

Elizabeth Bates: A scientific obituary

by Frederic Dick, Jeffrey Elman and Joan Stiles

On December 13, 2003, Elizabeth Bates died, after a courageous year-long struggle with pancreatic cancer. In passing away, Liz leaves an enormous hole, both in the field and in the lives of her many friends. But she leaves an enormous legacy as well. Over the course of more than thirty years, Liz established herself as a world leader in a number of fields – child development, language acquisition, aphasia research, cross-linguistic research, and adult psycholinguistics. She was passionate about science and about ideas. Fearless and bold in following these ideas wherever they took her, and unafraid of controversy, Liz inspired many to follow in her footsteps.

One can paint the landscape of a great career in different shades and hues, but for Liz one needs a full pallet of colors, and certainly of intensities. Her contributions to the field of cognitive science were rich and varied, and defy any simple categorization. A summary of just the research initiatives and empirical instruments she produced would fill the space of this brief note. To give a sense of the breadth of her achievement we begin with a list of some of the most tangible products of her career.

MacArthur Communicative Development Inventory. This instrument has become one of the most widely used tools in the field for assessing communicative development. There are now versions of the CDI in 35 languages.

The International Picture Naming Project. Liz initiated and headed the International Picture Naming project, which has provided the field with a wealth of developmental and adult behavioral data on action and object naming in 7 languages.

Voxel-Based Lesion-Symptom Mapping. Liz led the team that developed this important tool for correlating site of lesion in patients with brain damage with degree of behavioral deficits.

The UCSD Project in Cognitive and Neural Development. For nearly two decades, Liz directed this multimillion dollar NIH funded program project to study the longitudinal development of language, learning and behavior in children with neurological disorders. It remains a unique and productive international center for the study of these important challenging questions about development.

International Cross-Linguistic Consortium. Liz established an international network of researchers that made possible large-scale collaborative research into cross-linguistic comparisons of aphasia and normal language processing.

Founding member of the UCSD Cognitive Science Department. Liz was one of the pioneering faculty who established the first Cognitive Science department in the world.

Founding Co-Director of the Joint Doctoral Program in Language and Communicative Disorders (SDSU/UCSD). Liz played a key role in the creation of one of the most innovative Ph.D. programs in the country in the area of language and communicative disorders.

Scholarly record. In a prolific career over three decades, Liz conducted studies in over 20 languages on four continents. She was author, or co-author, of 10 books and more than 200 articles

As important as each of these has been, and as great an impact each has had on the everyday scientific lives of students and researchers around the world, they cannot be properly understood in isolation. Rather, they need to be placed in the context of the larger legacy that constituted the full breadth of Liz's career achievements – achievements that will continue to influence the course of scientific discourse and practice for many years to come. In an important sense, underlying all of Liz's work is a unified view of language, cognition, and the brain that motivates the work in different areas. But although one can separate Liz's work into areas – development, aphasia, cross-linguistic studies, etc. – this obscures the deep theoretical insights that cut across the various domains.

Liz was a true developmentalist. She understood that what is interesting about development is change – the forces that drive change, the shape of change and the mechanisms that underlie it. She viewed life as dynamic, and development as emergent, deriving from the interaction of the organism with its environment.

Liz was an ardent theorist. Beginning with her early work with Brian McWhinney on the Competition Model and continuing – literally – to the end of her life she developed well-articulated positions on some of the most central issues in Cognitive Science from modularity to embodied cognition to brain plasticity to questions about innateness and the origins of knowledge. She saw behaviors such as language as reflecting important, interesting and novel traits that are unique to humans; but she also understood that even the most complex behaviors are rooted in a shared biological history. She believed that big changes – like the emergence of language – developed out of many small changes. As she often said, “Language is a new machine built out of old parts.” Liz did not believe in a language module in the human brain. Instead she saw functional modularity as an outcome rather than a starting condition.

Liz was the consummate empiricist (her students often referred to her as a data junkie). The many tools and instruments she created—for quantifying dissociations, studying small samples, and interpreting multivariate analyses—bear witness to her passion for data. In many ways, Liz viewed her experimental results as an explorer might see a newly discovered continent— a vast terrain ready to be poked, prodded, and encouraged to reveal its underlying structure.

Finally, Liz was a generous and energetic collaborator. She was a one-woman force for scientific globalization, forging lasting and productive partnerships with linguists and psychologists working in many countries, including Bulgaria, England, Germany, Hungary, India, Italy, Mexico, Russia, Taiwan, and Tanzania. She also built bridges across an extraordinary array of disciplines, with long-time collaborators hailing from

fields as disparate as biology, computer science, medicine, physics, primatology, and statistics.

Liz was able to establish and maintain such wide-ranging and numerous collaborations not only because of her legendary energy and drive, but also - and perhaps most importantly - because of her surpassing generosity of spirit. To so many of us, Liz was muse, confidant, mentor, and friend. And we miss her very much.

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Elizabeth Bates is survived by her husband George and daughter Julia Carnevale. The family requests that in lieu of flowers, contributions be sent to the Elizabeth Bates Graduate Research Fund, c/o Center for Research in Language - MC 0526; University of California, San Diego; La Jolla, California 92093-0526. In keeping with her deep commitment to supporting students, this fund will be used to assist graduate students in their research, emphasizing the many areas in which Professor Bates made pioneering contributions.