

Arne Trageton

Creative digital writing

(6-10 year olds)

Writing to Read

1999 – 2016

**FinRA 3. Baltic Sea - 17th Nordic Literacy Conference
August 2016. Turku - Finland**

Pioner project - 4 countries
1999-2002 (6-10 years)

Results:

Higher writing level

Easier way to reading

Reduced reading problems

Better motivation for
writing/reading

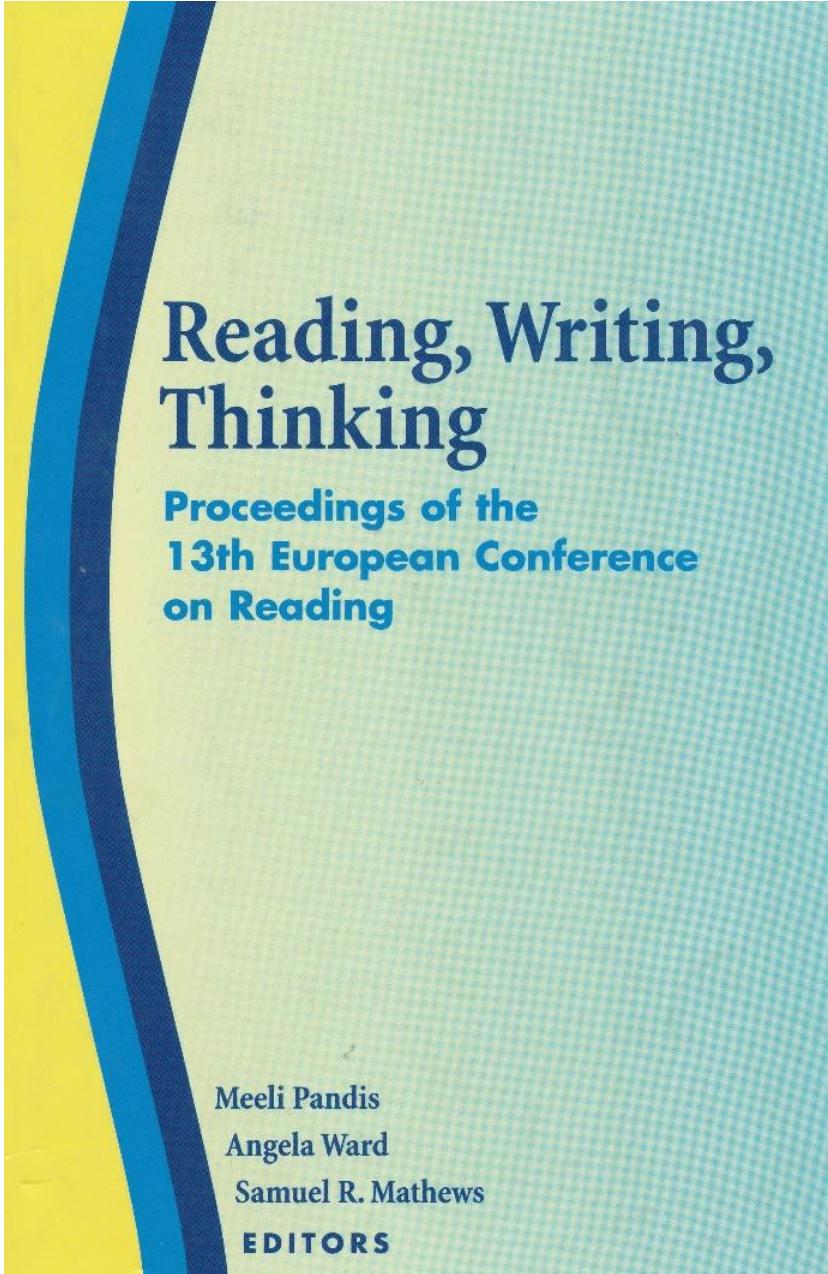
Better handwriting also!

Collaborative communication

**(Similar results in Nordic
and 38 US studier)**

-
Trageton, A. (2005) Creative writing on computers
6- to 10-year olds) Writing to Read

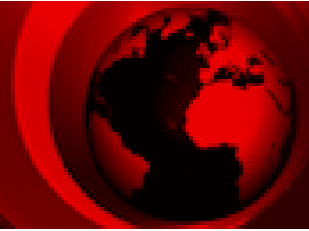
In Pandis, M. et al: *Reading, Writing, Thinking. Proceedings
of the 13th European Conference on Reading* pp 170 - 177.
International Reading Association. Newark. DE. USA



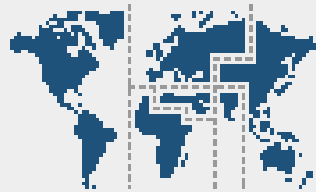
**Reading, Writing,
Thinking**

**Proceedings of the
13th European Conference
on Reading**

Meeli Pandis
Angela Ward
Samuel R. Mathews
EDITORS



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Last Updated: [Tuesday, 29 July, 2003, 11:22 GMT 12:22 UK](#)

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Learning to write without pencils

Six year olds in Norway are learning to write and read using keyboards and computers, rather than pencils and books.

Eighteen elementary schools in Bergen have moved away from handwriting training in the early school years.



Computers - next natural writing tools?

This could mean the death of handwriting lessons in schools within a decade or two, according to the man behind the project, Arne Trageton, associate professor in education at Stord/Haugesund College.

geton-ohjelma opettaa lapset lukemaan tietokoneella kirjoittaen

Perinteet velvoittavat Jyväskylän lyseossa

opettaja

3.10.2008

40

www.oaj.fi

PUUSTINEN
NISLA, KUVA

kirjaimet löytyy täältä
u helpommin, sanoo
okkalainen ja takoo
koneen näppäimiä.
opettelee lukemaan
tamalla.

tietokoneen ruudulla lukee:
HEI MEETÄ MORRI KITOS
VIEREISTÄ
OLI NINA
LÖYSYNE
PUU
VERESTÄ
3.8.2008
ELÄKÄSAM

teita esikoululaisen ja eka-
laisen muodostamia pareja
ntelele tietokoneiden ääressä,
ma pari leikkelee pöydän
ä tietokoneelta printattuja
irti paperista. Yksi pari on jo
nut leikatut sanat paperille ja
ittamassa sanoja.

sten työskentelyä seuraa
myös ohjelman kehittäjä,
lainen pedagogi Arne Tra-

vinen ja Varamo samoin kuin
laaja-alainen erityisopettaja
Mansikka ovat osallistuneet
onin järjestämään koulutuk-

Annika Tällöta ja Viktor Paldan
nukselta meni sönni suuhun,
ja erityisopettaja Meri-Tuuli
Varamo tuli opetus. Myös norja-
lainen pedagogi Arne Trageton
seuras, kuka kirjoita syntyy
kirje Metsämörille. Iiro Annik ja
Maksimilian Metsämörin etävät
kivan kirjaima ja kirje on
hyvältä alulla.



