



Thinking in Images

When you read, do you merely read words or do images form automatically in your mind?

Last year, a student told me that she has no words in her mind. I find that intriguing... "How do you think, then?" She thinks in pictures.

I have always believed that to think, you need words. That to define a problem, you need words. That to explain a concept, you need words. Yet, that doesn't seem to be the case. I did some research on the subject. It's not that I found it hard to believe the student, but I wondered how common this phenomenon is and how many students who don't think in words I had met over the years. The resources I have read have reassured me that few people read or think in images. At least I didn't misdeem my students in that regard! I still wanted to talk with Clémentine to understand and to push my reflection further.

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Clémentine Troncy is a graduate of the International Baccalaureate program at Cégep André-Laurendeau; she is currently studying chemistry at the Université de Montréal.



Source: Aimeric Vlaeminck

Clémentine Troncy — I have an elaborate visual memory of where things are placed. Not only do I see objects in my mind, they are in 3D. As a result, I think faster about certain things, especially when I have seen them often. Otherwise, I have to replay a video in my head to look for the information, because it can be stored far away! It's like having to re-watch a movie in fast-forward. Since I'm studying chemistry at university, it's very simple now: I can see the molecules, which is easy. I'm also a champion at assembling IKEA furniture because I can visualize it in my mind, without having to read the instructions!

Julie Roberge — That's how Clémentine explained to me how she "sees" things in her mind. This got me worried: visualizing chemistry molecules seems relatively easy to me. But seeing the analysis of a novel? How do you get these students, who "see" in their minds, to be able to read — at least, with words? In literature classes, they are asked to read words and analyze them, to identify figures of speech, and to notice the impacts created by punctuation, lexical fields and verb tenses. How do students perceive these impacts if they don't see the words?

CT — Even though reading is difficult for me, I read a lot. When the teacher gives the context of the literary work or indicates what to focus on, I'm fine. If I read and stop at each chapter to ask myself questions, that works, too. But I can't see the subtext. In my first semester in literature, the teacher made us read a text with an implicit secondary meaning.¹ Everyone in the class was embarrassed because the subtext is a bit "dirty," but I never saw the secondary meaning! It was far too subtle!

¹ "Le mot et la chose," gallant poetry by Gabriel-Charles de Lattaignant



When I start reading, I feel the vibe of the text; I feel what it's about. Then, I have to read the text again to find the metaphors and similes. For me, these are the two easiest figures of speech because they are images. I can also find lists because it's easy to see the structure that is "comma comma comma and." It's always the same structure. I have trouble with other stylistic devices, such as metonymy and personification. I understand what they are in abstract terms, but I can't find them in a text! Worse: I have a lot of trouble explaining their impact on the text's meaning.

If I'm not forced to find a figure of speech, I don't do it. I feel that there is something that adds value or aestheticism to the text, but I don't get it; I don't need to analyze it to feel its vibe. The teacher has to specify that such and such a sentence contains a stylistic device, otherwise I don't see it. Explaining the content is fine. It's like a summary of what's going on and I describe the images I have in my head.

JR — If Clémentine needs images to understand the meaning of a novel or a play, then some readings must be more difficult than others. Even for me, who reads with words, there are some readings that are more difficult than others, because I can't associate them with prior knowledge. So, what about reading poetry or philosophy?

CT — Poetry is extremely difficult. I can't form an image because it's too short. Unless it's a very visual poem, like Baudelaire's "A Carcass"! But still, I don't know what to say in the 900 words of literary analysis on this text. I see that there is a metaphor, but I don't know what to say about it, what it contributes to the text.

Theatre is the easiest genre to read because it's so visual. I see the whole play in front of my eyes. Philosophy? I hardly understand anything! Some texts are easier because there are concrete examples. Ethics, for example. It's applied. In such and such a situation, one reacts in such and such a way. I can form an image. But what about mankind? What image can I form in order to understand the words I read about what Man is? I read, I read, but I don't understand anything. I'm quickly lost. Memorizing words and concepts that I cannot visualize is extremely difficult.

JR — Would explicit teaching of reading strategies for more abstract texts help Clémentine? Could modelling by the teacher or another student help her decode a text? Could I even ask my students, at the beginning of the session, if any of them think in images so that they can collaboratively develop strategies? I was debating whether we can consider that film or art students see the images they want to shoot or draw in their minds before they get to work. Is it the same for students in programs requiring them to draw, assemble, and build prototypes, such as design and architecture students? And what about Clémentine, who studied science, a pre-university program? Does she have a strong artistic side?

