Scientists undertake effort to launch video data-sharing library for developmental science

July 2 2013

In the largest open-source video-data sharing project of its kind, behavioral researchers, digital library scientists, and computer scientists are undertaking the creation of Databrary, a web-based video-data library sponsored by the National Science Foundation (NSF) and the National Institutes of Health (NIH).

To capture the richness of behavioral development and to understand its complexity, developmental scientists analyze behavior using video-recorded data—on average, 12 hours of video per week. Databrary aims to encourage widespread data sharing in the developmental and behavioral sciences where video is commonly employed, but rarely shared.

Databrary will enable researchers to store and openly share videos and related information about the studies. Researchers and clinicians can use Databrary to browse, download, and re-analyze video data. The goal is to accelerate the pace of scientific discovery and make more efficient use of public investments in scientific research.

The Databrary team is led by Karen Adolph, Professor of Psychology and Neural Science at New York University (NYU); Rick Gilmore, Associate Professor of Psychology at Penn State; and David Millman, Director of Digital Library Technology Services at NYU. NIH's support comes from the Eunice Kennedy Shriver National Institute of Child

Health and Human Development (NICHD).

"By creating tools for open video data sharing, we expect to increase scientific transparency, deepen insights, and better exploit prior investments in developmental and behavioral research," explained Adolph, whose own research examines the process of learning and development in infant motor skill acquisition.

Video data sharing marks a ground-breaking approach to "big data" efforts in scientific behavioral research.

"Because raw video data are so rich and complex, research teams will be able to access a wealth of data from studies around the world and pursue countless lines of inquiry into behavior and its development," said Adolph. "Researchers can build on each other's efforts to learn from prior examples, test competing hypotheses, and repurpose data in ways unimagined by the original researcher."

Gilmore, who studies visual perception and brain development at Penn State, continued: "Video can be combined with other data sources like brain imaging, eye movements, and heart rate to give a more complete and integrated picture of the brain, body, and behavior."

Databrary will be the first large-scale, open data-sharing system that enables behavioral scientists to share and re-use research video files. The project is part of a series of "big data" and data science initiatives underway at NYU. NYU's Division of Libraries and Information Technology Services are providing infrastructure and curation support in a close partnership with the project.

Databrary also provides a response to the growing federal mandate for the management and sharing of data from federally funded research.

"I am very excited that NICHD is supporting this endeavor," says Lisa Freund, Branch Chief for the Child Development and Behavior Branch. "Databrary has tremendous potential for enhancing developmental behavioral science and facilitating discoveries that wouldn't be possible without such a sharing infrastructure."

In addition to the web-based data library (databrary.org), the project also involves enhancing an existing, free, open-source software tool (datavyu.org) that researchers can use to score, explore, and analyze video recordings. The Datavyu tool allows researchers to mine video recordings for new information and to discover previously unrecognized patterns in behavior.

Because videos contain faces and voices, Databrary will limit full access only to authorized researchers who have signed a written agreement with Databrary to keep confidential the identities of people depicted in stored recordings. People depicted in recordings must give written permission for their information to be shared.

Databrary will be housed at NYU. Other project partners include NYU's Center for Data Science and Penn State's Social, Life, & Engineering Sciences Imaging Center.

Provided by New York University