

## **Ethnicity, Internet Adoption and Use of Online Services**

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### **Abstract**

The goal of this study was to extend our understanding of ethnic audiences' adoption of Internet access, range of online activities, consumption of online news and news sources, and the degree to which the Internet facilitates the pursuit of individual work and life goals. Data collected for the Pew Internet & American Life Project were analyzed. Ethnic differences were identified, many of which reflect culturally based preferences and strategic gratification seeking.

### **Ethnicity, Internet Adoption and Use of Online Services**

The rise of the digital age has led to substantial public policy debate over inequities in computer ownership and access to online services. Writers have voiced alarm of a “digital divide” between technology “haves and have-nots” based on gender, age, geography and race (e.g. Mossberger, Tolbert, & Stansbury, 2003; Norris, 2001). The concern is that some segments of the population, especially ethnic minorities, will lack the empowering benefits of the digital age, disadvantaging them politically, educationally and economically.

Communication researchers have long sought to understand the relationship between ethnicity and the adoption of media technologies. Informed by Rogers’ (1995) diffusion model, and other theoretical perspectives, studies of ethnic differences in the adoption of technologies such as VCRs, camcorders, and cable television have yielded conflicting results (e.g. Reese, 1988; Neuendorf, Atkin & Jeffres, 1998; Albarran & Umphrey, 1993; LaRose & Atkin, 1992). Dupagne & Salwen (2005) recently presented still more equivocal evidence, finding significant ethnic differences in the ownership of four technologies—CD players, camcorders, mobile phones and Internet service—of 13 studied.

Research examining the media use experience has more consistently identified ethnically-based preferences for one medium over another (see e.g. Greenberg, Burgoon, Burgoon, & Korzenny, 1983; Delener & Neelankavil, 1990; La Ferle & Lee, 2005). A number of researchers have employed the uses and gratifications perspective (Katz, Blumler, & Gurevitch, 1974; Rubin, 1983) to explain why these differences might exist. For instance, Albarran and Umphrey (1993) found that African-Americans are more

likely to watch television for something to do and Latinos are more likely to use television to spend time with family. And Rios and Gaines (1998) determined that Latino ethnic subgroups differ in their use of general market (English) and ethnic (Spanish-language) media for cultural maintenance.

In the U.S. today, minority groups account for over 33% of the population and should constitute about half by 2050 (U.S. Census Bureau, 2004; U.S. Census Bureau, 2005a). As America grows ever more diverse, understanding differences in the adoption and use of media takes on greater significance. This study examines adult African-American, Latino, Asian and Caucasians' adoption of the Internet and use of online content by analyzing data collected for the Pew Internet & American Life Project.<sup>1</sup>

### Ethnicity and Internet Adoption

According to research firm Nielsen//NetRatings (2006), Internet penetration has stabilized at roughly 74% of U.S. households. Yet, the National Telecommunications and Information Administration's (NTIA) "Falling Through the Net" longitudinal research provides evidence of a persistent ethnic "digital divide" (NTIA, 1999; NTIA 2002). In 1994 more than twice as many Whites used the Internet as Blacks or Hispanics. Despite substantial growth in computer and Internet use by all ethnic groups, significant differences persisted in 2001, with 60% of Whites, 40% of Blacks, and 32% of Hispanics reporting Internet use (NTIA, 2002). The NTIA's latest report (2004), shows Internet adoption increased to 65% of Whites, 46% of Blacks and 37% of Hispanics, with the ethnicity gap remaining about the same.

Other studies present various interpretations of the factors associated with Internet adoption. Hacker and Steiner (2002) found Caucasians are more likely to use the Internet than Hispanics and concluded that income, education and ethnicity are all important to Internet usage. Rice and Katz (2003) identified a digital divide between Internet adopters and non-adopters defined by income and age, but not race. Porter and Donthu (2006) used the Technology Acceptance Model (TAM) to reveal that race and other demographics are associated with beliefs about the Internet and, in turn, these beliefs influence consumers' attitudes towards and use of the Internet.

