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Are "reader-friendly" texts always better?

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Abstract

This study involved 60 participants. 50 % of the participants were identified as normal readers, i.e. they could decode text adequately well, and 50% were identified as poor readers. The participants were exposed to two types of expository texts (1) authentic texts and (2) easy-to-read ("reader-friendly") texts. Text comprehension was investigated by means of questions relating to the text. There was a significant difference between poor and normal readers when they read the authentic texts. Somewhat surprisingly, the normal readers performed better when reading the authentic texts than the "reader-friendly texts and the poor readers´ comprehension did not increase significantly when reading the "reader-friendly" texts. One reason proposed by the researcher, is that the "reader-friendly" texts were too easy, resulting in the normal readers not finding them challenging enough and the poor readers possibly found them too "childish".

Key words: poor readers, easy-to-read texts, authentic texts, reading comprehension, participation

Introduction: challenges in the text society

Work has become increasingly complex and low- skill jobs are disappearing from post industrial societies (Florida 2012).. The transition from low-skill jobs to high-skill jobs implies a demand for an increased reading and writing ability. Individuals face more complex kinds of written materials daily, and they require higher level literacy skills to understand and use the information contained in more complex written materials. Enhanced literacy is central to well-being of individuals in post industrial society and the ability to read and comprehend complex text is thus a necessary prerequisite for full participation in modern society and economy (Barton, Appleby, Hodgson & Tusting, 2006; Luckner & Handley, 2008).

Reading difficulties and marginalization

The transition from low-skil to high-skill employmenty has several social consequences. For individuals with reading disorders, such as dyslexia or severe reading and writing difficulties, there are risks of exclusion and marginalisation from the text society. Adolescents and adults who struggle to comprehend written texts find their options limited in school.. Constant failure and the feeling of not being able to decode words and understand texts are devastating for self-esteem, and may increase the risk of individuals being unable to participate actively as citizens, producers and consumers. If all citizens are to become equal members of society, they must have access to materials which arouse their desire to read and their curiosity. There is a need to break the vicious circle in which many poor readers struggle and to increase their reading comprehension. One way of breaking this cycle is by developing texts that have a high degree of readability (McNutty, 2003; Reichenberg, 2010).

Dyslexia is a hidden disability thought to affect around 10% of the population, 4% severely. A student with dyslexia may mix up letters within words and words within sentences while reading. They may also have difficulty with spelling words correctly while writing; letter reversals are common. However, dyslexia is not only about literacy, although weaknesses in literacy are often the most visible sign, it also affects the way information is processed, stored and retrieved, involving problems with memory, speed of processing, time perception, organisation and sequencing (British Dyslexia Association , 2012).

A regional experiment

The Swedish county of Västra Götaland distributes a quarterly magazine about the region containing information about healthcare. The information is presented in both an authentic [1] version and an easy-to-read version. [2]The results of a study, in which

[1] Researchers generally define an authentic text as a text originally created to fulfill a social purpose in the language community for which it was intended (e.g. Lee, 1995),

[2] In this text I will use easy-to-read interchangeably with “reader-friendly”. The common term is easy-to-read texts. However, the easy-to-read texts used in this particular study are called “reader-friendly”.

deaf students were exposed to authentic and easy-to-read texts from the magazine, demonstrated that the easy-to-read texts were not particularly easy because they had a low degree of readability (Reichenberg, 2010). When informed about the outcome of the study those writing for the magazine attempted to write in a more reader-friendly way, i.e. to write easy-to-read texts with a high degree of readability. There are reasons to believe that poor readers´ comprehension will increase when they are exposed to these easy-to-read texts with a high degree of readability[3] .

The challenge for research in this real life context was to investigate the possibility of designing a study where both authentic and the new "reader-friendly" texts from the above-mentioned magazine were used with readers representing different literacy levels.

Aims of the research

The overall aim of this study was to investigate poor readers´ and normal readers' comprehension of the new "reader-friendly" texts and authentic texts containing health information.

A further aim was to discover the opinions of poor and normal readers ´about how the readability of expository texts can be improved. .

