical space (the classroom), where the pupils sit next to each other. After they write a couple of explanatory sentences, the pupils send a PIM to the teacher and then get a response from

the teacher sitting just a couple of metres away. It is an interesting approach for work-effectiveness with response in writing, but in this case the application is not actually used in terms of a new literacy. The pupils could have written their explanations on a piece of paper, given them to the teacher and had them handed back. The boundaries of space and the desired school-genre limit central aspects of new literacy practices. The LMS is created by a source of authority and made available to the pupils with limited scope for collaboration and knowledge sharing. To fully use the potential of this system one needs to include functions approaching a more collaborative, open and fluid platform like a wiki, where the pupils can write together to share knowledge, read and comment on each other's texts and create multimodal expressions. Exactly what is possible and desirable in early literacy instruction is, however, not self-evident. Lucy Calkins's instructional approach (TCRWP) applied in this class focuses on scaffolding activities and is highly teacher-controlled. Employing such an explicit model of writing instruction – as good as it may be – seems to prevent literacy practices from being open, collaborative and distributed. It is, however, an interesting challenge to integrate such pedagogy with the rapidly changing text landscape.

As discussed in the previous section, the literacy practices at North School during Year One are mainly connected to word processing and the WTR approach of having children write in pairs on the computer (Trageton, 2005). Early activities include playing with alphabetical characters, changing fonts and identifying certain letters.⁵ The documents are usually printed out by the teacher and in most cases the pupils add hand-drawn pictures afterwards. This means that the nature of new literacies included in these early activities is restricted to the use of the keyboard mainly as a substitute for the pen. Of course, the pupils may easily paste, copy and modify written texts, which they do to some extent. Furthermore, they sometimes change fonts and text layout, but do not explore the more sophisticated functions of inserting images, figures or sound because of the focus on drawing pictures by hand. They also work offline; something that the WTR method recommends because of all the distractions pupils may be exposed to on the Internet. On the other hand, the class has started a blog. During the introduction period, it is the teacher who maintains an authoritative position by posting comments recapping weekly class activities. After a learning period, the pupils post their own comments on the blog and insert video clips and pictures that show various activities at school. The blog is open for all to see and anyone may post a comment or ask a question. Earlier studies show that the use of blogs often tends to maintain a format of traditional activities and is mainly an alternative arena for the teacher to ask questions for pupils to answer in the blog (Hicks & Turner, 2013). At North School, however, the use of the blog tends to open the activities to the outside world. Family members and the head teacher have posted comments. The pupils' experiences and opinions are more distributed than with conventional word

5. These activities are central to the WTR approach and most likely also take place in the other schools but were not explicitly observed.

processing, which makes the activities more closely aligned with new literacy practices as defined above.

Pupils at West School use tablets from the very beginning while learning to read and write. This means that the pupils are allowed to try out various applications in relation to, for example, narrative writing. Multimodal composition is rather easy with tablets in applications like *Book Creator* and *Picollage*, which do not require any special skills of the pupils. The pupils take photos or video clips and can attach them to the written text in a few easy steps. The pupils are generally encouraged to work with pictures, sounds and video clips, which pave the way for a multimodal and digital classroom. They choose different modes to personalise their work to a certain extent; some pupils always begin composing on screen with a written text, whereas others choose to start with pictures or sound. However, similarly to the other classes, the literacy practices are characterised by relatively conventional writing tasks in physical space, which do not directly promote aspects of online collaboration, sharing and new digital genres such as hypertext. Conventional genres, such as narratives and factual reports in a writing tool application, dominate the work in the classroom. One interesting activity is the class Twitter account, which they use to reflect on learning activities to communicate to their families (and others who may be interested what they have learned as well as their weekly activities. Of course, the pupils are not allowed to post any comments they like, but are rather given guidance and structure from the teacher. Tweeting is also restricted to a specific time and place, usually Friday afternoons when they are recounting the week. To sum up, all of the schools work with screen-based literacy activities, although in different ways and to different extents. The blog and Twitter activities at North and West schools contribute to new ways of expressing content and in some ways move literacy practices towards a more open, multimodal and collaborative writing space. However, most of their literacy tasks, both print-based and screen-based, are still conventional in nature with respect to genre, process and recipients.