Tavaamisesta takomiseen

seen Helsingissä. Kaikki kolme
soveltaeneet ohjelmaa noita.

– Nyt opetamme kaikki
kirjoittamalla lukemaan. Ki-
maan oppii helpommin luke-
maan, ja tekstin tuottaminen
tietokoneella tehostaa selväst-
mista, opettajat kertovat.

Toinen toistaan opettaa

Järvinen airtaa tunnin alus-
kalle tehtävän. Lapset ovat
käyneet metsäretkellä ja lö-
Metsämörin kirjoittaman sa-
sen viestin. Nyt on lasten vu-
joittaa Metsämörille kirje.



Tulostettu teksti, sokset, värik-
muistikukka. Siinä hyvät kolut
kehittämisen välineet. Silten
miekkaukus kietoon!

Esikoululaisten ja ensi-
laisten muodostamat pari-
vät tietokoneiden ääreen ja
heti naputella. Yhdessä mie-
maistellaan ääneen, mitä
taan ja miten. Mikä kirjain
vaksi ja mistä kohtaa näppi-
se kyttyy?

Yhdelle ruudulle ilmesty-
asti monta sanaa: HEI
VOITKO SYÖMÄÄN KOULU-
TOS KIRJEESTÄ. Viereisen
ruudulta erottuu alku: L
MESNPUUNALTA. Yhtee-
tiin on tehty jopa loppu-
PS MINKÄ LAISTA ON ASU-
SÄSSÄ MORRI LÖYTYI PUU-



Newspaper Interview:
Gun Oker-Blom. Utbildningsstyrelsen.
National School Department

Ett decennium av norsk pedagogik

Publicerad: 03.06.2015 06.00

Arne Tragetons metod för att lära sig skriva och läsa föddes på nittioalet, och till Finland importerades han och hans idéer i mitten av millenniets första årtionde.

ÄMNESORD

- > skola
- > pedagogik
- > Gun Oker-blom

A decennium of Norwegian Pedagogy

The Trageton-strategy for learning to write and read was born in the 90ies. He and his ideas was imported to Finland ten years ago

Signing off: Finnish schools phase out handwriting classes

Joined-up writing lessons dropped in favour of keyboard skills, in recognition of changing methods of communication
Finland is one of the first countries to stop making cursive handwriting classes compulsory, but the change is part of a global move away from handwritten documents towards digital communication...in the US, many states have [removed cursive writing](#) classes from the curriculum.

Håndskrift er ut, tastatur «in»

Finske skoler faser ut håndskrift til fordel for tastaturkompetanse på første trinn. [Norwegian TV](#)

- De skal bruke mer tid på å lære seg tastatur- kompetanse, som er veldig viktig for jobbmarkedet, sier Minna Harmanen i det finske utdanningsdirektoratet [til The Guardian](#).

Literacy: Reading dominance

Google Scholar June 2015

- Read and Write 636 000 hits
- Write and Read 58 800
- **Writing to Read 2280**
- **WTR. + Computer 1190**

Hattie (2010) 800 metastudier:

Reading 46 - Writing 5

200 years school tradition:

Reading - and writing

**Result: 20 % get
Reading problems +
Handwriting problems
(especially boys)**

Writing easier than reading

Emergent literacy - 40 years research

- Clay (1975) What did I write?
- Chomsky (1982) Write now, read later
- Teale & Sulzby (ed.) (1986) Emergent literacy, **writing** and reading
- Hall (1987) The emergency of literacy
- Christie J (1991, 2001) Play and literacy - playwriting
- Hagtvet (1988) Skriftspråksutvikling gjennom lek (**writing**/reading through play, especially 3-7 years)
- Lorentzen (2001) Barns tidlige skriftspråksutvikling (childrens' emergent literacy dominated by writing)

Computer writing easier than handwriting

- Willows (1988)
- Chamless & Chamless 1993 (WTR)
- Goldberg (2003)
- Kulik (2003)
- Trageton (2005)

Computers in School

Consumer reseach dominate

Earlier ICT research - ERIC (1999)

Computers, primary school	20 000 hits
+ writing	115
+ 5-7 year olds	20
”Writing to Read” by computer	15

The child as **consumer** = totally dominating
The child as **producer, the playlearner** =
almost non-existent

Student as consumer

IT -> negativ effect

Healy J M(1998) Failure to connect

- *Damaging effects by heavy consumption of internet, CD rom, play station –TV channels*
- *Internet: Push and see - Do surfing and learn nothing*
- *Metaanalysis 300 ICT reports: Little – none - negative learning effect*
- *Serious concentration problems*

Jonassen D H (2000) Computers as mindtools for schools

85% of "pedagogic software programs" are oldfashioned CAI/behaviouristic consumer type - Harmful for learning

PISA. ICT negative effect

- High density of computers
- Low learning results (ex. Norway)

- Low density of computers
- High learning results (ex. Finland)

ICT research (Koschmann 2001, Jonassen 2000)

	Learning theory	Instruction model
Computer-Ass. Instruction CAI	Behaviorism (Skinner-Gagne)	Programmed instruction
Intelligent Tutor System ITS	Information-process (Simon1979)	One to one interactive
LOGO as "Latin"	Cognitive-constructivist (Papert- Piaget)	Learning as invention
Computer-Sup. Collaborative learning CSCL	Socio-cultural learning theory (Säljö - Vygotsky)	Co-operative learning

Creativity - Play

- Divergent intelligence (Guilford 1950)
- Idea richness, flexibility, originality, fluency, flow, open, experimenting, entrepreneurship problem solving, playful, artistic (Cropley 1970)
- **New creativity wave.** (Csikszentmihalyi 1996, 2000). Reaction against convergent testing.
(ex PISA, national reading tests)

Christie J (2001) Research on play and literacy

Playful computer writing

- No "right answer"
- Children's creative/oral dialogues in pairs
- Discuss, produce, communicate billions of original *multimodal* drawings/verbal texts
(jf. Kress 1997, 2003)
- Letter strings, wordbooks, stories -
fiction/faction/factual prose
- Textproduction within all school subjects