The critical research questions investigated by the project included:

1 Do normal readers perform better than poor readers when they read authentic texts containing health information?

2. If so, will the difference in reading comprehension between poor and normal readers decrease when they read the new "reader-friendly" texts containing health information?

Literature review

Reading is a complex activity consisting of word decoding and comprehension skills**.** When readers can only decode with effort, decoding competes with comprehension effort for the limited cognitive capacity available for processing the text (Pressley, 2002).

However, even if students are able to correctly decode words written on the page/screen, their comprehension may be poor as a result of their unfamiliarity with the nature of written language. It is well-known that written and spoken language differ in many ways: There are syntactic constructions used in written language that seldom appear in the oral form, such as embedded sentences, explicit cohesive ties, appositive constructions, literary forms and expressions developed during a long

[3] Readability refers to the ease with which a text is understood by its readers.

tradition but never heard in spoken language. In written language, deictic forms such as there, here, now, this, him, she, must be clarified by linguistic means, while in spoken language contextual clues and situational gestures make these terms clear. Such contextual support is an important source of clues (Lundberg, 2002, Ong, 1996).

Poor comprehension may also be due to poor vocabulary. Written texts generally contain a far richer vocabulary than oral discourse. If more than 20 % of the words in a text are unknown, the resulting comprehension will be very modest(Lundberg, 2002). Limited prior knowledge also obstructs comprehension, as do lack of motivation and task orientation (Poskiparta, Niemi, Lepola, Ahtola, & Laine, 2003).

Many students have developed low self-esteem after continuous failure to understand texts resulting in school day messages about intelligence, intellectual ability and fixed knowledge and skill sets. To avoid further failure, poor readers have developed various strategies, such as using a minimum of effort when reading. Not to try is not to fail (Pressley, 2002). These strategies may help readers to realise the aim of avoiding failure but will not promote deeper comprehension.

Easy-to-read texts

Unfortunately while the readability of texts containing health information has not been a focus for educational research in Sweden, more can be found in international research (Dumitru, Amato, & Zwarts, 2002, Adkins, Elkins, & Singh, 2002, Paasche-Orlow, Taylor, & Brancati, 2003**.** Dawson & Trapp, 2004). Swedish research has dealt mostly with the readability of texts in school textbooks (Ekvall, 1991, 1995; Melin, 1995; Sandqvist 1995, Reichenberg, 2000). The opinions of researchers are divided over the use of authentic or easy-to-read texts. Supporters of easy-to-read texts maintain that such texts have the following characteristics; easy to read texts are short, have short sentences and employ mostly frequently used words Short sentences are clearly easier to read than long ones but a text consisting of short sentences risks having a poor rhythm and cohesion and may be difficult to read. Such texts will almost certainly appeal to many students, simply because they contain a large number of sentences which everyone can learn by heart, like learning purely factual knowledge. However, the ability to learn by heart a number of details in a text does not necessarily mean that the text has been understood.

Another characteristic of easy-to-read texts is that as they focus on “necessary” information, they are compact regarding information content and much information is implicit rather than explicitly stated. Such texts lack the coherence needed to enable students to draw connections between ideas and events and as such do not promote a deeper understanding (Britton & Gülgöz, 1991, Beck, McKeown, Sinatra, & Loxterman, 1991, Ekvall, 1991, Selander & Skjelbred, 2004, Wikman, 2004, Pretorius, 1995, Reichenberg, 2010). These findings are also aligned with Reichenberg’s findings (2003, 2010) in her initial study of 48 Swedish-speaking pupils with normal hearing, aged 13-14 (7^{th} grade in the Swedish school system). Of them 24 were poor readers and 24 were inexperienced readers. They were exposed to both authentic and easy-to-read texts concerning history. Their comprehension did

not increase when they read the easy-to-read text versions and the inexperienced readers even achieved a higher score when they read the authentic versions. In her second study Reichenberg (2010) found that easy to-read texts were best for good deaf but not for poor deaf readers.

