

## Reading research and the promotion of reading outside the school: A comprehensive review of empirical research.

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A basic skill like reading is acquired in lower primary education. However, reading can and should also be promoted outside the school in order to provide the best learning opportunities for every student. In this review, it is first looked at what reading is. Then it is discussed where the large individual differences in reading skill come from. Finally, the reading research upon which initiatives for promoting reading outside the school are based and recommendations as to what to do for different age levels are presented.

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Learning the spoken language of the environment in which a baby is born seems to be an effortless process. However, learning the written language takes in most countries many years of explicit teaching and learning. Most of the time in lower primary education is therefore devoted to the teaching of reading as a basic skill. However, much can be done to promote reading outside the school, both in the years before children go to school and while they are at school.

The main reason for children not so easily cracking the alphabetic code, which is needed to learn how to read, is that the code is in most languages not that simple, that is, there does not exist a one-to-one mapping between the written letters and the sounds. In most languages about 30 letters are used to represent the sounds of the language, that is, the phonemes, the smallest sound units of the language. However, in most languages the mappings are not consistent, and that makes it hard for a child to understand the system.

With explicit instruction and with increasing amounts of practice, a beginning reader will crack the code and will eventually automatise his word recognition skills by using the so-called self-teaching process (Share, 1995).

In short, the self-teaching theory says that a student will attempt to recode a novel word, that is, a word he has never encountered in print. If the phonological recoding attempt is successful, both the phonological (how the word should be pronounced) and the orthographic (how the word is written) specifications will be stored in the lexicon. Whenever the word is encountered again, it will be recoded more quickly on the basis of the already stored representation. With even more encounters, the word will eventually be recognised immediately and will be read fluently.

Reading is not only about being able to decode words, but it is all about being able to understand a message, or, about text comprehension. Comprehension occurs when the reader builds a mental representation of a text message (Perfetti, Landi, & Oakhill, 2005). Not only a text representation needs to be built, also a so-called situation model should be constructed. The situation model is a representation of what the text is about, that is, about how the contents of the text relate to a situation in the real world.

The students should therefore learn how different levels of language, the word level, sentence level, and text level should be processed in conjunction with their general knowledge, in order to build up a mental representation of the text.

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### **Where do individual differences in reading skill come from?**

The study of individual differences in reading skill is of importance, because, if we are able to find the cause of individual differences in reading development, we may well be in a position not only to reduce these individual differences, but also to raise the general level of reading literacy. In longitudinal studies the students, and sometimes their teachers or even homes too, are followed over a longer period of time. The strength of this design is that it allows more sensitive and powerful tests, due to the fact that the change within subjects is usually smaller than the differences between subjects. Recently, much progress in understanding individual differences has also been made by conducting behaviour-genetic studies. See for an overview Plomin, DeFries, McClearn and McGuffin, (2008).

Longitudinal studies in this field were initiated by Stanovich (1986, 2000) who looked for an explanation of the 'fan-spread' effect on the variability of reading skill. He observed that students who start at a relatively high level of initial reading skills developed their skills much quicker than student who were less able when they started learning to read. He coined this the 'Matthew-effect', the rich getting richer, the poor getting poorer. From recent research we know that the driving factor behind increasing differences in reading skill is leisure time reading. More precisely, the leisure time reading activities were related to differences in the size of the vocabulary, and, in turn, vocabulary size promoted reading comprehension (Bast & Reitsma, 1998).

It has also been examined which differences between students already exist when formal reading instruction starts, usually at the time they become 5 or 6 years of age. In a recent overview, Bowey (2005) considers general cognitive ability, verbal ability, phonological memory, speech perception and speech production, phonological sensitivity, letter-name knowledge, and rapid automatised naming as key predictors of success in learning to read.

It will be clear that general cognitive skill is a powerful predictor, as long as no specific skills for the effective processing of print are learnt, thus when measured in kindergarten. Bowey (1995) and De Jong and Van der Leij (1999) explained with an assessment in kindergarten between 15 and 22% of the variance in reading skill in the first grade. Most probably, general

cognitive ability contributes to reading success through efficient perceptual processes, such as being able to discriminate written letters and spoken sounds.

