

The power of pen and paper: of undeniable value in the digital age

//always the *write* paper

//AURORA



//alwaysthe *write* paper

Dear reader,

At Aurora, we have always believed in the power of pen and paper, and that conviction is only strengthening. While digital learning and communication tools often produce turmoil, the physical act of writing restores calm and helps us to organise and clarify our thoughts.

It also brings many benefits for school-age children. Educational experts have demonstrated that pupils absorb the subject matter covered better and faster when they write it down than when they take notes digitally. Putting pen to paper stimulates our creative thinking processes, making it easier for us to come up with new and original ideas.

With this white paper, we intend to highlight the many advantages of pen and paper and show how this familiar method can help us in a digital world. The fact is, it is possible to use this method and the need for it is clearer than ever. On behalf of the Aurora team, we hope you enjoy reading this and, after gaining new insights into the value of pen and paper in part thanks to this input, rediscover the joy of writing, too.

Kind regards,

CEO Gert Cielen

Discover how you can effectively integrate pen and paper into your daily work routine and experience the benefits for yourself. Keep on reading and take the first step towards improving your creativity and focus today.

The importance of writing by hand

At a time when the academic performance of European pupils continues to decline, a return to pen and paper could provide a refreshingly simple solution. Ever more studies show that writing by hand not only enhances the learning process, but also fosters mental well-being and stimulates creativity. When we are constantly distracted by screens and notifications, the simple act of writing using pen and paper helps us to concentrate better, think more creatively and find peace in our hectic world.

Why writing by hand is better

Writing by hand has scientific benefits that go beyond simply recording information. Audrey van der Meer, professor of neuropsychology, had this to say about it to VRT NWS: *'Writing by hand stimulates your brain. You put it in a state where it finds learning easier and is better at retaining things, with far more networks engaged.'* Handwritten notes foster a deeper understanding because they force us to think actively about what we are writing down, instead of simply transcribing information. Educator Pedro De Bruyckere tells Het Nieuwsblad: *'You can't take notes as quickly a pen as you can using a computer. This means you're going to have to choose what to write down and give more thought to it.'* The process of selecting and reflecting ensures that we concentrate more on the core of the message, which results in more effective information processing than when we simply type.

Three advantages of using pen and paper

- It improves your memory and the learning process
- It promotes calm
- It stimulates creativity

Writing in practice

The benefits of writing apply not only to our personal lives, but also to education. A recent study shows that the academic performance of Flemish pupils is declining, particularly in science and mathematics. The number of pupils failing to achieve basic proficiency is rising, while the number of top performers is falling.

Flemish Minister for Education, Zuhal Demir, sees this as a major challenge for education. In an interview with VRT NWS, she says: *'Changing the books we use is the first step. We need to do away with workbooks.'* She emphasises that workbooks not only limit teachers' creativity, but are also insufficiently challenging for pupils. Experts agree: workbooks stifle teaching and provide too little scope for self-expression and deep learning. The importance of pen and paper cannot be overstated. Both in education and in our daily and professional lives, writing by hand provides benefits that digital technology cannot match. The plea to replace workbooks in education is an important step in the right direction. In a world that is changing ever faster, rediscovering the value of pen and paper is essential.

Benefit 1

Improve your memory and learning process

Writing with pen and paper is old-fashioned? Think again! Did you know that this traditional way of note-taking is in fact a powerful weapon for your memory and learning process? Studies show that writing by hand creates a deeper connection with your brain than typing, making it far easier to retain information. At a time when education is in crisis, with educational under-achievement continuing to rise, the simple technique of writing on paper offers a convenient and cost-effective solution. Paper is also an excellent ally for anyone wishing to pursue lifelong learning.

