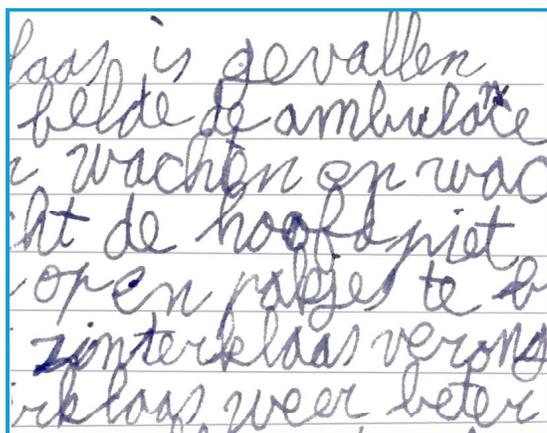


Less training, but a better handwriting



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In the article 'Knoeiwerk' (Bungle) in JSW¹ (number 8 of April 2005) Mr. M. Keulen reported on the results of the 'Periodic Assesses of the Educational Content and Results of Primary Education'² that was performed by Cito³ in 1999. The underlying article contains a response to this assessment and one of its most remarkable conclusions. It also includes proposals for improvement and simplification of such an assessment and of the subject of the assessment, being the quality of handwriting in primary education. In addition, a number of recommendations are provided on how to consolidate the quality of handwriting achieved in the first years of primary school through an extension of training during later years.

Two findings from the 'Periodic Assesses of the Educational Content and Results of Primary Education' that was executed in the groups 5 and 8 only are remarkable:

1. During later years of primary school the amount of time used for the training of handwriting shows a distinct decline. Only half of the teachers in group 8 give handwriting lessons two times or more each month.
2. The percentage of pupils with a well-trained handwriting is clearly higher in group 8 than in group 5.

The most important conclusion that can be drawn from these findings is: 'Less training, but a better handwriting.' Anybody with experience in children's handwriting knows that this can not be true. Also the author of the article published in JSW refers to this outcome as 'surprising', but only arrives at the conclusion: 'Don't change something that works well.' But are things really going that well? Anybody involved in the handwriting of children (even the children themselves) knows that this is not the case. Mr. Keulen himself writes: 'Many parents feel that the handwriting of their children is far from ideal.' This is significant.

Parents represent a large group of readers outside of the educational system who are not burdened by the professional deformation and forgivable attitude of teachers.

The fact is that teachers are able to read handwriting that others can not decipher. He/she is used to different qualities of handwriting and knows the script. Teachers are the 'chemists' of their little 'physicians', able to read anything their pupils commit to paper. The abovementioned findings should have triggered *Cito* to reconsider the method and report of its assessment. When all agree that it rains, whilst an assessment concludes sunshine, the assessor at least should explain why his/her conclusions are different from the general observation. This has not happened here. One can only wonder why *Cito* came to this conclusion in the first place and secondly, how things could be improved.

What went wrong?

The *Cito* report describes amongst other things how the lack of funds limited the number of primary school groups and the number of handwriting samples that were to be included in the assessment. In addition, only nine out of 25 quality criteria were used to assess the handwriting samples (size of character, irregular x-height, irregular baseline, etc.).

1. A monthly magazine for primary and special primary education.
2. Periodieke Peiling van het Onderwijsniveau (PPON).
3. *Cito*, based in the Netherlands, is one of the world's leading testing and assessment companies for measuring and monitoring human potential.

Apart from that it is strange that the children never learned about the quality criteria in school, whilst these are used to evaluate their handwriting. For instance, the ‘stringing’ of loops and capitals is regarded as undesirable, however it is taught by almost every training method. How can children do it right?

Notwithstanding the fact that *Cito* used information on digital character recognition provided by *Prime Vision*⁴ before the start of the assessment, as advised by us, this method of evaluation remains very labour-intensive and therefore expensive. This was the reason why a part of the handwriting samples was not included in the assessment.

Readable writing...

The objective of the assessment as stated in the *Cito* report is: ‘An assessment of handwriting quality at primary education levels.’ The report continues asserting that ‘readability’ has been the criterion for the evaluation of handwriting quality: ‘Pupils can take care of the composition and presentation of their written work by attending to (...) the readability of their handwriting’. And it carries on with: ‘The study of handwriting quality in this assessment will focus specifically on those criteria that are related to the aspect of readability.’ If readability is regarded as the most important criterion for the quality of handwriting, many examples of handwritings will be scored being satisfactory. Completely unreadable handwriting is exceptional. However, the (development of the) quality of handwriting in a preceding phase is unacceptable. By using readability as the criterion pupils in the final years of primary school are put on the wrong leg. Their handwriting develops continuously and they themselves can not assess whether this development is positive or negative. As long as the teacher is able to read it the handwriting is not rejected. Readability in this case really means ‘decipherable by a teacher’, which refers to a time-consuming and costly process of decoding. *Cito* itself uses ‘the decoding of written text’.

...or writing with empathy?