Within normally developing children it is verbal ability at preschool age, rather than general cognitive ability, which determines later success at learning to read. Since, it has been examined which aspects of verbal ability specifically predict early reading achievement. Vocabulary predicts about 25% of the variance in end-of-first grade readers (Bowey, 1995), whereas grammatical skills predict about 17% (Scarborough, 1990). Using a task that did not only require grammatical skills, but also semantic processing and verbal working memory, 40% of the variance over a two-year period of development could be explained (Bryant et al., 1990).

Phonological memory, commonly measured with a non-word repetition task (Baddeley & Gathercole, 1992), predicts reading development in both deep (English) and shallow orthographies, like Dutch (DeJong & Van der Leij, 1999) or German (Naslund & Schneider, 1996). Although non-word repetition skill predicts vocabulary learning, reading skill in the first language, and reading skill in another language, it is not quite well understood how exactly. That is, it is not clear whether it is a perceptual task (analysing the sound of a word), a pure memory storage task (keeping sounds in short-term memory), a processing task (being able to chunk the sounds in memory), or a production task (preparing the spoken form of a word).

Most of the research concentrating on speech perception and speech production has been carried out by Scarborough (1990) who found that errors in spontaneous speech in 30-months old children predicted reading attainment in the second grade, and by Elbro and his collaborators (1998) who found that the distinctness with which Danish children pronounced phonologically complex words predicted later reading success, even when effects of letter knowledge and other factors were controlled for.

Phonological sensitivity is perhaps the factor most research has been conducted on. The initial finding that kindergartners' ability to count and manipulate phonemes and syllables in spoken words predicts later reading achievement (Mann & Liberman, 1984) has led to an enormous amount of research not only in normally developing children, but also in

children with dyslexia. The tasks typically require children to select a rhyming word with a given word, to say a word leaving out the last sound, or similar. The state-of-the-art can perhaps best be summarised as follows. Phonological skills play a relatively large role in learning to read in a deep orthography as English, but are developmentally limited in shallow orthographies (Wimmer, Mayringer, & Landerl, 2000), which means that these skills are only relevant during a limited period of time, that is, in the beginning of the year in which children start learning to read.

Letter-name knowledge appears to be a very strong predictor of later reading achievement, explaining up to 36% of the variance in word identification at the end of the first year of reading instruction, especially when a phonics reading programme was used. These results led Lyytinen (2007) to devise letter-name training programmes for children at risk of developing reading problems, and with success. It is however more useful to consider letter-name knowledge and phonological sensitivity as co-determinants of early reading development, in particular of comprehension of the alphabetic principle, that is, that children understand that letters represent sounds, and that by blending the sounds, you will arrive at a recognisable whole-word sound.

Finally, rapid automatised naming (RAN) has been a factor of much research interest. In RAN tasks a subject has to name as quick as he can a continuous series of stimuli such as digits, common objects, colours, letters or words. It is assumed that the responses to this sort of stimuli are over-learned. There is still a debate over whether RAN is an independent contributor to early reading achievement over and above phonological skills, especially when RAN is assessed with colours and objects. When assessed with digits and letters, it is likely that the effects are mediated through letter knowledge (Wagner et al., 1997). Attempts to train RAN have however been unsuccessful in normally developing readers (De Jong & Oude Vrielink, 2004).

It will be clear that differences between students already exist before they enter school and that, if we wish to reduce these differences, we should intervene in the homes by supporting parents to prepare their children well for learning to read in the schools.

### **Initiatives to reduce individual differences and to raise the general skill level**

#### **The National Reading Panel Study (2000)**

This study, sponsored by the US National Institute for Child Health and Human Development, reviewed more than 100,000 studies using the following criteria. (1) The research had to look at reading achievement. (2) The research had to use a sufficiently large sample in order to produce generalizable results. (3) The studies had to have an experimental set-up, that is, they had to compare different conditions to assess the effectiveness of an approach. (4) The research had to be of high quality, that is, it should have gone through a peer-review process. The panel report provides an analysis and discussion of five areas in reading instruction: phonemic awareness, phonics, fluency, vocabulary, and text comprehension (Armbruster, Lehr, & Osborn, 2000).