#### Ethnicity and Online Services Use

Other researchers have demonstrated interest in how ethnic groups make use of the Internet. Kim (2003) found that Caucasians and Asians spend more time using the Internet than African-Americans and Latinos. Appiah (2003) showed that African-Americans spend more time browsing sites targeting blacks than those targeting whites, while Caucasians exhibit no browsing differences based on a site's racial orientation. And Howard, Raine and Jones' (2001) analysis of data collected in the 2000 Pew Internet & American Life Project revealed differences in how ethnic groups use the Internet. For example, on a typical day 49% of Caucasians send and read email compared with just 27% of African-Americans. Furthermore, 21% of Caucasians use the Internet to get news, but only 12% of African-Americans do. And African-Americans are more likely to check sports scores, look for religious and spiritual content and play games.

Taken in total, the literature points to evolving ethnic differences in Internet adoption and media use. Employing data collected as part of the Pew Internet &

American Life Project ([www.pewinternet.org](http://www.pewinternet.org)), this data-driven study seeks to update and extend our understanding of ethnic audiences' adoption and use of online services. In particular, the data reported in this survey explore the types and sources of news found on the Internet and the perceived benefits of Internet use. To frame our analysis we pose five research questions:

RQ1. To what extent do ethnic groups differ in their adoption of Internet services?

RQ2. How do ethnic groups differ in their online activities?

RQ3. In what ways do ethnic groups differ in the types of news and information they acquire through the Internet?

RQ4. How do ethnic groups differ in the sources of news they access on the Internet?

RQ5. In what ways is the Internet perceived by ethnic groups to be life-enhancing?

## Method

The Pew Internet & American Life Project explores the Internet's impact on various facets of life in the United States and seeks to be an authoritative source on the evolution of the Internet. The data in this report are based on telephone interviews conducted on behalf of the project by Princeton Survey Research Associates International between November 29 and December 31, 2005.

### Subject Selection

The survey employed random digit dialing techniques to obtain a representative sample of U.S. adults 18 years or older. At least 10 attempts were made over varying times of day and days of the week to reach potential respondents.

Interviewers contacted 77% of the residential numbers in the sample. Forty percent agreed to cooperate and participate in the survey; 86% of those were found eligible to complete the interview. Ninety-two percent of eligible respondents—a total of 3,011 adults—completed the interview.

For results based on the total sample, the margin of sampling error is +/- 1.9% (95% confidence level). For results based on Internet users (n=1,931), the margin of error is +/-2.4%.

### Measures

The questionnaire included a wide-ranging set of items related to the Internet. A copy of the questionnaire is available at [http://www.pewInternet.org/pdfs/News\\_Online\\_Topline.pdf](http://www.pewInternet.org/pdfs/News_Online_Topline.pdf). For this analysis we used the items related to Internet adoption and the types of online services used by Internet adopters.

Internet adoption was measured as both “*occasional*” and “*yesterday*” use behaviors. At home and at work use of the Internet was also gauged on both an “*ever*” and “*yesterday*” basis.

Online activities were explored by asking respondents if they ever perform online activities such as send/receive email, get news, conduct job-related work or research, pass

the time, instant message, bank, play games, take classes for credit, use a search engine, download video or music files, create own weblog or webpage, create a weblog or webpage for others, and share user generated content.

Respondents were asked if they ever use the Internet to get financial, entertainment, local or community, science or technology, medical or health, and political or public affairs news or information. The use of the websites of national and local television news organizations, radio news organizations, national and local daily newspapers, international news organizations, alternative news organizations, Internet blogs, Listservs, and web portal news services (e.g. Yahoo News) was examined as well.

Ways in which the Internet has improved life were considered on a four point Likert-type scale (1=A lot, 4=Not at all). Respondents were asked, “... *How much, if at all has the Internet improved...*” your ability to shop, do your job, acquire health care information, connect with local community groups, and pursue hobbies or interests.

Sociodemographic data were also collected including ethnicity, age, gender, marital status, community type, employment, education and income.

### Data Analysis

To compensate for known telephone interviewing non-response bias, the sample data were weighted in the analysis according to demographic parameters derived from Census Bureau data. Further details of this process are available at [http://www.pewInternet.org/pdfs/News\\_Online\\_Topline.pdf](http://www.pewInternet.org/pdfs/News_Online_Topline.pdf).



