How to Become a Numbers Person: Review of *Making Numbers Count*, by Chip Heath and Karla Starr (2022)

Jena Barchas-Lichtenstein

*Knology, jenabl@knology.org*

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**Abstract**

*Making Numbers Count: The Art and Science of Communicating Numbers* (2022), by Chip Heath and Karla Starr, is a practical guide to developing number sense. Full of useful tips and tricks, the book ends on a philosophical note that invites us to contemplate why each of us is simultaneously good and bad with numbers. The writing style is enjoyable, especially for a reference book, and it could generate fruitful conversation in numeracy courses as well as writing courses across disciplines and professions.

**Keywords**

number sense, numeracy

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**Cover Page Footnote**

Jena Barchas-Lichtenstein leads media research and partnerships at Knology. They are co-PI of Meaningful Math, a four-year study to develop news that better supports the public's statistical reasoning.

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There are multiple ways of being good or bad with numbers. One common distinction (e.g., Peters 2021) is between objective numeracy, subjective numeracy, and intuitive number sense. Objective numeracy can be measured by things like scores on a math test, while subjective numeracy shows up as self-efficacy and confidence. Meanwhile, number sense is a matter of having a feel for numbers: Can you easily tell which of two numbers is larger? Do you know what a given ratio means in the real world? That’s number sense, which is also the least studied of these three types of numeracy.

Fortunately, Making Numbers Count: The Art and Science of Communicating Numbers by Chip Heath and Karla Starr is a practical guide to developing precisely this kind of number sense. They offer a number of translational principles to make abstract numbers feel visceral. As they write in the introduction, “Billions, trillions, millions, kajillions … they all sound the same but describe wildly different realities. Our brains were designed to grok 1, 2, 3, 4, and 5. After that, it’s just ‘lots.’” (xi). Most importantly, all of their principles are rooted in cognitive research: their goal is teaching people to communicate numbers in ways that align with the strengths of human perception.

The first of four sections, “Translate everything, favor user-friendly numbers,” argues against precision. Round numbers and whole numbers are easier for our brains to process and remember. In fact, the very first principle in the book is “avoid numbers.” As Heath and Starr point out, many comparisons can be made clearly without using numbers at all. Consider one of their examples: “Among Fortune 500 CEOs, there are more men named James than there are women” (Heath and Starr 2022, 9). This data point, which the authors draw from a New York Times article by Miller et al. (2018), is more vivid than a number; it should be self-evident that there are far more women than Jameses in the United States.

The second section, “To help people grasp your numbers, ground them in the familiar, concrete, and human scale,” promotes translating relatively abstract ideas into comparisons for which most people have a physical understanding. This section begins with a list of social distancing comparisons from around the world: 6 feet became one hockey stick in Canada, two baguettes in France, and one tatami mat in Japan. All of these comparisons use a familiar object whose size people know well. The same logic underlies the common medical charts that translate tumors and fetuses into common foods. Heath and Starr also translate hummingbird metabolism into cans of Coke, calories into exercise, and units of time into the human lifespan.

Inspiring action is the focus of the third section, “Use emotional numbers— surprising and meaningful—to move people to think and act differently.” This section highlights ways of translating numbers into personal terms. Sometimes these translations are direct, as when “one in three people” becomes “look to the person on either side of you.” The authors recommend demonstrations, like walking
one step for each unit of measurement, as well as converting very large or very small numbers into processes that take place over time. For example, they suggest translating Six Sigma (a standard of 3.4 defects per million objects manufactured) for the home cook:

To achieve Six Sigma as a baker, imagine baking a batch of 2 dozen chocolate chip cookies every night. You could do that for 37 years before finding a cookie that is burned, raw, or doesn’t have the perfect number of chips (105).

The final section, “Build a scale model,” brings together the principles from the first three sections. The authors encourage taking advantage of common mental models. For example, the history of the universe is mapped onto a single 24-hour day. Tax allocations are mapped onto a calendar year. The results of a workplace survey are mapped onto an 11-member soccer team. And so on.

According to its authors, Making Numbers Count has two core audiences: “I am not a numbers person” people, and ‘I am a numbers person’ people” (131). If you read Numeracy, you probably have strong opinions about which one you are, but Heath and Starr caution that these categories are not as simple as they appear. They offer examples of various kinds of experts drawing poor inferences, and conclude the book with an argument why each and every one of us is—and is not—a numbers person.

The writing is breezy and enjoyable throughout, as are the dozens of examples. The text is accessible for readers who think they’re bad at math. In fact, the peek “under the hood” into the strengths and weaknesses of human cognition may be especially rewarding for these readers. I’d love to see this book used in writing courses across disciplines, particularly in journalism, medicine, and business. I could also see instructors who teach quantitative reasoning using this book to spark classroom discussion. The examples could fuel some thoughtful conversations about what makes numbers easy and hard to use.

But if Making Numbers Count has a weakness, it’s this: the focus on translation sometimes takes for granted that the numbers are themselves accurate and meaningful. For example, they suggest reframing “1 murder occurs every 30 minutes in the United States” to “Every day, 50 people are murdered” (106). But they elide a bigger and more interesting question: how is this number calculated in the first place? After all, crime statistics are notably messy, as typified by the entire career of no less a luminary than Joel Best. (These particular numbers come from the CDC, and presumably from death certificates.) In my research, so much of the trouble people have with numbers is methodological in origin—and making the numbers themselves easier to understand does not help anyone judge the methods used to generate it.

I end with one caution: for all its style and wit, Making Numbers Count is not a book you would read for the sake of reading. After all, it’s a guidebook. It’s not a narrative. There is no argument per se. But as a reference book, it’s not just
useful—but even generative. In supporting number sense, it also helps us think about what number sense is, and why it matters.

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References

