



قودوا  
Q U D W A

**QUDWA 2017**

## Inspirational Stories

**Sunday October 8<sup>th</sup>, 2017**

**Drue Kataoka**, Artist, Technologist, and Education consultant, YouTube Education Center

Moderated/Facilitated by: **Tyler DeWitt**, Research Scientist, Educator, and Digital Content Creator, USA

### Summary Paragraph/Key Points

Kataoka was born during cherry blossom season in Tokyo. When she was growing up, her father would tell her that if she listened carefully, she would hear the flowers saying: “Ha, ha, happy birthday.” This is not just a cute biographical detail to Kataoka; she believes it helped inculcate an important lesson to her. “The role of the artist is to listen to inanimate objects and create a dialogue with those objects and a dialogue with the audience,” she said. “My father helped cultivate the art of listening and observing, which also applies to teaching.”

Incorporating art into STEM (science, technology, engineering and math) to turn it into STEAM is one of Kataoka’s passions. The work that perhaps best symbolizes this theme is *Up!*, which was featured on the International Space Station (ISS) as part of the first zero-gravity art exhibit. In researching the project she spoke with students, Nobel laureates and Richard Garriot, a British game designer who flew to the ISS as a private astronaut. She decided that space travel was about surpassing boundaries and so her art would try to capture that spirit. She incorporated the theory of relativity in *Up!* by pairing the piece that went to space with one on Earth; because one went to space and travelled faster, it is “younger” than the one on Earth. “I did not want to just create a painting and ferry it up to space and back.”

The essence of art and space is they both have constraints. Kataoka, for example, could not use certain inks or materials for *Up!* There are limits to what technology can do, and both participants in both disciplines know they will never achieve what they set out to do. Teachers, too, are under enormous constraints: budgets and time. Given these constraints there are things you can do.





Kataoka quoted composer Leonard Bernstein: “What you need for great art is a plan and not much time.”

In her pieces *Footsteps in the Snow*, *Passion of St. Medusa* and *After the Celestial Axe*, Kataoka uses reflections from mirrors and polished steel to allow the viewer to have a different experience every time they look at them. She likened the creative process to the scientific method (hypothesis, experimentation, analysis and conclusion). “Artists and scientists are often separated in the classroom, but the process is alike,” she said. “With *After the Celestial Axe*, [which arranges shards of broken mirrors inside of the trunk of a dead oak tree] I started with the idea of wave propagation. Then there was an experimentation part, like science, and getting feedback from the results. I would break mirrors on many surfaces — on concrete, on carpet. Then I would use this kind of hammer or tool or use this type of gesture. Each [iteration] would make different shapes.”

Building off the results of her previous pieces, Kataoka took the interactivity concept to another level for her first modular piece, *Ambrosia Wormhole*, which allows the audience to change the polished steel panels embedded in the structure so that there are an infinite number of reflections. “The audiences for art work, just like teaching, have become more demanding,” she said. “Students have more ADD; it is the same with the art crowd. So I wanted to stimulate the creativity of the audience by bringing different things together. I am trying to push.”

As the artist-in-residence for Google’s Tilt Brush, the company’s virtual reality initiative, Kataoka is helping to shape the vision for the Fourth Industrial Revolution. Her piece *Tangle of Crystals* brings together objects from the real world with invented shapes to create a mixed reality. She believes the technology has applications for education because it allows students to think in three dimensions. As an early adopter of technology, she is high on VR’s capabilities, but cognizant of philosopher Marshall McLuhan’s adage: “We shape the tools, and then the tools shape us.”

“One of things that is important in the high-speed world is that we must marry technology and math with culture and heritage,” she said. “Each region should not forget its heritage is their unique part in world. Interaction with technology will be different. I’m wary any time technology is used as crutch. As we lean on it, we must be careful not to fall into a trap of making us consumers not creators.”

**Takeaway:** The audiences for art work, just like teaching, have become more demanding, so teachers must stimulate the creativity of their students.

