

Steve Spangler on Science Magic and Why You're Losing Bookings to Non-Magicians

Steve Spangler wears a number of professional hats. He's the founder and C.E.O. of Steve Spangler Science, a Denver-based on-line and catalog business specializing in the sales and development of science-education teaching tools and specialty toys. A mass-market division called Be Amazing! Toys manufactures science toys and kits for retailers such as Toys "R" Us, the Discovery Channel Store, and Target. Spangler's work on television over the past 15 years has earned him an Emmy, and his weekly science segments are seen by over a million viewers both on television and on-line at www.9news.com/spangler. Steve also has a B.S. degree in chemistry and 11 years experience teaching science in a Denver-area school system, providing him with excellent credentials in that discipline.

Of greater importance — for purposes of this interview conducted by Lindsay Smith, President of the Mile High Magicians Society Assembly 37 — Mr. Spangler is a professional magician who grew up in a family of magicians. Steve has a solid background in magic and showmanship and a love for the art that goes back to his roots.

Earlier this year, there were some posts on SAMTalk about a program called *Mad Science*, an entertainment franchise that is booked as a science program and, in the process, explains and exposes a number of magic tricks. Mark Weidhaas, S.A.M. Regional Deputy Colorado and new Regional Vice President for the Northwestern States, quoted a post from a first-grade teacher regarding a *Mad Science* entertainer in his column in Assembly 37's newsletter, *Abracatabloid*: "Right from the start, he told the kids (kindergarten through fifth grade) that the difference between a scientist and a magician is that both show you really neat things, but the 'scientist will show you how it works.'" During the course of the program, the presenter exposed the Change Bag, Slush Powder, the Flash Wand, and the Pom-Pom Pole... all in the name of science education.

Q: Considering your science and magic background, I'm sure you have some thoughts on this.

STEVE: Even before I received my copy of our



Steve transforms a Cartesian Diver into something magical.

Assembly newsletter, I had four messages on my phone and email about Mark Weidhaas' commentary on the *Mad Science* assembly programs. Mark is correct... there's a problem with exposure and it's happening under the auspices of learning. But even more telling is the fact that magicians are losing bookings hand over fist to this new breed of children's entertainer. I'm worried about the ongoing exposure of magic, and I'm worried about magic tricks with no connection to science being used to supposedly teach science.

Q: That sounds fairly ominous. To start with, what can you tell us about these programs like *Mad Science*?

STEVE: *Mad Science* is a Canada-based corporation with a large number of franchises throughout the U.S. and in about 25 other countries. In a nutshell, *Mad Science* (and a number of other science education companies) provides schools with science assembly programs, before-and-after-school science classes, and a wide assortment of science-theme birthday parties. Most of the franchises are owned by entrepreneurs who are selling educational entertainment services — plain and simple. And, since "science" is a top topic in education, the services that these companies offer are in high demand.

Q: Are these people who own these franchises science teachers or struggling scientists looking for another career?

STEVE: Probably a mix of both, but they're first and foremost entrepreneurs. While some of these franchise owners have a solid science education background, I'd have to say that this is the exception and not the rule. The vast majority of these franchise owners and operators approach the job not from the standpoint of an educator, but rather as an entrepreneurial endeavor. They're businesspeople and that's not all bad. Here's the bottom line: These science entertainers are looking for good paying gigs and they're constantly on the lookout for show material that is interactive, amazing, funny, and has a gee-whiz factor. It doesn't matter if it's magic or science as long as it's entertaining.

Q: Given the scope of your work, how is your science-education business different than the franchises you speak of?

STEVE: I started my career as a science teacher at an elementary school and I got a lucky break. During my first year of teaching, I was approached by a producer at the NBC affiliate in Denver who was in the audience at a science magic show I performed earlier in the school year. The producer was creating a news magazine show called *News for Kids*, a weekly half-hour Saturday morning show. She liked my science demonstrations and how I worked with kids, so I got the job as the science host of the program.

Q: How long was the show on the air?

STEVE: *News for Kids* ran from 1991 to 1997. The show was picked up for national syndication in 1993, airing in 185 cities every Saturday morning. During each season, I was responsible for 39 original segments (about three minutes long). When the show wrapped up in 1997, we had aired over 200 science magic segments.

Q: I assume that this national exposure helped to launch your career as a professional speaker and science education consultant.

STEVE: No doubt, the publicity from the show helped my career. But the best thing that came from the show was coming up with 39 original science magic segments each season. I quickly blasted through the “A” material during the first season and then had to get serious about working on new material.

Q: Give us an example of a few of your science magic tricks from the show.

STEVE: There was the “Obedient Eye Dropper” that would float and sink on command in a soda bottle filled with water. It was actually an age-old science experiment called a Cartesian Diver. Simply by squeezing the sides of the bottle, water secretly filled the eyedropper, making it heavy enough to sink. Releasing the squeeze caused it to float back up to the top. It’s a great science demo because it illustrates the concept of buoyancy and density. But the magic component came into play when the viewers were taught to present it as a mental magic trick, using your mind to cause the eye dropper to move in the bottle (while the science magician secretly squeezed the sides of the bottle). Do you see how a science demo was turned into a piece of science magic?