Writing challenges your brain

A Norwegian study dispels any doubt: writing with pen and paper does far more for your brain than typing on a keyboard. Researchers from the Norwegian University of Science and Technology discovered that writing requires more **complex movements** than typing, making your **brain work harder and process information more efficiently**. *'The brain is far more active when you write by hand, whereas there is virtually no measurable activity when you type on a keyboard'*, confirms Audrey van der Meer, professor of neuropsychology, in a Radio 1 interview. In another study, students were asked to copy words, some using a laptop and others pen and paper. The results are conclusive: **the brain activity of the writing group was far greater**. In other words, if you really want to remember something, it is better to use a pen than a keyboard.

Typing on a keyboard requires less energy from our brains than writing, but that is obviously not an advantage. Van der Meer explains: *'When you use a laptop, it is very tempting to type everything the teacher says. The information enters through your ears and exists through your fingertips, but you don't process the information at all.'* It's a different matter with pen and paper: you have to **make choices, summarise, rephrase and make connections**. This leads to deeper processing of the subject-matter covered and better retention of the information.

Tine Hoof, researcher at Thomas More, also a proponent of writing with pen and paper. He has the following to say in an interview with De Standaard: *'Typing on a computer is too fast a process. The advantage of writing by hand lies in the **limiting factor**. Taking notes by hand makes you think deeply. You have to **be selective and summarise selectively**. Deciding what you are going to write down is an active process. You process*

the subject-matter covered as you take notes.' This applies not only to students, but also to primary school children. By learning to write, you develop your motor skills and stimulate your memory. Using fewer workbooks and assisting pupils to write more themselves can also help them to truly understand and remember the subject-matter covered. It is an inexpensive and accessible way of improving learning quickly in these times of crisis that does not involve substantial financial investments.

The more active the learning process, the better the marks

Research also shows that students who take handwritten notes achieve better marks in tests than those taking notes digitally. This effect can be seen not only in language subjects, but also in subjects such as mathematics, where writing things down has been shown to aid understanding of complex concepts and problems. Paper-based courses therefore enable students to process learning material in greater depth than is the case with digital learning tools, which also provide more distraction, explained Professor Martine Valcke of Ghent University.

Nor is it a good idea for students to use AI or other technical tools to write summaries, according to Paul Kirschner, emeritus professor of educational psychology, in an interview with Radio 1. When you write a summary on paper, you are learning how to distinguish main points from minor points and are already processing the information cognitively at that point. With a summary created using AI, you are missing out that crucial step in the learning process.

At the same time, summarising information on paper need not be particularly time-consuming for students. For instance, the **Cornell method** was recently developed as a means of summarising notes quickly and efficiently. By dividing your note

page into three sections - a short summary, the key points and space for reflection - you create structure and improve your memory.

In addition to summarising, there are seven other learning strategies where paper can help you:

- Concept maps
- Drawing
- Imagining
- Self-testing
- Explaining to yourself
- Peer teaching
- Improvisation

Paper has not gone away

A preference for writing on paper can also be seen among our Flemish students and lecturers, too. A recent survey of 173 lecturers and more than 1600 students reveals that no fewer than nine out of ten students favour paper-based learning over digital courses. Swedish schools have also been persuaded of the power of paper; Education Minister Lotta Edholm wants to do away with digital screens in schools and return to textbooks and exercise books to bring the falling reading levels of Swedish pupils back up again.

In short, writing with pen and paper is firmly back on trend. It is a proven method for **better retention of information and more in-depth processing**. At a time when we often focus on digital technology in education, it is important not to forget that paper is one of the most accessible ways of imparting knowledge. Whether you are a student, a professional or someone who simply enjoys writing, the pen is and will remain a powerful tool for your brain.

Taking notes in class

'If you don't have time to write down every single word, you will have to take intelligible notes'; says Gertjan Vermeulen, economics and history teacher at Abdijschool van Zevenkerken.

