



Doug Hrvoic, president of Marine Magnetics Corp., with his daughter at a Montessori school fair. Mr. Hrvoic has incorporated elements of his own Montessori education into his business. Marine Magnetics Corp.

The Creativity Gap

Maria Montessori: guru for a new generation of business innovators

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Special to Globe and Mail Update

Published Wednesday, Apr. 11, 2012 6:01AM EDT

Last updated Wednesday, Apr. 11, 2012 6:41AM EDT

Earlier this month, Google announced a new “multitask mode” for its Chrome browser, allowing people to increase productivity by using a mouse in each hand, at the same time. It was, of course, just one of the Internet giant’s many April Fool’s Day jokes. But the germ of the gag – “While browsing, you’re only using 50 per cent of your hands,” deadpanned a designer in a video tutorial – is just a hair away from being a viable idea and, as such, it gets at the heart of Google’s philosophy of innovation: Constantly question everything.

From the outside, Google seems like a study in contradiction: Playful inquisitiveness and a \$205-billion market cap don’t go together. Except, for Google, they do. In fact, the one may actually drive the other.

“You can’t understand Google,” Marissa Mayer, now Google’s vice-president of location and local services, told Newsweek, “unless you know that both Larry and Sergey were Montessori kids.”

“Larry and Sergey” are Mr. Page and Mr. Brin, the co-founders of Google, and Montessori refers to the unconventional education system that the Italian physician Dr. Maria Montessori developed in the early 1900s.

Dr. Montessori believed that children have an inherent, “spontaneous” interest in learning (and self-discipline), and that this spirit should be cultivated, rather than stifled through rote instruction of what she called mere “mechanical skill.” The key to this development: Freedom. In her classrooms, children were encouraged to freely explore their learning environments. Teachers were more supervisors than lecturers, offering gentle guidance as children chose what they wanted to work on, for how long, and even where.

Stationary desks were, in Dr. Montessori's words, proof that "the principle of slavery still pervades pedagogy." What started in 1907 with a classroom of 50 kids in a low-income Rome neighbourhood has grown into thousands of certified schools worldwide.

When Google went public in 2004, Mr. Page told Barbara Walters that he credited his Montessori training "of not following rules and orders, and being self-motivated and questioning what's going on in the world" with his ability to do "things a little bit different." But what's good for the Googleplex (not to mention Amazon or Wikipedia – founders Jeff Bezos and Jimmy Wales are also Montessori grads) may be beneficial to any business looking to think creatively and drive innovation.

"Questioning tradition and always asking 'Why?' are essential aspects of who I am and what I do, at all levels," says Doug Hrvoic, the president and technology director of Marine Magnetics Corp., a 40-person Ontario business that designs and builds sensitive magnetic sensors for resource exploration and other underwater activities. He attended the Toronto Montessori Schools from age 3 through to the end of Grade Two.

Mr. Hrvoic, who holds a BAsC in Engineering from the University of Toronto, founded his company in 1998 because he saw "a standstill in innovation" in the design of instruments built for use at-sea. One example was the area of pressure housing failure, which, when undetected, causes water to enter – and destroy – sensitive internal electronics. "I didn't like that it was so easy to catastrophically lose your tool like that," recalls Mr. Hrvoic. So he came up with a printed circuit board and a simple on-off circuit. The tiniest bit of water causes a short circuit, which sends an early warning signal to the operator. "It costs next to nothing to implement, but it's amazing how many people it's saved from going down at sea—including myself on one occasion when I was doing some work with a customer."

He says, "One could say that Montessori laid the foundation for encouraging that kind of thought."

Computer scientist, and fellow Montessori alumni, Carlo Consoli also believes his education has helps him think creatively in the workplace. Until the age of 10, Mr. Consoli attended Rome's Montessori Viale Spartaco, led by Flaminia Guidi, one of Maria Montessori's own protégés. Today, the 42-year-old Mr. Consoli is a senior consultant at IBM Global Business Services in Rome, where he's won a slew of awards for his innovative work – successes that he readily credits to Montessori.

"Being a Montessori child is a gift for life," Mr. Consoli says. "It's paid back a lot in terms of quality of my job."

He has vivid memories of starting each school day in front of shelves filled educational materials, such as a "Great Division," a wooden board with pegs that children use to explore arithmetic, and feeling exhilarated at being free to follow his curiosity.

"Children tend to learn. They're not lazy," Mr. Consoli says, echoing Dr. Montessori's core belief. "Today at work, I still have that get-your-job-from-the-shelf-and-have-fun-with-it attitude. When I start a new project, there's that same period of choosing the material and feeling free to explore new pathways, and interrelating the materials as it occurs to me. As a result, I often end up suggesting a correlation that others missed."

Mr. Consoli recalls being brought on to fix an "extremely defective" software package that had been vexing teams of programmers for several years. Due to the software's functional complexities, the traditional "brute force" approach of line-by-line fixes was proving to be an ineffective, and perhaps infinite, time suck. Mr. Consoli put his Montessori mind to work, connecting the dots between this problem and a seemingly unrelated artificial intelligence project. His resulting methodology, which prioritizes test executions based on statistical modelling, allowed programmers to fix 90 per cent of

the defects by running only 10 per cent of the tests – a time-saving innovation that's since been integrated into IBM's daily practices.

It's not just Montessori grads who see the method's value to the business world.

When Vancouver entrepreneur Michael Gokturk, now 36, was working at VersaPay, a company he founded in 2005 and took public in 2010, he began to talk to colleagues who had children in Montessori schools. Impressed by the kids' independence and creative thinking, and intrigued by how these characteristics were being shaped, he began to study Montessori methods "to see if they could be applied to the workplace."

Mr. Gokturk left Versapay in 2010 to found Payfirma Corp., which provides payment processing services to e-businesses. For his second crack at building a company from the ground up, he decided to put some Montessori ideas into action.

"Rather than interfering, micromanaging and putting boundaries on colleagues," he says, "I prefer to hire the best people with the best attitudes towards personal growth and allow them to mould themselves into the roles and responsibilities they enjoy the most." Mr. Gokturk does hire people for specific positions, but in lieu of a formal training process, all new employees, from sales to tech support, are set free "to play with our systems and discover things on their own through intuitive use. And we encourage criticism and identification of weaknesses they see and their recommendations on how to address, improve and fix."

Sound like anarchy? Mr. Gokturk thinks otherwise. He cites Payfirma's mobile payment app, which allows merchants to swipe customer payments on their iPads and BlackBerrys, as "a direct result of giving our people free rein on how to make our app the best of the best. Everyone in the company, regardless of their position, was given opportunity to help build and design the user interface, and to improve the user experience."

The company has already grown from two to 40 employees, with revenue creeping up on \$2-million, and its quick growth recently landed Mr. Gokturk on Business in *Vancouver* magazine's "Top 40 Under 40" list.

"Like children," he says, "professionals need to be able to guide their own learning and development based on their innate and instinctual needs – not those imposed by others who don't know what moves them as individuals seeking purpose."

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