#### **Phonemic awareness**

Phonemic awareness is the ability to understand that words are made up of phonemes, the smallest parts of sounds that make a difference in the meaning of a word. For example, *hat* differs from *pat* in the first phoneme (and makes it a different word). Phonemic awareness is the first thing children should learn, because being able to isolate the sounds of a word will enable the children to connect them with the letters. Teaching phonemic awareness to children should therefore amongst others include teaching them to recognise that *bell*, *boy* and *bike* have all a *b*-sound at the beginning; that the beginning sound of *cat* is /k/, the middle sound is /a/, and that the ending sound is /t/; blending sounds into a whole-word sound, that is, /k/, /a/, /t/ form in that order the word *cat*; and, the word *cat* can be broken up into the sounds /k/, /a/, /t/. It should be kept in mind that phonemic awareness is only a part of phonological awareness, which is a broader concept, referring to being able to manipulate all sorts of sounds of the language, including recognising rhymes, syllables and even words in a sound stream.

#### **Phonics instruction**

Phonics instruction is about teaching children the letters (graphemes) of the written language and how these relate to the sounds (phonemes),

also called the alphabetical principle. Once the children know the letter-sound correspondences, they will be able to independently decode words and to spell words. Irregular words will still pose a problem to them, but it is assumed that parts of the irregular words can still be deciphered, and that the really irregular part will be learnt through self-teaching. Scientifically based research further indicates that systematic and explicit phonics instruction is more effective than non-systematic or no phonics instruction at all. The best approaches to phonics instruction include synthetic phonics, that is, converting letters into sounds and blending them to form words; analytic phonics, by which children learn to analyse words; and spelling, when they have to find the letters that go with the sounds.

### **Fluency instruction**

Fluency is important, because it bridges word decoding with reading comprehension. Fluent readers read aloud effortlessly and with expression. Fluent readers do not need to concentrate on decoding words, and can therefore focus on what the text they are reading means. Fluency can only develop through considerable practice. Fluency typically depends on having many words in your sight word lexicon available so that you can recognise them immediately. Repeated and monitored oral reading is advised as the best method to improve reading fluency. An alternative means is silent reading, however, there is no research available to prove the efficiency of this method directly. What researchers however have found is that there exists a strong relationship between fluency in reading and how much a student reads.

### **Vocabulary instruction**

There are four types of vocabulary, the words we need to know to understand what we hear (listening vocabulary), the words we use when we speak (speaking vocabulary), reading vocabulary and writing vocabulary. Most vocabulary is learnt indirectly, for example through reading and listening. However, some vocabulary needs to be taught directly through specific word instruction, especially when it concerns words that represent complex concepts. A teacher can however not provide specific instruction for all words the students need to know, thus the teacher should therefore instruct his students in how to use a dictionary and other reference aids, how to use information

about word parts to figure out the meaning of the novel word, and, how to use context clues to determine word meanings. It will be evident that vocabulary is one of the main factors in acquiring reading comprehension.

### **Text comprehension instruction**

Effective text comprehension instruction entails teaching students to use specific reading comprehension strategies, that is, sets of steps that can be used to make sense of the text, including monitoring comprehension, that is being aware of whether you really understand the text as you go along and in case you lose track, engaging in 'fix-up' strategies; using organisers, that is, either graphically or semantically mapping out the concepts dealt with in the text; answering questions, which gives the students a goal for reading, makes them think about the text, and encourages them to monitor their comprehension; generating questions, that will help the students to integrate information from the text; recognising the structure of the text (the schemata previously discussed); and, summarising the text, which will be helpful in identifying the main idea, connect it with other knowledge, and remember what the students read. The best way to teach these strategies is to explicitly teach them and to let the students practise the use of the strategies through cooperative learning, that is, students working together in pairs or small groups (Snow & Juel, 2005).

### **Recommendations for the teaching of reading at school**

In sum, reading instruction in the schools can best be improved by focusing on the aforementioned areas of instruction: phonemic awareness, phonics, fluency, vocabulary, and text comprehension.

### **National Early Literacy Panel Report (2008)**

The National Early Literacy Panel (NELP, funded by the US National Institute for Literacy) goal was to identify interventions, parenting activities and instructional practices that promote the development of children's early literacy skills. The following specific questions were addressed: (1) What are the skills and abilities of young children that predict later reading, spelling, or writing outcomes? (2) Which programmes, interventions, and other instructional approaches and procedures have contributed to or inhibited gains in children's

skills and abilities that are linked to later outcomes in reading, spelling, or writing?

(3) What environments and settings have contributed to or inhibited gains in children's skills and abilities that are linked to later outcomes in reading, spelling, and writing? (4) What child characteristics have contributed to or inhibited gains in children's skills and abilities that are linked to later outcomes in reading, spelling, or writing? Out of 8,000 potentially relevant articles approximately 500 were selected and used in the meta-analysis that was carried out by the NELP.