Research problem:

Will playful computer writing
(6-10 years) and delayed
handwriting to grade 3
(8 year olds) give:

**Higher Writing quality and
easier way to Reading?**

Setting - Methods

- Grade 1-4 (6-10 years)
- 14 classes
- Norway, Denmark, Finland, Estonia
- Action research – R & D
- Observation, teacher reports, questionnaires (parents and children)
- 60 videos, 7500 multimodal texts
- Tests (after 3 years) comparing Creative computer writing - Hand writing

Qualitative development

Grade 1. Writing to Read very easy

GJKJGKTU|IJ|1234567890+DEHURFHFTYHURH
95RU8TY5IO5UTYOTI6JKTIFOI5OJI9TYIO
JOGU896YUJYJ5J5UY6STY54875H45UHTJEOJ
UI408J5HUM48U TIJOUHFJIFJHFB BVB
F8U94RHRH86T4RJ84UY
J5JIOTJIO™ROJITUT4JJUFYGYVUJ
HN4UHJH5JUIOU
RORJ5TIKJJHUU45UHHSANHNT5JTNHURJTH
RTKRRKK3KEOEIJ03JEP3H@O3UHRUJURY34
7Y384RT3UHEYUW3EYGEURTEURT6G3IRG
GEDIFEGI4FS8FTUERT7 DROIEGLJDUHSJII

39 U



PO NYTORSaftEN
SJØT VI MANGE
RAKETER STORE
OG SMO HØJE
OG LAVE
VI SJØT SMO
NOR JEG IKE
VISTE VA KLOKEN
VAR OG
VI SJØT STORE
RAKETER KLOKEN

12

Letter strings. Letter hunting

Dictionary- Wordlist

Story

Grade 2. Producing own textbooks and newspapers. Library important



DE VAR ENGANG
AT PIPPI SKO
HA SELSKAP
OG HO SKOLE
JI BREVET TIL TOMI
OG ANIKA



HORN SOM EI KU SKJEG SOM EIN
GEITEBOK MAN OG HALE SOM EIN HEST
ÅG PUKEL SÅM EIN KAMEL.JA GNUN ÆR
VIRKLIG EIT MERKELIG DYR.EIN GÅNG I
ÅRE KOMME TUSENVIS AV GNUER
VANDRANDE PÅ REKE ÅG RAD TIL MASAI
MARA.



BÅTULYKA

DET VAR EIN BÅT SÅM
DROKNA OG ALÉ FOLKO
ROPTÉ IELP. OG NOGEN
FOLK DØDE. NÅKEN
BLAI REDA.



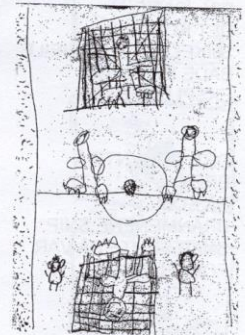
Nyhet

To tog kræsja i tunelen.
Det begynte å brenna.
Alle fálka døde.

skuleraport
ute i frimenut spelar eg
fotbal. eg står i mål. di
andre spelar ute.

sport

suldal 1 var på jelsa på
tysdag 8 mai.
suldal 1 tapte 5 -2
me vant mot erfjor
8-0.
Suldal 1 mot Sand 2
0-14 tap. Suldal 3 mot
Sand 1 1-7 tap.



Side 7

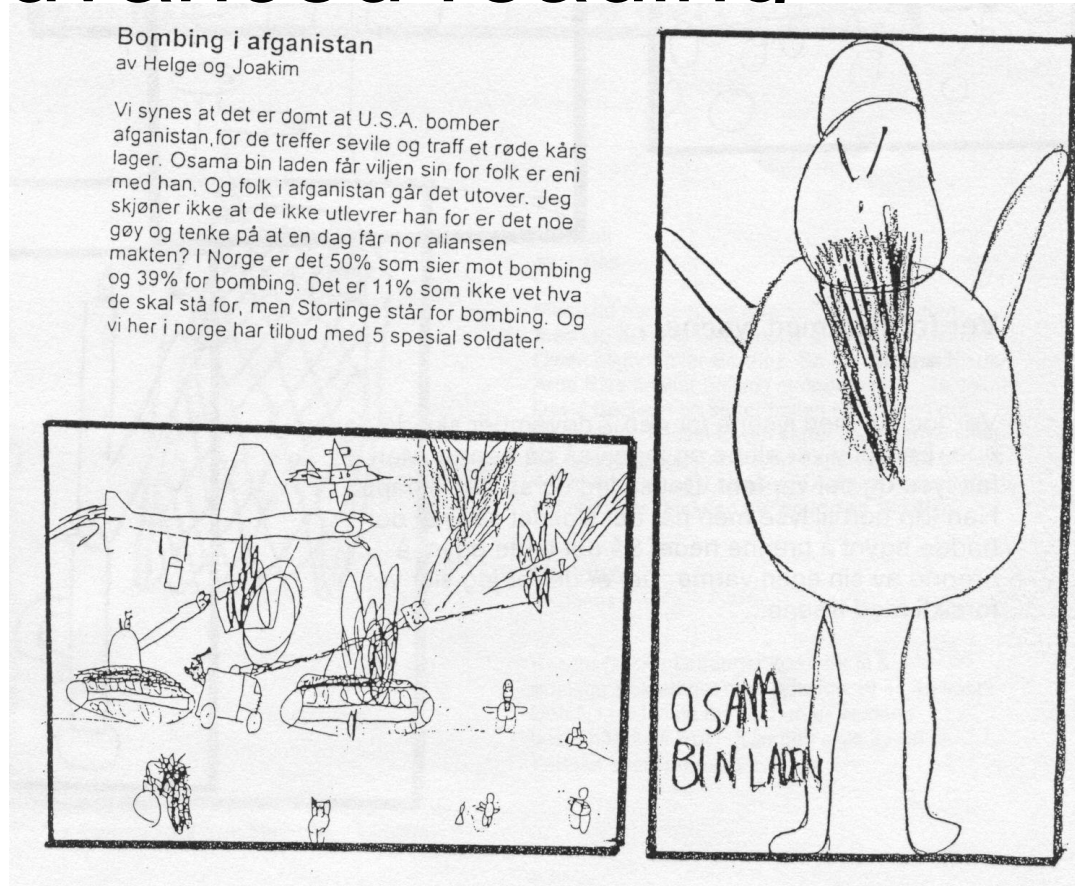
Reading books: Pippi, 5 pages

Wild animals in Africa, 6 pages

Newspaper: News, sport

Grade 3. Advanced fiction - and factual prose books, newspapers

Stimulate advanced reading



Creative writing test. Grade 3

- 8 computer classes
- 9 handwriting classes
- 40 minutes tasks

Dentist visit 292 texts

Fairy tale 302 texts

Creative Writing test. Grade 3

(score 1-4)