Authentic texts

Supporters of authentic texts often turn to theories of cohesion, which emphasise that language depends on cohesive devices and the more coherent a text is, the easier it is to understand. Because most easy-to-read texts are created using readability formulas that cut word and sentence lengths and omit connectives between sentences in order to shorten them they lack the cohesiveness of authentic texts. The "easy-to-read theory" seems to presuppose that the text transmits its content to the reader, like a computer. According to these researchers, attempts at simplification frequently result in a text that is more difficult to understand than an authentic text, since in the process of simplification, structures are removed that are relevant in facilitating understanding. It is difficult to construct a coherent representation if the information in the text is too skeletal and if the relations between entities of the text are rather more frequently implied than explicitly stated (see Long & Ross, 1993, Pretorius, 1995, Crossley, Louwerse, McCarthy & McNamara 2007). Following the cultural psychologist Bruner (1990), one could argue that the computer is a poor metaphor for the human brain. A computer can deal with fragmented data, i.e. "bits". The brain, however, needs "cues" like cohesive ties in order to discover patterns and retrieve meaningful information. The brain also needs a "story" or "voice", i.e. a way in which the text serves as scaffolding for the reader´s understanding (Beck et al., 1995). This makes knowledge acquisition from texts more pleasurable.

Central concepts

The term readability was used in the previous section. Research has identified features that give a text a high degree of legibility and readability.

Legibility refers to the following elements:

Text layout on the page- i.e. where the various text elements are placed on the page (subsections, diagrams, maps, charts, fact sheets, photos). Well-organized text facilitates learning and reading speed (Linderholm , Everson, van den Broek, Mischinski, Crittenden & Samuels, 2000).

Typeface, serif fonts make it easier to identify words in continuous text. The rule is that sans-serif type is less efficient for reading, but better for legibility—initial character recognition—hence it is used in early reading books and for signage. Notable efforts have been made to design sans-serif fonts with calligraphic characteristics, providing a distinct left to right emphasis. The assumption is that serif fonts are easier to read and that is why Times New Romain is used so often.

Typesize, 12 is recommended for use in continuous text and 14 or more for beginners.

Line length, lines which are too short or too long cause inefficient eye movements. When considering reading speed, researchers have recommended line lengths in the range 6 - 9 cm (depending on the size of type and margins). The width of a VDU is often about 25 cm and an A4 worksheet may have lines of 18 cm. Lines that contain 7 - 12 average length of words seem to be optimum.

Grafic illustrations should be simple, easy to look at and placed beside the text they are intended to illustrate. Otherwise the text will be cluttered and difficult to read (Lundberg & Reichenberg, 2009).

Readability

One way to grasp the readability of texts is to use readability formulae. Readability formulae have been used since the 1930s to measure the difficulty of a text in quantitative terms. Readability scores provide information concerning the number of years of education required to read a given text. One such readability formula is designated LIX, which is short for *läsbarhetsindex* and was developed by Björnson (1968). LIX is quick to use, reliable and easy to interpret. It can be used reliably from elementary to adult level. LIX differs from English readability formulae in two important ways. Firstly, it bypasses the problem of whether to count monosyllabic words, polysyllabic words or total syllables by including only words of more than a certain length. It is a measure which ignores the linguistic rules of syllabification the suggestion is potentially useful across languages (Anderson, 1983).

Björnson (1968) provided the following reference values for interpreting LIX scores, for Swedish.

30 very easy, books for children

30 – 40 easy, popular science

40 – 50 medium, texts in newspapers

50 – 60 difficult, official documents

60 very difficult

LIX can also be used to measure OVIX (= *ordvariationsindex*) i.e. word variation in the text. If the text contains many different words in relation to its length it will have a high OVIX value. A value of 60 represents a text with little word variation while 70 reflects wide variation.[4] However, readability formulae do not take into account other structural variables that are important determinants of comprehension , such as text structure, text cohesion, the readers´ prior knowledge, the readers´ goals, and text aids such as typographical cues, tables and graphs. (Linderholm et al., 2000). In an