### **Identification of early literacy skills**

The NELP first set out to identify which early skills and abilities could be considered to be precursors of later literacy achievement. This was important to do, because most young children do not develop any literacy skills at all before they go to school. Therefore correlational studies were looked at to identify the precursors of later literacy achievement. The following variables correlated significantly with later literacy achievement, even when effects of SES and IQ were accounted for.

- 1) Alphabet Knowledge: knowledge of the names and the sounds of the letters;
- 2) Phonological Awareness: the ability to manipulate the sounds of the language independently of meaning;
- 3) Rapid Automatic Naming of letters, digits, colours or objects: the ability to rapidly name a sequence of random letters, digits, colours or objects;
- 4) Writing: the ability to write letters in isolation or to write one's own name;
- 5) Phonological Memory: the ability to remember spoken information for a short period of time.

The following early literacy skills correlated moderately with later literacy outcomes, but did not independently maintain its predictive power when other factors were controlled for:

- 6) Concepts about print: knowledge of print conventions such as left-right, front-back, and of concepts like author, book, book cover,
- 7) Print knowledge: a combination of alphabet knowledge, concepts about print, and early decoding,
- 8) Reading readiness: a combination of alphabet knowledge, concepts about print, vocabulary, memory and phonological awareness,

9) Oral language: the ability to produce or comprehend spoken language, including vocabulary and grammar,

10) Visual processing: the ability to match or discriminate visually presented symbols.

### **Practices that enhance early literacy skills**

The NELP distinguished 5 categories of interventions, parenting activities, or instructional approaches and assessed their effectiveness.

#### **Code-focused interventions**

Eighty-seven studies were analysed as to interventions designed to help children to cracking the alphabetic code, of which most studies also involved phonological awareness instruction. These interventions showed statistically significant and large to moderate effects on various literacy outcomes.

#### **Shared-reading interventions**

Nineteen interventions that examined the effectiveness of reading books to children were evaluated by the NELP. These interventions included both simple shared reading and various forms of interactions between the reader and the child. Shared-reading interventions showed statistically significant and moderate effects on children's print knowledge and oral language skills.

#### **Home and parent programmes**

Thirty-two studies examined the effectiveness of programmes in which parents delivered the instruction and guidance. The home and parent programs showed statistically significant and large to moderate effects on the children's oral language skills and general cognitive abilities.

#### **Preschool and kindergarten programmes**

Thirty-three studies focused on preschool and kindergarten programmes, that is, mostly on interventions for less privileged children, but also on extended-year experience of kindergartners. Overall, these interventions lead to significant and moderate-sized to large gains on predominantly spelling and reading readiness.

#### **Language-enhancement interventions**

These interventions aim at increasing children's language skills. They were extremely successful, that is, they produced significant and large gains in children's oral language skills.

### **'One-size fits all' could work**

Together, these results suggest that parents, preschools and kindergartens can do many things that support the development of literacy skills of the children. It is also clear that different approaches produce gains in different areas. An important issue is always at what age should we do what? However, the NELP committee found only very few effects of age-appropriateness, except for language-enhancement interventions. Here they found that the earlier you intervene, the larger the gains will be. More in general, variables like age, IQ and SES did not seem to alter the effectiveness of the various interventions, which would mean that we could employ a 'one-size fits all' approach in promoting literacy outside the school. Next we will discuss in detail a meta-analytic review of family literacy interventions.

#### **A meta-analytic review of family literacy interventions on children's acquisition of reading**

Sénéchal (2006) improved on two earlier correlational studies, one that showed that there was a positive relation between parents reading to their children and children's emergent literacy (Bus, Van Ijzendoorn, & Pelegriani, 1995), the other revealing a positive relation between shared book reading and early literacy (Scarborough & Dobrich, 1994), by looking at the causal relation between parental involvement and early literacy. More specifically, she looked at different types of parental involvement in a meta-analysis of 14 studies in which altogether 1174 families participated. Three types of parental involvement were compared: (1) teaching specific literacy skills, (2) parents listening to their children read, and, (3) parents reading to their children.

The results were as follows. Parental involvement had overall a moderately large effect on reading achievement (.68), which is equivalent to a 10-point gain on a standardised literacy test (with a standard deviation of 15). Teaching specific literacy skills was two times more effective than listening to the children read, which was, in turn, 6 (!) times more effective than reading to your child.

