

Can New Building Toys for Girls Improve Math and Science Skills?

By DIANA KAPP

Amid concern among parents and educators about girls' math and engineering skills, a growing number of companies say they have an answer: toys.

Construction toys for girls, once a well-intentioned but unsuccessful part of the toy market, are blossoming. Small toy makers littleBits, GoldieBlox Inc. and Maykah Inc. are marketing products they say can bolster spatial skills, which recent research has linked to degrees and careers in these disciplines.

Traditional construction brands like Lego A/S and Mega Bloks are also marketing toys for stacking and erecting aimed at girls. Most of the products target girls ages 4 to 10.

"The old chestnut that girls don't build is really gone. Now there is considerable interest in girls building," says Adrian Roche, a vice president at Mega Bloks, part of Mega Brands Inc.

To woo girls, some of the latest construction toys marry building with storytelling. Roominate, the first product line from Mountain View, Calif.-based Maykah, is a wired dollhouse kit. Girls build a duplex or the ambitious "Chateau de Roominate," and integrate circuits to power a light or fan.

With GoldieBlox, girls help Goldie fix her busted music box by creating a belt drive from lavender pegs,

spools and ribbon.

"Building electronics isn't the end goal. Moving parts help create a more exciting story," says Maykah co-founder Alice Brooks.

LittleBits, which first shipped its products in 2012, makes tiny purple, green, orange and pink snap-together electronic modules that can be transformed into talking puppets, buzzing piggy banks, sound-triggered lamps and more. The company says it strives for its toys to be unisex.

"I very much disagree with this idea that the products need to be gendered," says Ayah Bdeir, founder

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and CEO of littleBits, based in New York City. She says the company's toys appeal to girls with bold colors, a simple design aesthetic and a range of projects that girls and boys alike are prominently shown building in a video on the website.

Lego Friends, a girls' line launched last year, features mini-figures "friends" Emma, Olivia and pals, along with the Lego bricks to create their groovy camper or cafe.

In 2011, 91% of Lego sets were purchased for boys, says Michael McNally, brand relations director at Lego Systems Inc. In 2012, Lego's top-selling Lego set was "Olivia's House," a Lego Friends product. And one year after Lego Friends launched, three times as many girls were building with Lego bricks.

Mega Bloks joined with Mattel Inc.'s Barbie, and in 2012 began selling the Barbie Build 'n Style line, which girls can use to build a mansion or ice-cream cart. Mr. Roche declines to break out sales but says they were strong, adding, "We've had tremendous pickup by all retailers."

Makers of stacking and building sets have been attempting to appeal to girls for decades. But they either just made blocks pink, or they went too far away from their core product into, for instance, making your own jewelry. "They finally figured out you can't just shrink it and pink it," says toy analyst Sean McGowan with Needham & Co. "Those products didn't sell because that's not how girls play."

Pastels have not gone away, judging from the colors of the new products, but many of the products also feature girl characters or dolls on the packaging, often with animals and fashion accessories. The building sets often turn into pet salons, beach lofts, cafes or bedrooms.

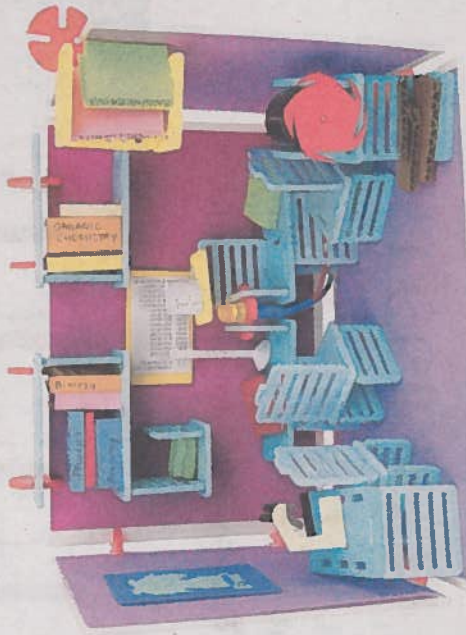
With Lego Friends, "the play pat-

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Girl Appeal

The Lego Friends line launched last year with items like 'Olivia's Tree House,' above. A Maykah Inc.'s Roominate kit, below, which girls can use to build dollhouses and other products, includes circuits to power a light or fan.