[4] $\frac{log\ word}{log\left(2-\frac{log\ lexeme}{log\ word}\right)}$

overview of the research Lundberg and Reichenberg (2009) found that readability increases if (a) the text has a rhythm, meaning that there is a mix of long and short sentences, (b) the active form is used instead of the passive, (c) there are few long compounds, (d) it contains illustrations connected to the text (e) a personal voice is used (f) many causal and referential connections are present, because they make a text coherent and with such a text the readers do not have to make an excessive number of inferences in an attempt to understand the relations between ideas and events. Instead they can concentrate their cognitive efforts on integrating text ideas. The number of causal and referential connections present in a text will determine its difficulty level (Linderholm et al., 2000), (g) the content is familiar to the reader. When readers have schema [5] available for the content presented in a text, they will comprehend it more easily than readers who are unable to bring to mind schema that are congruent with the information given in the text (Linderholm et al. , 2000).

Method

The method of choice was experimental. The basic idea was to divide the sample in two groups: normal and poor readers. The division was based on scores on decoding tests and information from teachers. In the section below the author will present (a) the tests and texts used. (b) How the participants´ reading comprehension was tested.

Participants

There were 60 participants in the study, 39 females and 21 males. Half of the participants had dyslexia/severe reading and writing difficulties; they were, in other words, poor readers. Half could decode adequately and were normal readers.

The selection of poor and normal readers was based on information obtained from (a) special educational needs teachers at upper secondary school and adult education who had tested the students and given them special education due to their reading and writing difficulties. Twenty-five of the participants attended upper secondary school, and most of them attended the Individual programme where they studied core subjects and were given adequate time for learning without stress, in a calm, secure environment. In addition 28 students were recruited from adult education (b) through FMLS [6]which is an organisation for dyslexia in Sweden participants were also recruited. The participants´ mean age was 30,3 years. The selection was so wide-ranging because it was difficult to find participants diagnosed as dyslexics or as having severe reading and writing difficulties.

The vast majority of the participants were native speakers of Swedish (n=45) and most of those who were not native speakers were born in Sweden.

[5] Anderson (1984) defines schema as organized knowledge structures of the world. Schema contain not only knowledge about concrete elements but also relations among various elements.

[6] FMLS in Swedish Förbundet Funktionshindrade Med Läs- och Skrivsvårigheter

Instruments

Tests: Iit was particularly important to have a valid and reliable assessment of word decoding since it is a key function in reading. This function was assessed using the *Word chains* task presented in Swedish. This task yields a measure of word recognition efficiency in a group format without being confounded by pronunciation difficulties. A word chain consists of a number of words linked together (girlchairmeat), and participants are required to identify the spaces between the words with a pencil slash (girl/chair/meat) dividing as many word chains as possible in 2 minutes. The word chains test has proved to be highly correlated with conventional word reading tests and many other more complex measures of reading ability. High scores on a word chains task require, fast and accurate word recognition at the orthographic stage of reading development (Høien & Lundberg, 1999). Test-retest reliability is .90. (Jacobson 2004)

Another key function in reading is to comprehend phrases and sentences. The participants were therefore presented with a sentence chain test. In this type of test the participants are given sentences not separated by spaces, and without capitals at the beginning and full stops at the end. The participants´ task is to mark the sentence boundaries. The performance was expressed as the number of correctly divided chains within a period of two minutes. The maximum score on the word chain test was 64 and 80 on the sentence chain test (Jacobson, 2004). The third test - *Which picture is the right one?-* consisted of 38 items where each item required the student to identify one picture (out of four) which perfectly matched the sentence or sentences printed below the row of four pictures (Lundberg, 2001). Almost half the items contained more than one sentence. The score on this test was the number of pictures correctly marked within five minutes. Good performance on this type of task requires a certain level of fluency, precise word recognition and sentence processing. The issue is not higher order comprehension including advanced inferencing. The test was constructed by Lundberg (2001) and is standardized for students in grade 3. The test-retest reliability is .89.

