A TAKE ON BROADENING RANGES OF RESEARCH POTENTIALS

Over the 25-plus years I’ve worked with peer review of technology-supported research, the technologies from which researchers can choose have become more specialized and sophisticated in some cases (statistical analysis, geographical information system software) and more generic and easy to use in others (spreadsheets and online surveys). Technology allows researchers to collaborate across continents and time zones, taking advantage not only of the expertise of their international colleagues but also of expensive equipment (telescopes, supercomputers) otherwise beyond their budgets and research subject communities not otherwise accessible to them (to determine culture-specific responses vs. biology-controlled responses, for example). When investigators complete their research and analysis, the reports of their work reach wider audiences than ever before thanks to technology-supported distribution methods. This can spur further research along the same lines and often invitations to collaborate with scientists doing similar or related work. It also allows others in the same field, whether professionals, students, or interested amateurs, to keep up with current research and join in evaluations and discussions of the methods, analyses, and results of research, either to critique, suggest alternatives, or share their own insights. Technology thus facilitates research from initial planning to dissemination of new results and genesis of continuing efforts and new ideas. It connects people and ideas around the world to further advances in human knowledge.

The biggest effect of improvements in technology to support research is the increased pace of exploration possible, from small projects conducted by single researchers using online surveys and free analysis software to massive research groups funded by governments and large international corporations. Even high school students have conducted sophisticated research that has won science prizes and recognition, giving them a jumpstart not only on college but also on successful careers.

For the first time in history, people anywhere in the world can work with senior scientists using large telescopes, massive centrifuges, or virtual worlds to conduct their research—or they can compete as scattered individuals or small groups in contests (to develop new encryption methods or a new drug), share their individual resources in a large endeavor (think of SETI), or come together as a community (to research worldwide issues such as bird migrations). Anyone with an interest can access basic technologies by going online to learn about their chosen field, connect with other interested people and groups, and participate in data collection, surveys, knowledge dissemination—research.
The opportunity for anyone with access to the Internet to participate in and contribute to research marks a new stage in human development. Research in recent decades has already pushed the boundaries of our knowledge further in a few generations than in all the generations that preceded us. The new element fueling this progress is technology. Whether it continues to support human endeavors to discover new knowledge or takes over the job for us, technology will keep its central role in research. Whether that turns out to be good or bad depends on the wisdom we apply to its implementations. All of us can influence the future of research and where it leads us—with technology as a tool.

Nancy Hays  
EDUCAUSE, USA

Nancy Hays is editor and manager, Publishing, for EDUCAUSE, a nonprofit association and the foremost community of IT leaders and professionals committed to advancing higher education. She joined EDUCAUSE in 2000 to manage the editorial and peer-review process for EDUCAUSE Quarterly, which moved entirely online in 2009 and merged with EDUCAUSE Review and the EDUCAUSE Multimedia programs in 2012 as the association’s flagship publication. As editor for EDUCAUSE, Hays works with the editorial, content, and executive teams to determine important trends in the field of higher education information technology, solicit appropriate authors to write on different topics, and develop ideas for publication online. She also runs the peer-review committee and process and oversees the editorial and production teams for EDUCAUSE publications, from conference programs to books. Prior to joining EDUCAUSE, Hays was group managing editor for the IEEE Computer Society, where she started as an assistant editor in 1985. As group managing editor, she supervised editorial and production teams and worked with the editors-in-chief and editorial boards for IEEE Computer Graphics and Applications, IEEE Multimedia, IEEE Micro, IEEE Design and Test, and the Annals of the History of Computing. From 1980 to 1985, she held editorial jobs in technology and medical publishing. Hays earned a Master’s degree in English literature from UCLA in 1980 and three bachelor’s degrees from Oregon State University in 1977 (English, Economics, and Liberal Studies).