

# Whitney

The idea is that teaching children about their brains helps them take control of their learning process. Robin's next area of research is brain neuroplasticity, illuminating how music and neuroscience can actually change the brain, by helping brain-injured individuals build new neural connections, connections that can become stronger literally within a week or two. Robin predicts that these neural connections and changes can lead to permanent change, an argument to bring art and music back into mainstream curriculum, as a partner with neuroscience in the schools.

In February 2016, United Kingdom newspapers reported an amazing breakthrough involving Rosemary Johnson, a violin prodigy until one day in 1988 when a car accident and a devastating head injury robbed her speech and movement. Nearly 30 years later, she has returned to making music again – this time using only the power of her mind.

As part of a 10-year project through Plymouth University and the Royal Hospital for Neuro-disability in London, Rosemary's brain was wired to a computer using Brain Computer Music Interfacing software via electrodes on an EEG cap reading electrical impulses from her brain. The impulses appear as instructions and musical phrases on a

screen viewed by members of a string quartet. Combining thought and retina control, Rosemary could select notes and phrases; direct intensity, timbre and tempo; even alter a composition as it is being performed live.

The limitless synergy possible between music and technology continues to unfold miracles – as in the case of Kaitlyn Hova. Hova went to Berklee College of Music for violin performance, then to the University of Nebraska at Omaha, for pre-med. She then discovered she had synaesthesia, a neurological phenomenon in which your senses inherently cross, enabling Hova to “see” sound as color, a skill Hova thought was universal. Upon discovering her unusual condition, Hova changed a pre-med major to neuroscience to better understand the brain.

Hova and her husband then quit their jobs to go to software boot camp in order to upskill their talents in coding, resulting in their creation of The Synesthesia Network. In addition, Hova and her husband created a 3D-printed violin that changes colors as she plays to display her synesthesia as she experiences it in real time performances. Hova has since created [www.hovalabs.com](http://www.hovalabs.com), a sight that invites and allows users to print a violin.

Having spent more than a decade investigating the life of a pioneering violinmaker who carved stringed instruments from wood, I was at first appalled by the idea of 3D printing any object,

especially a violin. But as I think about the completely backwards travesty of cutting art and music from school budgets, at a time when we sorely need to combine creativity with technology, I have reversed my thinking on this idea.

While Sinfonietta Strings, an in-school string program begun several years ago by Nancy Goodwin, gives group string lessons to enhance music programs in five elementary schools – Amherst Street, Dr. Crisp, Bicentennial, Birch Hill and Mount Pleasant – how much more could be done with more instruments? And after checking out the sounds coming from these innovative Hova fiddles via online videos, it is an idea worth investigating. The lesson Hova has acted out in her art-science-music career is that anything is possible if we link creativity to technology.

Hova: “Art and science inform each other. Art, creativity allows you to connect the dots that science has in facts. You learn things, and become more creative....We need more than art; art is more through science. We need the two together, more together than separately.”

How does music play you? Check out fall classes at The Nashua Community Music School, a school serving all ages. Introduction to piano? Or songwriting?

Quincy Whitney is a career journalist, author, historian, biographer and poet and a lifelong resident of New Hampshire. Contact her at [quincysquill@nashuatelegraph.com](mailto:quincysquill@nashuatelegraph.com) or [quincy@quincywhitney.com](mailto:quincy@quincywhitney.com).