



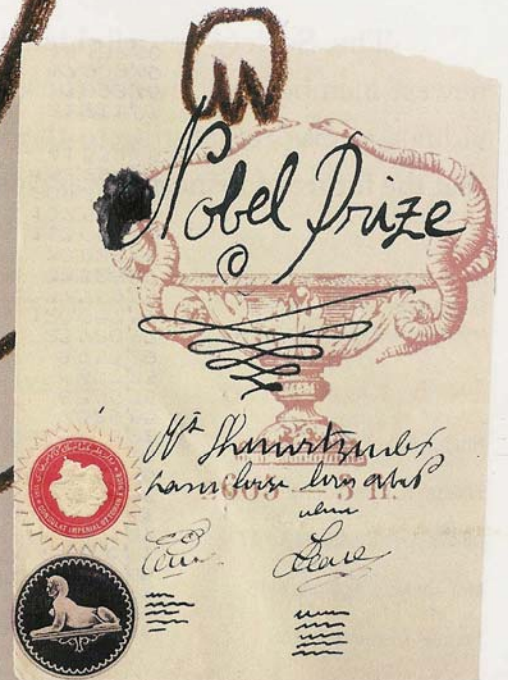
Princeton Alumni Weekly

April 7, 2010

Eszter Hargittai *03
on the digital divide

Wordplay whizzes

Joshua Bolten '76,
gatekeeper to President
George W. Bush



Princeton scientists
talk about the
tough going *before*
their big successes

The fruits of failure

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Princeton Alumni Weekly

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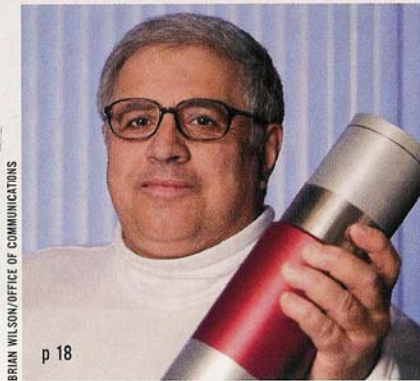
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In her research on the digital divide, Eszter Hargittai '03 learns that the gap isn't just a question of who has access to the Internet — it's the different ways in which people use it.

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The Weekly Blog Revisit highlights from PAW's first issue on April 7, the magazine's 110th birthday.



Tigers on TV Catching up with Princetonians who played leading roles in reality TV shows (including one who won!).

Video: Web savvy Eszter Hargittai '03 discusses the digital divide among young people.

Word games A dozen readers took up PAW's challenge to create their own form of constrained writing. Check out their fun with words.

Gregg Lange '70's Rally 'Round the Cannon How the Class of 1917's Class Notes treated F. Scott Fitzgerald '17, "who in spirit never grew much older than the college boy we all knew."



STEVEN VEITCH



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Communications scholar and Northwestern University professor Eszter Hargittai '03

RETHINKING THE DIGITAL DIVIDE

Communications scholar
Eszter Hargittai '03 asks:
Is the Web helping those
who most need a boost?

By Brett Tomlinson

Eszter Hargittai '03 spends a fair amount of time online, by choice and by necessity.

She has been a fan of the Web since its infancy, and when you teach courses like "Internet and Society" and "Adolescents' Digital Media Uses," you need to stay close to technology's leading edge.

An associate professor of communication studies at Northwestern University, Hargittai keeps in touch with colleagues through Facebook and Twitter. She posts on Crooked Timber, a group blog about current events written by academics, and maintains her own Web site, eszter.com. She even teaches a class via video Web link, for graduate students at Northwestern and Harvard. In her spare time, Hargittai, an avid photographer, posts photos — nearly 12,000 so far — on the photo-sharing site Flickr.

Her newest hobby is geocaching, which bills itself as "a worldwide game of hiding and seeking treasure," usually pocket-sized trinkets and visitor logs. With the help of online maps and GPS devices, people follow coded clues to locate tiny caches — sometimes no larger than a pill bottle — stashed alongside hiking trails and city streets.

Walking along a footpath near the snowy shoreline of Lake Michigan with a visitor, Hargittai points out one well-camouflaged cache, a spice bottle wrapped in black tape and wired to a tree limb. About a quarter-mile to the south, in the median of a busy street, she reveals another, inside an old public fountain. She detaches a loose pipe and gently removes the secret logbook scrolled inside.

"Thousands of people pass by," Hargittai says, glancing at the cars on either side of her, "and they have no idea."

Geocaching may be just for fun, but to Hargittai, it also illustrates how an offline activity can be so intertwined with online communication. You can't find a cache without the online clues and coordinates. Each component is dependent on the other.

The same link appears in more important aspects of our lives. You interview for a job in person, but in many cases, you search and apply online. Far-flung people with common offline interests congregate in online communities. User

reviews on Web sites help us make important decisions, from choosing a doctor to buying a car. In politics, Internet fundraising and citizen-generated blogs have become integral parts of campaigns. Access to government services increasingly relies on online components.

