

## Q&amp;A

## Gary Stager: ‘The best Makerspace is between your ears’

Gary Stager has spent the past 33 years helping educators around the world see computers as intellectual laboratories and vehicles for self-expression. He is the co-author of *Invent to Learn: Making, Tinkering, and Engineering in the Classroom*. He recently spoke to *ASBJ* about the Maker movement.

### What is the evolution of the Maker movement?

For the cost of what your district spent on its first computer, schools now have the capability to use technology such as 3-D printers and laser cutters to make actual things. Although this technology is in its infancy, it is easy to predict the profound impact possible when school shifts from its dependence on simulation and hypotheticals towards making real things.

Maker technology continues to become more affordable, accessible, and powerful while educators take notice of the opportunities making affords for amplifying the potential of each learner.

### How has technology been a game-changer for the Maker movement?

While the Maker movement reenergizes timeless craft traditions, computing super-charges the range, breadth, and complexity of potential projects. Programming those computers gives students agency over an increasingly complex and technologically sophisticated world.

### What do successful school Makerspaces look like?

The best Makerspace is between your ears. Making is a stance that prepares each student to solve problems their teachers never anticipated. It instills in learners the awareness that when they encounter a problem that needs to be solved, they possess the confidence and competence required to overcome that obstacle, even if only to learn that there is more to learn.

When school leaders tell me “our school is building a \$25 million Makerspace,” I am concerned that Makerspaces may exacerbate educational inequity. While there are expensive pieces of hardware that may need to be secured, I want the bulk of making to permeate every corner of a school building and every minute of the school day. Teachers whose Makerspace is in a few cardboard boxes are doing brilliant work. Making across the curriculum means students

as novelists, mathematicians, historians, composers, artists, engineers—rather than being the recipient of instruction.

### What training is needed for educators?

Educators need experience learning with the emerging materials available to contemporary students in a way that nurtures serendipity, creativity, and the development of expertise. That is why I created the Constructing Modern Knowledge (CMK) summer institute (constructingmodernknowledge.com) eight years ago. At CMK, educators put on their learner hat for four days of learning in an environment rich in stuff, expertise, collegiality, and time.

### How can school boards encourage Makerspaces?

Board members need to honestly and openly share the sorts of educational experiences they desire for their children from a place of optimism and hope, rather than fear. They should welcome the energy, expertise, emerging technology, and volunteerism offered by the Maker movement. Most importantly, the future of public education is dependent on board members taking a stand on behalf of kids and making some very difficult choices about the way we as a society treat our youngest citizens.