

Brain injury survivor writes to remember

Network engineer who faces short-term memory issues also uses aids like mobile apps

Calvin Yang

Network engineer Jonathan Liu used to furiously scribble every conversation he had in small notebooks that he would keep in his backpack or pockets. These notebooks, filled with writings and drawings, serve as a record of his days.

He needs them because new information would fade from his memory within minutes. Mr Liu, 39, was involved in a horrific traffic accident more than 10 years ago that left him with difficulties retaining short-term memories.

He suffered multiple contusions, mostly centred on the frontal lobe of his brain, which is involved in creating memories.

"I would meet new people and forget their names a few minutes later. And I would ask them the same questions again," Mr Liu said of the initial years after the accident.

But his condition has improved, he added. The National Neuroscience Institute (NNI) sees 60 to 80 patients with severe head injury each year, of whom at least 70 per cent suffer from significant short-term memory problems.

But Mr Liu, who still forgets where he puts his things every now and then, has made remarkable progress since the accident, according to doctors at the institute.

While he can now hold a conversation without referring to his notes, the brain injury survivor still makes it a habit to jot down his thoughts. "I write down things to do, people I meet, my grocery list, and random ideas in here," he pointed out.

While patients try, it is not easy for them to return to a normal life. There may even be safety concerns due to their inability to remember the recent past, said NNI consultant neurosurgeon Jai Prashanth Rao. "As their short-term memory is affected, patients may leave the stove on and then go out of the home. Or they may get lost and are unable to find their way home when they go out. This can be due to the lack of awareness of the route they took to an unfamiliar place."

Mr Liu was a 26-year-old senior at San Jose State University in California, where he studied mathematics



Mr Jonathan Liu used to have to write down everything as new information would fade from his memory within minutes, but his condition has since improved. The brain injury survivor is the founder of Broken Brains, which hopes to improve the lives of those affected by traumatic head injuries. ST PHOTO: LIM YAOHUI



Clockwise from above left: Mr Liu, pictured with his mother, eventually graduated with a double degree from San Jose State University in California in 2007, after crashing his Nissan Altima into a power pole on Dec 21, 2005. Even today, he still makes it a habit to jot down his thoughts. PHOTOS: COURTESY OF JONATHAN LIU, LIM YAOHUI



MEMORY PROBLEM

I would meet new people and forget their names a few minutes later. And I would ask them the same questions again.



MR JONATHAN LIU, a brain injury survivor who had difficulties retaining short-term memories after being involved in a traffic accident in 2005, on the initial years following that crash.

NEED FOR PUBLIC AWARENESS

We have to raise public awareness about this condition. These patients may seem all right, but they may be struggling and need encouragement from others.



DR GOH JIA JUN, a principal resident physician of the neurosurgery department at the National Neuroscience Institute, on patients with brain injuries.

and computer science, when he lost control of his car on Dec 21, 2005 and crashed into a power pole.

He woke up from a coma nearly two months later, on Feb 14, 2006, thinking it was all a dream.

"I was devastated. Back then, I was very ambitious, even wanting to become a millionaire before I turned 30," said Mr Liu, who was discharged three months after the accident. "After that, all the things I wanted to do, I couldn't do."

It was a frustrating journey to recovery. "I couldn't remember passwords to my accounts, forgot where I put my keys and lost my phone a few times," he said. The accident

also affected his hand-eye coordination and problem-solving abilities. Not able to cope with the changes initially, he became depressed.

Despite his condition, Mr Liu, who took almost a year off from school to recover, returned to complete his double degree and graduated in 2007. "I used graduation as a way to motivate myself. If I could do that, then I can overcome my condition," he explained.

Yet, for a topic which can be covered within one to two hours, he took a few weeks to learn.

Mr Liu now uses a variety of memory aids, including mobile applications and a voice recorder. The self-

confessed notebook collector has also amassed hundreds of used notebooks of various shapes and sizes.

"Pork belly dinner tomorrow," reads one recent journal entry on his plan to cook the dish for dinner last Monday.

"I had to come up with a system of organising my life," he said. "Writing things down helped me a lot."

To help reduce their frustration, Dr Jai, who is also the head of neurosurgical service at NNI-Changi General Hospital, advises patients to maintain a routine. External memory aids such as notebooks, personal digital assistants and voice recorders are also useful.

He added: "Most patients need some help to reorientate themselves in their environment and develop some specific habits to reduce errors. Some of these habits include keeping their keys in the same place and taking their medication regularly at the same timing."

Currently, there is a support group, comprising medical practitioners, social workers, patients with brain injuries as well as their families, that meets every quarter. Mr Liu is part of this group.