(clockwise from left) GoldieBlox; Lego; Roominate

Toy Makers Look to Help Girls Improve Math and Science Skills

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tern is much more traditional girls' social play, dollhouse, re-enactment of real life," says Mr. McGowan.

For many girls, this is the point. "Girls want that story line—there has to be an emotional component, that emotional thing that girls do," says Roberta Bonoff, CEO and president of Creative Kidstuff, a six-store chain in the Minneapolis area.

For the founders of many emerging building-toy brands—women engineers in their 20s and 30s—creating an opportunity for girls to work on their spatial skills is critical. Several of them cite as motivation the fact that there are far fewer women in science and technology professions than men.

GoldieBlox, which is based in Oakland, Calif., places a video starring Debbie Sterling, its founder, front and center on its website in which she talks about how spatial skills are important for technology fields. Her goal, she says, is to get little girls to love engineering as much as she does.

At Maykah, co-founder Bettina Chen pictures girls using the toy to learn computer coding skills. "At some point we want the girls programming."

Scientists say that, on average, girls' spatial skills, meaning the ability to translate 2-D sketches into 3-D forms, or rotate an object mentally, are weaker than boys' skills.

"It is one of the largest cognitive sex differences," says David Lubinski, a professor of psychology at Vanderbilt University. Spatial ability has a direct connection with the likelihood of earning an advanced degree in science, technology, engineering or



For the founder of GoldieBlox, one aim is to get girls to love engineering.



(t-b) littleBits; GoldieBlox

LittleBits aims for its snap-together electronic modules to appeal to both genders.

math, his research has found.

The spatial-skills gap between boys and girls is a function of biology but also how children play. "Parents reinforce gender-specific play. Very tiny brain differences get amplified by culture," says Lise Eliot, associate professor of neuroscience at the Chicago Medical School of Rosalind Franklin University of Medicine & Science.

Of course, toy stores stocked with girly building toys won't automatically translate to a new crop of engineers and inventors. "It's not just having the toy—it's doing the building or electronics with the toy," cautions Susan Levine, psychology department chair at University of Chicago.

But spatial skills can be improved with practice and use, scientists say. The argument is that the activities involved in these toys—orienting the motor for a spinning cupcake table or constructing a little elevator—exercise spatial skills.

Research has shown that the brain's circuitry is quite malleable, particularly in early life, Ms. Eliot says. "We know that the more you play, the better you get," she says.

Preschoolers who could arrange blocks into the most sophisticated towers scored best on standardized math tests as teenagers, according to a 2001 Florida State University study tracking 37 kids that was published in the journal of Research in Childhood Education.

A 2010 study with 116 Israeli first graders conducted by professors at Bar-Ilan University found gender differences in spatial skills disappeared after eight training sessions on mental rotation tasks. The kids practiced reproducing images from memory, and then were guided in perceiving them from different angles.

When a spatial visualization course was given to Michigan middle school kids in a 2005 pilot study conducted by Sheryl Sorby, a professor at Michigan Technological University, participating girls subsequently took more upper-level math and science courses in high school.

Julia Keller, an education specialist from Monterey, Calif., found Roominate online while searching for "architectural toys." Her daughters, ages 9 and 11, like to design and build, she says.

"It blew my mind that both my girls probably put in a good 12 to 15 hours the first weekend. My younger one was very interested in all the electronics—the switches and the motors. She used her set to make a smoothie store—a Jamba Juice kind of thing," Ms. Keller says.

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