Drexel researchers took a look at internet users who strive to protect their privacy while working on collaborative projects, like Wikipedia. One of the ways these users navigate the internet is by using a program called The Onion Router (Tor) that directs their activities through a series of node computers so that their IP address can't be traced. Credit: Drexel University

Not everyone who strives to navigate the internet without being tracked is up to no good. This is the underlying premise of a qualitative study led by a trio of Drexel University researchers, who set out to gather the stories of people working on collaborative projects online—like editing Wikipedia—and are concerned about their privacy and taking steps to protect it.

The study, entitled "Privacy, Anonymity, and Perce ... rs and Wikipedians," which was published in advance of its presentation at the Association of Computing Machinery (ACM) Conference on Computer-Supported Cooperative Work and Social Computing in February, offers a rare look into why some people turn to IP obfuscation tools, such as the onion router, to keep a low profile and how they experience the internet as a result.

The study's central finding is that perceived threats from other individuals, groups of people and governments are substantial enough to force users below the radar in order to protect their reputation, themselves, and their families.

"Wikipedia editors are volunteers who are trying to build a comprehensive free information resource for everyone on the planet. Tor users are often not seen in those positive ways. But these two organizations are actually committed to the same things—a free global exchange of information with everyone able to participate," said Andrea Forte, PhD, an associate professor in Drexel's College of Computing & Informatics and lead author of the study.

Peeling Back the Layers of People Using The Onion Router

Forte and her co-authors Nazanin Andalibi, a doctoral candidate in the College of Computing & Informatics, and Rachel Greenstadt, PhD, an associate professor in the College of Computing & Informatics and director of the Privacy, Security and Automation Lab, interviewed 23 people, from seven countries ranging in age from 18-41, who either use anonymity tactics or consider how to protect their privacy while participating in open collaborations, like Wikipedia. Twelve of them access the internet for online collaborations using Tor software to mask their IP address, which means the location of their computer cannot be ascertained and logged by the sites they visit.

People who want to be online without being traced have been using Tor—the onion router—for more than a decade. While it has the reputation of being a service for people to do nefarious deeds online,
many reporters and political dissidents turned to the anonymity network following Edward Snowden's revelations about the National Security Agency's invasive online monitoring activities.

For Tor users, the internet looks much like it would for people using standard-issued browsers but many sites will hide certain content, throttle browsing, or block Tor users altogether. Some sites—most infamously, those using a web hosting service called Cloudflare—force Tor visitors to pay a more frustrating price: navigating a menagerie of security CAPTCHAs to access particular sites.

But for some users, navigating the consequences of using Tor is a price well worth paying to protect their privacy.

"In nearly all interviews, participants described being wary about how aspects of their participation in open collaboration projects would compromise their privacy or safety," the authors wrote. "Many participants described crisis experiences of their own or of someone they knew as antecedent to their model of threat in online projects."

Their reasons for guarding their privacy online ranged from concerns about providers obtaining and using their browsing history for targeted advertising to actual verbal abuse, harassment and threats of violence.

"The most common concern voiced by participants was a fear that their online communication or activities may be accessed or logged by parties without their knowledge or consent," according to the authors.

This threat, which became very real for many Americans after Snowden revealed the extent of the National Security Agencies surveillance and monitoring practices, has been ever-present for users in other countries for some time. According to one non-U.S. respondent "...in my country there's basically unknown surveillance going on...and I don't know what providers to use so at some point I decided to use Tor for everything."

For a political activist, dissident or just someone who has expressed strong political opinions, the threat is multiplied. One such participant reported "they busted [my friend's] door down and they beat the ever living crap out of him...and told him, 'If you and your family want to live, then you're going to stop causing trouble.'" That's when this participant began using Tor.

Volunteers offer up their computers as routing nodes on the Tor network so that users can't be traced back to their originating IP address. Credit: Drexel University

Compiling the "sum of all human knowledge" at what cost?

Eleven of the study's participants were recruited from the ranks of Wikipedia editors who expressed concerns about maintaining their privacy. In comparison to political dissidence, helping to add information to Wikipedia might seem innocuous, but the editors who are helping to shape the online resource at its most controversial edges are also being threatened and harassed.

Wikipedia lists thousands of controversial issue pages—ranging from abortion to Yuppies—that, according to the site, have been subject to "constant re-editing in a circular manner" and "are responsible for a great deal of tension among Wikipedia editors, reflecting the debates of society as a whole."

Wikipedia allows people to edit without an account, but it does not permit users to mask their IP
addresses and blocks Tor users—except in special cases—so it is still possible to piece together an editor's identity or location by looking at the things they’ve contributed.

So wading into controversial territory, even to present a fact-backed, neutral point of view, puts editors at risk.

"Some Wikipedians described threats of rape, physical assault, and death as reprisals for their contributions to the project," the authors noted.

Administrators of the site, who may not be adding content themselves, but rather are monitoring others' behavior, have been harassed, threatened with violence.

"It's a lot of emotional work," said one study participant. "I remember being like 13 and getting a lot of rape threats and death threats and that was when I was doing administrative work."

Without the option to block their IP, Wikipedia editors feel vulnerable to having their identity exposed. Respondents raised concerns about what it could do to their reputation if current and future employers or coworkers knew what information they were contributing to Wikipedia.

"I don't want to get flak when I'm applying to medical schools," said one study participant. "Because I have friends who've been really badly hurt by that kind of thing...I avoid writing about sexual health...I did some pokes at the abortion article and realized that I was gonna get myself into a deep pile of [expletive] if I kept going. Not because I was giving scientifically inaccurate information or anything—I had my giant obstetrics textbook right open next to me—but I just didn't want to wade in because I don't need backlash."

The study suggested that this lack of privacy protection forced some users to stop participating in open collaborations online, others have decided to expose their own identity, while some still participate but use a variety of strategies for protecting their anonymity—like being careful not to edit pages about their school or the areas they've lived, or using different accounts for different editing purposes. These should clearly be concerns if Wikipedia is striving to crowd-source a truly comprehensive resource.

"If such voices are systematically dampened by the threat of harassment, intimidation, violence or opportunity and reputation loss, projects like Wikipedia cannot hope to attract the diversity of contributors required to produce 'the sum of all human knowledge,'" the authors write.

**Your privacy is the price of access...or is it?**

So why are these sites trying so hard to track the location, behavior and browsing history of their visitors? Some of them probably want to use it to sell targeted advertising, but many just don't have the capacity to safely allow access to anonymous users.

"Part of the challenge is knowledge transfer," the authors suggest. "Each website deals with the question of anonymity in isolation. There are no standard tools for managing anonymous contributions even if site manager wants to do so. In addition, sites face different problems that require different solutions: Wikipedia doesn't want jerks to compromise content, whereas Yelp doesn't want competitors to scrape its pages."

The team reviewed a number of solutions that could allow users to veil their identity, but the authors point out that before anonymous participation is allowed by sites, the administrators of these open collaborations must recognize the value of contributions by anonymous users—rather than trying to ban or out them.

"If such voices are systematically dampened by the threat of harassment, intimidation, violence, or opportunity and reputation loss, projects like Wikipedia cannot hope to attract the diversity of contributors required to produce 'the sum of all human knowledge,'" the authors write.

Provided by Drexel University