The NNI Head Injury Support Group, started in 2014, provides a platform for patients to share their challenges and exchange resources, said Dr Goh Jia Jun, a principal resident physician of the neurosurgery department at NNI.

Dr Goh, who is also the chairman of the support group, added: "We have to raise public awareness about this condition. These patients may seem all right, but they may be struggling and need encouragement from others."

Fortunately for Mr Liu, his 41-year-old wife, who volunteers with the group, has been encouraging him during the tough times. They were married in 2015, after dating for five months. "She is a pillar of support, especially when I was overcoming depression," he said.

These days, Mr Liu looks forward to spending time with her and their three guinea pigs – Milo, Hollick and Chendol. The founder of Broken Brains, an organisation which hopes to improve the lives of those affected by traumatic head injuries, also enjoys helping other patients.

"Before the accident, there were so many things I wanted to do," he said. "But now, I just want to live in the moment."

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Brain science shows why children learn differently: Expert

Amelia Teng
Education Correspondent

The brain of a child with autism is similar to a war veteran's. Both have a heightened sensitivity to things around them, such as facial expressions, because of how their brains are wired.

Their behaviour, said world-renowned occupational therapist and teacher Kim Barthel, can be explained by a part of the brain called the amygdala, which takes in information and determines if anything is a threat.

For a child with autism, facial expressions sending cues of judgment, criticism or discrimination hit the brain with a great amount of stress, said the Canadian therapist.

"For a veteran coming back from war who has had tremendous amount of trauma, he will become sensitive to the same face," she said.

"One was born that way, and one got that way by experience," said Ms Barthel, 56, who was in Singapore last month to conduct training for professionals in the early childhood and special education sectors.

She has spent the last 35 years studying and practising in different fields – from understanding how chronic stress and trauma affect the brain to designing ways to help people with special needs learn.

"It doesn't matter whether I'm

talking about dementia or autism or trauma or attention deficit or multiple sclerosis. There are still pieces of the brain that are shared in all those diagnoses," she said.

"It's all about human experience," said Ms Barthel, who is also a consultant and author. She was in town for a conference last Tuesday organised by social service organisation Awwa for overseas experts to speak about inclusive practices. About 600 people attended the event.

Awwa runs programmes for people with special needs, including a school for students with multiple disabilities from ages seven to 18. It also runs an inclusive pre-school, Kindle Garden, where children with special needs learn with other children.

Ms Barthel, who holds degrees in occupational therapy and another in neuroscience, said people with special needs are neurodiverse learners, referring to the idea that conditions such as autism or cerebral palsy are the result of a variation in the human genome.

Thus they learn and process information differently, she said.

In fact, the United Nations has recognised neurodiversity – a term that came about in 2003 – as a form of diversity, just like race.

But this does not mean that people should be placed in black or white categories, and that those with neurological differences should be kept apart from typically



developing peers, she added.

"In reality it is a continuum," she said. Everyone learns differently – some learn by listening, others by doing or watching, she added.

Hence even those who learn differently should be included in the classroom, she said, pointing out that inclusion is not the same as integration, or placing a child with special needs in a mainstream school and expecting him to fit in.

Inclusion requires a lot more thinking, she added, from changing

curricula, adjusting how teachers teach, to altering the environment so that people feel they belong.

These are ideals, she said, and no one country has attained fully "inclusive" status. But there are now pockets of inclusion in countries such as Canada, the United States, Denmark and China.

Singapore's own example of inclusive learning is Kindle Garden, she said, where 25 out of 85 children have special needs, and all of them get a customised education plan.

"The children themselves don't notice who's different and who isn't – that's inclusion," she added. This is good not just for those with special needs, but also for others because it builds values such as tolerance, compassion and equality, she said.

What about critics who worry that letting special needs children learn together with their typically developing peers means the latter will be held back?

Ms Barthel noted that brain research in the last decade has shown

that people learn best by natural inquiry rather than absorbing facts.

In other words, there must be opportunity for curiosity and creativity in schools, and less of an emphasis on instructions, outcomes and performance, she said. "Having a diverse learner in my classroom isn't a barrier to curiosity... It could bring out greater degrees of empathy, people skills and emotional intelligence."

Inclusive education also does not have to be too costly and resource-heavy, she said. For instance, it could be just a change in classroom so that the children can sit independently and be less reliant on individual assistants. One child could prefer a standing desk, another learns best on a moving stool, while another may want to take short walks before continuing a lesson.

Ultimately the key challenge is changing culture, she said.

"Every environment of educators functions within a culture," she said. And culture drives the curriculum, the environment and learning style.

Being focused on results comes at a price, she said. "If I am outcome-driven only, then children with diverse needs will not necessarily perform at the same level... so (this) creates separation between groups."

"(But) inclusion means you're valuable, I see you as part of us and with us."

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