Math With Bad Drawings: An Interview with Ben Orlin

by Manjil Saikia - Saturday, September 15, 2018

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Ben Orlin

Ben Orlin is the author of Math With Bad Drawings, where he combines his love for mathematics with 'bad drawings'. The result is a fantastic blog where different aspects of mathematics, teaching methodologies and geeky humour emerge. Ben lives in Northampton, MA, USA; prior to this, he has taught ages 11 to 18 in Oakland, CA, US and Birmingham, UK. On the 18th of September 2018, Ben's first book *Math With Bad Drawings: Illuminating the Ideas that shape our Reality* is out.

Gonit Sora took an email interview of Ben recently. The transcript with minor modifications follows below. The interview was taken by Manjil Saikia for Gonit Sora.

Manjil (MS): Hi Ben, it's great to have an interview with you for Gonit Sora.

Ben Orlin (BO): Thanks, Manjil - I'm excited!

MS: First of all, the obvious question why 'Math with Bad Drawings'?

BO: Because I love math and I can't draw!

Seriously: when I was planning to start the blog, I was going to ask a friend to help me illustrate. (Math really needs pictures.) But the logistics proved too much of a headache. When I realized I would have to do the drawings myself, I figured I would disavow them in the title, to make clear I am not delusional.

Poems on a Tetrahedron

MS: That's a good answer. Do you also use such kind of drawings/illustrations in your teaching? Are your students aware of the blog?

BO: Not that often, honestly! I find being an exhibitionist about my bad drawings (or about my online footprint) distracts from the mathematics more than it helps. During lesson times, I am more excited to see my students' creations than I am to show off my own. (They do tend to learn about the blog, though - the ones curious enough to Google their teachers, anyway.)

MS: As an educator, what facets of teaching math do you hope to bring forth in the blog? Fun is always a component, which is obvious from your posts.

BO: It's changed over time. At the beginning, I had a clearer agenda: I wanted to talk about what's missing in rote approaches to math, and the role teachers have in pushing for a more expansive, conceptual view. (Also, I wanted to make "concavity" jokes.)

These days I'm interested in telling stories about mathematical realizations and experiences - from my life, or my students' lives, or from professionals, or whoever - and then zooming out to see what light those stories can shed on mathematics itself.

 Math with Bad Drawings

MS: Could you elaborate on this a bit? Rote approaches are far too common.

BO: Some of my early posts (e.g., Black Boxes, The Quadratic Formula Must Die, and Two-Column Proofs That Two-Column Proofs Are Terrible) explore these themes. I still agree with pretty much everything I wrote then. Formula-driven "follow these steps" math education remains (a) really common, and (b) rather ineffective for achieving mathematical mastery, and (c) a pretty lousy experience for most folks involved.

But railing against the inadequacies of a certain kind of math education took me only so far. My best writing happens when I find ways to celebrate math, or introspect about my own teaching, or sympathize with people struggling.

MS: Why do you think so many people are afraid about math? Can this be rectified somehow?

BO: It's tough. People seem to feel that they're being judged when they do math, that they're being assessed on quickness and accuracy. That puts them on edge. It turns struggle - a natural part of math - into something bitter and shameful.

I have got no global fix, but I know the best thing I can do is to give people as many positive experiences of math as I can. Chances to solve puzzles, wallow in ideas, and enjoy surprising connections.

MS: So, tell us about your upcoming book. How did that happen? And what is it about?

BO: The opportunity to write this book fell into my lap like a little miracle. The publisher (Black Dog & Leventhal, an imprint of Hachette) does beautiful illustrated books; the final result is like a giant two-pound piece of candy you want to keep forever.

The book is about... well, mathematics. I found the breadth daunting at first (how can one book cover a whole subject?!) but it gave me the chance to cherry-pick settings where there's cool, accessible, relevant mathematics. There are chapters on lottery tickets, human genetics, the Death Star, and a chaos theoretic vision of history. It was so much fun to research and write.

MS: That sounds like a vast range of topics. What would be next from here? I hear you have another book in the pipeline?

BO: Yes! The next book will be about calculus. It has a lot in common with the first book (math, cartoons, jokes) but it has its own flavor, too - a little more literary, meditative, and narrative-driven.

MS: Where can we buy it?

BO: It's being distributed to India and British Commonwealth countries through Hachette UK; I know it's available on [Amazon for Indian readers](#).

MS: What have been some good lessons that you got about teaching math from your students?

BO: Everything I know! At both schools where I've worked (in Oakland, US and Birmingham, UK) I've had the best students imaginable.

Mostly I learn about teaching by trying new things. My students have been patient with the frequent flops, and encouraging of the rare successes. Most of all they make me want to be a better teacher, to try to give them the math lessons they deserve!

MS: Any particular experiences from your students that you found compelling?

BO: One of my favorite essays was about realizing that I had been [treating a student unfairly](#). It was harrowing and powerful to see my behavior through her eyes. Similarly, the book tells a story of a boy frustrated by time-pressured tests. It's another occasion when I realized only later that I'd been overlooking real pain that my students were experiencing.

But I try to focus on happy experiences, too! For example, the time one student derailed a whole lesson with [great questions about 0.999....](#)

MS: Do you have any favourite posts on your blog that you particularly like? Why?

Asking the right questions!

BO: The cartoons draw more clicks, but I'm proudest of the essays about education, like [What It Feels Like to Be Bad at Math](#) or [The State of Being Stuck](#). A little-read one from soon after I started the blog - and one of the tougher, more honest pieces of writing I've done - is [A Ray of Light](#).

MS: Can you think of a complicated mathematical concept, that you made easy in your blog? Some complicated theorem that is explainable in 30 seconds, say.

BO: Ha - I would love to claim such impressive explanatory feats, but I don't think I pull it off very often.

I remember the first time I taught proof by induction: I was beaming with hubris, convinced I'd nailed the explanation... and then I read the student work to find out that they'd all skipped the induction step! They said, "I will now assume the statement holds for k, and prove it holds for k+1." But no proof followed, just "QED."

MS: Haha...this is far too common. Any particular teaching practice you adopt for such kind of situations with children?

BO: I used to try to help kids avoid mistakes. Now, it's almost the opposite: I want to *accelerate* mistakes. Certain errors and pitfalls are inevitable; the sooner students make them, the sooner they can learn from them.

MS: Yes, that is certainly true. Are there any other plans with your blog?

BO: I like to plan as little as possible. For me, the blog is just a fun playground, and I'm grateful when other people come to play, too.

MS: Finally, why did the chicken cross the road?

BO: Depending on your frame of reference, it's the road that crossed under the chicken.

MS: Thank you so much for your time, Ben. And all of us at Gonit Sora wishes you success in your future endeavors.

BO: Thanks so much - I remain, as ever, a Gonit Sora fan!

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