What does this word mean? *uuu*

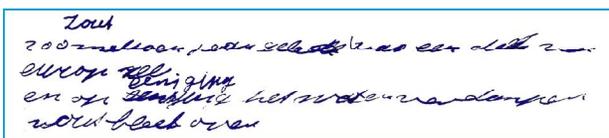
Not much can be recognised from this (however regularly written) word. There is no context to help; you have to guess its meaning. Maybe you will solve this puzzle when its context is available (see the end of this article). Then, the word is ‘decipherable’ or ‘can be decoded’. You will have to conclude now that the individual characters have become ‘readable’.

Different samples of handwriting were put before a group of teachers active in primary schools. The first criterion against which the writing had to be evaluated was the ‘general impression of readability’. However, when the general opinion exists that the quality of handwriting deteriorates the ‘readability’ criterion may not be the correct one to use. Each individual character should be recognised unambiguously without its context, in other words can be read. This is not how *Cito* did the assessment.

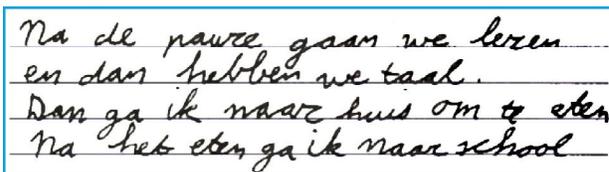
Speaking should be as understandable as possible, but on paper a lot is mumbled. In these times, often described as individualistic, it would help to stimulate the child to have empathy for the reader of its work. For a quality criterion therefore, the bar should move upwards towards ‘reading comfort’. Well printed characters present optimal reading comfort. This style of writing uses a balanced and regular x-height zone (explained later in this article) and a regular character and word spacing. Teachers as well as their pupils should have an interest to be able to read back (their own) written work comfortably. Readability is not the issue, but the convenience of reading is. Therefore, ‘reading comfort’ should be the criterion to judge the quality of handwriting.

Our own research

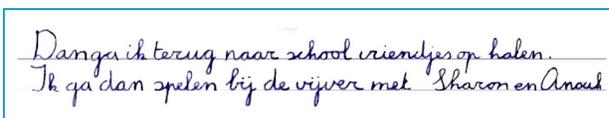
The *Script Development Foundation* carried out own research that assessed all individual and unprepared handwriting of all groups (group 4 – 8). A different method was discussed and worked out with colleagues from a few teacher training colleges. The method included the possibility that the handwriting samples could be categorised quickly as being satisfactory, moderate or insufficient.



insufficient



moderate



satisfactory

4. Laboratory that does research on digital character recognition for TPG-Post.

In case of doubt the 'moderate' category was used. When the authors of this article showed a number of handwriting samples to the Cito assessment leader he quickly categorised these samples correctly. He agreed that this method would be an acceptable procedure to assess the differences in quality between all groups, provided the reviews were carried out by the same person(s). To better substantiate the results it was agreed with the researchers (being mostly full-time and part-time students) to accept the 'x-height zone' norm for the assessment of the handwritings. The principles and importance of the x-height norm are therefore clarified first.

X-height zone

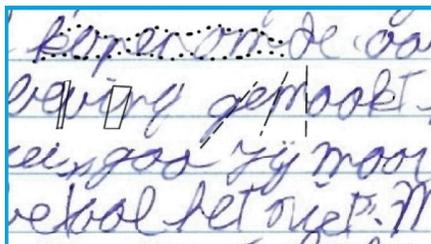
Next to characters shaped according to the convention, the most important element of comfortably reading text is a stable and undisturbed x-height zone. When drawn correctly, the top and bottom of the character's body (the part without ascender and descender) touch the upper and lower boundary of the x-height zone.



The following features make up a stable and undisturbed x-height zone:

1. Horizontal parallelism of the upper and lower x-height boundaries.
2. Vertical parallelism of the straight and curved ascenders and descenders (and upright i.e. higher rather than wider).
3. Regular character spacing. The white space inside of a character's body should be approximately equal to that between adjacent characters.

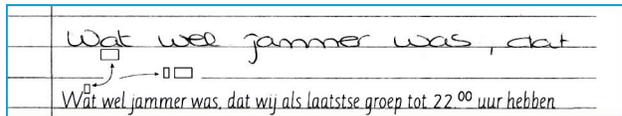
The x-height zone is called 'stable and undisturbed' when all of the above features are satisfactory.



During the final years of primary school especially girls, who join up this way, develop the habit of 'printed' handwriting with horizontal character bodies and generally no distance between the letters.

