

ONLINE

Opening the Scientific Process on the Web

By THOMAS LIN

For centuries, scientific research has been done in private, then submitted to journals to be reviewed by peers and published.

But to many scientists, the system seems hidebound, expensive and elitist. Peer review can take months, journal subscriptions can be prohibitively costly, and a handful of gatekeepers limit the flow of information.

It is an ideal system for sharing knowledge, said the quantum physicist Michael Nielsen, only "if you're stuck with 17th-century technology."

Dr. Nielsen and other advocates for "open science" say science can accomplish much more, much faster, in an environment of friction-free collaboration over the Internet. And, despite the skepticism of many scientists, their ideas are catching on.

Open-access archives and journals like arXiv and the Public Library of Science (PLoS) have sprung up in recent years. GalaxyZoo, a citizen-science site, has classified millions of objects in space, discovering characteristics that have led to a raft of scientific papers. And a social networking site called ResearchGate — where scientists can answer one another's questions, share papers

and find collaborators — is rapidly gaining popularity.

Editors of traditional journals say open science sounds good, in theory. In practice, "the scientific community itself is quite conservative," said Maxine Clarke, executive editor of the commercial journal Nature, who added that the traditional published paper is still viewed as "a unit to award grants or assess jobs and tenure."

Dr. Nielsen, 38, who left a success-

Researchers share online, bypassing peer review.

ful science career to write "Reinventing Discovery: The New Era of Networked Science," agreed that scientists have been "very inhibited and slow to adopt a lot of online tools." But he added that open science was coalescing into "a bit of a movement."

Science is moving to a collaborative model, "because it works better in the current ecosystem, in the

Web-connected world," said Bora Zivkovic, a chronobiology blogger who is a founder of the annual ScienceOnline conference.

ResearchGate, the Berlin-based social network for scientists, is the brainchild of Ijad Madisch, 31, a Harvard University-trained virologist and computer scientist. "I want to make science more open," he said. Started in 2008 with few features, it was reshaped with feedback from scientists. Its membership has mushroomed to more than 1.3 million, Dr. Madisch said, and it has attracted several million dollars in venture capital.

The Web site is a sort of mash-up of Facebook, Twitter and LinkedIn, with profile pages, comments, groups, job listings, and "like" and "follow" buttons, although only scientists are invited to pose and answer questions. It also offers a simple yet effective end run around restrictive journal access with its "self-archiving repository." Since most journals allow scientists to link to their submitted papers on their own Web sites, Dr. Madisch encourages his users to do so on their ResearchGate profiles.

Greg Phelan, chairman of the chemistry department at the State

University of New York, Cortland, used the site to find new collaborators, get expert advice and read journal articles not available through his small university.

Changing the status quo — opening data, papers, research ideas and partial solutions to anyone and everyone — is still far more idea than reality.

As the established journals argue, they provide a critical service that does not come cheap.

"We have to cover the costs," said Alan Leshner, executive publisher of the nonprofit journal Science.

Those costs hover around \$40 million a year, paying for more than 25 editors and writers, sales and production staff, and offices in North America, Europe and Asia, not to mention print and distribution expenses.

Peer-reviewed open-access journals, like Nature Communications and PLoS One, charge their authors publication fees — \$5,000 and \$1,350, respectively — to defray their more modest expenses.

Dr. Madisch acknowledged that he might never reach many of the established scientists for whom social networking can seem like a waste of time. But wait, he said, until younger scientists weaned on social media



TIMOTHY FADEK FOR THE NEW YORK TIMES

Ijad Madisch, standing, founded ResearchGate, a social networking site for scientists.

start running their own labs.

"If you said years ago, 'One day you will be on Facebook sharing all your photos and personal information with people,' they wouldn't believe you," he said. "We're just at the beginning. The change is coming."

Dr. Leshner agrees that things are moving. "Will the model of science magazines be the same 10 years from now? I highly doubt it," he said. "I believe in evolution."

Social Media, More Portal Than Pitfall

By PERRI KLASS, M.D.

More than a hundred years ago, when the telephone was introduced, there was some hand-wringing over the social dangers that this new technology posed: increased sexual aggression and damaged human relationships. "It was going to bring down our society," said Dr. Megan Moreno, a specialist in adolescent medicine at the University of Wisconsin-Madison. "Men would be calling women and making lascivious comments, and women would be so vulnerable, and we'd never have civilized conversations again."

In other words, the telephone provoked many of the same worries that have been expressed about online social media. "When a new technology comes out that is something so important, there is this initial alarmist reaction," Dr. Moreno said.

Indeed, much of the early research — and many of the early pronouncements — on social media seemed calculated to make parents terrified of an emerging technology that many of them did not understand as well as their children did.

Whether about sexting or online bullying or the specter of Internet addiction, "much social media research has been on what people call the danger paradigm," said Dr. Michael Rich, a pediatrician and the director of the Center on Media and Child Health at Children's Hospital Boston.