	Dentist visit			Fairy tale		
	Boys	Girls	Total	Boys	Girls	Total
Computer classes	2.16	2.54	2.33	2.27	2.43	2.32
Handwriting classes	1.78	2.28	2.05	1.85	2.24	2.05

Significant $p < 0.001$

Handwriting test. Grade 3

(Grade 2 in other Nordic countries)

Handwriting quality (1 lowest, 4 highest)

- PC classes 2.74
- Handwriting classes 2.45

Word pr. minute

- PC classes 4.35
- Handwriting classes 4.91

Central learning factors

Hattie (2012) Visible learning for teachers (800 metastudies)

1. Selfreported grades/expectations	1.44
2. Piagetian programs	1.28
7. Classroom discussions	0.82
(undergroup: expressive writing)	0.81
9. Teacher clarity	0.75
10. Feedback	0.75
19. Creativity program	0.65
24. Problem solving teaching	0.61
77. Computer assisted instruction CAI	0.37
(undergroup: word processing)	0.50, 0.80)

**Further
implementation
and research**

2002-2015

Meny

[Hovedside](#)

[Introduksjon](#)

[Lenker/Adresser](#)

[Kurstilbud](#)

[Video](#)

(Also in English)

[Mediaomtale](#)

[Artiklar](#)

[English Articles](#)

[Tekstsamling](#)

[Sluttvurderingar](#)

[Barnehage/
Pre-school](#)

NB! New addresses:

www.arnetrage-ton.no

arnetrage-ton.no@gmail.com

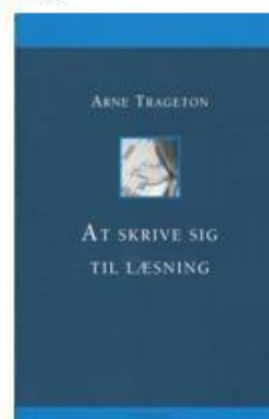
phone + 47 53413019 / +47 91758963

Google søk

"å skrive seg til lesing"
"skrivna sig till läsning" **Spesielt blogs**
"at skrive sig til læsning"



Norsk utg. Universitetsforlaget 2003. Dansk utg. Gyldendal 2004



Svensk utg. Liber 2005. Ny 2006

Mine gamle side hadde ca 26000 besøkende fram til 2011

Besøkende på www.arnetrage-ton.no fra 2012 :

TODAY:	2
YESTERDAY:	7
TOTAL:	18115



Finsk utg. PS-Kustannus 2007. Ny utgave! - også barnehage 2010




Ny utgave Svensk 2014

Pair – Group - Class dialogues



Talking  Listening



Writing  Reading

Producer

Consumer

Prosument
(Liberg 2013)

Minimal oral expression research

Child – Child -Teacher

- Helleve I (2001) Samspel med data. Bergen University
(Tape recording of pair discussion in cooperative computer writing, Grade 1. og 2.)
- Helleve I (2009) PHD. Productive interactions in ICT supported communities. Bergen University. Norway
(child dialogues - adult students' dialogues in computer writing)
- Van Leeuwen C A (2007) Beginning to write with word processing *(peer collaboration - childrens talk)*

EU 8 Key Competences (2006)

1. Communication

Express/interpret thoughts/feelings/facts
oral and written and interact linguistically

4. Digital competence

Retrieve, assess, store, **produce, present
and exchange information.**

Communicate/participate in collaborative
networks via Internet

Norway. National Curriculum 2006

5 Key Competences in all Subjects

- Orally expression
- Writing (Expression **before** Reading)
- Reading
- Math
- Digital
(produce, compose and publish own multimodal textes)

Computer writing obligatory National Curriculums. Grade 1-3

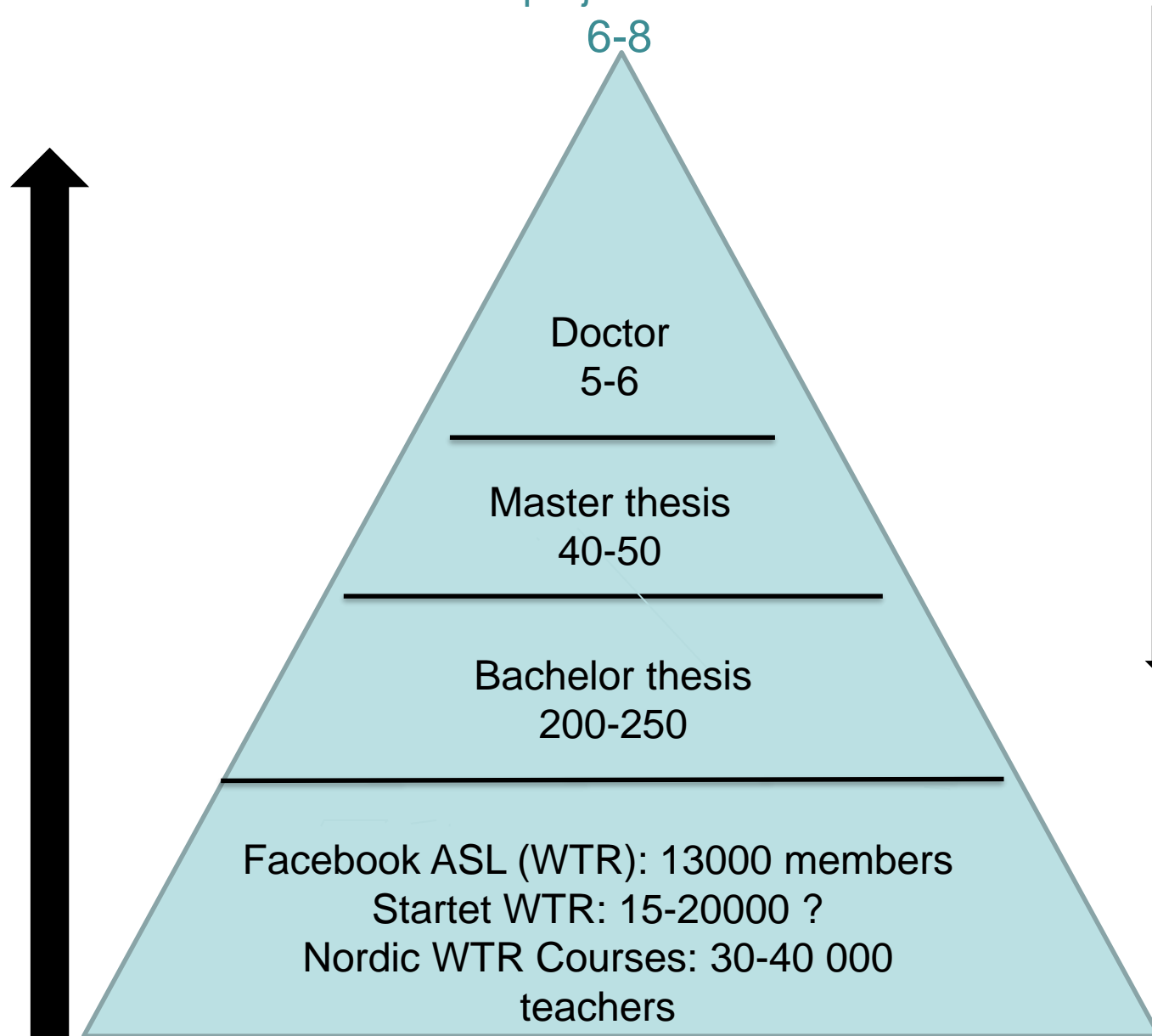
- Norway 1997 – 2006
- Denmark 1998
- Finland 2004 - 2016
- Sweden 2011

