POLICY: INFORMATION ACCESS

Bridging the Racial Divide on the Internet

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The Internet is expected to do no less than transform society (*1*); its use has been increasing exponentially since 1994 (*2*). But are all members of our society equally likely to have access to the Internet and thus participate in the rewards of this transformation? Here we present findings both obvious and surprising from a recent survey of Internet access and discuss their implications for social science research and public policy.

Income and education drive several key policy questions surrounding the Internet (*3*, *4*). These variables are the ones most likely to influence access to and use of interactive electronic media by different segments of our society. Looming large is the concern that the Internet may be accessible only to the most affluent and educated members of our society, leading to what Morrisett has called a "digital divide" between the information "haves" and "have-nots (*5*)."

Given these concerns, we investigated the differences between whites and African Americans in the United States with respect to computer access and Web use. We wished to examine whether observed race differences in access and use can be accounted for by differences in income and education, how access affects use, and when race matters in access.

Our analysis is based on data provided by Nielsen Media Research, from the Spring 1997 CommerceNet/Nielsen Internet Demographic Study (IDS), conducted from December 1996 through January 1997 (*6*). This nationally projectable survey of Internet use among Americans collected data on race and ethnicity (*7*).

Computer Access and Web Use

Our survey results (Table 1, column 1) show that overall whites were significantly more likely than African Americans to have a home computer in their household (*8*). Whites were also slightly more likely to have access to a PC at work.

Nearly twice as many African Americans as whites stated that they planned to purchase a home computer in the next 6 months. African Americans were also slightly more interested in purchasing a set-top box for Internet television access.

The racial gap in Web use was proportionally larger the more recently the respondent stated that he or she had last used the Web. Proportionally, more than twice as many whites as African Americans had used the Web in the past week. As of January 1997, we estimate that 5.2 million (±1.2 million) African Americans and 40.8 million whites (±2.1 million) have ever used the Web, and that 1.4 million (±0.5 million) African Americans and 20.3 million (±1.6 million) whites used the Web in the past week.

Whites and African Americans also differed in terms of where they had ever used the Web. Whites were significantly more likely to have ever used the Web at home, whereas African Americans were slightly more likely to have ever used the Web at school.

Possible Causes

Because students behave quite differently from the rest of the respondents with respect to computer access and Internet use, we treat them separately later.

We used the national median household income of $40,000 to divide respondents. For household incomes under $40,000, whites were proportionally twice as likely as African Americans to own a home computer and slightly more likely to have computer access at work (Table 1, columns 2 and 3).

However, for household incomes of $40,000 or more, a slightly greater proportion of African Americans owned a home computer, and a significantly greater proportion had computer access at work.

We adjusted race differences in home computer ownership for income and found, as one would expect, that increasing levels of income corresponded to an increased likelihood of owning a home computer, regardless of race. In contrast, adjusting for income did not eliminate the race differences with respect to computer access at work. African Americans were more likely than whites to have access to a computer at work after taking income into account.

What accounts for this result? African Americans with incomes of $40,000 or more in our sample were more likely to have completed college, were younger, and were also more likely to be working in computer-related occupations than whites. These factors led to greater computer access at work.

At lower incomes, the race gap in Web use was proportionally larger the more recently the respondent stated that he or she had last used the Web. Whites were almost six times more likely than their African American counterparts to have used the Web in the past week and also significantly more likely to have used the Web at home and in other locations. Notably, as indicated above, race differences in Web use vanish at household incomes of $40,000 and higher.

Regardless of educational level, whites were significantly more likely to own a home computer than were African Americans and to have used the Web recently (Table 1, columns 4 and 5). These differences persisted even after statistically adjusting for education. Thus, although income explains race differences in home computer ownership and Web use, education does not: Whites are still more likely to own a home computer than are African Americans and to have used the Web recently, despite controlling for differences in education.

However, greater education corresponded to an increased likelihood of work computer access, regardless of race.

Thus, race matters to the extent that societal biases have either (i) required African Americans to obtain higher levels of education in order to achieve the same income as whites, or (ii) resulted in older African Americans not being able to achieve high incomes.