Texts: Six authentic texts and six new “reader-friendly” texts of the authentic versions were used. All six texts dealt with subjects connected with health and welfare, e.g. what to do if you want to donate organs or blood, how to avoid getting Aids, what number to dial when you fall ill and want medical advice etc. Reader comprehension of the six texts was investigated by means of questions about the text.

Procedure

Following the approval of the Ethics Committee, permission to conduct the research was sought from head teachers, parents and participants. Once permission was granted meetings were held with these stakeholders outlining the details of the research. The informed consent of the participants was secured by providing everyone with letters of consent and consent forms. The names of the participants reported in the sections that are following are fictitious.

Each participants´ text comprehension was tested individually by the author. One text at a time was presented with short breaks in between. The participants were instructed (a) that they would be exposed to questions to the text after the reading (b) to read the text carefully (c) not to hurry since there was no time limit for the reading (d) that they were allowed to keep the text when answering the questions since the author did not want to test if they had learnt the text by heart. Rather the intention was to test text comprehension.

As mentioned above, comprehension of the six texts was investigated by means of four questions about each text. To avoid being unfair to those students who had difficulties expressing themselves in writing or to those who simply disliked the thought of writing the participants were allowed to answer the questions orally and their answers were recorded and assessed by the researcher. The participants also had the questions written in Swedish. The tests for testing decoding ability and comprehension were group-administered and carried out by the author. Two different types of questions were used. There were factual questions (where the correct alternative answer agrees, largely, word for word with the text).

Example. Who is qualified to donate blood ? (factual question)

The text states: Anyone who is healthy and well, weighs more than 50 kilos and is between 18-60 years old is qualified to donate blood.

There were also inferential questions where the answer is not clearly expressed in the text, meaning that the student had to "read between the lines"

Example. What are the responsibilities of a person who donates organs?

The doctors examine the organs and if they can be used. (The easy-to-read version)

The person who has decided to donate his/her organs will be medically examined to see if the organs are healthy. (The authentic version).

Neither the easy-to-read text nor the authentic text explicitly states whether or not the organ donator has a responsibility. The reader has to use the clues in the texts. Since the doctors will investigate whether my organs are medically acceptable it must the doctors who have the responsibility. Consequently I do not have any responsibility at all regarding my organs.

Having answered the questions the participants were then asked individually what they would like texts to be like and to identify crucial elements of a good text. Their answers were recorded and assessed by the researcher.

Results

In this section, firstly an analysis of the six texts will be presented followed by a presentation of reading ability tests and the six texts that were read. Additional data will also be provided on what the participants considered were the crucial elements of

a good text. Representative excerpts from the interviews, illustrating the answers, will also be given.

The legibility and readability of the six texts containing health information

Let us investigate the six texts more carefully with respect to their legibility and readability:

(a) The “reader-friendly” texts used a bigger font (13.5) than the authentic texts (font 9).

(b) The line lengths in the authentic texts ranged from 4.1 to 6.0 words and the line lengths in the easy-to-read texts were 5.3 to 9.1 words. The line lengths in the easy-to-read texts were thus longer than those in the authentic texts. The lines in the authentic texts are thus shorter than recommended by the researchers (Lundberg & Reichenberg, 2009).

(c) The paper, on which the authentic texts were presented, was divided into columns, with few words on each row. Two of the authentic texts had as many as four columns, three texts had three columns. This resulted in approximately five words on each row. None of the “reader-friendly” texts had columns.

Studies have demonstrated that it is more difficult to read texts in smaller fonts and with many columns because such texts have a low degree of legibility (Lundberg & Reichenberg, 2009).

(d) *Type face*. The “reader-friendly” and the authentic texts were written in Quadraat type face. However subtitles, introduction and fact sheets in the authentic texts were written in Franklin Gothic.

(e) LIX and OVIX

Reader-friendly texts	*LIX*	*OVIX*
“Organ donation”	24	42,98
“Blood donors”	25	55,69
“Sleeping disorders”	24	62,28
“Uterine cancer”	36	60,91
”HIV prevention”	33	62,52
”Dial 1177”	32	53,87

Table 1. LIX. OVIX. “reader-friendly”.