"There's absolutely no doubt that the Internet allows for all sorts of amazing things," Hargittai says, "and if you are educated and have the resources and have the most recent technology to take advantage of it, then you have a good chance to benefit from it."

But "if" is the operative word. People have a wide range of skills in navigating the Web, and those skills are linked to age, education, and socioeconomic factors, according to Hargittai's research. Even those in the so-called net generation have a wide spectrum of Web savvy.

Hargittai's work has shown that young people with higher levels of education and skill are more likely to use the Web for "capital-enhancing" activities like career advancement and political participation. But the user's age and education are not the only factors: In a study focused on first-year college students, she found that one's parents' level of education was correlated with skill and patterns of Web use.

For those who once hailed the Internet as a level playing field filled with opportunity and free information, Hargittai's work raises a critical question: Is the Web aiding those who need a boost, or helping those who already are better off?

Ten years ago, the issue of inequality online

was one of access. The "digital divide" was viewed as a separation of haves and have-nots, with the presumption that getting everyone connected to the Internet would spread the benefits of the technology. But even then, Hargittai, Princeton sociology professor Paul DiMaggio, and a handful of other researchers in fields as divergent as law and computer science were taking a more nuanced look at digital inequality.

DiMaggio, who was Hargittai's Ph.D. adviser, reasoned that even as access became more widespread, new issues of

inequality were bound to emerge — differences in the quality of an individual's Internet connection or hardware, differences in skills, and differences in what sorts of things people chose to do online. He makes an analogy to the rise of education in the United States: When elementary education became universal, going to high school was a differentiator. When high school education became nearly universal, a college degree became the important factor. And when more and more students went on to college, the quality of the institution that one attended gained significance.

"Whatever the baseline is," DiMaggio says, "there always are new forms of differentiation."

In the mid-1990s, DiMaggio worked with University of Maryland professor John P. Robinson to add questions about Internet and Web use to the General Social Survey, a National Science Foundation-funded survey that has tracked the opinions of Americans for the last four decades. The Web was new and not widely available, but DiMaggio figured it would be useful to begin collecting data, to chart the technology's diffusion over the coming decades. Around the same time, Hargittai, a native of Budapest, Hungary, was researching the international digital divide for her undergraduate thesis at Smith College.

When Hargittai arrived at Princeton in 1997, she began working with DiMaggio to explore several interesting questions, from the basics (who has access to the Internet, who does not, and how is this changing?) to the more complex (how do Internet access and use affect real-life variables like educational achievement and earnings?).

Survey data showed that all income groups in America followed an upward trend of Internet adoption from 1994 to 2001, but the tracks were parallel, not converging. And, as Hargittai, DiMaggio, and colleagues Coral Celeste '05 and Steven Shafer '08 noted in a 2004 overview of digital inequality, there were several different "digital divides." Having some kind of access to the Internet, whether at home, work, or school, was correlated with family income. When it came to having access to the Internet at home, there was distinct inequality based on race. High-speed connections at home, on the other hand, were more clearly linked to income inequality.

Internet adoption, not surprisingly, was highest among young users. Among non-users, those under age 50 were much more likely to say they planned to go online than older people. Hargittai and DiMaggio also found a clear link between education and "capital-building" uses of the Web. The more years of schooling a person had, the more likely he or she was to spend time online doing things that build social or economic capital.

When Hargittai began work on her dissertation, she decided

to explore the trickier issue of skill. She always had been an early adopter of technology, going back to her days at Smith, where she aced a computer-science course for non-majors, became a teaching assistant for the course, and started hanging out in the computer-science department near the dawn of the World Wide Web. While Hargittai was — and is — extraordinarily Web-savvy, she realized that using technology effectively and efficiently required knowledge and skills that she suspected were not evenly distributed.

Hargittai set up a study that DiMaggio says was "fairly radical" by sociology standards. She brought a wide sample of



The Internet could "meet its potential" and help the less privileged catch up with the more privileged. It could have little to no effect on equality. Or it actually could help to widen the gap.

Internet users to Princeton and set them up on machines that resembled their home computers. Mac owners used a Mac, PC owners used a PC, and each computer had several Web browser options. The setup was similar to those that Web designers employ for "usability" testing of new sites — but in Hargittai's case, she was more interested in the users than the Web sites. Subjects were asked to do tasks — find information and local show times for a movie or theater performance, for example — and Hargittai recorded the process that they followed to reach their objectives.

Age, level of education, and experience with the Internet turned out to be the most important predictors of skill. The data also showed a curious gender difference. Controlling for socioeconomic background and computer experience, Hargittai found no statistically significant difference between the abilities of men and women. But in an accompanying survey, in which the subjects rated their understanding of different Web-related terms, men rated their abilities significantly higher than women did. In essence, women were shortchanging themselves in the skill department. In follow-up work, Hargittai and a colleague found that the gender gap in Web skill, real or perceived, had a negative impact on women's likelihood of sharing creative content online.

