Davida Teller Award Lecture 2013: Prologue

Eileen Kowler

Department of Psychology, Rutgers University, Piscataway, NJ, USA

A visual scientist might be considered successful for making inroads into one problem area. Davida Teller stood out for at least three: her contributions to models of visual detection and discrimination, to theoretical discussions of psychophysical linking hypotheses, and to the creation of the modern science of visual development in infants. She received multiple honors, including the Friedenwald Award of the Association for Research in Vision and Ophthalmology, and she contributed to the transformation of the graduate program in psychology at the University of Washington. She was mentor to an enormous number of talented students, all of whom continue to carry on this tradition in their own work.

I was fortunate to be present as a beginning graduate student in 1974 to witness the first talk, at ARVO, in which Teller introduced the forced-choice preferential looking method for the study of visual development in infants. Following the talk, Teller received an undeniably significant question that she surely was expecting. The issue was this: Psychophysical methods are all predicated on the notion that observers will be highly motivated and sufficiently informed to produce capacity level performance. How could one possibly expect infants to perform at capacity levels? Given they were not, the results reported surely underestimated visual capacity, by unknown levels. This question could not have been surprising, given how much Teller herself contributed to the science of psychophysics that relied on the traditional highly motivated, committed, and healthy, adult observers.

Of course, we never know whether we are measuring capacity level performance in adults, infants, animals, or patients (as pointed out by Teller, Morse, Borton, & Regal, 1974; Teller, Mayer, Makous, & Allen, 1982). But that particular answer is not why this story stayed with me for 40 years, and it's not why I talk about it each year to my undergraduate perception class. I tell the story because I remember thinking, after hearing the question, what can someone possibly do when confronted with what seems like a devastating criticism, and at the very beginning of a new research initiative no less? Teller remained resolved and unfazed, convinced that the right questions to be asking were not the unanswerable questions about capacity, but rather how we can use psychophysics to understand the trajectory of visual development.

I tell this story to the undergraduates because it is a reminder of how science is more than the studies, the results or the models. Science requires vision, imagination, confidence, and determination. It includes taking risks, facing critics, being a critic, examining, and re-examining assumptions, and, from time to time, courage. Teller's work, and courage, set the example for all of us.

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Corresponding author: Eileen Kowler.
Email: kowler@rci.rutgers.edu.
Corresponding address: Department of Psychology, Rutgers University, Piscataway, NJ, USA.

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