DISCUSSION

Conventional school genres dominate the reading and writing activities in each of the observed classes. The screen-based practices have only marginal characteristics of new literacies, which signals that the uniformity of school genres is not easily changed. All three classes work with “new technology stuff” and screen-based activities. They do so in rather different ways depending on their aims and methods. South and North Schools follow more traditional reading and writing methodologies. Consequently, the central characteristics of new literacies are not easy to attain in the observed schools. However, both North and West Schools are moving towards more open, participatory and collaborative writing spaces by setting up blogs and Twitter accounts. At North School, the increased openness has great potential for second-language learners as they realise that their opinions and experiences are important for all to see and

respond to. The class Twitter account at West School is another example of an open writing space leading towards a new ethos in the sense of Lankshear and Knobel (2011). One might question whether Twitter is the most relevant arena to use during the first years of schooling. Clearly, West School does not use predominant, conventional teaching materials since the tablet computer is their main learning tool for teaching literacy from the outset. On the other hand, the teachers at West School must carefully consider how activities such as tweeting are relevant in relation to learning targets and curricula standards. For example, freely exploring the functions of online forums and various applications may not be obviously relevant for attaining writing targets in various genres that have rather rigid structures, such as narrative and explanatory texts. They have to consider what to write online, when to write and for what purpose. In our view, the purpose of recapping and reflecting on weekly activities in relation to learning targets is a thoughtfully arranged use of Twitter.

Summarising learning targets and other learning activities online allows the pupils to participate in literacy practices that are in a way more authentic with real recipients. Attempts at engaging in open spaces (blogs, Twitter), and engaging with an audience outside the classroom occurred both at North and West Schools. Leaving the classroom space and receiving contributions of various out-of-school experiences, such as comments posted from home on subjects not necessarily initiated at school, may be a further step towards a more distributed use of the blog. Of course, it is necessary to have pedagogical ideas concerning how and why online forum interfaces, such as blogs, wikis and Twitter are used in early literacy instruction. Screen-based genres are structured in a wholly different manner than conventional school genres. Moreover, the main aim of literacy practices in these early years is to teach the pupils to read and write. Teachers are relatively strictly bound to criteria and curriculum targets, which limits opportunities for more advanced literacy activities in terms of the “new ethos” because they are too complex or time-consuming. As shown, the Swedish curriculum is highly focused on conventional texts and genres such as narrative, instructive, descriptive and explanatory texts. Digital technology is not a simple, magical solution for today’s schools, but it is important that new forms of communication are integrated into an overall understanding of literacy (Hicks & Turner, 2013). The development of educational models is interesting in this context, such as the Australian Genre School in which pupils practice more advanced genres used and favoured by the society’s powerful elite. The potential of such pedagogies should be possible to integrate in screen-based practices. Modes of expression other than writing may be explored in relation to different metafunctions (see chapter 2.), such as how and for what purpose animations, sounds and images can contribute to the notion of interpersonal relations. For example, it should be possible in school writing to relate to the form of hypertext to some extent as it is portrayed in screen-based texts. In an American classroom study of web-based writing, pupils were given the task of writing an argumentative text (i.e. a conventional school genre) on a multi-paged website using links, animations and graphics (Edwards & McKee, 2005). However, the integration of conventional school

genres with the great myriad of new digital literacies is not an easy task in the educational context. A primary teacher's frustration over this matter is expressed in Kist (2007):

But how did I juggle all the “jobs” I have as a teacher? Lessons plans, faculty observations, Praxis III, standardized test preparation, district curriculum maps, chaperoning school dances, first-year teacher confusion. And new literacies. (p. 48)

The challenge is to make school tasks relevant and interesting for pupils at a time when conventional school texts may seem irrelevant and rather empty (Hernwall, 2010). It is also an important point in relation to the investments that are continuously being made to implement computers in Swedish schools (see Karlsohn, 2009).

Reading and writing research must therefore, to borrow Lewis's (2010) term, “remake” itself by studying what happens to literacy activities in the digital media age. We would also argue that it is necessary to examine how cognitive aspects of learning to read and write, such as background experiences and metalinguistic awareness, interact with screen-based practices and socio-cultural settings. Knowledge gained from cognitive neuroscience suggests that mental abilities or executive skills related to working memory and attention are essential to reading comprehension and writing development (García-Madruga et al., 2013) and can be explicitly taught and supported by digital technologies and virtual environments (Fälth et al., 2013). Central questions in this context are: What happens to early literacy development when reading and writing instruction goes online, and how are pupils' text awareness and reflective learning influenced? Pedagogical practice in Swedish classrooms has been criticised for not being effective enough based on the research conducted in language and science education over the last twenty years (cf. Fast, 2007). We need to initiate a discussion about which literacy activities will constitute the basis of schooling in modern society. The potential of out-of-school literacies has indeed been emphasised in research (Jewitt et al., 2009; Olin Scheller & Sundqvist, 2015), but it is also important to study how traditional school genres may be instructed and learned in digital environments. Research in the field of new literacies should therefore ask questions central to established approaches to reading and writing pedagogy from both a cognitive and social perspective. By considering various perspectives and the multifaceted literacy activities that are predominant among children and young people today we can achieve the goal of having citizens with rich communicative competence in the future. To quote Hicks & Turner (2013), “digital literacy can't wait”.

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