Q: I don’t think that too many professional magicians are going to be upset with you teaching people how to make a Cartesian Diver.

STEVE: In fact, it should be just the opposite. When you put a magic slant on a science demonstration, you get the best of both worlds. The kids learn how to be amazing with science. Now you know why we call our mass-market division Be Amazing! Toys.



Spangler amazes with a demonstration of surface tension and hydrogen bonding.

Q: Give us a few more examples.

STEVE: We did lots of chemical magic effects, bubbling potions, optical illusions, puzzles, brain-teasers, and many segments that didn’t have a magic slant at all... but were entertaining to watch (I hope). If you want some great examples of science magic, take a look at Bob Friedhoffer’s huge offering of science magic books. Bob is a great magician and a prolific author of science magic books.

Q: But this is not representative of the kind of magic that is being exposed, right?

STEVE: Correct. Earlier this year, I attended a regional convention for science teachers where a “science entertainer” shared the basic elements of his school assembly program with a packed room of teachers (maybe 350 people). After using a Dove Pan and some Flash Paper to magically make “science candy,” he posed this question to the audience members, “So, how do you think that was done?” He solicited a number of “predictions” and then proceeded to expose the workings of the Dove Pan.

He said, “You see, magic is nothing more

than a clever adaptation of science. Friction and some spring-loaded clips are used to hold the upper pan in place. Since magicians can’t really do magic, they have to misdirect you with things like Flash Paper, a chemically treated paper that burns without leaving any ashes. This gives the magician the perfect chance to put the lid on top of the fire, and presto! The candy appears. See, magic is nothing more than a bunch of scientific principles you can learn in school.” That’s how the show started.

Q: That’s how it started? You mean there was more?

STEVE: Given the preceding account, just imagine the scientific explanations that were given for the Mirror Box, the Pom-Pom Pole, a handkerchief vanish with a Thumb Tip, and the Square Circle. Key phrases like “strengthen critical thinking skills,” “increase scientific inquiry,” and “challenge students to think outside the box” are all used to justify the explanations. Remember, the science entertainer has no vested interest in the art of magic. All of these clever tricks are simply part of a bigger

presentation. The presenter is being paid to do a show where the kids have fun and learn about science. Unfortunately, many clients who book these shows (parents in the P.T.A., for example) base the success of the show on how much the kids laugh and cheer, and not on the science content. It's really part of a much bigger problem in science education.

Q: Do you use these kinds of stock magician's props in your presentations?

STEVE: No. When I'm hired to speak professionally about science education, I use science demonstrations (not magic tricks) to illustrate many of the best practices that I'm teaching. Sure, I may incorporate showmanship that I've learned as a magician, but I'm doing science. If, on the other hand, I'm hired as a magician, then I do magic... but I don't expose anything. The two are completely separate.

Q: If these science entertainers aren't getting the magic ideas from you, then where are the ideas coming from?

STEVE: Just as we magicians attend lectures, read magazines, and browse the internet in search of new performance material, the same holds true for the science entertainer. It's not uncommon for these science entertainers to walk into their local magic shop or browse online for tricks that have a science slant.

Q: Again, can you give us some examples?

STEVE: Sure. Slush powder, Insta-Snow, or any chemical magic effect is an obvious choice, but as Mark Weidhaas pointed out, the browsing doesn't stop there. How about a Milk Pitcher, Chen-Lee Water Suspension, Coke-Go, the classic Soft Soap effect or a Change Bag? I'm sure that readers of *M-U-M* can immediately come up with many more examples. Since magic dealers have no problem selling their secrets to the public — anyone can walk into a traditional bricks-and-mortar store or buy on-line — it's relatively easy for the science entertainer to round out his or her show with a few great tricks that are guaranteed to get the much needed *ooohs* and *ahhhs*.

Q: Should magicians be angry about this kind of exposure?

STEVE: Sure, it's our natural response to be upset, but let me suggest that it's our own damn fault. As magicians we are eager to have magic shops (especially on-line stores) and sell almost anything to the public. We even go so far as to write books and star in our own DVDs that showcase our best practices when it comes to performing the material. As long as we continue to openly sell the tricks of our trade to anyone (that means non-magicians) with a credit card, we really don't have grounds for much of a complaint.

Please don't take this the wrong way. I



[Top left and clockwise] Steve produces giant rings of smoke, teaches a volunteer a lesson in polymer science, and shows teachers how to inflate giant bags using only one breath.

understand our age-old oath of secrecy and our concerns about exposure, but try explaining that to the science franchise owner/performer who wants more material for an upcoming school show, material that you're willing to sell to anyone willing to pay the asking price. If exposing the Pom-Pom Pole gets a great audience reaction, it's tough to resist buying the prop from the magic shop no matter how much it costs. The bottom line is that this trick is going to make the science entertainer money.

