Nicholas Carson's abilities, shown here in the drawing beside Nicholas and his mother, Paddy, may be enhanced by his dyslexia. 'It has lots of advantages,' he says. 'I can visualize things better.'

The gift of dyslexia

They may take longer to learn to read, but dyslexics outshine the rest of us in skills such as spatial perception. Alanna Mitchell examines a new movement that's taking the stigma out of the condition.

Nicholas Carson, 16, has an unusual contraption floating above his head.

It is a foot-long, upside-down ice-cream cone anchored by ropes to each of his ears and to a point on his forehead. In the tip of this cone is where Nicholas nestles his roving, three-dimensional imagination – his mind's eye – when he needs to concentrate to read words or tell time.

The cone is not real. It exists in Nicholas's robust imagination. But the condition that makes it necessary is. Nicholas is dyslexic. And far from seeing this as a tragic affliction that must be overcome, he is certain that it is a gift, the source of his future success.

"It has a lot of advantages," he said from Edmonton earlier this week. "I can visualize things better. Building things is easier. I'm hoping to become a millionaire."

What to look for

Experts don't know what percentage of the population has dyslexia, but estimates start at 12 per cent. The following symptoms are typical of children between kindergarten and Grade 4:

- May be slow to learn the connection between letters and sounds
- Has difficulty decoding single words (reading single words in isolation)
- Has difficulty spelling phonetically
- Makes consistent reading and spelling errors such as:

Letter reversals – "d" for "b" (dog for bog)
Word reversals – "tip" for "pit"
Inversions – "m" for "w"
Transpositions – "felt" for "left"
Substitutions – "house" for "home"

- May confuse small words – "at" for "to", "said" for "and", "does" for goes"
- Relies on guessing and context
- May have difficulty learning new vocabulary or remembering facts
- May transpose number sequences and confuse arithmetic signs (+, -, x, /, =)
- May be slow to learn new skills; relies heavily on memorizing without understanding
- May have difficulty planning, organizing and managing time, materials and tasks
- Often uses an awkward pencil grip (fist, thumb hooked over fingers, etc.)
- May have poor "fine motor" co-ordination

For more information, visit www.interdys.org

Source: The International Dyslexia Association

Nicholas and his mother, Paddy Carson, who is also dyslexic, are part of a growing new movement that is redefining dyslexia. Rather than thinking of it as a learning disability, a disease, a malfunction of the brain, the fruit of a stubborn, lazy or stupid child, or even as the figment of a parent's imagination, people who have dyslexia – and researchers who study it – are beginning to see it as a blessing that opens up new worlds.

And a muscular batch of neurological research is adding to the movement. Among them is the study published this week in Neurology, the scientific journal of the American Academy of Neurology. It showed that a specially designed course could improve a dyslexic's ability to read after only three weeks.

Other examinations of the brains of dyslexics and non-dyslexics are showing subtle structural differences between the two in both the cerebral cortex and the thalamus. (The differences appear to be genetic.) For one thing, the hemispheres of dyslexics' brains are more symmetrical than those of people who are not dyslexic. That likely makes it tougher for dyslexics to learn to read and write, but it is perfect for other complex brain functions involving pictures and three dimensions.

Gordon Sherman, one of the most eminent North American researchers on dyslexia, says society can benefit from the condition – if educators learn to help dyslexics harness their abilities.

Dr. Sherman, who has a PhD in developmental psychobiology, says that the dyslexic mind is evidence of evolution's ancient demand for diversity. Just as the human immune system differs among individuals – some are susceptible to HIV, for example, while others are unaffected – the human brain has evolved to ensure that different abilities exist in various people. It's a mechanism designed to ensure the survival of the species.

"We need diversity. Dyslexia may be an excellent example of brain diversity," says Dr. Sherman.

Simply put, dyslexics do not appear to sort through information in a linear, sequential way. Instead of doing one thing and then another, they do a variety of things at the same time, very quickly. Their technique is almost a blueprint for being a visionary or a strategist or, in different eras, a seeker of safe places in the jungle.

Many excel at spatial perception. Dr. Sherman was recently involves in a study comparing the spatial abilities of dyslexics and non-dyslexics that found the former were much faster at a key skill: identifying "impossible figures," or forms that could not logically be put together (such as optical illusions or the images M.C. Escher painted). Dyslexics could understand instantly that these figures were flawed.

Over history, many people now understood to be dyslexics have made bold advances in science, art, music, politics and sports. Among them are Albert Einstein, Leonardo da Vinci, Michelangelo, Alexander Graham Bell and Winston Churchill.

"We could produce a high percentage of individuals who are really contributing to society in a quite special ways," says Dr. Sherman.

