Rafi Goldberg
National Telecommunications and Information Administration (NTIA)
U.S Department of Commerce
1401 Constitution Avenue NW, Room 4725
Washington, DC 20230

Dear Mr. Rafi Goldberg and the Staff at NTIA:

I am an Associate Professor in the Department of Communication at the University of California, Santa Barbara, with expertise in digital communication and digital inequality. I have been doing research for the past 8 years on the construct of technology maintenance (Gonzales, 2014, 2016; Gonzales et al., 2016; Gonzales et al., 2020): the idea that technology that is often broken, borrowed and generally dependably unstable. I have found that poor **quality** and **stability** of digital access can compromise access to healthcare (Gonzales, 2014; Gonzales et al., *in press*), education (Gonzales et al., 2020; Petro et al., 2020), employment (Gershon & Gonzales, *in press*), and other essential life resources.

The breadth of technology maintenance problems nationwide is still unknown. A content analysis of national surveys stored at ICPSR revealed that NTIA's Internet Use survey—though by far the most comprehensive of surveys stored there—does not capture gradations in the quality and stability of digital access (Gonzales et al., *in press*). To address this, I have been developing items expressly for use in representative surveys. I first operationalized qualitative technology maintenance findings as closed-ended items and then tested those in various regional and campus surveys (Gonzales et al., 2020; Gonzales et al., *in press*). In these studies I find that three items in particular are consistently related to key outcomes, such as better student performance (i.e. GPA), lower perceived social stress (Cohen et al., 1994;), and better quality of life (WHOQOL Group, 1998).

I recommend that NTIA and the Census Bureau consider a version of these items, listed here, in the next Internet Use survey:

<u>Device Quality</u>
1. How well does your computer work? (*1 = Does not work, 5/7 = Works Perfectly*)
2. How satisfied are you with the quality of your computer? (*1 = Very Dissatisfied, 5/7 = Very Satisfied)*
*Note: Although I use an average of these items to measure **quality** it may be more appropriate for NTIA to use a single item.*

Device Stability

1. About how many days during the last year was your computer inaccessible or unusable?
Note: I have used different question formats associated with this question (e.g. last 30 days, last 6 months), and different answer formats including both Likert (e.g 0, 1-3, 4+ days) and open-ended answer options.

My work has focused on physical access problems, or the "first-level" digital divide, which many have presumed to be "solved" in wealthy countries. Yet, according to recent Pew surveys there are persistent gaps in device ownership. Moreover, my qualitative research suggests that periodic device breakdown is common and consequential. We need a better understanding of this device **quality** and **stability** nationwide in order to identify appropriate solutions to this persistent but overlooked issue. These solutions may include state subsidized digital repair, incentivized trade-ins, and novel interventions (e.g. telehealth, education) that prepare for poor device performance. Finally, these same items could be used to measure broadband services as well. To my knowledge, periodic broadband disconnection is not systematically being measured, and is also important to consider when designing policy interventions.

Thank you for your consideration. Please do not hesitate to reach out if you have any follow-up questions about this research or these items specifically.

Sincerely,

Amy Gonzales, PhD
Associate Professor
Department of Communication
University of California, Santa Barbara

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