'We dispensed with laptops in history lessons in one fell swoop. On the one hand, because they created an unwanted distraction and, on the other, because typing is faster than writing, and pupils with a laptop actually manage to write down everything. That sounds good, but it isn't. That is because if you don't have time to write down every single word, you will have to take intelligible notes, which means you are already actively processing the learning material during the lesson. I talk and my pupils take notes: at first glance, this would appear to be one-way teaching. However, because taking your own notes is so challenging, interaction actually increases. Anyone not understanding what I have said, realises that instantly and asks questions. The thing is, trying to write down a line of reasoning that you don't understand is a hopeless task. With workbooks, you as a teacher don't notice when pupils disengage, and the pupils themselves don't worry as long as every box is filled in.'

Source: Klasse

// Benefit 2

Putting pen to paper promotes calm

*Paper is so much more than a physical communication tool. It is a source of calm and reflection. Writing by hand forces you to **slow down**, and it is that very slowness that helps you to ground yourself in our fast-moving world. It provides a break, a moment to catch your breath.*

Back to basics

In a society full of likes, WhatsApp messages and endless notifications, writing is a way of **escaping** briefly. It provides a moment to consciously pause, **organise your thoughts and distance yourself** from the incessant noise. That process of reflection and self-expression provides space for healing and helps us to find some equilibrium in a world that seems to be spinning ever faster. Putting our thoughts down on paper enables us not only to let go of our worries, but also gives us **greater clarity of thought and inner peace**. *'In the act of writing, we distance ourselves from our worries and thoughts. When we write about a positive emotion or event, we relive it and enter a positive mindset'*, says applied psychologist Agnes Schilder in Gezondnu. Writing has a **therapeutic effect** and gives us a way of processing emotions and finding social support, making us **feel more balanced**.

Write yourself healthy

The effects of writing go beyond the mental aspect alone. Research shows that writing about life events can also benefit our **physical health**. Not only does it help reduce stress, it also **reduces feelings of anxiety** and can even **boost our immune systems**. Writing by hand provides healing benefits, as long as it doesn't feel like an obligation, but rather something you enjoy doing. *'It musn't become yet another thing on your 'to-do list'*, says Schilder. It will become a moment for you, a small daily habit that will contribute to your mental and physical well-being

Writing as a mirror of our thoughts

Writing also fosters a deeper level of **reflection, analytical thinking, introspection and processing of emotions**. It makes us **think more consciously** about what we wish to communicate and stimulates the process of considering the content of our thoughts. The slow pace of note-taking by hand encourages us to consider carefully our choice of words

and how best to express our ideas. It also contributes to our **awareness**; you reflect on what you are writing down. Noting down your thoughts on paper every day improves your ability to concentrate and makes you far more aware of yourself and your surroundings.

Writing as therapy

Marian Visscher, coach and freelance visual artist, swears by writing. She writes three pages every morning.

'Writing takes you to your core. I discovered patterns simply by putting all my thoughts down on paper. I'm honest on paper. I have nowhere to hide. I find unconscious thoughts surfacing. I started writing after reading the book 'The Artist Way'. One of the tasks in it was to start each day by writing three pages. At first, they featured mainly my anxious thoughts. By writing them down, I was able to start each day with a clear head, meaning I could live more in the here-and-how. After a while, other things emerged as well. For instance, I discovered that I frequently doubted whether my job as an art teacher was still the job for me. I realised that I have never become an artist because I was afraid it would be impossible. I felt responsible for supporting my family and thought that was incompatible with creating art. Since last summer, though, I have been a freelance artist. An increasing number of people don't know exactly what they want in life, or have secret dreams hidden away somewhere. I'd like to give those people a piece of advice: start writing. I say this because often the answers to your questions will already be somewhere inside you. Writing can help you bring those answers to the surface.'