Nordic National Curriculums are dominated of a sociocultural learning theory and collaborative learning (Säljö 2013)

Writing to Read (ASL)

Development & Research in the Nordic Countries 2002-2015

Post doctorproject finished/startet



School development examples:

1. **Norway. Example Bergen**

2002: 18 schools (3 day-courses through the year)

2003: 43 schools (3 day-courses through the year)

2005: All 65 schools

2. **Sweden.** All schools in many communities

300 communities have «one computer per child» projects.

130 bachelor thesis (Trageton 2012)

Facebook: "ASL" (WTR) 13 000 members

3. **Finland:** Swedish/Finland: Vasa 2006-2009. Spread to the rest of Swedish Finland (Yllikallio/Hägglom 2010)

Espoo community 2008-10 : 25 schools (Takala 2013)

4. **Åland/Finland:** 90% of the schools

Vavik, L. (2003). *Writing to Read with ICT support.*

**4 Master thesis within ICT in learning
Stord/Haugesund University College**

Comparing 18 computer- and handwriting classes
grade 2 in Bergen

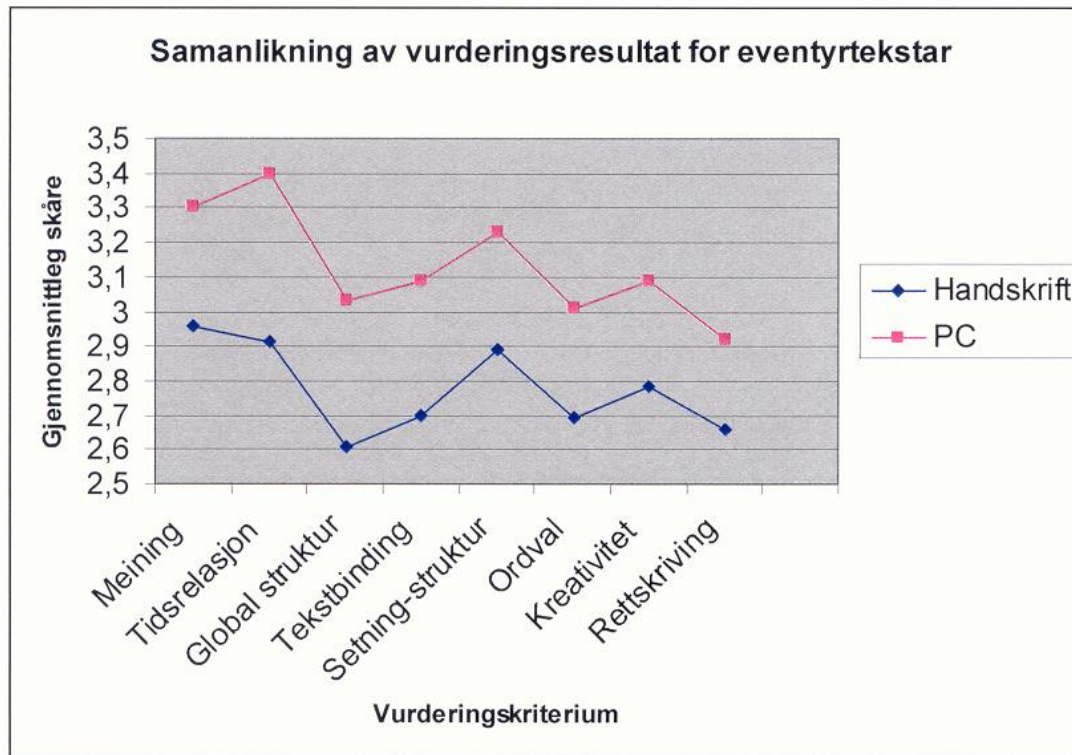
Aasheim N. J. (2005) *Lesedugleik.* (Reading level)

Paulsen E. S.(2005) *Skrivedugleik.* (Writing level)

Sandal A. K. (2005) *Lærarhaldningar.* (Teacher attitudes)

Sørensen. R. (2005) Observasjon av prosessar i
klasserommet (Observations in classrooms)

Replication: Writing test. Grade 2 2004 (7 year olds)