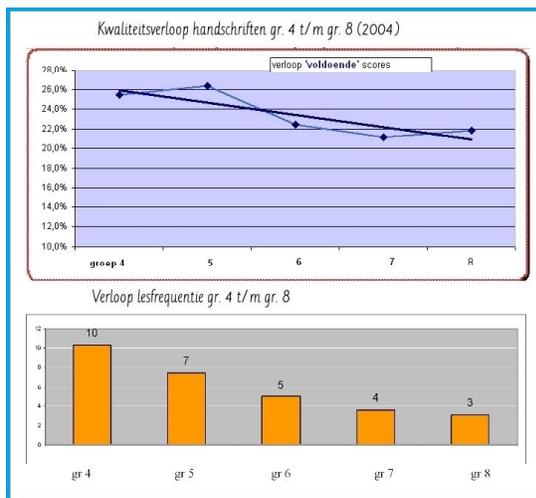


Often this type of handwriting is caused by an incorrect pen grip (sometimes copied from others as well) whereby the thumb is placed on the pen and sometimes even on top of the index finger. As the vertical bending and stretching motion is hampered with this pen grip, mainly movements from the wrist remain that cause predominantly horizontal displacements of the pen. Moreover, an almost horizontal position of the upper part of the writer's body must be adapted to have a clear view of the pen's tip from under the crooked thumb. This writing style should be discouraged forcibly for a number of reasons. It creates a lot of tension, requires more hand movements and consumes a lot of paper. Three times as much text could be placed in the same space when using a identical x-height (see the examples below). Large spaces between letters and words require even more displacements of the hand and results in even more paper-gorging handwriting, which is clearly not an issue for these children. The question remains in how far the desired printed writing has been achieved.

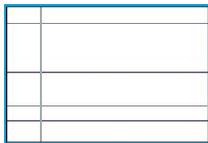


Research

Our own research in 2004 was executed as described earlier in this article with the help of a few colleagues and many students, and included about 7,600 different samples of handwriting from various primary schools (groups 4 u/i 8). It focussed on reading comfort. This quality aspect deteriorates over time, as also concluded by *Cito* in their assessment. The results are shown in the graph below (curve and trend lines).



It is clear that the quality of handwriting in the final years of primary school is deteriorating. The researchers commented that this type of assessment (which totally lasted for about half an hour) not only provides a lot of insight in the quality aspects of handwriting, but also clearly unveils the seriousness of the (lack of) quality of handwriting in primary education. Striking is the dip in handwriting quality of group 6, which group was not included in the Cito assessment. In all our research results this group showed a dramatically bad performance. What really takes place in group 6? The graph displaying the training frequencies indicates a marked decline for this group. But there is more. For many writing tuition methods this is the first year in which children do not write within the two support lines (rail) anymore.



These two lines are the baseline and the x-height line. These lines provide support and are therefore named support lines. There are a number of arguments to maintain the use of these support lines for another year. Why could this tool not be retained on an individual basis until the actual quality of a child's handwriting will make it redundant?

In closing

It needs to be explained to children in this era of individualism that their handwriting is not meant for themselves only. They must try to imagine how others experience their writings. Going over each other's work may help to see their own handwriting through other eyes. To regularly discuss and analyse a randomly selected handwriting sample creates much awareness. Obviously, this requires time but also teachers will benefit from it.

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The authors are writing teachers and, together with colleagues, carry out research into possibilities for improving handwriting tuition.

Note:

1. To assist with assessing the quality of handwriting at your school, a database with instructions is available through info@schriftontwikkeling.nl.

Information

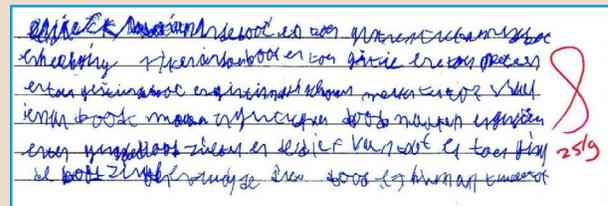
More concerning the research of PPON of the Cito can find you on www.cito.nl/po/ppon/nedtaal/eind_fr.htm

Tips for improvement

Here a few very practical tips on how to maintain (or even improve) the quality of handwriting with a minimum of time.

1. Set up a review process for each child, consisting of an exercise book in which the child attentively writes a few lines twice a year. This exercise book stays with the child when it progresses through primary school, starting in group 3. The development of its handwriting is then always available to both the pupil and the teacher. On the basis of these records the pupil may be asked why its handwriting used to be better a few years ago. Also, make a copy of the first page of the child's new exercise book for language lessons at the beginning of the school year, when all children start writing with good intentions. Put these copies away and, if the quality of an individual handwriting deteriorates in the course of that year, simply confront the child with the better performance earlier on.

2. Always give marks for the quality of writing, also when work done during language and geography lessons is assessed. For instance, indicate the mark following the letter H (of handwriting). Schools that do this already for many years know the power of it. The child as well is entitled to receive adequate feedback on its handwriting. An experiment that started off applying the above system in a particular group, but was given up purposely after a few months, demonstrated a distinct decline in handwriting quality. It follows the same logic as the cameras along our highways that register speeding cars. For the same reason, do not give high marks for bad workmanship.



3. Provide for fine-pointed writing material. This improves the quality of handwriting a lot. Writing the same word or line with a fine or a coarse pen-tip demonstrates the difference in quality. The coarse tip forces the child to draw large letter-shapes to avoid 'silting up' of the smaller parts of the characters. The x-height of normal letters is only 2.5 mm high. A very fine tip is required to draw this neatly; for instance an EF (extra fine) fountain pen. Also fine ballpoints are available. It should be possible to draw a circle between two lines drawn at 1 mm distance from each other.