To address the research questions we analyzed the responses of the African-American, Caucasian, Latino and Asian survey participants using cross-tabulation with Chi-square tests of association and analysis of variance with post-hoc comparative tests.

## Results

With the sample weighted (n=5,739) a total of 3,709 respondents were Internet users and thus included in the analysis. In terms of ethnicity, 77.9% were Caucasian (n=2890), 8.3% African-American (n=309), 11.5% Latino (n=426) and 2.2% Asian (n=87).

As expected, our analyses confirmed the weighted sample is consistent with the U.S. Census Population Estimates for socioeconomic indicators of these ethnic groups (U.S. Census Bureau, 2005b). Analyses of the categorical sociodemographic measures revealed significant differences in community type ( $X^2=299.38$ ,  $df=6$ ,  $p < .00$ ), employment ( $X^2=146.63$ ,  $df=18$ ,  $p < .00$ ) and marital status ( $X^2=215.59$ ,  $df=15$ ,  $p < .00$ ). Latinos and African Americans more typically reside in urban settings while Caucasians and Asians live in suburban areas. Latinos and African Americans are more frequently unemployed or employed part-time, Caucasians are more often fully employed or retired while Asians are more apt to be fully employed or not employed for pay. And Caucasians and Asians are more commonly married while African-Americans are more likely to have never been married.

Analysis of variance found statistically significant differences in age ( $F=74.28$ ,  $df=3$ ,  $p < .00$ ), income ( $F=27.21$ ,  $df=3$ ,  $p < .00$ ) and education ( $F=64.01$ ,  $df=3$ ,  $p < .00$ ).

Asians have the highest levels of education and income and they tend to be younger than their African-American, Latino or Caucasian counterparts.

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Table 1 about here

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Several measures of Internet adoption were analyzed to address research question one. A cross-tabulation found that more than 60% of Caucasians, Asians and Latinos reported occasional and yesterday Internet use. African-American's trailed on both measures. A Chi-square analysis of those measures found significant differences, with African-Americans lagging behind Caucasians, Asians and Latinos in both (see Table 1). Table 2 presents a Chi-square analysis of Internet access locations. Interestingly, over 90% of all four groups have Internet access at either home, work or both. African-Americans are more likely to have access at work only, while Caucasians and Asians are more likely than Latinos and African-Americans to have access at both home and work. An ANOVA analysis of "time spent online yesterday" ( $F=2.93$ ,  $df=3$ ,  $p \leq .05$ ) was significantly higher for Asians while type of home Internet connection (e.g. dial-up, DSL, etc.) ( $X^2=22.06$ ,  $df=25$ ,  $p > .10$ ) was not significant across ethnic groups.

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Table 2 about here

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Of the 16 online activities examined to address the second research question, the cross-tabulation in Table 3 reveals that for all four ethnic groups email and search are the most prevalent activities, followed by having fun/killing time and getting news. The Chi-square analyses identify significant ethnic differences in all activities except using the

Internet to have fun/kill time. Asians led all ethnic groups in nearly all online activities except for online games, downloading music, taking a class for credit and having an online journal or blog. Caucasians have the second highest usage of email, search engines, and go online for job-related work and research. African-Americans are more likely to play online games, take online courses and download music. Latinos are highest in creating an online journal or blog and followed Asians in their online banking, VOIP usage (Internet telephone), downloading videos and developing user-generated content such as sharing photos/artwork/videos/stories and helping friends with their blogs/webpages.

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Table 3 about here

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For further analysis, we conceptualized the 16 activity items as a five category typology of online behaviors (Straus & Frost, 1999). The categories and associated activities are:

- communication (email; VOIP; instant messaging)
- entertainment (fun or kill time; download music; play games; download videos)
- information seeking (news; job-related work/research; searching)
- tasks (banking; taking classes for credit)
- user generated content (online journal/blog; own web site; help others with blogs or pages; share photos, artwork, videos, stories)