Though there are certainly real dangers, and though some adolescents appear to be particularly vulnerable, scientists are now turning to a more nuanced understanding of this new world.

Researchers are also looking to Facebook, Twitter and the rest for opportunities to identify problems, to hear cries for help and to provide information and support. Dr. Rich feels strongly that it is important to avoid blanket judgments about the dangers of going online.

"We should not view social media as either positive or negative, but as essentially neutral," he said. "It's what we do with the tools that decides how they affect us and those around us."

Dr. Moreno's early research looked at adolescents who displayed evidence of risky behaviors on public MySpace profiles, posting photos or statements that referred to sexual activity or substance abuse. E-mails were sent to those adolescents suggesting that they modify their profiles or make them private.

Girls were more likely to respond



JULIETTE BORDA

than boys, Dr. Moreno found, and sexual material was more likely than alcohol-related material to be removed.

Her current research, by contrast, approaches social media as a window, an opportunity to understand and improve both physical and mental health. In a study of the ways college students describe sadness in status updates on their Facebook profiles, she showed that some such expressions were associated with depression in students who completed clinical screening tests.

Since freshman year is a high-risk time for depression, many college resident advisers already try to use Facebook to monitor students, Dr. Moreno said.

Still, she acknowledged that this new strategy raised privacy concerns, asking, "How do you think about extending this to other at-risk groups in a way that still doesn't feel like an invasion of privacy?"

Our children are using social media to accomplish the eternal goals of adolescent development, which include socializing with peers, investigating the world, trying on identities and establishing independence.

In 2011, the American Academy of Pediatrics Council on Communications and Media issued a clinical report, "The Impact of Social Media on Children, Adolescents and Families." It began by emphasizing the benefits of social media, including enhanced communication skills and opportunities for social connections.

"A large part of this generation's social and emotional development is occurring while on the Internet and

on cellphones," the report noted.

The job of parents is to help them manage all this wisely, to understand — and avoid — some of the special dangers and consequences of making mistakes in these media.

"Rather than taking a one-size-fits-all harm model, one of the questions parents need to ask is, 'How is this going to interact with my child's personality?'" said Clay Shirky, who teaches about social media at New York University. "Digital media is an amplifier. It tends to make extroverts more extroverted and introverts more introverted."

And both parents and researchers need to be sure they understand the subtleties of the ways teenagers interpret social media.

At a 2011 symposium on the Internet and society, two researchers presented information on how teenagers understand negative talk online. What adults interpret as bullying is often read by teenagers as "drama."

By understanding how teenagers think about harsh rhetoric, the researchers suggested, we may find ways to help them defend against the real dangers of online aggression.

Those who treat adolescents with these problems are now committed to the idea that there are other important perspectives for researchers looking at the brave new universe in which adolescence is taking place.

Social media, said Dr. Rich, "are the new landscape, the new environment in which kids are sorting through the process of becoming autonomous adults — the same things that have been going on since the earth cooled."

Sharing a Password Opens a Risky Door

By MATT RICHTEL

In the digital era it has become fashionable for young people to express their affection by sharing their passwords to e-mail, Facebook and other accounts. Boyfriends and girlfriends sometimes even create identical passwords, and let each other read their private e-mails and texts.

They say they know such digital entanglements are risky, because a souring relationship can lead to people using online secrets against each other. But that, they say, is part of what makes the symbolism of the shared password so powerful.

"It's a sign of trust," Tiffany Carandang, a high school senior in San Francisco, said of the decision she and her boyfriend made to share passwords for e-mail and Facebook. "I have nothing to hide from him, and he has nothing to hide from me."

"That is so cute," said Cherry Ng, 16, listening to her friend's comments. "They really trust each other."

Ms. Carandang, 17, said, "I know he'd never do anything to hurt my reputation."

Changing a password is simple, but students, counselors and parents say that damage is often done before a password is changed, or that the online sharing can be the reason a relationship falters.

The stories of fallout include a spurned boyfriend who tries to humiliate his ex-girlfriend by spreading her e-mail secrets; tensions between couples over scouring each other's private messages for clues of disloyalty or infidelity; or grabbing a cellphone from a former best friend, unlocking it with a password and sending threatening texts to someone else.

Rosalind Wiseman, who studies how teenagers use technology, said the sharing of passwords, and the pressure to do so, was somewhat similar to sex.

Sharing passwords, she noted, feels forbidden because it is generally discouraged by adults and involves vulnerability.

"The response is the same: if we're in a relationship, you have to give me anything," Ms. Wiseman said.

In a 2011 telephone survey, the Pew Internet and American Life Project found that 30 percent of teenagers who were regularly online had shared a password. The survey, of 770 teenagers ages 12 to 17, found that girls were almost twice as likely as boys to share. And

in more than two dozen interviews, parents, students and counselors said that the practice had become widespread.

In a recent column on the tech-news Web site Gizmodo, Sam Biddle offered advice to couples and friends on how to avoid missteps.