As can be seen from Table 1 LIX values are between 24-36. Regarding OVIX three texts are above 60. According to LIX the easy-to-read texts are very easy to read.

Authentic texts	*LIX*	*OVIX*
“Organ donation”	30	59,95
“Blood donors”	35	67,7
“Uterine cancer”	37	57,55
”Sleeping disorders”	37	66,18
”HIV prevention”	41	73,61
”Dial 1177”	44	56,24

Table 2. LIX. OVIX. Authentic texts.

Table 2 shows that LIX values vary from 30-44. Regarding OVIX

Only two of the texts are below 60. According to LIX the authentic texts are of medium reading difficulty.

Texts	*Number of words*	*Average sentence length*	*Line length*
“Blood donors”	493 (171)	11,2 (11,4)	4,3 (5.3)
“Organ donation”	804 (292)	9,4 (12,2)	5,8 (9,1)
“Sleeping disorders”	405 (103)	13,5 (17,2)	4,1 (8,6)
”Uterine cancer”	360 (162)	13,3 (13,5)	6 (7,7)
”HIV prevention”	427 (145)	14,7 (10,4)	5,5 (8,5)
”Dial 1177”	452 (126)	15,6 (14,0)	4,8 (7,9)

Table 3. Comparison of authentic texts and “reader-friendly” texts).

All the “reader-friendly” texts are much shorter than the authentic texts (Table 3). The shortest one has only 103 words and the longest 292 words. This should be compared to the number of words in the authentic texts where the shortest text about uterine cancer, has 360 words and the longest, the text about organ donation, has 804 words. The question then arises of how it is possible to include the same information in the “reader-friendly” texts as in the authentic texts. In the “reader-

friendly" texts unnecessary and distracting details are excluded and explanations are simplified.

It is noteworthy that four of the "reader-friendly" texts have a longer average sentence length than the authentic texts.

(f) There are causal connectors in both authentic and the "reader-friendly" texts . Thus the information is presented in a way that explains the connections between a cause and an event and between an event and a consequence.

(g) There is also a personal voice in all the authentic texts and in four of the "reader-friendly" texts. Studies have demonstrated that the linguistic variable voice may improve students´ comprehension since it is a way of engaging readers with the text. In cognitive terms, engagement with text means the active processing of what is read and research has suggested that little meaningful interaction can take place unless a reader is active (Beck et al., 1996, Reichenberg, 2008). Studies have also shown that there is a need to balance the use of voice. In three of the "reader-friendly" texts this balance was not to be found since they contained too much voice (Beck et al., 1995).

Measure	Poor readers	Normal readers	t (58) / p-value
N	32	2 8	
Chronological age [a]	33.00 (17.48)	26.72 (12.57)	-1.51 / .12
Word chains	17.69 (6.88)	30.03 (6.57)	7.08 / < .001
Sentence chains [b]	23.61 (8.79)	37.71 (9.04)	6.07 / < .001
Picture [b]	21.68 (6.21)	28.75 (5.78)	4.51 / < .001

[a] = Three missing normal readers

[b] = One missing poor reader

Table 4. Description of background data (means and standard deviations)

The participants´ results on the three reading ability tests

Individuals in the poor and normal readers groups were randomly assigned to either a reader-friendly" text version or an authentic text version.

The maximum score on the word-chain test is 64, on the sentence- chain test 80 and 38 on *Which picture is the right one*? A between- group comparison design was used. Individuals in the poor and normal readers groups were randomly assigned to either a "reader-friendly" text version or an authentic text version. Group comparisons were performed on the summed reading comprehension scores across reading groups, and across text versions within each reading group separately. As the distributions for the reading comprehension measure deviated from normality, non-parametric statistics were used, the Mann Whitney U-tests for independent samples. One-tailed significance testing was used as a priori hypotheses were formulated.

Descriptive group data on background measures is presented in Table 4. As can be observed, the normal and poor readers did not differ with regard to chronological age. As expected, normal readers consistently perform at a higher level on all three measures of basic reading skills.