Q: You said that these science entertainers could make pretty good money. How well are they paid?

STEVE: Well, it all depends on how good the person is, his or her celebrity status, and what

the program entails. I'd say that a good science entertainer can make between \$500 and \$1,500 a day doing school shows. Typically, he'll do an hour show for the kindergarten through second graders and another show for the students in grades three through five, for example. I'm sure that some of these franchise owners make more and some make less, but it's not bad money.

Q: Steve, you have a critical eye. Are these science entertainers good performers?

STEVE: If they're doing 80 to 100 schools a year, averaging three assemblies daily, it's a safe bet they're probably doing something right. Let's face it, they're good because they're doing a ton of shows, they do them day after day and they're getting paid well. Most

the classroom for eleven years. This is what I do for a living as a trainer and speaker. I teach teachers to be better teachers based on my background and experience as an educator.

Q: Where does your training as a magician come into the picture?

STEVE: I learned how to captivate a person's attention using magic. I learned how to draw someone in and pique curiosity using magic. But I had to make a conscious decision not to use traditional magic props like a Change Bag or a Milk Pitcher to teach science. That's not teaching science... that's doing a trick for the sole purpose of entertaining kids. My mission is to teach teachers how to use *their tools* of the trade to engage students and to challenge their inquisitive nature.

Q: You grew up in a family of magicians, didn't you? Both your parents have been doing magic professionally for many years and your dad, Bruce, is perhaps best known as the creator of You-Do Voodoo, the original Needle Through Arm effect that Harry Anderson made famous on TV. Can you share some of that background?

STEVE: I recall going to my first magic convention in 1972, a P.C.A.M. convention in Hawaii. I have been surrounded my entire life with people who always knew how to be amazing. More and more, I started playing around with chemical magic and being inspired by my dad who was doing all the chemical magic back in the '70s. I remember going to the Midwest Magic Jubilee when I was probably seven or eight years old and my parents had a booth in the dealers room. I was pouring Think Ink or dad's famous Switcheroo behind the demo table with my little sister. The booth was always swamped with people because it was so different. I was hooked on science magic at an early age.

Q: What's your greatest fear with regard to this science magic debate?

STEVE: I'm afraid magicians are going to say, "Hmmm, my school show bookings aren't that good. I'm going to be a science guy." So they run out and start doing that. If they do that, they will just make this whole

problem worse. Because all of a sudden, now all the people who are out there doing it already are going out and getting more magic tricks until you start seeing some science guy produce a bowling ball from a tablet of paper and expose the gimmick on the back of the tablet. And it's getting to that point.

We need to teach teachers how to be better



Steve presented his now-famous Mentos & Diet Coke experiment to a group of teachers in Vienna. Learn the secret at www.stevespanglerscience.com.

teachers of science. One of the vehicles we're using is magic to rekindle that childlike enthusiasm that a teacher once had for learning and get them to the point where they want to teach more science. We want to rekindle the love of teaching in teachers, not create more assemblies that are out in the market and performers who are just doing science tricks.

If we don't do that, teachers can never live up to the great expectations that a performer who's doing magic can. The teacher will never have a Change Bag, never do Torn-and-Restored Newspaper, never go make Clippo or have a Milk Pitcher. But they will have simple things like Elmer's Glue and Borax and learn how to make slime. We're just teaching teachers how to present that in such a way that makes it educational and entertaining and makes kids want to learn more.

Q: You're really saying that tricks don't make the science teacher.

STEVE: Teachers go through a lot to become a great teacher. Amazing teachers are not built on a bag of tricks. Amazing teachers take what they know and turn it into a teaching moment.

My job is to prepare the next generation so that you and I can have a quality of life in

retirement that we think is good and that we have a planet that we want to live on that has natural resources that haven't been expended. The world is a better place because we taught kids how to wonder and discover and explore. That's the kicker.

Q: What suggestions do you have for magicians in this magic vs. science debate?

STEVE: We need to figure out how to help these science demonstrators stay in their role and not keep stealing ideas and tricks from the magic world.

I hope this interview stimulates some conversation about magic and science, on SAM-Talk, on blogs, in letters to the editor, whatever. For example, as a magic community, what are we going to do about the people who — free of charge, with no membership dues, no requirements — can go anywhere online or to any store and buy any trick they want for any purpose they want? That's what we're seeing now. The better the presentation, the more likely it is to show up in a school show.

And I contend it's not their fault. Don't get mad at the science teacher or science demonstrator. Yes, between you and me and our code of ethics, it's wrong. But they didn't sign any code of ethics. They don't belong to the S.A.M. They don't adhere to ethics that we take so seriously. They're making a living. Their job is to find the next greatest science demonstration, whether it's from watching someone on television, or streaming something on video, or going to a workshop or seeing a magician perform. If they think they can make a tie-in, they will. And that's what they're doing.

As magicians, the ball is in our court. What we do next will have a huge impact on the widespread appeal of these kinds of programs. I invite you to share your thoughts with me on my blog at <http://www.stevespangler.com/> ♦