Parental involvement was equally effective from kindergarten through grade 3. The interventions were equally effective for children at risk of developing reading difficulties as for typically developing children. Furthermore, the

SES of the families did not affect the effectiveness of the interventions at all.

In conclusion we can say that parents can help their children to read. However, the effectiveness varies with the type of activities the parents undertake. Finally, some interventions may be harder (and more expensive) to implement than others.

#### **What can you best do outside the school with your child?**

Based on the aforementioned studies the following recommendations are made to parents by the U.S. National Institute for Literacy to parents of toddlers (ages 2 and 3):

- 1) Read with your child every day, even if it's only for a few minutes.
- 2) Encourage your child to bring his/her favourite book and read with your child from that book.
- 3) Point to pictures, name them out loud, and encourage your child to point to pictures.
- 4) Check whether your child is paying attention to the story by watching him/her making eye contact with you.
- 5) Talk to your child during the day about the things you are doing together and about what is happening around you.
- 6) Read the same book over and over again, even if you find this boring.
- 7) Encourage your child to use books: pick them up, flip them from front to back, and turn the pages.
- 8) Listen to your child when he/she pretends to read.
- 9) Give your child paper and pens, so that he/she can scribble, draw, and pretend to write.

There exist also similar checklists up to third grade children. It will be clear that parental involvement can be promoted by providing parents simple instructions on what to do with their children. Teachers and librarians should be able to show parents what exactly to do with books when they read together with their children.

#### **Results from some very recent studies**

Meanwhile more research has been conducted to examine the influence of the home literacy environment and reading literacy

attainment, following the recommendations of the NELP study. Manolitsis, Georgiou, Stephenson and Parrila (2009) looked at kindergartners' general cognitive ability, phonological sensitivity, and letter knowledge in Canada (English speaking) and in Greece. Their parents reported on home literacy activities, whereas their teachers reported on the children's task-focused behaviour. Non-word decoding was significantly predicted in grade 1 by task-focused behaviour and by letter knowledge in kindergarten, the effects being stronger in English than in Greek. Better letter knowledge was in both countries produced by direct teaching of letter names and sounds. Thus these results corroborate Sénéchal's (2006) findings in that the direct teaching of letter names and sounds leads to better reading. These results also show that parents should 'work harder', if the language has an opaque script, like English.

Mothers and fathers are able to adjust their teaching to the actual skill level of their children, was shown in a study by Silinskas, Leppänen, Aunola, Parrila and Nurmi (2010). Mothers and fathers filled in a questionnaire regarding their teaching of reading and mathematics, once when their children were in kindergarten, once when they were in grade 1. The results showed that more teaching of reading and mathematics was reported, when the SES of mothers and fathers was lower. More teaching was also reported when the children's achievements in reading and mathematics were lower in grade 1. Finally mothers engaged more in teaching than the fathers. This study shows thus that when parents, especially parents of low SES, perceive a need, they are more likely to support their children, a finding that is very important with respect to promoting literacy outside the school, because this means that parents don't need to be motivated to help their children. What needs to be done is making parents aware of the need of their children to support them.

Silinskas et al. (2010) also showed that the teaching of reading at home contributes to the development of reading skills of children in kindergarten. However, mothers were inclined to teach reading to children who had already mastered the basics of learning to read. This suggests that mothers should also be encouraged to teach reading skills to children who either show not much interest in reading or to children who evidence poor reading skill. Their results further show that becoming a good

reader at the end of kindergarten is more likely, if you are a first-born child, if you are a girl, and if your mother has a good education. These results therefore suggest that special interventions must be aimed at less educated mothers, and that mothers should also engage in reading-related activities with boys and with children later born.

### **Family learning**

Children from lower-SES backgrounds are at risk for reading difficulties, because they show slower development, prior to school entry, in oral language, letter knowledge, and phonological processing skills (Phillips & Lonigan, 2005). Their slower development may in part be due to their parents' poor reading skill. It has therefore been attempted to prevent reading difficulties in lower-SES children by enhancing their parents' reading skills. Brooks, Pahl, Pollard and Rees (2008) recently carried out a meta-analysis to evaluate the results of family literacy programmes and practices.