Source: Gezondnu.nl

Inspiration and creativity

*In a world full of digital tools, writing by hand is a unique way of triggering our **creativity**. The physical process of writing stimulates the **creative spirit** and creates space for more **freedom** and **authenticity**. The absence of digital interruptions means that ideas will often emerge at a **deeper** and more **original** level, allowing us to focus on what really matters.*

Stimulating originality

The physical act of writing stimulates **creative thought processes** because it creates space for **unfiltered and intuitive ideas**. Many well-known artists and authors recognise the value of handwritten notes because writing longhand provides a deeper connection to their creative spirits. Longhand writing also conveys **authenticity** and **personality** that cannot be replicated by digital tools. For instance, author J. K. Rowling wrote the first two Harry Potter books completely by hand. Writing by hand often causes ideas to flow **more intuitively**, spontaneously and in a more **unfiltered way**. It also stimulates creative thinking because it encourages writers to seek inspiration and make connections between different concepts. What's more, it boosts the **imagination** and can lead to **new insights and creative solutions**. Wim Van der Linden, spokesman at Tempo-Team, agrees:

'In being available any time and anywhere, we overload our brains. That results in stress and reduces our creativity. And it is precisely that creativity that we need to nurture in tomorrow's labour market. It is what sets us apart from robotisation and artificial intelligence.'

The impact of texts in physical form on inspiration

When writing by hand, we often put more **energy** and **thought** into the writing process. The physical act of writing causes us to experience words differently. Every letter and every word is formed with care, activating your brain in ways that digital typing cannot. That increases **cognitive engagement** and makes room for **deeper, more detailed ideas**. Putting pen to paper gives us the chance to expand our creativity in a more organic way, without the sense of urgency or pressure that often accompanies digital tools.

Handwritten words break through creative blocks

Author Judith van Ankeren emphasises in Psychologie Magazine that the process of writing by hand can also be a very effective way of overcoming writer's block. Many writers find that when they are stuck, the physical act of writing helps them break through the mental block. Instead of being constrained by the limitations of a digital screen or a racing mind, handwriting provides space for **silence and reflection**. This can result in unexpected ideas or new perspectives that might otherwise remain latent. The slow and deliberate movement of the pen on the paper helps to bring about a state of flow where **creativity develops effortlessly**. The physical act of writing strengthens the connection with our inner thoughts and engenders a more profound exploration of ideas, leading to **original and creative breakthroughs**.

Five facts about pen and paper

Did you know that the colour of your pen can affect how you remember things? Blue, for example, is better for memory and focus!

Did you know that a piece of paper can be recycled five to seven times?

Did you know that paper can't generate permanent waste? The paper industry is one of the most environmentally responsible industries.

Did you know that wasps were the first paper manufacturers? Paper wasps chew the wood for their nests until it is so fine that it looks just like paper.

Did you know that a sheet of paper can be folded in half no more than seven times?

The future of writing using pen and paper is brighter than ever

Writing using pen and paper is anything but a retrograde step; it provides an experience that digital technology simply cannot match. However, we need to look beyond the past. The world of notes and learning is **evolving** fast, and it is time to think beyond the familiar horizontal lines and small squares.

Innovation plays a crucial role in how we **record, process and remember information**. Modern note-taking methods not only improve the efficiency of note-taking, but also stimulate the **learning process** we undergo and our **creative thinking**.

Recent innovations in teaching methods are opening the door to surprising new ways of learning and taking notes:

- **The Cornell method:** This tried and tested system helps you to summarise information quickly and effectively. Perfect for studying and actively gathering knowledge. By dividing your note page into three sections - a short summary, the key points and space for reflection - you create structure and improve your memory.
- **Gurvan Liniature:** Specially developed to support spelling, writing and reading, with special attention paid to people with dyslexia. The clear lines to write on improve legibility and enhance your general reading skills.

Techniques such as these make it clear that the days of simple note-taking using a ruler and squared paper are behind us. We live in an age where we can **combine** technology with traditional writing methods, giving us a more effective and creative experience.

The notion that digital technology will completely replace paper is simply wrong. It is as absurd as thinking we'd stop walking because we have bicycles. It's not about replacing, but rather **combining the best of both worlds**. The future offers the chance to innovate, grow and enrich our writing experience by bringing together technology and traditional methods.