Students Are Special: Race Almost Always Matters

Higher education translates into an increased likelihood of Web use. Students were more likely than any other income or educational group to have used the Web (Table 1, column 6). Students exhibited the highest levels of Web use because, even without home computer ownership or access at work, they presumably had access at school.

The most dramatic difference between whites' and African Americans' home computer ownership was among current students (including both high school and college students). Whereas 73% of white students owned a home computer, only 32% of African American students owned one. This difference persisted when we statistically adjusted for students' reported household income. Thus, in the case of students, household income does not explain race differences in home computer ownership. This

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is the most disturbing instance yet of when race matters in Internet access.

Our analysis also revealed (Table 1, column 6) that white students were significantly more likely than African American students to have used the Web, especially in the past week. However, there were no differences in use when students had a computer at home.

White students without a computer in the home (Table 1, column 8), were more than twice as likely as similar African American students to have used the Web in the past 6 months and more than three times as likely to have used the Web in the past week. Thus, white students lacking a home computer, but not African American students, appear to be accessing the Internet from locations such as homes of friends and relatives, libraries, and community centers.

Policy Points

Five million African Americans have used the Web in the United States as of January 1997, considerably more than the popular press estimate of 1 million. This means that African Americans are already online in impressive numbers and that continued efforts to develop online content targeted to African Americans, commercial or otherwise, are likely to be met with success.

Overall, students enjoy the highest levels of Web use. However, white students were proportionally more likely than African Americans to own a home computer, and this disquieting race difference seems to result from factors other than income.

Also, white students who lacked a home computer were more likely to use the Web at places other than home, work, or school than were African Americans. Thus, it is important to create access points for African Americans in libraries, community centers, and other nontraditional places where individuals may access the Internet and to encourage use at these locations.

Overall, increasing levels of education are needed to promote computer access and Web use. Education explains race differences in work computer access, although our findings for African Americans with household incomes above the national median suggest the presence of a powerful bias that could restrict Internet use to a narrow segment of African Americans.

The policy implication is obvious: To ensure the participation of all Americans in the information revolution, it is critical to improve educational opportunities for African Americans.

Finally, access translates into usage. Whites were more likely than African Americans to have used the Web because they were more likely to have access, whereas African Americans in our survey were more likely to want access. This may explain in part the recent commercial success of computers priced below $1000. It follows that programs that encourage home computer ownership and the adoption of inexpensive devices that enable Internet access through the television should be aggressively pursued.

The consequences to U.S. society of a persistent racial divide on the Internet may be severe. If a significant segment of our society is denied equal access to the Internet, U.S. firms will lack the technological skills needed to remain competitive. Employment opportunities and income differences among whites and African Americans may be exacerbated, with further negative consequences to the nation's cities. As Liebling observed regarding the freedom of the press (9), the Internet may provide equal opportunity and democratic communication, but only for those with access.

References and Notes

1. W. J. Clinton, *State of the Union Address*. Given at the United States Capitol, 4 February 1997 [www.whitehouse.gov/WH/SOU97/].
2. Network Wizards, "Internet Domain Survey," January 1998 [www.nw.com/zone/WWW/report.html].
3. D. L. Hoffman, W. Kalsbeek, T. P. Novak, *Comm. ACM* **39**, 36 (1996).
4. J. Katz and P. Aspden, "Motivations for and Barriers to Internet Usage: Results of a National Public Opinion Survey," Paper presented at the 24th Annual Telecommunications Policy Research Conference, Solomons, MD, 6 October 1996.
5. J. Keller, in *Public Access to the Internet*, B. Kahin and J. Keller, Eds. (MIT Press, Cambridge, MA, 1996), pp. 34–45; T. P. Novak, D. L. Hoffman, A. Venkatesh, paper presented at the Aspen Institute forum on Diversity and the Media, Queenstown, MD, 5 November 1997; P. Burgess, "Study Explores 'Digital Divide'," *Rocky Mountain News*, 11 March 1997, p. F31A.
6. Nielsen Media Research, "The Spring 1997 CommerceNet/Nielsen Media Internet Demographic Survey," Full Report, Volume I of II (1997).
7. The IDS is based on an unrestricted, random-digit, dial sampling frame and used a computer-assisted telephone interviewing system to obtain 5813 respondents. Weighted, these respondents represent and allow projection to the total population of 199.9 million individuals in the United States aged 16 and over.
8. All significance tests were obtained with Research Triangle Institute's SUDAAN software and incorporate sampling weights provided by Nielsen Media Research (*6*).
9. A. J. Liebling, *The New Yorker* **36**, 105 (14 May 1960).