Category scores were calculated by summing the “yes” responses across the designated items. This yielded a summated score for each behavioral scale. Based on ANOVA tests for differences between the ethnic groups (See Table 4), significant differences were noted for all the scales: communication, entertainment, information seeking, tasks and user generated content. A least significant differences post hoc analysis revealed that Asians scored significantly higher than Caucasians on all five dimensions, significantly higher than African-Americans on four dimensions (except entertainment) and significantly higher than Latinos on three dimensions (except entertainment and user generated content). African-Americans are also significantly higher than Caucasians on the communication, entertainment and user generated content scales, while Caucasians are significantly higher than African-Americans and Latinos on the information seeking scale. Consistent with findings reported by technology consultant Forrester Research, Inc. (2005, 2007), Latinos are also significantly higher than Caucasians on the user generated content and entertainment dimensions. Linear regression was used to control for the effect of the socioeconomic variables—age, gender, income and education—on ethnicity. In keeping with earlier studies (e.g. Dupagne & Salwen, 2005) ethnicity remained a significant predictor of overall Internet activity.

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Table 4 about here

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Turning to research question three pertaining to the types of online news used, over 30% of each ethnic group reports consuming each type of news. Nevertheless, the

Chi-Square analyses found significant differences in consumption of all six news types (see Table 5). Across the range of Internet news types Asians emerged as more frequent consumers of online news, with the exception of African-Americans who consume more local/community news online.

An additional questionnaire item asked respondents if they had ever paid to receive news content from a website (e.g. video clips, full-text articles). A greater percentage of African-Americans respondents reported paying for content, 9.1%, compared to 5.5% each for Caucasians and Latinos and 4.7% of the Asian respondents. However, this was only marginally significant ( $X^2=6.94$ ,  $df=4$ ,  $p < .10$ ).

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Table 5 about here

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Research question four was addressed with cross-tabulation and Chi-square analyses of combined “yes” responses to “yesterday” and “ever” measures of the news source items (see Table 6). For all the ethnic groups the two most widely consulted Internet news sources are the websites of national television news and web portals. These are followed in popularity by local television news, local newspapers and national newspaper websites. Nevertheless, several interesting differences were revealed in the news sources examined. Caucasians are more likely than the other groups to visit radio news sites, while African-Americans are more likely to consult LISTSERVs. And more Asians visit web portal news sites than the other ethnic groups.

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Table 6 about here

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Finally, turning to research question five, the Internet can be viewed as having life improving or enhancing qualities (Albert & Sanders, 2003). Respondent opinion was assessed for five areas of life improvement and the ANOVA revealed significant differences in all five areas (see Table 7). Asians reported significantly greater improvement every category except for connecting with local groups. Latinos reported significantly greater improvement than their Caucasian counterparts on all dimensions except shopping and greater enhancement than African-Americans when using the Internet to pursue hobbies and do their job. Conversely, as noted in other research (e.g. Brodie, Kjellson, Hoff, & Parker, 1999), Caucasians and African-Americans reported less benefit from acquiring health care information. African-Americans did report greater improvement than Caucasians in their ability to connect with the local community.

An overall, summated life improvement scale of the five items was also calculated and analyzed for ethnic group differences. Again, Asians reported greater overall improvement than the other ethnic groups. Moreover, Latinos also reported greater improvement than Caucasians and African-Americans. Here too linear regression was used to control for the effect of the socioeconomic variables—age, gender, income and education—on ethnicity. Ethnicity remained a significant predictor of perceived life improvement.

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Table 7 about here

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## Discussion

The goal of this study was to extend our understanding of ethnic audiences' adoption of Internet access, range of online activities, consumption of online news and news sources, and the degree to which the Internet facilitates "accomplishing goals in life and at work" (Parasuraman & Colby, 2001, 18).

Overall, the results demonstrate that an ethnic digital divide persists. By understanding and embracing these ethnic or cultural differences, web publishers will be better able to serve their audiences. However, as the variation of ethnic audiences' consumption of electronic media continues to evolve, in some respects the divide may be narrowing.