Sixteen programmes were evaluated in which the reading attainments of both parents and children were assessed. However, only 4 programmes had a methodological sound design and the results obtained were inconclusive with respect to benefits for the children. On the other hand, most programmes were effective for parents, because most parents improved their literacy skills, caught up with missed training/education and went on to further education to increase their chances on getting a job. In hindsight, these results do not come as a surprise, as in the McKinsey report on effective schools (Barber & Mourshed, 2007) it was pointed out that attainment in reading (PISA results were reanalysed) can only be boosted if we get the right people to become teachers, develop them into effective instructors, and if the system (the school) is able to deliver the best possible instruction for every child. It should be clear that we cannot expect parents from low-SES backgrounds to qualify for these roles. Hence, we cannot expect from family literacy programmes to have any effect on the literacy development of the children in families with low SES.

Another reason for children to be at risk for reading difficulties in low-SES homes is that they may have somewhat different reading tasks beliefs, that is, they may have a lower self-concept of reading ability, and they may intrinsically value reading lower, and they may

find reading of less importance. Durik, Vida & Eccles (2006) studied outcomes such as time spent on reading for pleasure, number of language art courses taken in high school, and reading relatedness of career aspirations from fourth grade till 10th grade. Ability beliefs predicted all three outcomes, importance affected career aspirations, and it was intrinsic value that determined leisure time reading.

These results indicate that it is not only important to obtain high grades for reading in the school, but also to develop feelings of competence. However, as intrinsic value was uniquely related to leisure time reading, it is important that children grow up in an environment in which they can see that others attach value to reading.

### **Leisure time reading and reading for pleasure**

In this section we will discuss literacy as leisure activity and how it is influenced by other leisure activities, especially TV-watching. For the use of computers and multimedia in general, it is referred to Van Daal and Miglis-Sandvik (2011).

### **Time spent on leisure time reading**

Hall and Coles (1999) found that reported book reading for 10-year-olds had slightly increased from 1971 to 1994, whereas the amount of reading in 14-year-old boys had decreased. More recently, Sainsbury and Schagen (2004) found that children's reading enjoyment in the UK had decreased, being in line with data presented by McKenna, Ellsworth, and Kear (1995) on US children. Again, the decrease is more in relatively older children. The percentage of engaged readers in Year 4 dropped from 77% in 1998 to 71% in 2003, whereas the figures for the Year 6 students dropped from 77% to 65%. The decline is again more pronounced in boys than in girls. The figures about reading at home show an even sharper decline (UK Schools Health Education Unit, 2004; cited in Clark & Rumbold, 2006), from 29% in 1997 to 17% in 2002. American research (Nippold, Duthie, & Larsen, 2005) shows that interest in pleasure reading declines with age (11-15 years), and that boys are more likely to report that they spent no time on reading for pleasure. In this research it was found that the most popular free-time activities were listening to music, or going to concerts, watching television or videos, playing sports, and playing computer or videogames. Least

preferred activities were cooking, running or walking, writing, and arts and crafts. Reading was moderately popular, with magazines, novels, and comics being the most popular reading materials. Least popular reading materials were plays, technical books, and newspapers.

However, a more recent survey conducted in the UK (Clark, Osborne & Dugdale, 2009) shows that 72% of children and young people enjoy reading either very much or quite a lot. Technology-based materials are the most frequently read, with nearly two-thirds of children and young people reading websites every week. Half the sample also reads blogs/networking websites (such as Bebo and MySpace) and emails every week. Secondary pupils read more technology-based materials, such as website and blogs/networking sites, every week than primary pupils. Readers feel more confident about their reading skills and read a wider variety of texts than non-readers.

All in all, it seems that rapid changes are taking place in the reading behaviour of youngsters, which are mainly caused by recent developments in the communication facilities, that blogs/networking sites offer. It could well be that there has been a shift from reading traditional books for pleasure to communicating with others through modern digital systems.

### **Reading in the home: Beyond parental literacy**

Traditionally, factors like frequency of shared reading, age at which children start to read, number of minutes spent reading to the child, number of books the child owns, frequency with which child asks to be read to, frequency with which child 'reads' books independently, frequency of trips to the library, frequency of mother and father reading, amount caregiver enjoys reading, child's TV watching, and number of household newspaper and magazines subscriptions have been considered aspects of the HLE (Home Literacy Environment). However, even when 9 factors are combined, only 14% of the variance in 4-year-old children's expressive and receptive vocabulary was explained (Payne, Whitehurst, & Angell, 1994). Johnson, Martin, Brooks-Gunn and Petrill (2008) extended the concept of HLE with other aspects of the home that may set the conditions for learning.