	NON-STUDENTS										STUDENTS					
	(1) Full sample		(2) <$40,000 income		(3) $40,000+ income		(4) High school or less		(5) Some college		(6) All students		(7) Have home PC		(8) No PC at home	
	Whites N = 4906	Blacks N = 493	Whites N = 1833	Blacks N = 213	Whites N = 1916	Blacks N = 131	Whites N = 1794	Blacks N = 210	Whites N = 2776	Blacks N = 219	Whites N = 336	Blacks N = 64	Whites N = 247	Blacks N = 22	Whites N = 89	Blacks N = 42
Own home computer	**44.3***	29.0*	**27.5***	13.3*	61.2	65.4	**27.0***	16.4*	**57.7***	49.3*	**73.0***	31.9*	100	100	0.0	0.0
PC access at work	38.5	33.8	25.9	20.7	59.1*	**76.7***	24.2	18.4	55.0*	**63.9***	27.0	24.0	30.1	32.3	18.6	20.1
Buy PC in 6 months	16.7*	**27.2***	14.3*	**23.4***	20.4*	**35.7***	12.6*	**23.3***	19.4*	**28.5***	26.3	40.3	22.3	9.3	37.1	54.8
Internet TV interest	11.8	14.9	9.2	9.4	15.0*	**23.9***	8.2	12.3	13.6	16.8	23.5	21.4	26.7	26.6	14.9	19.0
Ever used Web	26.0	22.0	**13.0***	7.5*	36.7	38.8	10.1	11.5	36.5	29.2	**65.8***	48.6*	72.1	63.8	48.8	41.5
...in past 6 months	**22.4***	16.6*	**10.4***	4.7*	32.5	36.2	8.2	7.4	31.6	26.5	**58.9***	31.1*	66.7	63.8	**37.8***	15.9*
...in past 3 months	**20.6***	14.9*	**9.5***	4.3*	29.9	33.8	7.6	5.9	29.2	24.7	**51.9***	28.8*	58.9	56.5	32.8	15.9
...in past month	**17.8***	9.7*	**8.1***	2.5*	26.5	24.3	**6.7***	3.3*	**25.3***	16.6*	**44.9***	19.8*	51.8	35.4	26.2	12.4
...in past week	**12.9***	5.8*	**5.9***	1.1*	19.2	17.1	**4.7***	1.4*	**18.6***	11.6*	**31.9***	9.9*	38.0	20.8	**15.5***	4.8*
...at home	**14.7***	9.0*	**6.4***	2.4*	22.3	22.8	5.3	3.4	21.6	16.9	**33.3***	13.0*	43.6	36.8	5.5	1.9
...at work	11.1	8.4	4.9	3.7	19.8	24.5	3.6	5.0	19.2	16.8	**8.8***	2.0*	11.4	6.3	1.9	0.0
...at school	7.2	10.9	2.8	2.6	6.6	8.5	1.9*	**5.9***	6.9	6.9	45.5	42.8	48.3	49.9	38.1	39.5
...at other locations	7.3	5.3	**4.4***	1.8*	8.8	12.8	2.8	3.3	9.4	9.0	**23.5***	4.2*	**24.0***	5.5*	**22.1***	3.7*

Table 1. Percentage (weighted) of individuals in each group responding positively concerning the variable specified in that row. Asterisk indicates that the difference between whites and blacks is statistically significant ($P < 0.05$); larger number in bold.