Although dyslexics shouldn't rule out any line of work because of their condition, their heightened sense of spatial perception may lead them to gravitate toward composing and performing music, athletics, carpentry, architecture, art, abstract math or surgery.

Nicholas, for instance, used to be what hi mother calls a "Legomaniac." She remembers when he was about 8 and got a set designed to build a huge castle. He took one look at the picture and knew instantly, in three dimensions, where the pieces went.

Today, he's excellent at playing underwater hockey (a favourite sport) and three-dimensional war-strategy games.

It's been hard for him to accept that his brain structure is a blessing. He didn't read until he was 12, and school can still be a struggle. He thinks in pictures, and school is run by what he calls "word-thinkers."

He's in summer school now and is fighting with a Grade 10 English course that is heavy on essays, stories and poems.

"I find the words just get in the way," he says. "I don't really understand in words. I understand in pictures."

The breakthrough for Nicholas came when his mother read The Gift of Dyslexia: Why Some of the Smartest People Can't Read and How They Can Learn by Ronald Davis with Eldon Braun. Mr. Davis, a dyslexic who is poised to publish a follow-up title next month, came up with a way to teach some dyslexics how to read.

Wayne Aadelstone-Hassel, who teaches the Davis program privately in Vancouver, explains that the system involves finding a place for the child's restless imagination to rest (like Nicholas's ice-cream cone).

The key is understanding that dyslexics have a three-dimensional imagination that is mobile. For example, if a dyslexic thinks about designing a building, it's not a question of visualizing a flat drawing. Instead, the dyslexic instantly sees a 3-D building, spins it around and roams around inside it. When the dyslexic tries to apply that type of brain to flat objects, it's trouble.

The letter "b", for instance, is only a b if you look at it straight on and consider it to be two-dimensional. Viewed from behind, it's a d. From above, it's a p, and below, a q. A dyslexic sees all of these at the same time.

Mr. Aadelstone-Hassel remembers teaching a 10-year-old how to find a place to rest his imagination while he looked at a back. The child couldn't read yet, but was shocked when he looked at the letters on the page.

The teacher asked what was different.

"'Before this, these letters used to climb up the steps, go down a slide and jump into a swimming pool,'" Mr. Addelstone-Hassel recalls the boy saying. The child thought the letters did that for everybody and didn't realize some people saw them as motionless.

Now, Mr. Addelstone-Hassel teaches dyslexics to park that mind's eye when they need to. That gives them the choice working flat or round, as it were, or of moving freely between the two as needed.

He started helping dyslexics learn to read after dealing unsuccessfully with so many of them during his career as a teacher at the Vancouver Waldorf School.

"I tried all the traditional ways of dealing with it and I despaired," he says.

Once he learned about the Davis system, he retired from teaching and now works with dyslexics full-time. He, too, has come to see dyslexia as something to cherish.

People with the condition tend to be highly creative, imaginative, athletic and artistic, he says. They think so fast that they often don't know how they arrive at an answer. They are excellent at solving problems, including being able to visualize the finished product when they see only the pieces.

On the other hand, they often have terrible trouble following directions and have a low threshold for confusion.

"They have a 360-degree consciousness and they can move around in it," he says. "It's simply a different way of knowing the world."

Unfortunately for the current generation of dyslexics, at this juncture in human history, society puts a premium on linear thinking. That's being reinforced by trends in education such as the stampede to standardize testing and cuts to music and arts programs. Dr. Sherman says this emphasis may be short-sighted.

"We certainly are egotistic enough to think we know exactly what it takes to survive in the future," he says. "We see the world through a very narrow lens. In a sense, dyslexia teaches us how wrong it could be."

In other words, over time, as society evolves, it may prize the spatial learning abilities of dyslexics over those who need words to learn.

To Nicholas, the educational system is stupid and arrogant, a "conspiracy against dyslexia" that he simply has to survive to get on with the exciting part of his life.

Dr. Sherman says the irony is that while dyslexia could be seen as a positive, the inadequate teaching methods for dyslexics in schools can turn them into disabled learners. They lose confidence in themselves when none of the teaching methods work. Two studies – one from Sweden and another from Texas – have shown a very high percentage of reading disabilities among people in jail.

Ms. Carson, who found out as an adult that she was dyslexic, says she was shocked and angry at first. Then, she says, she began to take the gift, use it and enjoy it.

What would she do if someone came up with a cure that would eliminate her dyslexia?

"I'd refuse," she says, replying instantly. "Without the Einsteins and the Michelangelos, life would not be anywhere near as rich."

Alanna Mitchell is a senior features writer at The Globe and Mail.