CT — It seems like there is an artistic side to thinking in images, and maybe there is. But I have no manual skills, such as drawing, knitting, or arts and crafts... none at all! If I had any, I would definitely go into film. I see a lot of pictures in my head. I know what's going to happen. I can see the characters, the places, and the transitions between shots. But since I'm not at all artistic, I didn't want to develop that side

of me. Science is different. Mathematics is easy: there's a rule and all the exercises are consistent with that rule. I see what it's for, but I don't see what it is. I'm sorry, but mathematics is boring. It's always the same thing! Once I see a formula, it's easy to apply: I see it in my mind. Calculating volume is easy; graphing, too. I can visualize it well if I have a graphing calculator that allows me to see the curve. I am unable to do abstract mathematics, for example, because I can't form mental images. In physics, it's much more difficult because there are too many variables that change the data. I can't find the way to get to the answer. Doing a lab in biology? If there is a figure that explains how to set up the lab, it's a no-brainer. Same thing if the words describe actions to be completed, like preparing the material, taking out this instrument. I know what to do. And, of course, if we've watched manual tasks performed in a video tutorial, I know what to do without even looking in my manual. I see the manipulations again in my mind; that's how I know if I've understood. I see my hands, the material, and the operations in the right order. If I can't do so, it means I haven't understood. I don't need to do the lab and fail; I know I haven't understood even before I get to class because I can't complete the lab steps in my mind.

Learning by heart is easy. Especially if I can see where the information is on a page. That's mostly what I remember: the information is at the top, on the left, in a square. Once I've understood something, I get it and it has been imprinted on my mind. There's no problem anymore... except that I don't know how to explain what I've understood! But I know it. And once I've understood, there's no point in doing extra pages of exercises. I also rely on drawings to help me understand things that are more complex. To understand probabilities, I have to see them in my mind. For example, there are three red apples and two yellow apples, what is the probability of picking two red apples in a row? Sometimes I also draw the problem.

JR — I understand that some readings or academic tasks may be easier for students who think in images. But once the images have meaning, how do you translate that meaning into words? Because that's what we're asking of students and ultimately assessing: their ability to transmit, to communicate knowledge and skills related to the course. Would I be underestimating the development of competencies in students who have difficulty putting into words the images in their minds?

CT — Obviously, to explain something in writing, I don't make an outline because I see the structure of the text in my mind. When a teacher obliges me to write an outline, it's torture for me because I have to put into words the images I have in my mind. When the teacher gives a detailed structure of the text to be written, it's much easier; otherwise, I can't organize myself. For example, in French, when the paragraph has to be constructed with a sentence presenting the main idea, then another for the first secondary idea, followed by a quotation, the explication of the quotation including an observation on a figure of speech and finally an explanation, I manage to do it. But there's no fluff. I need someone to build the structure for me. I have a hard time explaining because I have nothing to say. I don't see the whole text to write. I write a concise sentence, then another, and then another. After 600 words, I have nothing more to say because I quickly got to the point. The question has been answered. So, I think I beat around the bush to meet the 900 words of the French Exit Exam!

I also have to stay focused, otherwise another idea, unrelated to the one I just wrote, will pop into my head. I go off track and it's extremely difficult to bring myself back on topic. That's why I work fast: so I don't get lost in my thoughts.

Source: Aimeric Vaerminck

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Creation is difficult. I write stories in which the actions follow one another. I don't use flashbacks, and I don't create style. I'm not able to. I use words that mean something, without adding frills to them, because literary sensibility doesn't come naturally to me. I can write the same sentence five times because I want to improve it, but I don't know how. Then what? I take my dog for a walk to take my mind off it! I can spend a lot of time on a sentence because I'd like it to be beautiful. But it never is. It's always too clunky. That's why

I do well in science. A lab report has an established structure with short, concrete, explanatory sentences. Plus, it describes something tangible, something I saw in my mind before the lab and which I observed during the lab. So, I consider the image of the lab in my mind, and I describe it. I paraphrase the images; it's easy because it's the general idea, the concept that I translate.

Still, writing is easier than speaking because I write more slowly than I speak. In writing, if I haven't found the right word, I can erase and express it in another way. When I speak, that's not really possible. I often run out of words to say because I don't have words in my mind, and I have trouble finding them. I've never written a diary. I don't need words to have feelings. That said, I don't share much about my feelings, with anyone. Whether I'm happy or sad, it's personal and I'll keep it all inside. I find it hard to express myself in words. I can't put my feelings into words beyond saying, "I'm sad." I can't express the feeling because it comes with words. So, no words, no chatting!

JR — If all the manipulations are in her head because they are pictures, I imagine it would be easy for her to find her way around on a map or to drive without a GPS. I know



people who can't get lost on the road. Do they all think in images or are they just smarter than the average bear? Clémentine raised all sorts of questions in my mind.

