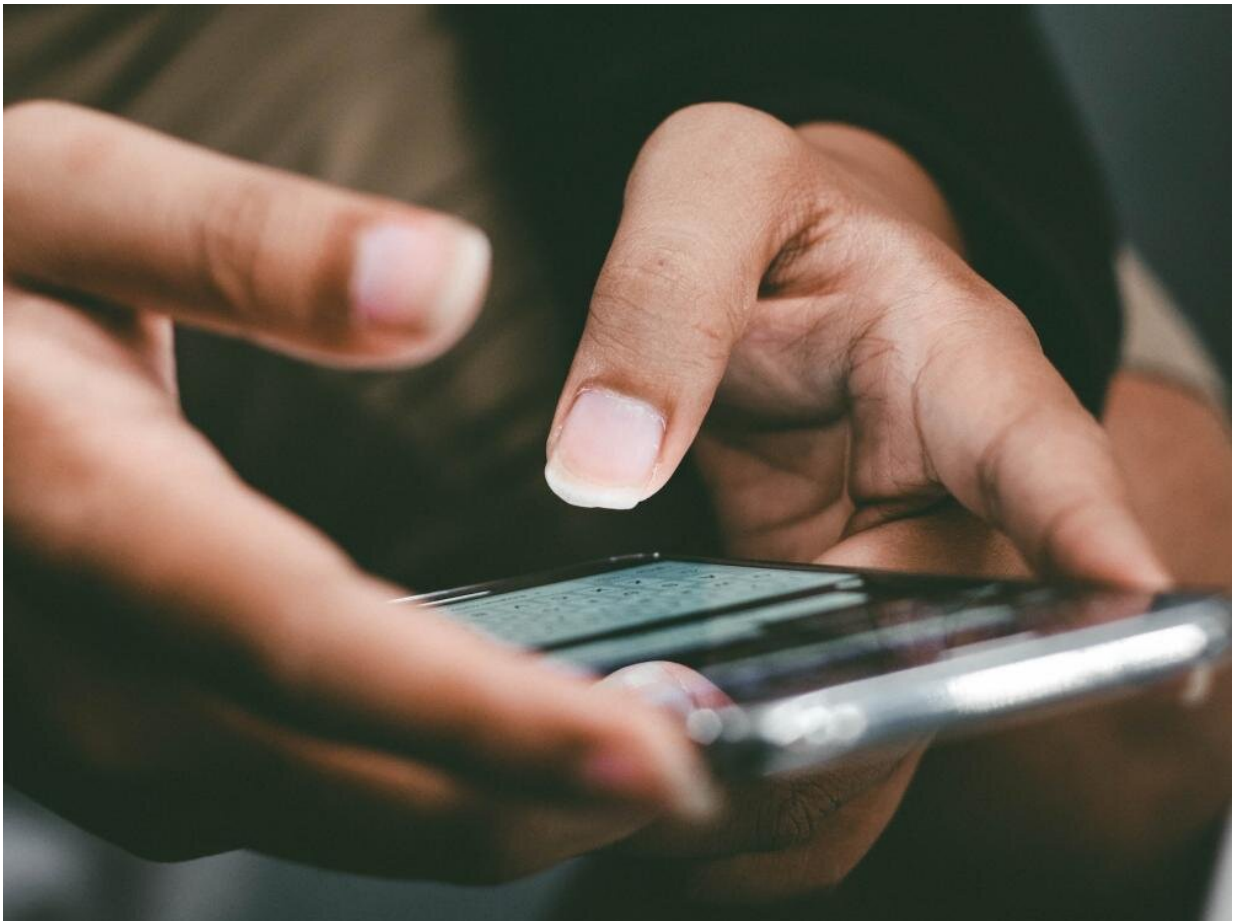# Convenience, control among benefits that inspire automated feature use

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A Penn State-led team of researchers suggest that focusing on certain benefits of automated features, such as autocorrect, may lead developers to create automated tools that people use more and complain about less. Credit: Pradamas Gifarry/Unsplash

People often complain about the occasional misfires of automated features, such as autocorrect, but users generally enjoy interacting with the tools, according to researchers. They added that focusing on certain benefits of automated features may help developers build automated tools that people use more and complain about less.

In a study published in the journal *Behaviour & Information Technology*, researchers said that users appreciate the convenience and control of automated features, which also include YouTube's autoplay and Google Gmail's smart compose. People listed the technology's ability to learn about their personal preferences as another reason they like automated tools.

"We are awash in automated features," said S. Shyam Sundar, James P. Jimirro Professor of Media Effects in the Donald P. Bellisario College of Communications and co-director of the Media Effects Research Laboratory at Penn State University. "Although we crave for more and more interactive media, and enjoy interactivity in our daily digital experiences, we also value these automated features, which are highly popular. So, there's a bit of a contradiction. On the one hand, we want to be involved. But on the other hand, we want the systems to do their own thing."

According to the researchers, because automated tools offer more convenience and control, users may not mind losing some of their ability to interact with the technology.

"Automated features can make a device or tool easier to use and frees users from constantly engaging in repetitive tasks," said Chris "Cheng" Chen, assistant professor in communication and design, Elon University, and first author of the study.

Chen, a former doctoral student in mass communication at Penn State,

added that people also appreciate the ability of automated features to remember and learn from previous interactions, or "system-initiated personalization," she said. This feature saves users from manually adding their preferences to the system.

According to the researchers, users tend to complain about automated features when these features interfere too much with their ability to interact smoothly with their devices.

Developers and designers, therefore, may want to consider designing systems that carefully blend interactivity and automation, also referred to as interpassivity, said Sundar, who is also an affiliate of Penn State's Institute for Computational and Data Sciences and director of Penn State's Center for Socially Responsible Artificial Intelligence.

"Interpassivity is a delicate combination of automation and interactivity," said Sundar. "It's not just one or the other. On the one hand, we want things to be automated, and to reduce tedious tasks, which we are happy to outsource to the machine. But, we also want to reserve the right to interact and be notified so that we can to provide consent for the system to engage in this automation process."

While convenience may often be the most obvious benefit of automated features, Sundar said that developers should also consider other gratifications as they design these services.

"Automated features are meant to give users more convenience, but designers need to keep in mind that there are these other aspects like the user control that people desire, in order for current automated features—as well as other ones that will be developed in the future—to be successful," Sundar added.

For example, Sundar said, many of the current complaints about

automated features derive from a feeling of powerlessness to change settings and a lack of consent.

"When autocorrecting our e-mail messages or autocompleting our sentences, our smartphones tend to go with their version, requiring the user to go through extra steps to over-ride system suggestions," said Sundar. Affording easy control should be considered an important design consideration, he added.

The researchers used both focus groups and a survey to study people's reactions to automated features. They conducted three online focus groups with a total of 18 participants, in which they were asked participants about their met and unmet needs when using automated features.

The responses from the focus groups shaped the survey, which was administered to 498 participants on an online crowdsourcing platform. Those participants were asked about 11 automated features in their daily media experience: autofill, autosave, auto-suggestions, autocomplete, auto-importing, auto-scrolling, smart replies and smart compose, auto-tagging, auto-correct, grayscale and autoplay.

The study found that users perceive higher convenience from autosave compared to grayscale, auto-scrolling and autoplay. Autosave was also rated higher for remembering users' preferences than autofill and grayscale. However, user control was rated as equally important for all automated features.

More information: Cheng Chen et al, Interpassivity instead of interactivity? The uses and gratifications of automated features, *Behaviour & Information Technology* (2023). DOI: 10.1080/0144929X.2023.2184174