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## **Creative writing on computers, grade 1-4. Playful learning (1999-2002)**

### **Abstract**

There is a lot of research on the use of computers in schools, but rather few projects about creative writing on computers, and the connections with play theory are weak.

Problems:

(1) How to develop playful computer writing in language learning for lower primary school children? (2) How to build a database of the text production? 3) Will playful computer writing in grades one and two (and delaying the formal teaching of handwriting to grade three) lead to better performance in writing and reading than the traditional teaching methods?

My project is an ongoing longitudinal action research study over three years in 13 schools in Norway, and also in Denmark, Finland, and Estonia. The children develop creative writing in a playful mode on computers from grades one to four in Norway, (preschool and grades one to three in the other countries). Development is documented and evaluated by examining the children's texts and drawings and through video registration. Letter knowledge tests are used.

Results indicate that through playful learning the children have taught themselves most of the letters and have also learned to write and read before the formal teaching starts in grade two. The finding that computer writing also made reading easier is congruent with the American "Writing to Read" projects. The traditional reading and writing program and the traditional handwriting programs appear unnecessary.

These results will be discussed in relation to the learning-centred play in our National Curriculum, and in relation to play theory. The project may lead to changes in literacy teaching.

### **Background**

Our new National Curriculum (L97) order creative activities, *play* and work as main learning methods in the informal learning for the 6-10 year olds. This means not "free play", but the teacher should make good frames and a cultural climate for structured play or learning-centred play (Moyle 1994, Trageton 1997). The Norwegian language curriculum is strongly inspired and influenced of the creative writing didactical research in the Trondheim area (Moslet 1999, 2000), where oral language and dialogues have got a more important position, and creative writing is knit tighter to the reading.

For twenty years my Workshop Pedagogy have been practiced in the Norwegian Lower Primary School (Trageton 1994). This pedagogy is inspired by The Laboratory School in Chicago from 1896, (Dewey 1899), Integrated Day in England in the Primary Schools (Brown/Precious 1969), Gardner's (1983) multiple intelligences, and Eisner's (1996) stressing the different expression modes in concept formation. The children are representing their experiences in different expressive languages: Constructive play, dramatic play, drawing, writing, reading and doing maths around the same theme. I found that handwriting was an insufficient and unpractical tool for the little child to tell the long story about their

experiences within the chosen theme. After the computer revolution and the word processor the situation have changed. Now you also can play easily with the letters!

The computer revolution has changed society radically the last 30 years. The computer is ordinary furniture at home besides TV and video for 70-90% of the 6 year olds in grade 1 in Norway. The children have been *consuming* a huge mass of TV, video and computer games before starting school. But computer based learning still play a minor role in the Norwegian schools. Our Department of Education have now used a lot of money in material resources and teacher courses to inspire the schools on all levels to more focus on computer-supported and computer-assisted learning. In 1997 there were 30 students per computer in Primary/secondary School, in 1999 there was 15 students per computer, 2 computers as a mean in every classroom.

Computer-assisted learning is most usual at university, high school and secondary school. In lower primary school (6-10 year olds) "drill and practice" programs have been of some use. Erstad (1998) concludes that most of the IT innovation projects in Norway use a traditional view on learning, in contrast to the social-constructivist view in our new National Curriculum. Such projects therefore have little relevance to the local based, cross-subject learning our new National Curriculum from 1997 demand, because the program control the child, like the traditional teacher and standard textbooks. In contrast a simple word processor program is an open-ended tool where the student control the program. This is more in tune with a modern social-interactionist view of learning. The children can get a powerful typewriter for *production* of own thinking and meanings, instead of *consuming* the textbooks or adult constructed "pedagogic programs". IT changes to ICT (information *and communication* technology).