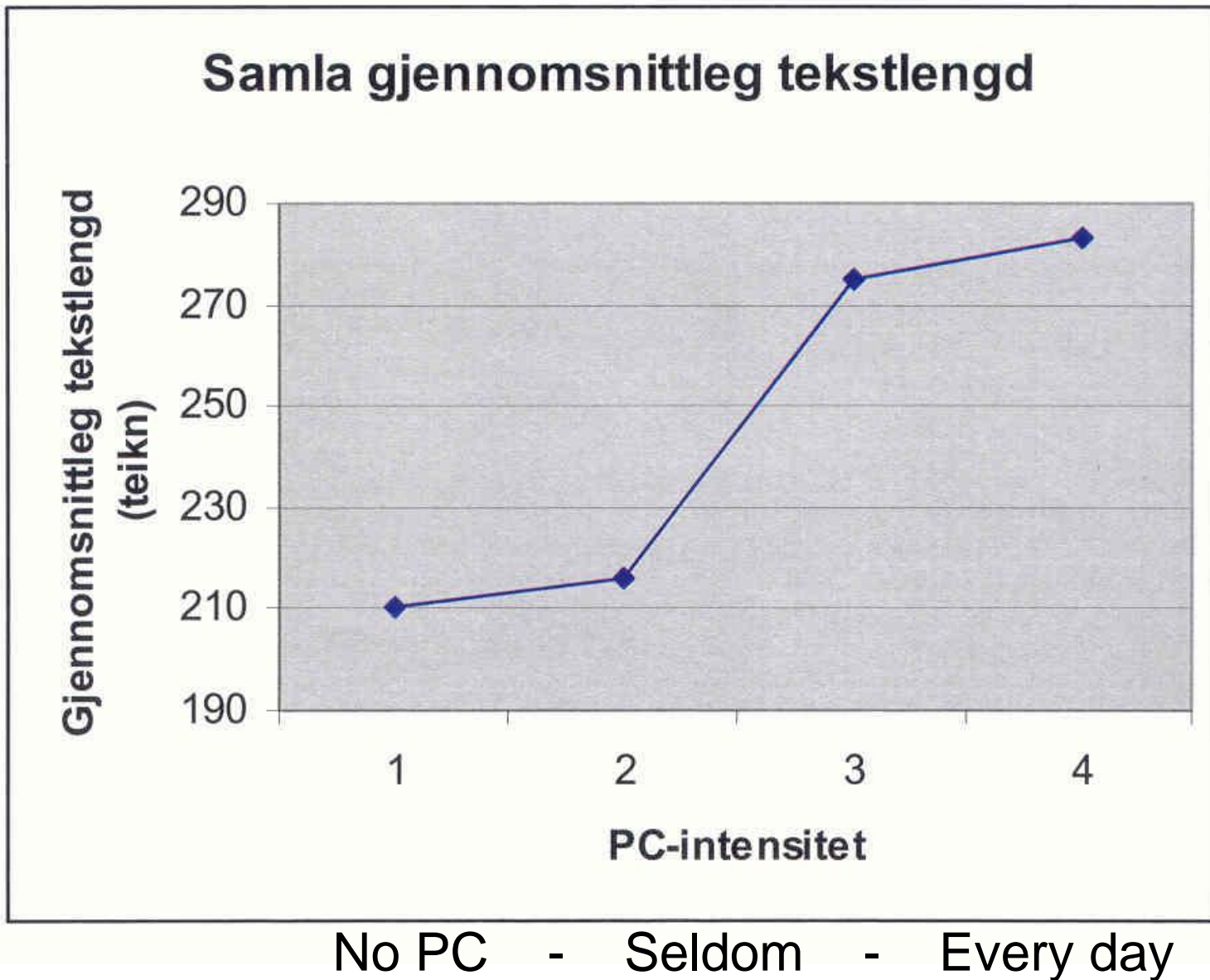


Meaning,
Time relation,
Global structure,
Text binding,
Sentence structure
Word variation
Creativity
Spelling

(National Writing test 2005)

Figur 12: Samanlikning av vurderingsresultat for eventyrtekstane. N handskrift = 143, N PC = 114.

Text length - letters



Hegerholm, H & Matberg, L. J. (2013)

Writing to read with digital tools.

In Baron-Polańczyk, Eunika [Eds.] ICT in educational design: processes, materials, resources: vol 4. p. 25-42, Oficyna Wydawnicza Uniwersytetu Zielonogórski, 2013

http://www.nb.no/idtjeneste/URN:NBN:no-bibsys_brage_49970

...a radical turn in literacy learning from the traditional 'Reading and Writing' to 'Writing to Read'. (Trageton 2005).

... how teachers and student-teachers in their practice periods implement strategies of **Writing to Read** for children.

...The study uses a sociocultural framework to explain the process of developing knowledge with digital tools...

Sweden. Sandviken project

- **Wiklander, Mona 2004 - 2015**

[Att skriva sig till läsning på dator - Sandvikens kommun](http://sandviken.se/.../attskrivasingtilllasningpadator.4.6830..)

sandviken.se/.../attskrivasingtilllasningpadator.4.6830..

WTR + speech synthesis programs, talking keyboards. Development in one school. Later dissemination to all schools in the community.

Practical textbook for teachers 2015.

Follow up research from 2011

- **Hultin & Westman (2013) Early Literacy Practices Go Digital**
Literacy Information and Computer Education Journal (LICEJ),
Volume 4, Issue 2, June
- **Hultin & Westman (2013) Literacy teaching genres and power**
Education Inquiry Vol. 4, No. 2, June 2013, pp. 279–300
- **Hultin & Westman (red. 2014) Att skriva sig till läsning : Gleerups,**
New research program Grade 3-5 started

The story about the little lamb

460 words. Grade level?

460 ORD

Sagan om lammungen

Det var en gång en lammunge som hette Sanna. Sanna skulle gå på promenad med sin matte. Då såg Sanna två vallhundar som ville leka med lammungen. Och lammungen tyckte att dom skulle gå bort från mig. Men dom gick inte. Men då springer jag väl tänkte lammungen. När lammungen sprang så stannade vallhundarna. Det var skönt för lammungen. Lammungen blev glad för att dom stannade. Och när vallhundarna hade gått hem så kunde de gå tillbaka. De blev så trötta så dom tog sig en liten tupplur. Sen blev lammungen piggare och piggare och till slut så blev hon så pigg så hon rev ner allt som man kunde riva ner. Det blev jättestökigt på hela gården. Så matte och husse blev så arga så att lammungen fick vara i ladugården. Det blev tråkigt för lammungen så lammungen rymde från gården. Men när lammungen hade rymt så längtade lammungen efter sin matte och husse. Så lammungen började grina. Men matte och husse letade och letade men så hittade dom hittade lammungen till slut. Då så hade dom ett kalas för att dom hade hittat lammungen.