Are you ready to take the way you write to the next level? Stretch yourself with //Aurora and discover new writing methods that will stimulate your creativity and productivity. Whether you write to learn, relax or develop creative ideas, now's the time to innovate. Grow, innovate and improve your writing experience today with //Aurora.

Reference list

- Baumers, K (2023, september 12). Zweden ruilt laptops in de klas weer in voor studieboeken. Hoe zit dat bij ons? "Er is een gigantische slingerbeweging bezig". Het Nieuwsblad. https://www.nieuwsblad.be/cnt/dmf20230911_96504430
- BOVI Salespromotion. (2019, January 14). 5 interessante weetjes over pennen. BOVI Salespromotion. <https://www.bovisales.nl/nieuws/5-interessante-weetjes-over-pennen>
- Buijs, C. (2024, December 28). Dit is waarom papier een comeback maakt. Flow. <https://www.flowmagazine.nl/goed-nieuws/comeback-van-papier/>
- Cielen, G. (2024, februari 18). De leeswereld van Gert Cielen. Iedereen Leest. <https://www.iedereenleest.be/over-lezen/reeks/de-leeswereld-van-gert-cielen>
- Cojean, S., & Grand, M. (2024). Note-taking by university students on paper or a computer: Strategies during initial note-taking and revision. *British Journal of Educational Psychology*, 94(2), 557–570. <https://doi.org/10.1111/bjep.12663>
- De Backer, M. (2024, March 26). Pen en papier in de aanslag: Dit is de kracht van schrijven. Gezondnu. <https://gezondnu.nl/psyche/pen-en-papier-in-de-aanslag-dit-is-de-kracht-van-schrijven/>
- Enveloppenland. (n.d.). 10 papier feiten die u niet wist! Enveloppenland. <https://www.enveloppenland.nl/blog/10-papier-feiten-die-u-niet-wist>
- Gezondheid en wetenschap. (2020, oktober 5). Onthoud je dingen beter als je ze met de hand schrijft? Gezondheid en wetenschap. <https://www.gezondheiden-wetenschap.be/gezondheid-in-de-media/onthouden-we-dingen-beter-als-we-ze-met-de-hand-schrijven>
- Grommen, S. (2024, december 20). Demir versus uitgeverijen: Nieuwe schoolboeken tegen september 2024. VRT NWS. <https://www.vrt.be/vrtnws/nl/2024/12/20/demir-versus-uitgeverijen-nieuwe-schoolboeken-tegen-september-2/>
- Koksal, A. (2024, oktober 22). Overprikkeld, onrustig en opgejaagd: waarom je brein de moderne wereld niet meer bijhoudt (en hoe je dat kunt veranderen). Knack. <https://weekend.knack.be/human-interest/overprikkeld-onrustig-en-opgejaagd-waarom-je-brein-de-moderne-wereld-niet-meer-bijhoudt-en-hoe-je-dat-kunt-veranderen/>
- Lauwerier, N. (2023, september 12). Zweden draait digitalisering op school terug en kiest voor meer pen en papier. VRT NWS. <https://www.vrt.be/vrtnws/nl/2023/09/12/digitalisering-in-de-klas/>
- Nandaniya, N. (2020). The Effect of Handwriting vs. Keyboard Writing on the Learners' Reception of Words: Challenges and Benefits. *International Peer Reviewed E Journal of English Language & Literature Studies* - ISSN: 2583-5963.
- Nowee, M. (2024, January 28). Je onthoudt informatie écht beter als je met de hand schrijft. Scientias. <https://scientias.nl/je-onthoudt-informatie-echt-beter-als-je-met-de-hand-schrijft/>
- Olaerts, A. (2024, september 23). Laat uw laptop achterwege en maak een brede kantlijn : zo maakt u de beste notities. De Standaard. <https://www.standaard.be>