The text program takes over as writing utensil instead of the feather pen from the 1850, the steel split pen from 1920 and the ballpoint pen from 1950. I guess that outside school the *main advantage* of the computer in society is in text production and reading, not the more complicated use of computers. Computer writing on word processors is the normal communication on most places of work today in contrast to the dominating handwriting 60 years ago. When our grade 1 students leave our compulsory school about 2010 the computer writing will dominate even more. The necessary computer competence at that time we know very little about, but I guess that a higher level of writing and reading will be a central factor to construct own meanings in the electronic networks, and read and chose among the huge mass of written information.

When the home and society outside school use the computer as a word processor, why should not the 6 year olds start their school writing with print letters instead of time consuming, imperfect handmade letters? In our project we start the writing process on computers for the 6 year olds, and delay the formal teaching of correct handwriting to the 8 year olds. For 6-7 year olds, handwriting is a hard, boring and difficult technical process. One reason is that the fine-motor skills are not fully developed at that age, especially among boys. Using the computer as a word processing tool is better for children (Keetley 1996). The children learn the same letterforms as they find in all reading books. The children can therefore concentrate on *the content* in their written message instead of the forms of the letters. The children are learning more central things in language: To talk, to discuss, to write and to read stories.

According to our new National Curriculum (L97), creative activities, *play* and work shall be the dominant learning methods for the children. Already after the first year in the reform, this was generally accepted in the schools in Norway (Trageton 1999, Helming 1999, Hagesæter1999)

The student start playing with the keyboard and produce an enormous mass of letters and letter strings in a short time. He will quickly learn 20-29 letters (or the letters most useful for

his thoughts). Later on his letter strings can develop to millions of different personal texts in the different genres, without being bothered by the technical problems with more complicated computer program, often of less educational value for lower primary school. Oral language, text creating and meaningful reading have a central place in our new National Curriculum. The traditional focus on formal, mechanical training in writing and reading without meaningful context is strongly reduced.

But our project is not only about typewriting contra handwriting. It is not only better language learning. The 6-10 year olds in Norway have now an excellent tool to document the quality on the total theme organised cross-subject learning in lower primary school, where art activities, play and work are the dominating methods (Trageton 1997)

Earlier projects done by my students in postgraduate studies for lower primary school is the background for the project (Strand 1993), but these experiences need to be documented and evaluated in a more controlled research. My strategy is the opposite of the traditional practice in Norway where handwriting is learned first, and computer writing comes later, perhaps in grade 4.

### **Problems**

1. How to use computer writing in language learning for lower primary school?
2. How to build up a database on Internet of the writings of the children through grade 1-4?
3. Will concentration on computer writing in grade 1 and 2 and delay formal handwriting to grade 3 give better results in Norwegian language?  
Will that be true for both oral and written expression, and for meaningful reading?

### **Earlier innovations/research**

#### **Have computers in school learning effect? The consumer ideology**

In spite of 30 years innovations of computers in school, relatively few evaluations of learning effects exist. Forman (1998) criticise strongly the mindless "push and see" programmes without learning effect. Silvern (1998) urges educators to resist using computers primarily for practice and didactic materials, as trite electronic books and meaningless electronic drill- and practice worksheets. Surfing on Internet, where 95% of the information is commercials, may end up in wasting time, doing surfing and learning nothing (Wilson, 1997/98). The Observer 24.10.2000 are referring from an international research group concluding that especially programme packs with computer games and CD-rom for young children are destroying creativity. In Denmark Larsen (1998) criticise the same "pedagogical programme packs" to be useless, old-fashioned, behaviouristic pedagogy in modern, electronic package. He regard only simple tool programmes useful for learnin

Healy (1998) has 30-year background for computers in school. She is scared of the blind beliefs of the worth of computers in school, and sums up varied reports about misuse of computers in schools overall in US. She refers to the reactions from therapists who warn against the damages on small children with one-sided consuming of adult controlled computer software, both at home, and now also an expanding area in school. This is like multiplying hundreds of TV channels, where the "push and see" syndrome, and the switching from one channel to another destroy the concentration of the children. This tendency becomes strengthened in so called "pedagogic program packages" of behaviouristic type. Healy says she would not recommend to spend time at computers before 8 year olds, because it take time away from more valuable activities, where concentration is trained, for instance in a long-lasting constructive or dramatic play. However, heavy advertising of

commercial “play and learn” programmes make just such programme packs common in preschools and lower primary schools, also in Norway.