"I've known plenty of couples who have shared passwords, and not a single one has not regretted it," he said in an interview.

Students say there are reasons beyond a show of trust to swap online keys. For instance, several college students said they shared Facebook passwords to force themselves to study for finals. A student would give her password to a friend to change it — and not disclose the new one — thereby temporarily locking out the account holder and taking away a big distraction to studying.

Alexandra Radford, 20, a junior at San Francisco State University, said one friend wanted to know the new password before exams ended, but Ms. Radford held firm.

"Once finals were over, I gave it to her," she said. But Ms. Radford is more sheepish about the passwords

Young lovers say they have nothing to hide on the Web.

she had shared in high school with her boyfriend.

"We did it so I could check his messages because I didn't trust him, which is not healthy," she conceded.

Counselors typically advise against the practice, and parents often preach the wisdom of password privacy. Winifred Lender, a child psychologist in Santa Barbara, had her three sons sign "digital contracts" that outline terms for how much media they will consume, how they will behave online and that they will not share passwords.

Patti Cole, 48, a child psychologist, said she thinks young people are sometimes drawn to such behavior as they might be toward sex, in part because parents and others warn them against doing so.

"What worries me is we haven't done a very good job at stopping kids from having sex," she said. "So I'm not real confident about how much we can change this behavior."

For \$2 a Star, Online Retailer Gets Buyers' 5-Star Reviews

By DAVID STREITFELD

In the brutal world of online commerce, where a competing product is just a click away, retailers need all the help they can get to close a sale.

Some exalt themselves by anonymously posting their own laudatory reviews. Now there is an even simpler approach: offering a refund to customers in exchange for a write-up.

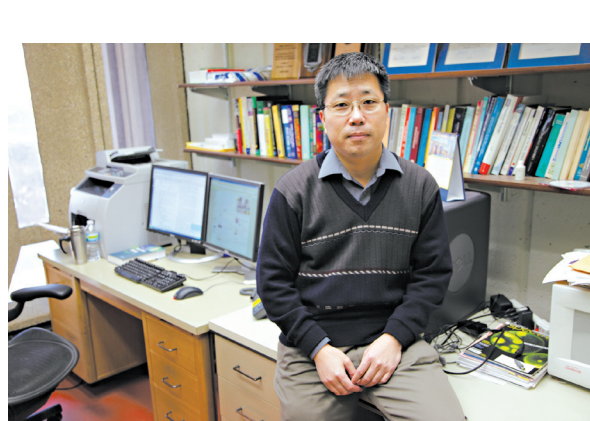
By the time VIP Deals ended its rebate on Amazon.com in late December for its Vipertek leather case for the Kindle Fire, hundreds of reviewers had proclaimed the case a marvel worth five stars.

Fake reviews are drawing the attention of regulators. "Advertising disguised as editorial is an old problem, but it's now presenting itself in

different ways," said Mary K. Engle, the Federal Trade Commission's associate director for advertising practices. "We're very concerned."

Researchers like Bing Liu, a computer science professor at the University of Illinois at Chicago, are also taking notice, trying to devise mathematical models to systematically unmask the bogus endorsements. "More people are depending on reviews for what to buy and where to go, so the incentives for faking are getting bigger," said Mr. Liu. "It's a very cheap way of marketing."

By late January, 310 out of 335 reviews of VIP Deals' Vipertek brand premium slim black leather case folio cover were five stars. VIP Deals, which specializes in leather tablet



JOHN GRESS FOR THE NEW YORK TIMES

cases and stun guns, denied it was quietly offering the deals. But three customers said in interviews that the offer was straightforward: the VIP page was selling a cover for under \$10 plus shipping (the official list price was \$59.99). When the package arrived it included an invitation "to write a product review for the Amazon community."

Bing Liu, a computer science professor, is trying to unmask fake product reviews.

"In return for writing the review, we will refund your order so you will have received the product for free," it said.

Anne Marie Logan, a Georgia pharmacist, was suspicious. "I was like, 'Is this for real?'" she said. "But they credited my account. You think it's unethical?"

The merchant did not respond to further requests for comment.

Under F.T.C. rules, when there is a connection between a merchant and someone promoting its product that affects the endorsement's credibility, it must be fully disclosed. In one case, Legacy Learning Systems, which sells music instructional tapes, paid \$250,000 last March to settle charges that it had hired affiliates to recommend the tapes on Web sites.

Amazon, sent a copy of the VIP letter by The New York Times, said its guidelines prohibited compensation for customer reviews. A few days later, it deleted all the reviews for the case, then it took down the product page. A spokeswoman declined to say exactly what happened to VIP's products, like the Vipertek VTS-880 mini stun gun, which all also disappeared after receiving nearly all five-star reviews.

"I bought one for my wife and decided to let her try it on me," one man wrote in his review.

"We gave it a full charge and let me just say WOW! Boy do I regret that decision."