När kalaset var slut så var det jättestökigt på gården och i huset. Lammungen var glad att hon var hemma igen. Sen fick lammungen ligga med sin matte och husse och sen fyllde lammungen år. Hon fyllde 5 år. och då kom nästan alla i byn till gården. När kalaset var slut så var det stökigt i hela huset. Sen var det kväller igen. God natt och sov så gott. Nu blev det kolsvart. Sen blev det måndag. Då skulle lammungen till skolan för då fanns det skolor för lammungar. Och det blev svåra tal i dag och när lammungen hade gott hem så då blev det ett herrans liv på gården. Till slut så vart det lite lugnare på gården, så då passade lammungen på att vila lite. Men sen började livet igen. Då vaknade lammungen av en smäll. Då blev lammungen ledsen och försökte att sova. Men det gick inte att vila, så då satte lammungen på sig sina hörselskydd. Då kunde lammungen sova i lugn och ro. Sen blev lammungen lite piggare. Men sen blev lammungen sjuk så då måste lammungen åka till veterinären och lammungen dog. Då så begravde dom lammungen i skogen så att ingen annan kunde se där lammungen hade begravts. Det blev tomt på gården och matte och husse var lessna att lammungen hade dött så matte och husse hade ingenting att göra. Dom tror att det var för att det hade varit stökigt på gården så det blev för jobbigt för lammungen det

Genlott & Grönlund, Sweden

Improving literacy skills through learning

reading by writing Computers & Education. Sept 2013

[Closing the gaps – Improving literacy and mathematics by ict-enhanced collaboration](#) Computers & Ed. Aug 2016

Pilot project (87 students - grade 1. Compare computer - handwriting classes)

WTR + publishing on website. Written feedback comments from peers

Texts became much longer, better logical structure of stories, better fluency.

- Social network respons of comrades' texts rises quality through rewriting.
- Grade 1 often at grade 3 level !
- Textlenght from 300 words (dyslexic) to 2850 words
- Greater reading rapidity

Follow up project, «Closing the gaps» 502 students followed 3 year.

Effect of iWTR at National tests in Literacy and Maths in grade 3:

Computer classes 19 % better than handwriting classes, 28% better than classes using ICT individually without iWTR. The gap boys/girls are diminished in iWTR classes. (Results similar to my pioneer project).

Finland. Swedish language

Intelligent på tangent (2006-2009)

Prof. Heilä-Yllikallio/Häggbloom (2010)

Master (magister)

- Åhlberg C (2008) Två flickor skriver och läser vid datorn
(Two girls writing/reading on computer)
- Gädda & Åbacka (2010): För hand och på dator. Mönster i skrivutveckling åk 2-6
(By hand and computer. Patterns in writing development grade 2-6)
- Törnblom (2011) Lyrik i elevtexter (Lyrics in computer textes)
- Häggbloom (2011) Verktyg vid datorskrivande: kroppen, fingrane och blicken
(Tools by computer writing: Body, fingers and sight)

Bachelor (kandidat)

- Nylund J (2008) Datorn som hjälpmedel. Elevers fingersättning
(Computer as tool. Students use of few or many fingers)
- Åbacka H (2008) Stavas dörren med ett eller två r? Elevdiskussioner - dialoger
(Spelling and content questions, discussions/dialogues in poem composing in pairs)

Later master studies

- Södergård, S (2014) Skrivpraxis med pekplatta. En fallstudie i årskurs 2
(Writing with tablets. Grade 2)
- Hällström, J (2014) Det er roligare att skriva på dator än för hand. Åk 2
(More fun with computer writing than handwriting. Grade 2)

DIGITAALINEN VIESTI

TRAGETON-TYÖTAVAN OPETUSKOKEILU
ESPOOSSA 2008-2010



Helsinki University
Finnish language
Postgraduate
courses

Espoo project
2008-10

25 schools

Kyllijoki: Book

Post doctorproject

Prof. Marjatta Takala

Bachelor 2

Masters 7

Prof. Takala (2013)

Teaching reading through writing in *Support for Learning*

Good, inspiring teaching tool, better writing, develop social/communicative skills and creativity. Suited for individual needs. Positive teachers. More research necessary for evaluating effectiveness.

11 Master degrees (Finnish titles translated to English)

- Creative computer writing in special education
- Comparing hand writing style using and not using computers
- Interaction between computer students
- Development of reading and writing skills
- Verbal communications in computer pairs
- Teaching English through computer writing
- Immigrants and Finns using Trageton principles
- Case study immigrant boy
- Comparing texts of computer users versus non-users
- Writing skills with and without Tragetons principles
- Effect of Tragetons principles i boys' reading

Other ongoing research/development

- Dahlbom, G (2010) Utvärdering av ASL (Att Skriva sig till Läsning på datorn) Auktoriserat projekt, *Barn och Utbildning, Piteå Kommun 2006-2009* Sweden.
Evaluation of WTR school development 2006-2009. After project period with very good results, systematic teacher courses, a lot of bachelor and master thesis, WTR made obligatory for the whole community
- Finne T, Roås S & Kjølholdt A.K (2014) Den første skrive- og leselæringen. Bruk av PC med lyd støtte **The first writing and reading by computer with speech synthesis and talking keyboards** *Bedre skole 2. Norway (jf Sandviken)*
- Hashhemi S. S & Andersson P (2012-2014) DILS – (Digital arenas in read and write practices in early primary) Gothenburg University **(Follow three WTR classes 3 years)**
- Andersson P & Hashhemi S (2016) **Screen-based literacy practices in Swedish primary schools** *Nordic Journal of Digital Literacy, Volume 10, Issue 2, Pages 83–100*
- Landquist. H (2013 ->) Oral communication in computer writing grade 1 & 2. Mälardalen University college. Sweden
- Liberg. C (2013-2016) Function, content and form in collaboration. Pupils textproduction in early school years on computers. Sociosemiotic perspectiv Uppsala university
- Tyrén, L. (2013) **Phd.** Vi får ju inte riktigt förutsättningarna att genomföra det som vi vill. *Gothenburg Studies in Educational Sciences 337* **Focus at school development problems through following three WTR classes in three years**
- Uusen. A / Puigi J (2015) The comparison between texts written by 5th graders on computer and by hand (Tallinn University, Estonia)
- Åkerlund. D (2013->) Pair writing at computer grade 2. Video analysis of 20 pairs oral and bodily communication. Karlstad University Sweden.

Visible learning Hattie 2009
800 meta-analyses.