Healy has found rather few evaluations of learning effects of computers in schools, and she refers to different authorities questioning the validity of many of these evaluations. Much of the research is sponsored by IBM etc. and is made of “computer people” and school bureaucracy interested in good evaluations. In spite of Healy and others sad results, the government, politicians, parents, and of course computer industry, TV stations and commercials all believe that computers in schools are necessarily good for modern learning. The child as *consumer* of pedagogical programmes has been dominating many of the innovation projects. The most serious problem is that the huge investment in computers, give very little money and interest left for other valuable area of school, for instance further education of the teachers, the arts, play and books to the libraries, Healy says.

Conclusion: Though the advertising for such “pedagogic programme” packs love the word play, in my opinion this is very far from the spirit of play, where the child have the control.

*Children as producers. The computer as a tool for creative writing.*

In Norway the Department of Education have funded a long row of innovation and research projects. Now they are trying to inspire to projects with a more social-constructivist view of learning (Vygotsky 1978, Lave/Wenger 1991) where the child produce and construct his own knowledge together with his classmates as a common learning society (Ludvigsen 1999). *Stord/Haugesund College* is a national centre for use of information technology in learning. The department have funded a large project about computer based learning for our teacher students (2000-2003). The most important principle is simple; to use the computer to get better written communication to knit practice, theory teaching on campus and own studies more together (Engelsen/Eide 2001). But there are few projects in lower primary school, and almost none about creative writing in lower primary school! (My project has been funded partly from the Department of Education, but mostly from Stord/Haugesund College).

Also internationally, there is surprising little research in this special area. For example in ERIC, the well known pedagogic database, I found 60 000 projects about computers in school, about 20 000 in primary school, but the combination «computer projects + primary school + *writing*» gave only 115 projects! Only 20 of these were for the age group 5-9 years. None of these had any contact with play research! I think that some explanation might be that the computer specialists are more interested in complicated use of the computers, eventually “playing” with complicated technology, and the teachers in lower primary school are more interested in the traditional handwriting than computer printing for 6-7 year olds. A lot of the 20 projects were related to the huge efforts made by WTR (“Writing to read”) projects in many American States the last 15 years for the 5-7 year olds (for instance Willovs 1988, Chambless & Chambless 1993, Driscoll 1997, Singh 1997). My pedagogical view is quit similar to WTR. I believe like Chomsky (1982) that writing is easier than reading for most of the children. Therefore writing should come first. Through their own writing, the children also read and reformulate their own thinking. They learn reading through their own texts. Later they can also read and understand the thinking of other people in different types of picture/reading books.

But in contrast to WTR, teachers and children in my project are stimulated to use a more playful and informal approach to learning. WTR have also a much more complicated and costly technology than my project. We use old computers of different types, only with a text program. Therefore the schools get these computers very cheap or free. For the producers of computer hardware and software there is of course no business in using old, recycled computers and simple text programs. Maybe therefore they show little interest in research of my type.

## **Play – Writing - Computers.**

Quite opposite the “child as consumer” attitude, a main characteristic of play is the child as culture producer (Huizinga 1938, Sutton Smith 1990). But there are relatively few research projects about play in educational setting in Primary School (except for instance Hartmann 1988, Hall & Abott 1991, Moyles 1994, Pessanha A 1995) In US there is a long tradition for combining play and early literacy. Christie /Roskos (2001) makes a fine overview over the American research the last 10 years, and place them in a piagetian, vygotskian and the latest within an ecological frame based on Bronfenbrenner. Their view corresponds with the total learning climate I want in my project.