"Reader-friendly" texts and authentic texts

In order to test poor and normal readers´ comprehension of the authentic and the "reader-friendly" texts the following two hypotheses were tested:

1. Poor readers score lower on reading comprehension than normal readers when they read authentic, expository texts.

2. Differences in reading comprehension between normal and poor readers will be smaller when they read the “reader-friendly” texts.

	Group	
Texts	Poor readers	Normal readers
Authentic texts	14.56 (3.88)	16.47 (3.81)
“Reader-friendly” texts	15.19 (2.01)	15.85 (1.99)

Comprehension results for authentic and “reader-friendly” texts

From Table 5 it can be seen that the normal readers (N = 15) performed at a higher level than the poor readers (N = 16), U = 167, p = .03 (1-tailed) when they read the authentic texts. .

There was no difference between poor (N = 16) and normal (N = 13) readers on the summed reading comprehension score for the “reader-friendly” texts, U = 128, p = .145, 1-tailed.

To test that the hypothesis that reading comprehension performance of poor readers’ increases more when they read the “reader-friendly” expository texts, comparisons between text versions were conducted for poor and normal readers separately. Unexpectedly, this analysis showed that normal readers performed at a *higher* level on the authentic text (N = 15) than on the “reader-friendly” text version (N = 13), U = 61.5, p = .045, 1-tailed. In contrast, poor readers performed numerically somewhat higher on the “reader-friendly” text version; however, the difference relative to performance on the authentic text version was not significant in this group, U = 127, p = 0.485, 1-tailed.

Thus, poor and normal readers differed when reading the authentic text, but performed at a comparable level on the “reader-friendly text. However, unexpectedly this result was not due to a better performance on the “reader-friendly” texts than on authentic texts for poor readers, but rather that normal readers perform at a *lower* level when reading the “reader-friendly texts, compared to their own performance on authentic texts. Maybe the normal readers found the short reader-friendly texts with their simplified explanations not challenging enough since they did not need to actively process these texts as much as the longer authentic texts. Consequently, the reader-friendly texts did not motivate the readers sufficiently

How can texts be improved?

After the students´reading comprehension had been tested they were asked for their opinions about the texts, and what characterizes a good text, i.e. a text with a high degree of readability. Both normal and poor readers agreed that a good text is characterized by: A big typeface, space between the lines, no columns, shortness (legibility)

Short texts, no columns on the page. *Columns give me the impression that there is too much text on the actual page. I see letters all over and it´s like that I get the impression of letters all over the page. It is so difficult to read and I must use the reader liner (it is a reading helper for dyslexics) when I read (Anne, poor reade*r).

Both normal and poor readers agreed that a good text is characterized by: use of frequently-used words, a narrative style, causal connectors, graphic illustrations connected with the content of the text. Catchy headings, that capture your interest and motivate the reader to read the text. They also thought that too many details distract the reader from the actual content, and that a good text is not childish.

…*I appreciate narrative texts. They are easy- to -read. (Lenny, poor reader).*

… texts that "stimulate" my thinking. …(Luke, poor reader)

…texts that challenge me (Philip, poor reader)

…many examples in them. I don´t like texts with too many details (Sean, a normal reader).

…Not childish (Philippa, poor reader).

… texts that explain cause and effect make the reading easier (Imogen, poor reader).

…Coherence in the texts. The heading must fit the content of the text (Noel, poor reader).

…Simple, divided into sections, interesting, descriptive, plain Swedish (Shirley, normal reader).

…Not too much academic language, not too many infrequent words… (Tara, normal reader).

…better design… I threw the newspaper (i.e. Regionmagasinet which was the source of the texts tested) in the trash when I got it in my mailbox (Kathy, poor reader).

As can be seen the participants had several suggestions about how to improve texts. Both normal and poor readers want texts that are interesting and stimulating, narrative and descriptive and are well designed. Their demands are in line with research which shows that such texts promote a deeper understanding of their content (Lundberg & Reichenberg, 2009).

