

Biochemist and pageant winner Dr. Erika talks about getting kids excited about science

BY KRISTIN FORD / ALLEARS BLOGGER / FEBRUARY 27, 2013



To celebrate National Engineers Week at Walt Disney World, aerospace and defense contractor Raytheon is hosting a science theater production for children this week. The “Science Thrills Live” show is produced by Science from Scientists, a non-profit organization whose goal is to improve science and technology awareness in middle-school and late-elementary students.

Earlier this week, I talked with the founder of Science from Scientists, Dr. Erika Ebbel Angle, about her passion for getting kids involved with science. Ebbel Angle is a former Miss Massachusetts, MIT alumna, has a PhD in biochemistry from Boston University and is the host of the “Dr. Erika Show.”

How do you get kids excited about science?

There are several ways. The first is to make it real, so rather than make it something that's covered in a textbook or described only as something they can imagine, you have to make it tangible. Part of the purpose of this science theater show is to make something they can see real and then correlate it back so you have real examples of scientific concepts.



The second way is by having the right people. You have to have fun, cool, charismatic folks talking about the material so you're dispelling the stereotype that all scientists are boring and have no other interests. So you have to find folks who are capable of talking to kids and getting them excited and making it understandable. Many scientists have a challenging time doing that.

How does relaying your story as pageant participant help girls relate to you and your mission?

The purpose of it [her crown] is to show that science is not a single activity for which you could have no other interests. So for me, my secret is that I have done pageants, I play the piano, I have other interests. So whether you're an athlete or an artist, a magician or whether you like to play the kazoo, the point is that you can be a scientist or engineer and have other interests, as well. So, the messaging with the crown is “Look -- it doesn't matter what your other interests are. It doesn't affect whether you can become a scientist.”

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Screenshot of the actual news article at http://land.allears.net/blogs/kristin-ford/2014/02/_to_celebrate_national_engineer.html

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How do you reach out especially to girls and get them interested in STEM activities?

From what I've heard and from talking to girls between the ages of 5 and 13, the concerns are "Well, if I'm a scientist, no one will like me or I won't have friends" or "I'm going to be labeled a geek."
No. 1: It's cool to be a geek because if you're not a geek, one day you'll probably be working for one.
No. 2: Embrace who you are. ... That doesn't affect whether or not you can be a scientist, a biochemist, an astrophysicist, an engineer.

So, the message to girls is "You are who you are. Be very comfortable with that. Don't let what other people say to you affect the decisions that you make. Don't let people harass you into thinking you can't do something because you're a girl. It's just the same as saying, 'You wear pink shoes, and, therefore, you can't be a scientist'."

Again, producing high-quality role models helps so girls say, "OK, that person is a scientist and they're pretty normal and have a life and other interests." And then just helping them to be themselves and encouraging them to be comfortable in their own skin and letting the rest go.

Do you find that kids are especially interested in one branch of science over others?

That's an interesting question. Historically there have been many fewer women in science, especially in engineering, than men. I think a lot of that has to do with role models. But now that there are more women in medicine, in the life sciences -- biology, chemistry -- you're seeing even more women apply. Statistics show that more women go to college than men these days, and there are quite a few in medical school and in the life sciences. But fewer in physics and computer science. I think part of that is that girls don't see many women, so as a result they have no role models.

So one of the things we try to do is find these people and say, "Come out, talk to kids, and say they can do it." Maybe in the next five to 10 years we may start seeing a shift as more women [are more visible].

The trend has been very interesting even for boys. Girls outscore boys on the SAT, and their grades are better. I think there are a variety of different reasons. Boys tend to mature a little later and then they finally settle into themselves and become who they are later on. There's also a different mindset. I've noticed that men and women think very differently. As girls get older, they're less afraid to fail. Whether that's environmental or genetic, who knows? Boys don't care as much about just raising their hands and being wrong. But girls won't raise their hands if they're not totally sure.



Ultimately if the activities are good enough and the content isn't boring, I think you can encourage both simultaneously.

Tell me a little about what are you working on in your professional life.

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As the founder of Science from Scientists, I'm still involved. In Massachusetts, we send real scientists into the classroom every other week for the entire year to teach curriculum-relevant lessons. Science theater is one of our outreach programs, but our flagship program is in the schools. We want to improve both the attitudes and the aptitudes. We're looking for statewide test score improvement.

I'm also starting a biotech company. As a biochemist, I love studying diseases so that we can help people. How can we do something to cure the chronic conditions for which there are no cure -- Alzheimer's, Parkinson's, ALS. The biotech [Counterpoint Health Solutions] is really geared at developing diagnostic tools as well as therapies for people who have or are in theory at risk for developing some of these conditions. So we have technology that can identify those people and then a way of helping them on the back end.

What would you like families to take away from these shows at Epcot?

This is such a great opportunity for us because we hope in the 15 minutes we have to reach the kids with science theater that we [inspire] them. We hope they wonder why a Coke bottle will spray eight feet in the air. Science is amazing and we take for granted how things work.

I think if you're a kid and you're born into all this amazing technology, you don't always appreciate just how complex and awesome it is that it exists at all. If we can at least open their eyes to start thinking about these things, they might want to be involved. I'm hoping this will at least help kids to ask more questions and to be more curious.



NOTE: The 15-minute “Science Thrills Live” shows are free with admission to Epcot and take place each day this week at 11 a.m. and 1, 2, 3 and 4 p.m. at the Innoventions Engineers Lab inside Innoventions West. Raytheon also sponsors the Sum of All Thrills attraction at Epcot, which allows guests to digitally design their own roller coasters and then experience a simulated ride in them.