But what about computers? Will computer consuming only take time and energy from the more valuable play and learning activities? The big quantity of technological computer research projects in school in US is dominated of a consumer ideology. Rather few give an analysis about the relation to early literacy and play. But Liang and Johnsen (1999) give a good review over the relation between technology - early literacy – play, and conclude that computer software may give valuable development and learning for the 5-8 year olds also, *if the children become producers* in tune with play criteria:

- Positive affect
- Intrinsic motivation
- Process more important than product
- “As if” or non-literal attitude
- Exploration

I would add that for the 6-10 year olds not only the process, but also the product becomes more important for a long lasting high quality play activity (Trageton 1997, 2001).

They have following demands to software:

- Open ended problem-solving oriented
- Developmental appropriate in practice
- Strong relation to play

Among very few programmes filling this criteria is tool programmes like simple word-processing most important. Here the children have billions and billions of possibilities to variable combinations and messages by only pushing 29 letters! In the same research group Youst (1998) stimulated the 5 year olds in kindergarten to produce multimedia books and e-mail in a playful way with drawing- and writing programs to develop communication ability. In the Nordic countries Nielsen (1998) have for 10 years worked in a similar way with playful activities in the Danish PEPINO project for 6-year olds in kindergarten. In Sweden Klerfelt et al (1999) have concentrated on the *producer* role and playful activities. But these experiments demand more complicated and costly equipment, and the child needs more complicated training before he can control the expression and communication of his meanings.

My intentions are to develop a simple low-technological, cheap, playful learning strategy for writing/reading in the ordinary schools in Norway. Engelsen/Eide (2001) stress ICT as catalyst for connection and communication between teacher students. The same goals are central areas for my 6-10 year olds.

I also try to map the development of spontaneous *computer writing* among children (Schrader 1990) and compare with the better-established research in the development of spontaneous *handwriting* (Sulzby 1997, Christie 1999).

## **Project description (1999-2002)**

Ten classes (6 year olds) in different parts of Norway, three in Denmark, one in Finland and one in Estonia started in the project in the fall 1999. I follow these children for 3 years. They have in their classrooms 2-10 recycled, cheap or free computers, where only word

processing is possible. The schools got old computers from firms, from community and from parents. All writings shall be done in printed letters. Formal handwriting, usually taught in grade 2 in Norway, is delayed to grade 3. Our assumption are that the children then will learn formal correct handwriting much faster than in grade 2. We spare time to more important areas in language education.

There should always be two children together on each computer. This will stimulate oral language and discussions, helping each other with technical and writing problems. Beneath I show one example of a classroom with only 2 computers placed in the middle of the room. Here 4 of the children can use the computers at the same time. The rest of the class is divided in small groups in corners suited for theme work and play.



Fig. 1. Classroom organisation

They can play with clay, sand, blocks, rigid and flexible materials in the different corners (workshop pedagogy), they make drawings, and use the computers when these are free. Classrooms divided in play/work corners showed 50% more theme work and play than traditional arranged classrooms (Trageton 1999)

In grade 1 the children in all classes started spontaneous playing with the keyboard, and producing letter strings. Some meaningful words and sentences with invented spelling emerged. In grade 2 their invented spelling have developed into more complicated stories, gradually normalised to conventional spelling. In Norway grade 2 is the time for formal reading/writing. This became more or less unnecessary, because the children in these writing/reading stimulating classrooms learned themselves in an playful, informal way to write and read in grade 1, with the teacher as dialog partner and advisor scaffolding the learning process (when necessary in a Bruner/Vygotskian manner. In grade 2 the pairs on each computer continued to write and read with much oral discussion about the content in the writing in relation to the theme-organised learning. Then they helped each other while writing down the meanings. After that, they could give each other response to their first drafts to get better versions of the texts. Their texts became afterwards important reading materials for the whole class. In addition each class had a rich classroom library of children's books from picture books with a few words to advanced reading levels. The library of the school was also very much used.