- Ose Askvik E, van der Weel FRR, van der Meer ALH. The Importance of Cursive Handwriting Over Typewriting for Learning in the Classroom: A High-Density EEG Study of 12-Year-Old Children and Young Adults. *Front Psychol.* 2020 Jul 28;11:1810.
- Papieren Karton. (2021, December 7). Papier feiten & weetjes. Papieren Karton. <https://papierenkarton.nl/kids/feiten-weetjes/>
- Psychologie.nl. (2024, januari 29). Schrijven helpt: Oefeningen om mee aan de slag te gaan. Psychologie.nl. <https://www.psychologie.nl/artikel/schrijven-helpt-oefeningen-om-mee-aan-de-slag-te-gaan-2/>
- Rappé, M. (2024, november 28). Laptop of schrijven met de hand? Dit doet het met je hersenen, leren en studeren. VRT NWS. <https://www.vrt.be/vrtnws/nl/2024/11/27/laptop-schrijven-hand-papier-hersenen-leren-studie/>
- Stephens, A. (2017). The benefits of hand-written versus digital notetaking in college lectures. *Lexia: Undergraduate Journal in Writing, Rhetoric & Technical Communication*, 5(1), Article 2. <https://commons.lib.jmu.edu/lexia/vol5/iss1/2>
- Stylemans, C. (2024, november 29). Is schrijven met pen en papier beter dan tikken op een laptop? Het Nieuwsblad. https://www.nieuwsblad.be/cnt/dmf20241128_96688769
- Tondeleir, F. (2023, 19 september). De digitalisering ten spijt: 9 op de 10 Vlaamse studenten willen leren met pen en papier. HLN.be. <https://www.hln.be>
- Valtonen, J. (2020). The health benefits of autobiographical writing: An interdisciplinary perspective. *Journal of Medical Humanities*, 42(4), 1–19. <https://doi.org/10.1007/s10912-020-09631-9>
- Van Ankeren, J. (2024, 18 maart). Schrijven helpt: Oefeningen om mee aan de slag te gaan. Psychologie.nl. Geraadpleegd op 5 maart 2025, van <https://www.psychologie.nl/artikel/schrijven-helpt-oefeningen-om-mee-aan-de-slag-te-gaan-2/>
- Vanden Bosch, V. (2023, september 30). Waarom we pen en papier nog niet overboord moeten gooien. De Standaard. https://www.standaard.be/cnt/dmf20230928_93996179
- Van Dijk, T. (2024, juni 21). Vermindert je schrijfvaardigheid als je alleen nog typt? De Standaard. https://www.standaard.be/cnt/dmf20240620_96743752
- Vancraeynest, M. (2024, augustus 21). De evolutie van onderwijs in tijden van technologie. De Standaard. https://www.standaard.be/cnt/dmf20240821_97795132
- Van der Weel, F. R., & Van der Meer, A. L. H. (2024). Handwriting but not type-writing leads to widespread brain connectivity: A high-density EEG study with implications for the classroom. *Frontiers in Psychology*, 14, 1219945. <https://doi.org/10.3389/fpsyg.2023.1219945>
- Vermeulen, G. (2024, november 8). Leren noteren: Leerstof actief verwerken tijdens de les. Klasse. <https://www.klasse.be/730199/leren-noteren-actief-leerstof-verwerken/>
- VRT. (2024, april 11). De Wereld Vandaag [Audiofragment]. VRT MAX. <https://www.vrt.be/vrtmax/luister/radio/d/de-wereld-vandaag~11-10/de-wereld-vandaag~11-26587-0/fragment~771b22de-0204-40cc-8a9b-ffa63842f48f/>
- Willems, A. (2024, maart 5). Kwaliteitsalliantie waarschuwt scholen voor invulboeken: "Brenge soms weinig bij en zijn onnodig duur". Vrt.be. <https://www.vrt.be/vrtnws/nl/2024/03/05/kwaliteitsalliantie-waarschuwt-scholen-voor-invulboeken/>
- ZigZagHR. (2025, February 20). Ga af en toe eens in "monnik-modus". ZigZagHR. <https://zigzaghr.be/ga-af-en-toe-eens-in-monnik-modus/>

