Brilliant is as brilliant does: Words to live by

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As a mathematician, I seek out patterns all of the time. Two current stories coalesce in my mind — the sad, untimely passing of Steve Jobs and the announcement of this year's Nobel Prize winners.

Brilliant people may be unalike in thousands of ways, but under the surface, whether they are great scientists or artists, their similarities are what are so striking.

So in my musings about the nature of brilliance, here are life lessons about creativity I've learned at the feet of giants:

Devote your life to learning. Early on, Steve Jobs took a course on calligraphy — just out of interest's sake. The beauty of fonts captivated him, and one of the most innovative features of the first Macs was his incorporation of a variety of fonts into their interface. And the renowned artist M.C. Escher spent a lifetime filling notebooks with his studies on geometry and exchanging letters with famous mathematicians — all that he learned infused his artwork.

You can never be too broad. The best ideas can come from the unlikeliest sources and are only limited by experience. The Beatles, in their formative years, had to play a variety of music that most rock bands would have rebelled against — country songs, Latin music, show tunes and vaudeville numbers. They made the most out of the experience, and the influence of chord changes, melodies and song structure that they studied and learned made them the songwriters they became.

Embrace failure. If you are afraid to be wrong, then you can never risk what needs to be risked to be right. Steve Jobs founded a company called Next Computer that never really caught on, but what he learned from that failure fuelled his triumphant return to Apple in 1996.

Foster your research mindset. Problems are challenges to be embraced. And the fact that they haven't been solved yet is in no way deflating — you can rise to the occasion. Immunologist Ralph Steinman won a Nobel Prize this year in medicine, shortly after dying of pancreatic cancer. His own groundbreaking research likely extended his life by years.

Stand strong for what you know is right. Georg Cantor's mind-boggling notion of different sizes of infinity was ridiculed by other mathematicians in his lifetime but is considered essential now and taught to undergraduates. Kurt Godel's incompleteness theorems, which stated that there would always be a gap between what is true in mathematics and what we can prove, was counterintuitive to what almost everyone believed at the time. In this year's crop of Nobel Prize winners there is Daniel Shechtman, who discovered quasicrystals, in which the arrangement of molecules doesn't have the repetitive pattern found in other crystals. Scientists at the time of the discovery were skeptical and critical, but Shechtman stood his ground, and his discovery has been pivotal in advancing modern chemistry.

Your work, not you, should take top billing. In an age where people are willing to do just about anything to be famous, I still find that the most creative people always put their work at the forefront and their egos to the side. Steve Jobs was ingenious, but he always gave his products — the Macs, the iPods, the iPads — centre stage, beaming like a proud parent. Bob Dylan, when asked about fame and music, said, "The song is the star."

All of the brilliant minds, past and present, are models to emulate, no matter what our profession or path in life. There is hope for all of us. You, I, Steve Jobs, the Nobel prize winners — we're all human. In the end, we all put on our pants an odd number of legs at a time.

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