Regarding the adoption of Internet services, the results suggest that some previously reported ethnic differences (e.g., NTIA, 2004) have been erased. Notably, over half of the ethnic groups reported "yesterday" usage of the Internet. Moreover, the NTIA documented gap in Internet use between Caucasians and Latinos was not found here. Still, Internet use is shown to be more widespread among Asians, Latinos and Caucasians than their African-American counterparts. This gap may be attributed to the points of access in use by African-Americans. African-Americans trail in combined home and work access and may also rely on access points not measured in this study (e.g. public libraries). This gap may also be due to the absence of desirable, culturally distinct content for this audience (Burns, 2005).

As for the range of online activities, email, search, killing time and getting news are the most common activities, seemingly prevailing above ethnically driven predilections. However, ethnic differences do exist. For example, Asians and

Caucasians are more likely to email, search and research for work, African-Americans are more likely to play games and take online courses, while Asians and Latinos are more likely to bank, download videos and develop their own blogs to share photos and stories. Unlike gaps in Internet access, these differences do not represent a harmful ethnic divide, but strategic gratification seeking (Katz, Blumler, & Gurevitch, 1974) that providers of online content should appreciate so they can better serve their audiences.

It's reasonable to suggest that differences in the types of news and news sources consulted on the Internet reflect the same kind of goal directed ethnic group preferences. In line with this thinking, it's surprising that with Latinos' community/family focus leading them to "stay in touch" more electronically (Forrester, 2007; Shields, 2007) that Latinos did not use local online news sources in greater numbers than their Caucasian, Asian and African-American counterparts. With approximately 67% of the U.S. Hispanic population bilingual, and Latinos continuing to prefer Spanish language online content (Forrester, 2007), a possible explanation for this is the news sources were not offered in Spanish. This is similar to the potential lack of culturally distinct content for African-Americans mentioned above.

Looking to the perceived benefits of the Internet, it's also interesting to note Asians' overwhelmingly and Latinos' largely more positive outlook than Caucasians and to a lesser extent African-Americans regarding their ability to acquire healthcare information, pursue hobbies, do their job and connect with their local community. As groups, they apparently view the Internet as empowering in ways African-Americans and Caucasians do not. These data, however, offer little to explain this interesting divergence in attitudes.



This finding points to an important limitation of the study. That is the absence of questionnaire items and resulting data that provide insights regarding why the differences exist in Internet access, online activities, news use and perceived life improvement.

Another limitation of this research was the English-only administration of the survey.

The beliefs and behaviors of potential respondents who were uncomfortable participating in English (i.e., Latinos and Asians) are no doubt under-represented here. This line of inquiry would benefit from future research designed to address these weaknesses.

Table 1  
Internet Adoption Measures by Ethnic Group

<b>Adoption Measures (% responding yes)</b>	<b>Caucasians (n=4334)</b>	<b>African-Americans (n=649)</b>	<b>Latinos (n=631)</b>	<b>Asians (n = 121)</b>	<b>Chi-Square</b>	<b>df</b>
Use Internet occasionally	66.7%	47.6%	67.5%	69.4%	93.76**	3
Used Internet yesterday <sup>1</sup>	64.3%	54.9%	60.7%	86.0%	31.25**	3

<sup>1</sup>Caucasians n=2945, African Americans n=317, Latinos n=430, Asians n=86

\*\*p < .01

Table 2  
Internet Access by Ethnic Group

<b>Access location (% responding yes)</b>	<b>Caucasians (n=2957)</b>	<b>African-Americans (n=317)</b>	<b>Latinos (n=435)</b>	<b>Asians (n=86)</b>	<b>Total (n=3922)</b>
Home only	43.9%	42.0%	45.2%	43.0%	44.0%
Work only	6.8%	15.1%	9.0%	0.0%	7.8%
Both home and work	45.9%	35.6%	39.9%	57.0%	44.5%
Neither home or work	3.3%	7.3%	6.0%	0.0%	4.0%