Discussions and conclusions

In this study 60 participants were exposed to six texts under two different conditions.

When interpreting the findings of the study, it should be remembered that the study had some limitations (limited number of participants). It was difficult to find participants with reading disorders, dyslexia or severe reading and writing difficulties. However, the sample size did allow measurement of statistical differences in the two groups forming this sample size (cf Borg & Westerlund, 2007, p 388).

When we investigated normal and poor readers´ results on the texts we found, not surprisingly, that the normal readers performed significantly better on the authentic texts than the poor readers. There was a significant difference between poor and normal readers on these texts. We also found that the poor readers´ comprehension increased numerically when they read the "reader-friendly" texts. However, the difference in comprehension was not significant. Furthermore we found that the normal readers performed better on the authentic texts than on the "reader-friendly" texts. The results are aligned with Reichenberg (2003). However, in that previous study the easy-to-read texts had a low degree of readability whereas in the current study the "reader-friendly" texts had a high degree of legibility and readability. They thus differed from the common perception of easy-to-read texts in which often a single linguistic feature is consistently modified, such as the shortening of sentences with the consequent lack of no causal connectors. How can we explain these results?

The authentic texts did not have such high readability as those in Reichenberg (2003). In almost all the authentic texts, in the current study, the information was given in three or more columns. In a previous study the participants thought that it was hard to read texts in columns because it was difficult to relate the sections to each other (Reichenberg, 2010). This is also in line with other research that has demonstrated that it is more difficult to read texts that use smaller fonts and many columns because the texts have a low degree of legibility (Lundberg & Reichenberg, 2009). The authentic texts had far more words in them. On the one hand they were harder to read than the easy-to-read texts but on the other hand the readers were really challenged and that may have benefitted the normal readers. The results are in line with McNamara, Kintsch, Butler Songer and Kintsch (1996). In their study the good readers performed better on the authentic texts than on the easy-to-read texts. One of their conclusions is that reading must be challenging enough to stimulate active processing but not so difficult to prevent comprehension.

All "the reader-friendly" texts were much shorter than the authentic texts. The normal readers may have found that they were too easy and were consequently not sufficiently challenged when reading these texts. They had to make more effort when reading the long, authentic texts. Why, then, did the poor readers´ comprehension not increase more when reading the "reader-friendly" texts? One reason may be that the texts were written in a way that they found childish. The reader was addressed very directly in the easy-to-read texts. In the interviews in the current study the participants also stated that they did not appreciate childish texts, and that they wanted to be challenged and stimulated to think. It is important that writers do not

underestimate their readers and end up with too much “voice” and texts that are too short.

The bigger type face in the “reader-friendly” texts certainly increased the legibility and thus probably motivated the poor readers to read them. Both normal and poor readers agreed that a good text is characterized by: large typeface, space between the lines, no columns and, shortness (legibility). However, in practice these characteristics do not seem to help the readers to understand the text.

Many citizens are excluded from society and working life because they have difficulties reading and writing. There is a need to break the vicious cycle in which many of these poor readers are struggling If they are to become equal members of society they must have access to materials which arouse their desire and curiosity to read. Thus texts are required which can be read by poor readers whose varying prior knowledge of written Swedish varies as their knowledge of the specific areas.

Revising authentic versions into easy-to-read versions is very complicated. In producing such texts cooperation between the university, educational publishers and teachers is important. Extensive cooperation, where research and development go hand in hand, should provide fertile ground for text improvement.

Forthcoming studies

This study suggests that future research would benefit from additional studies that explore the relation between easy-to-read texts and authentic texts and are controlled for other possible interacting variables. This study was mainly interested in comparing the two types of text, but it is uncertain whether other variables, such as reader characteristics or genres, interact with the comprehension of these text types. The study also highlights that we still know very little about the extent to which civic texts are actively read. To date we know that they may be distributed across a large number of households but we do not know either to what extent people actually read them or, more specifically, what types of articles they choose to read. This could be explored further in an ethnographic study for example.

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