In grade 3 and 4 they hopefully will write longer stories, make longer articles and books in relation to the theme the class are occupied with. But this is the task for the next school year.

## Methods. Documentation

The project is both descriptive and action research oriented (Elliot 1993, Mac Kernan 1998). Therefore the structure is relatively loose and open ended. We want to describe the learning processes to develop practice more in tune with our National Curriculum.

Problem 1 (see page 2).

A continuous process evaluation/discussions through 3 years in collaboration with the teachers in the innovation classes. Observations, notebooks/evaluations, interviews, video recordings and video productions of theme organised learning with focus on the resulting text productions on computers. Quantitative and qualitative analysis of the development in the text productions of the children.

Problem 2.

From grade 1 I have scanned 1500 texts/drawings to build up a growing database classified after school, grade level, sex and each student get an identification number. This database is on Internet, but at the moment only open for the members of the project group. Later it may be opened for all interested in the project. In summer 2001 I will scan in all the texts from grade 2. In summer 2002 I scan all the texts from grade 3.

Problem 3.

Tests on language level after 3 year in the "experiment" classes and "control" classes. The big problem is that there is no valid tests or evaluation norms on the quality of oral language, written language and meaningful reading developed in relation to the demands in Norwegian language learning in our new National Curriculum for grade 1-4. Such tests/norms ought to be developed, especially writing tests. Two Danish researchers are now developing such a test. International writing tests ought to be as usual as the international reading tests. WTR have developed some norms we can use as a starting point. Another Danish researcher (Brostrøm 1999) developed a 6 graded scale to measure level of children's oral stories. This was amazingly similar to Christie/Stone(1999) 6 levels of dramatic play by 5-8 year olds. This is a good start for developing norms for the content quality levels of computer writings.

## Qualitative results. Examples from the first year.

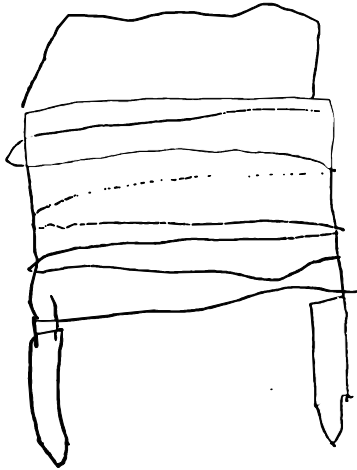
The 1500 texts are not ready analysed, but I show a few examples to give an impression of the development. The start period for the 6 year olds was free play with the keyboard and producing long rows of letter strings, with a personally invented "touch" method

Fig. 2. Letter strings

U FKFKV NK CJKSOVKSKBKXJJBUDJVBI DMBKDJ  
M DOMBIDJV KJSK GJM DKHKDKJNKDNKLDN , LF , BNLF , NI  
OFLHLHKRLYKR , RLHIJEKKGKJFKNKEKTLI FOGKHKRKJ  
UEUYRUEJBIDFJBICIKGJIGJGKHFGUGUGKJGKJKH  
BMNDJNGNEJGHEJGNRJHJRKGJRKJHIJ4JBIRUNUTIJI  
LBKHLKBKJIFKHIDJKHOKHIFIPUTJHOIG7OGPIOGLI=  
GJGJμlσl°jouohmbjkhvhhkhigohjhjjKBNKLJNLm  
kjkjojkjkhkbbbjbhi jkmmnnjgklghgbybyggjbi  
VLGFOOGOFKHRKBKROGHTYH20000

"We are hammering on all the keys!" the boys said delighted! *Hundred pages!* (It was seven, size 42 in letters). This is a very important experience. In a playful manner they became