Computer based instruction

What is effective? pp. 222-226

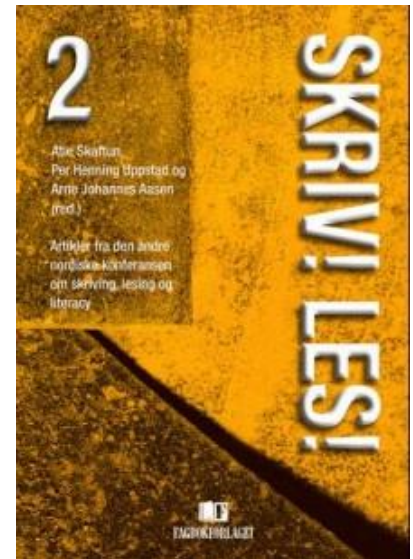
- Multiple opportunities of learning
- The student in control – not the teacher
(ex. word- processing Bangert-Drowns 1993,
Goldberg, Russel & Cook 2003, Torgerson and
Elbourne 2002)
- Peer learning is optimized
- Feedback is optimized

From **READING** - and writing
to
WRITING to **READ**

First Nordic research conferences for
Literacy, Writing and Reading TOGETHER
National centre for Reading, Stavanger &
National Centre for Writing-Trondheim



Skriv! Les ! 2011
Skriv! Les ! 2013
Skriv! Les ! 2015
(Write! Read!)



70-80 presentations per conference:

20% Literacy, 40% writing, 40% Reading

Digital Writing to Read: 2011-**1**, 2013-**2**, 2015-**7**

International reviews

- Goldberg (2003) and Kulik (2003) refer 38 American studies: *More and better writing, more motivated, social and collaborating*
- Torgersen & Elbourne (2002) meta-review of many computer writing studies concluded: *produced longer texts, higher quality, engaged*
- Merchant G(2007, 2009) Review of the English research. Digital writing in early years
- Morphy P & Graham, S (2012) Review 27 projects weak writers/readers: Better writing quality, length, organizing, correctness, motivation
- Warschauer (2009, 2012) within the huge «one laptop per child» research: Positive effect on writing - less in other learning areas

Surprisingly few research studies (especially in the early years), within this important area with simple computer writing for literacy learning

Bangert-Drowns, R. L. (1993). The word processor as an instructional tool: A meta-analysis of word processing in writing instruction.

Review of Educational Research, 63(1), 69-93.

Chamless, J. & Chamless, M. (1993). *The effects of instructional technology on academic achievement of 2nd grade students*. University of Mississippi.

Goldberg et al. (2003) The Effect of Computers on Student Writing: A Meta-analysis of Studies from 1992-2002 *The Journal of Technology, Learning and Assessment* 2 (1): 2-51

Graham S & Hebert M (2010) Writing to Read. Evidence for how Writing can improve Reading

Hattie, J. (2009). *Visible learning. A synthesis of over 800 meta-analyses relating to achievement*. Routledge. London N. Y

Kulik, J.A. (2003) *Effects of Using Instructional Technology in Elementary and Secondary School*. SRI International. Project number P10446.001

Merchant, G. (2007) Digital writing in the early years. in D. Leu, J.Coiro, M. Knobel, and C. Lankshear (eds) *The Handbook of Research on New Literacies* New York: Lawrence Erlbaum. (pp.167 –197).

Merchant, G. (2009) 'Web 2.0, new literacies and the idea of learning through participation'. *English Teaching, Practice and Critique*. 8:3 (pp.107-122)

Morphy, P & Graham, S (2012) Word processing programs and weaker writers/readers. A metaanalysis of research findings. *Reading and writing. Springer*

Torgerson, C. J. & Elbourne, D. (2002). A systematic review and meta-analysis of the effectiveness of ICT on the teaching of spelling. *Journal of Research in Reading*, 25(2), 129-143

Warschauer, M. 2009. Learning to write in the laptop classroom. *Writing and Pedagogy* 1 (1):101–12

Warschauer, M. et al (2012) *One Laptop per Child. Birmingham: Case Study of a Radical Experiment*. University of California, Irvine

Wegerif, R & Schrimshaw, P.(1997) *Computers and talk in the Primary Classroom*. Clevedon. Multilingual matters.

Future research possibilities?

In this new praxis for “Writing to Read by computer”
There are possibilities for hundreds of different master-doctor-postdoctor thesis within computer science, education, special education, psychology, linguistics, literature, anthropology, didactics in different school subjects etc.

Some rough ideas:

National writing tests. Compare computer writing versus handwriting
Will computer writing grade 4-9 give better results than hand writing?

Playful Writing to Read 3-5 year olds?

Cultural differences of WTR in different countries

Effects in foreign language learning? Arab->Norwegian, Norwegian->English...

Conditions for implementation in a school, community, a country?

Tenfinger keyboarding: What effect on writing has the dominance of kinesthetic/tactil senses? On different students, different learning styles?

Computer writing with both hands send signals to *both brain halves*. What effect on the electronic patterns in the brain, thinking and language learning?

II

- What effect on computer writing using Latin, Arabic, Japanese keyboard etc?
- What are the effects of computer writing on ADHD children, deaf children, blind children, motor invalid children, socio-emotional problems ...?
- Effects on oral language in the pair discussion behind the computer?
- Linguistic analysis of thousands of electronic texts
- Genre combinations, superstructure, inter texts, multimodal texts?
- Will the quality of drawings correspond with the quality of texts?
- Will dramatizing of stories give better computer texts?
- Will reports from out door school activities give better computer texts?
- How will a rich library influence childrens' computer texts?
- Dialect and sociolect variations in the written texts?
- Invented spelling, phonologic, orthographic. What is the development in detail?
- Longitudinal description of one child's writing development 6-16 years

This is only some examples of loose research ideas. The next 20 years I hope there will be hundreds of master/doctor/postdoctorproject within this central, but almost empty area of literacy research.

Perhaps members of this conference might be interested?

Meny

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NB! New addresses:

www.arnetrage-ton.no

arnetrage-ton.no@gmail.com

phone + 47 53413019 / +47 91758963

Google søk

"å skrive seg til lesing"
"skrivna sig till läsning" **Spesielt blogs**
"at skrive sig til læsning"



Norsk utg. Universitetsforlaget 2003. Dansk utg. Gyldendal 2004



Svensk utg. Liber 2005. Ny 2006

Mine gamle side hadde ca 26000 besøkende fram til 2011

Besøkende på www.arnetrage-ton.no fra 2012 :

TODAY:	2
YESTERDAY:	7
TOTAL:	18115



Finsk utg. PS-Kustannus 2007. Ny utgave! - også barnehage 2010



Ny utgave Svensk 2014