In particular Johnson et al. (2008) looked at household chaos, that is, a chaotic, very noisy environment with many people coming and going, lack of routine, predictability and



organisation, which has been found to be of influence on parent and child well-being, notably on measures close to reading skill, like general cognitive ability and verbal and nonverbal skills.

It is also known that children differ with respect to how sensitive they are to home chaos; it may be that maternal reading ability acts as a buffer against the negative effects of home chaos. Johnson et al. (2008) found that the degree of household order is positively associated with expressive vocabulary, reading attainment and phonological awareness in children whose mothers are above-average readers. On the other hand, in children with mothers of average reading ability, the number of books the child owns and how often the child amuses self with books are associated with the same outcome variables. These results are discussed in terms of mechanisms that promote reading skill. For example, Johnson et al. (2008) suggest that orderly households allow for more focused practice of reading skills and that mothers of above-average reading skill, who may not have the time to read with their children due to time spent on working outside the home, can compensate this with keeping an orderly household. In households with mothers of average reading ability, child-driven factors, like the number of books the child owns and how often the child amuses self with books, may be more important.

### **TV and literacy**

Since the 1980s much research has been conducted on possible influences of TV watching. Four hypotheses are concerned with inhibition effects, that is, that children are hindered in acquiring reading skills by TV watching. The displacement hypothesis says that television inhibits the growth of reading skills by displacing time children would otherwise have spent on activities that support the development of reading skills. The passivity hypothesis argues that the low level of mental effort children invest in watching TV generalises to reading. The concentration-deterioration hypothesis states that the fast pace and rapidly changing pictures decrease children's ability of concentrating on reading. The fourth hypothesis is called the reading-depreciation hypothesis and claims that children lose their interest in school and activities undertaken at school, like reading, because of experiencing a much more pleasant time when watching TV. Two hypotheses with respect to facilitation effects of TV watching on

the development of reading skills have been put to test. The book-reading promotion hypothesis argues that TV can improve reading skills by promoting children's interest in books. The other hypothesis, the on-screen reading hypothesis, says that children improve their reading by practicing the reading of texts and subtitles on TV. According to Koolstra, Van der Voort and Van der Kamp (1997) cross-sectional studies obtained for most hypotheses mixed evidence, and they applied therefore a longitudinal design to examine the impact of TV watching on comprehension and decoding skills. In particular, they found that TV watching exerted an inhibitory effect on reading comprehension, whereas the development of decoding skills was promoted by the reading of subtitles. The inhibitory effect on reading comprehension was, according to their interpretation, partly due to reduction in leisure-time reading (displacement hypothesis), and to negative attitudes that children developed towards reading (reading-depreciation hypothesis). More recently,

Ennemoser and Schneider (2007) found in a German longitudinal study that watching educational TV programmes was positively correlated with reading comprehension, whereas watching entertainment programmes had a negative influence on reading comprehension. Heavy viewers progressed much slower than medium and light viewers in the development of their reading skills. With respect to the aforementioned hypotheses, only the displacement and the reading-depreciation hypotheses were partially supported, that is, that the relationships between on one side the amount of leisure-time reading versus TV watching and reading skills, and, on the other side between attitudes and reading skills were not particularly strong, suggesting that the mechanisms are more complex and interact with each other. Finally, in a recent review on impacts of TV watching in young children by Moses (2008), it was concluded that moderate amounts of television viewing are beneficial, that educational programmes have a more positive impact than entertainment programmes, and, that programmes that aim to promote literacy in young children have a positive effect on the development of specific early literacy skills.

### **Other actors/institutions that could promote reading outside the school**

Libraries obviously also promote the reading of books in several ways, by organising different

sorts of events. However, in a literature search (ERIC and PsychInfo) not a single reference could be found, neither for role models nor for libraries, that deals with effects on reading achievement. For this reason it is impossible to discuss possible positive effects of on one hand role models and on the other hand, libraries.

### **General conclusion**

Reading outside the school can best be promoted by:

- 1) Relating outside school reading activities to in school teaching of reading and reading by children.
- 2) Training parents how to support their

children at all levels of reading development.

- 3) Home computers and other tools can assist and even replace parents who cannot offer support to their children.
- 4) Watching educational and especially targeted TV programmes.
- 5) Focussing at the development of reading skill in the child, because only equipped with appropriate skills children will be able to profit from exposure (= leisure-time reading).
- 6) Convincing boys that reading is 'cool'.

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