Øystein hytta spiker klubb  
 yjlutjhjhguykrthgkjgfhfghjhfggkghk  
 hgjkghfjhkfjhkfhgfkghkghkhhkfhg  
 nvbmfgbfmhfghbbhgfhfgjfgbfghirky  
 g j gfjhgkfkhgglhkhkhkghkøhgkkkl  
 hjghgghghghnkhjljlhfglglfgfkjhgk  
 ykjgjfhlhjghlfjhlfjhjglhflglfhljgfkhh  
 hkfghjflglfhfghlglfjhidilfghjløkjgfojk  
 kk Helge Kjartan Halvor Håkon er  
 med i klubben

Translation:

Beginning: Øystein (his name) hut, nail, club

Midst: Letter strings

End: (Names of his comrades) are in the club

### "Invented spelling"

The development of computer writing follows roughly the same traits as in the development of handwriting (Clay 1975, Sulzby 1982), with some exceptions (Schrader 1990). With his knowledge about letters and sounds the child gradually construct his own spelling, often with some letters excluded, and a letter can represent two sounds in the letter name.

Example: hpe -> (say) hå pe -> (standard spelling) hoppe = jumping

Fig. 6. Invented spelling

sjur  
 eg har d kjekt på skolen  
 eg hpe ptrampoline

Translation: Sjur (name)

I have fun at school.

I am jumping on trampoline.

### Word division.

This is a parallel development. Just like in handwriting the sentence in an early stage is written as a continuous letter row, without word division. But when the child has discovered the word division principle, it is very easy for him on a computer to correct his first attempt using the space bar to divide the words. This is a much more serious problem in handwriting, where the child must write the sentence once more.

Fig. 7. Word division

eg var  
 på skulen og i gumsalen på  
 FRAMPU  
 EEGVAR Å BADA VER DAG  
 EG VAR Å SÅ P FIØM OM OLE DOLE OG DOFEN PEVTYRE

Translation:

I was

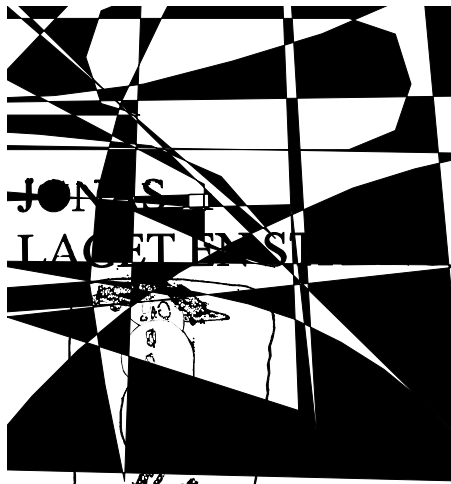
at school and in the sport hall at

FRAMBU (name)  
IWAS SWIMMING EVRY DAY  
I SAW A F ILM ABOUT OLEDOLE AND DOFEN AADVENTURE

### Themes

Gradually the themes in the class influence the content in the writings. Working with the Christmas theme two boys began making a story about what they were working with:

Fig. 8. Christmas theme



Translation:

Jonas at Christmas w  
Workshop.  
School.  
Jonas has  
made a string (clock string, a Christmas decoration)

BIRDS were the theme in another class. Some children began writing long texts in postcards. This girl made first a postcard in invented spelling to a titmouse. In the middle is the answer from the bird! And so the girl must make a new letter as reply to the bird!

Fig. 9. BIRDS. Postcard writing

**TIL SØTMEIS  
EG HPE AT DÅKE HARDBARA  
BRA LITLA SØMEIS**

**TVI  
TVITVITVITVITVITVITVITVITVI  
TVITVITVITVITVITVITVITVITVI**

**FRA EMILY EG HAR TAT Å LAGT  
KJØTTMEISKORN NEPÅ GOLVE DÅKE  
MÅ SPISA TEDÅKE E KJEMPEGOD OG  
METTE SLIK AT DÅKE KAN FLY DER  
DÅKE VIL. HELSING EMILT**

Translation:

To the titmouse  
I hope that you have it  
fine, little titmouse.