CT — I have a good sense of observation and a good sense of direction. In the subway, it's very easy to find my way around, even in a totally unknown network. I know I have to go a certain way. But in other everyday situations, it's still annoying to think in images. I can spot familiar faces very easily, but I can't remember names at all. I'm sure I'll end up remembering the names of my classmates and teachers! But I work with people I see once a week, and I still don't know their names. I have to be in a very specific situation to be able to associate a face with a name. If the person has a less common name, I'll never remember it. Of course, it's worse with masks. I have an even harder time associating people's partially hidden faces with their names. I'm good with voices, though. I always have voices in my head before I fall asleep: I hear things that people have said during the day before I fall asleep... I can tell who's who by the voice. I like accents or particular voices because I'm able to identify them. In fact, everyone has a particular voice. If a letter or a sound is pronounced differently, it allows me to know who the speaker is. I don't necessarily know their name, but I know who they are!

JR — I felt the need to better understand some of the answers Clémentine gave me. A story came to enlighten the reflection I had (in words!): *Thinking in Pictures (My Life with Autism)* by Temple Grandin, who thinks in images, too. At first, she was convinced that all people think with the help of pictures; when she realized that it was quite the opposite, she thought she was out of the ordinary. This led her to reflect on her way of thinking, which she shares in her book.

The foreword to Grandin's book highlights: "And we almost always speak of autistic children, never of autistic adults, as if such children never grew up, or were somehow mysteriously spirited off the planet, out of society. Or else we think of an autistic 'savant', a strange being with bizarre mannerisms and stereotypes, still cut off from normal life, but with uncanny powers of calculation, memory, drawing, whatever—like the savant portrayed in *Rain Man*. These pictures are not wholly false, but they fail to indicate that there are forms of autism which (while they may indeed go with ways of thinking and perceiving very different from the 'normal') do not incapacitate in the same way, but may (especially if there is high intelligence, and understanding, and education) allow lives that are full of event and achievement, and a special sort of insight and courage too" (p. 12).

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Temple Grandin (whose work Clémentine knew!) became a professor at the University of Colorado, specializing in animal science and animal husbandry. She specialized in understanding farm animals by "seeing" how animals see;



for example, to what point a little shadow can scare them, how high fences can traumatize them... Once back at her desk, she easily revisits visually what she has seen in the fields and on the farm to think about inventing material that will not traumatize the animals. In her case, a clear image helps her understand how the animals feel. But she can easily get lost in her visual reflections. Is it the same for Clémentine?

CT — Yes, one mental image makes me think of another mental image that makes me think of another mental image. It's so easy to get sidetracked from the work at hand! One sentence makes me think of another sentence... but that second sentence may not always be related to the task I have to complete. It's an endless chain of associations. I suspect people who think in images all have a very associative train of thought. Since I have a hard time stopping thinking, I'm not very good at giving help. For example, if a classmate asks me a question on topic X, I'll explain the whole assignment to them! I can't stop myself. I explain my own questions and observations, which end up being very far from the initial question asked by my classmate.

JR — After learning that Clémentine thinks in images, I wondered if many other people around me think this way. When Clémentine explained to me how fast she writes in order not to lose her train of thought, I suspected the case of a friend with whom I regularly exchange on Messenger. She's the only one who systematically doesn't wait for my reply before sending another message. After a few minutes of chatting, the conversation is totally disjointed because my answers can't keep up with the speed of her questions. So, I asked her the question: "Do you have words or images in your head?"

Guess what: images. I'm beginning to understand how we can think in different ways. Neither party really understands how the other person thinks with words or with images.

All this being said, what to do with these students who think in images? Honestly, I'm not sure. But I'll stop insisting with a student who reads too fast. I will be even more delighted when a student manages to see in a text what others fail to see without suspecting that they have turned to an analysis on the Internet. I will continue to give structure to essays, inviting students who want to think outside the box to do so, and to accept that some of them really need that structure. Already I wasn't a fan of word count (although it is part of the competency—not knowing how to count, but reaching a certain number of words in an essay), so I may no longer try to push students to add more words or explanations if they feel they have covered it all.

My discussion with Clémentine led me to try to see some of my students differently. I remember sighing inwardly when Clémentine, always the first to finish an essay, would leave the class with 20 or 30 minutes of exam time left. I thought she could have used that time to improve her analysis... but no. She was unable to do so. Her mind had seen the image of her text, and it was finished. That's all there's to it.

After recording the meeting and discussing the content of this article with Clémentine, I wrote a first version and sent it to her, because I didn't want to misrepresent what she had said. Reading the article was really difficult for her; she couldn't visualize her own words! —



Source: Aimeric Vlaeminck

References

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Further reading

TAMMET, D. *Born on a Blue Day : Inside the Extraordinary Mind of an Autistic Savant*, New York, Free Press, 2006.



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