Hargittai's innovative dissertation work helped her land a faculty appointment in communication studies at Northwestern. In the last four years, she also has visited Stanford and Harvard for yearlong fellowships, and her research

earned funding from the John D. and Catherine T. MacArthur Foundation's Digital Media and Learning Initiative and from Google and Nokia.

In 2006, Hargittai expanded her exploration of Web skill in a study conducted at the University of Illinois, Chicago. Her choice of subjects — first-year college students — took age, education, and access to the Internet out of the equation. But she still found wide divergence in computer skills. As Hargittai writes, "Internet know-how" was not randomly distributed among the college freshmen. Self-assessments showed that being white or Asian-American was associated with higher skill. Higher levels of parental education, which sociologists use as a proxy for family income, also coincided with more skill online. Consistent with Hargittai's earlier finding, men reported having a better understanding of Web terms, but the size of the study made it too expensive to test whether the difference was real or just perceived.

The study questioned some of the assumptions that people have made about "digital natives" (young people who have grown up in the Internet age). "While age may be one predictor of savvy," Hargittai says, "it by no means explains all differences among people with respect to their technological abilities. It's not all about age."

Hargittai's current projects are looking at how skill influences specific uses of the Web, including a timely area of inquiry: the job search. With many employers requiring online applications, using the Web is a necessity for both junior executives networking on LinkedIn and teenagers hoping to stack Big Macs. Hargittai wants to find out more about how job searchers are using the Web — an area that few social scientists have examined.

The current recession, she notes, marks America's first period of sustained high unemployment since the Internet became widely available. "It's a great time to look at who are the people who are able to benefit in their job search from digital media," she says.

Nearly all of Hargittai's work looks at the benefits of Internet use. On the "big question" of digital inequality, she sees three possibilities: The Internet could "meet its potential" and help the less privileged catch up with the more privileged. It could have little to no effect on equality. Or it actually could help to widen the gap.

So which is it? As a social scientist, Hargittai shies away from broad pronouncements, noting that to truly know what is happening, researchers will need to study data collected over a longer period of time. But the snapshots available do provide a useful, if incomplete, picture.

"Based on some of the evidence we have," she says, "I definitely think that there is potential for increased inequality."

Nearly three-quarters of American adults are online, according to December 2009 data from the Pew Internet & American Life Project, including 93 percent of Americans between ages 18 and 29. The old issue of an access divide is not settled, but the \$7.4 billion pledged for broadband expansion in the 2009 federal stimulus package could produce a needed boost by providing high-speed connections

in poorly served parts of the country. The Federal Communications Commission released more details about how the broadband money would be spent in mid-March.

When Hargittai was a visiting fellow at Harvard's Berkman Center for Internet & Society in 2008, she joined several colleagues on a trip to Washington to meet with President-elect Obama's transition team. In the meeting, Hargittai shared what the research tells us: For truly equitable access, a plan needs to include training and education; simply wiring the country is not enough. The text of the stimulus package did include a few words about training, Hargittai says. "It's not clear how that's going to be part of what actually gets funding," she adds, "but it is in the text at least."

The Berkman Center also made a formal review of broadband deployment worldwide, which it forwarded to the FCC this February, highlighting best practices from other industrialized nations. In South Korea, for example, broadband expansion was accompanied by extensive skills training for target populations, such as homemakers and the elderly, and curricular changes in public schools that made Web use an integral part of class assignments.

In the United States, schools — including universities — have an important role to play in teaching people about technology, according to Betty Leydon, Princeton's vice president for information technology and chief information officer — and a fan of Hargittai's work. Leydon believes that Hargittai's findings about skill on the Web can be applied more generally. "We're constantly trying to help our students become more effective users of technology," she says. Princeton's Office of Information Technology offers targeted training sessions on everything from optimizing use of search engines to efficiently managing endnotes in a Word document.

Hargittai also has an interest in the training side of the skill conversation. She would like to create an introductory Web-skills course for Northwestern freshmen that would teach helpful, often-overlooked aspects of digital literacy. Part of her motivation is research — she's curious to see if such a course would have a measurable impact — but she's also motivated by personal experience. Even in the self-selecting group of students who enroll in Hargittai's tech-themed courses, she notices gaps in certain basic knowledge of the Web.

For instance, many college students cannot decode the elements of a URL, or Web address (the difference between "http" and "https," for instance — the "s" means the site is believed to be secure). It may seem trivial, but not knowing can have dire effects: Cleverly disguised URLs are used in "phishing" scams to steal personal information such as passwords and account numbers.

You might think that the average 20-year-old at an elite educational institution — a bright, savvy "digital native" — would know how to steer clear of that kind of scam, but that's not always the case, according to Hargittai.

"Frankly, we never really sit down to teach them," she says. "We just assume they come in the door knowing it." ■

Brett Tomlinson is an associate editor at PAW.