TVITVITVITVIT... (Answer from the bird!)

From EMILY. (Reply to the bird)  
I have placed some  
food at the floor. You  
must eat until you are  
full so you can fly where  
you like. Greetings EMIL T

This example shows already in January in grade 1 a transition from invented spelling to standard spelling! Two complicated words she asked the teacher how to write correct. Youst (1999) reported that sending e-mail to the parents gave good motivation. Some of our classes have tried similar strategies with good effects.

Writing on all these levels are heavily stimulated if the literacy activities are integrated in play situations in the different play/work corners (Christie J & S. Stone 1999)

## Conclusion

My preliminary impression of the development in grade 1 corresponds well with what Schrader (1990) have found in the spontaneous typewriting among English speaking children 5-7 years. In the well known research about handwritten development the progress goes from curve-like marks to invented symbols, to random letters and numerals, to organized letter strings to invented spelling and finally to standard spelling. (Clay 1975, Sulzby 1992) Like Schrader (1990) I found similar stages in computer writing, but because the correct letter forms is given in the program, the children are starting with letter strings and move much faster to invented spelling and later on to standard spelling. The stress on typewriting in a social context stimulated and heightened the qualitative levels of the written compositions (see also Sulzby 1999).

In relation to reading methods I use the same argumentation as Willows (1988) for the WTR program. He says that the reading methods have not changed much the last 80 years, but are only given new packages and new names. *Phonics* or a *whole word* approach has dominated. The third traditional method is *language experience* or *natural language* approach, in opposition to the artificial language in the two first methods. After discussing the strength and weaknesses in all three traditional approaches, he conclude that in spite of the big differences, a common trait for all three methods is that reading is primarily, writing secondary. WTR do quite the opposite. Writing is primarily, reading secondarily. Through their own writing the children learn the *phonics*, and also *whole words* in a *natural language* revolving around their own thinking, without the weaknesses in the traditional reading methods. They are writing to read.

The preliminary results from my tiny project support the argumentation of Willows. Through expressing their own thoughts in computer writing they quickly learn to read their own texts, and soon the texts of their comrades within the same theme context. Gradually the classes create their own reading books. The teacher may in the beginning help to write down their oral stories and gradually help their invented spelling nearer to standard spelling, before reading. That is easy to do on computers. In addition to these readings, the classroom library of different easy picture books with simple texts is very important. But the most popular reading books are the self-produced. The strategy of our project is in line with the social-constructivist view of our new National Curriculum.

What happened in grade 2? That is another story. However, I can shortly tell that playing “newspaper office” in the classroom with journalists, editors, newsmen, reporters, articles, jokes, comics, crosswords became very popular both among children, parents and the local community. Another important and long lasting play was “publishing house” where the teacher became publisher and economy director who refused a lot of manuscripts, because they were not ready yet. But she was also a kindly editor and advisor to help the authors to revise their manuscripts: fiction literature, factual prose and poetic genres. Afterwards the children got the role of proofreaders for each other’s and if necessary the teacher took the last proofreading. Finally the children and teacher discussed the pictures and proportions for the lay out and the front page, before the teacher publisher would sign the contract for publishing the 4 to 20 pages book. The children had hard jobs in printing and bookbinding 25 exemplar, and the marketing apparatus took care of the pricing of the books, set the royalty and discussed copyrights and purchase conditions. The advertising job became easy, since all the parents wanted to buy at least one book. In one of the classes this frame play lasted for two months! This strategy is inspired by Jim Christie and other researchers long lasting work to combine play and literacy for younger children (for example Roskos/Christie 2001)

2001-2002 in grade 3 becomes the last year in the project. The project will this year get assistance of a Norwegian language expert to assess the quality of the children’s writing capacity through the year and at the end of grade 3. She has now in three year studied the quality of children’s Norwegian language development from grade 5-7 (Ervik 2001)

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