$X^2=66.12$ ,  $df=9$ ,  $p < .01$

Table 3  
Online Activities by Ethnic Group

Online Activities (% responding yes)	Caucasians (n=2956)	African- Americans (n=315)	Latinos (n=434)	Asians (n=86)	Chi- Square	df
<i>Communication</i>						
Email	92.6%	86.3%	85.0%	100.0%	45.54**	3
VOIP (Internet phone)	8.3%	8.1%	13.3%	15.7%	23.99**	3
Instant Messaging	34.5%	46.8%	39.7%	66.3%	53.99**	3
<i>Entertainment</i>						
Have fun/kill time	66.1%	65.8%	69.5%	77.9%	6.99	3
Online games	29.1%	47.3%	33.9%	36.0%	46.67**	3
Download videos	16.9%	19.2%	22.3%	27.9%	13.65**	3
Download music	22.7%	31.5%	30.4%	26.7%	22.22**	3
<i>Information Seeking</i>						
Get news	68.5%	70.3%	64.3%	79.1%	8.52*	3
Job-related work/ research	51.2%	42.3%	46.3%	64.0%	18.27**	3
Search engine usage	91.9%	86.9%	84.5%	100.0%	39.25**	3
<i>Tasks</i>						
Online banking	42.6%	36.3%	48.7%	67.4%	32.44**	3
Taking class for credit	11.0%	18.0%	9.2%	10.5%	16.25**	3
<i>User generated content</i>						
Online journal/blog	5.9%	12.9%	16.3%	11.6%	72.18**	3
Personal web site	12.6%	21.8%	16.1%	26.7%	33.90**	3
Help others w/blogs, web sites	11.4%	15.8%	18.0%	25.6%	30.28**	3
Share photos, artwork, videos, stories	23.1%	27.1%	36.5%	41.9%	49.25**	3

\*p < .05, \*\*p < .01

Table 4  
Online Activity Scale Means by Ethnic Group

Activity Scale	Caucasians (n=2949)	African- Americans (n=315)	Latinos (n=431)	Asians (n=86)	F-Score
Communication	1.38	1.48 <sup>a</sup>	1.43	1.82 <sup>a,b,c</sup>	12.13**
Entertainment	1.35	1.64 <sup>a</sup>	1.57 <sup>a</sup>	1.68 <sup>a</sup>	11.17**
Information					9.99**
Seeking	2.12 <sup>b,c</sup>	1.99	1.95	2.43 <sup>a,b,c</sup>	
Tasks	0.54	0.54	0.58	0.78 <sup>a,b,c</sup>	4.69**
User generated content	0.53	0.78 <sup>a</sup>	0.88 <sup>a</sup>	1.06 <sup>a,b</sup>	24.65**

\*\*p < .01

Superscripts indicate statistically significant differences at p < .05 using the Least Significant Difference procedure for post hoc analysis:

<sup>a</sup> superscript indicates higher than Caucasians

<sup>b</sup> superscript indicates higher than African-Americans

<sup>c</sup> superscript indicates higher than Latinos

<sup>d</sup> superscript indicates higher than Asians

Table 5  
Internet News Types by Ethnic Group

Types of news consumed online (% responding yes)	Caucasians (n=2953)	African- Americans (n=316)	Latinos (n=433)	Asians (n=87)	Chi- Square	df
Financial	39.7%	39.1%	37.6%	64.4%	22.81**	3
Entertainment	48.8%	59.2%	59.9%	79.1%	54.30**	3
Local/community	44.3%	52.5%	39.2%	40.7%	13.76**	3
Medical/health	45.3%	45.6%	37.1%	58.1%	16.98**	3
Science/technology	45.2%	39.6%	44.0%	72.1%	29.42**	3
Politics/public affairs	55.8%	49.7%	45.5%	59.3%	20.42**	3

\*\*p < .01

Table 6  
Internet News Sources by Ethnic Group

<b>Websites of News Organizations consulted (% responding yes)</b>	<b>Caucasians (n=2928)</b>	<b>African-Americans (n=312)</b>	<b>Latinos (n=423)</b>	<b>Asians (n=86)</b>	<b>Chi-Square</b>	<b>df</b>
National TV news	45.9%	42.3%	49.9%	47.7%	4.45	3
Local TV news	31.9%	34.3%	24.6%	27.9%	11.07*	3
National daily newspaper	19.3%	20.9%	19.0%	28.7%	5.18	3
Local daily newspaper	33.4%	29.6%	27.9%	31.4%	6.43	3
Radio news	13.9%	8.8%	7.5%	9.3%	19.48**	3
Internet blogs	9.7%	6.4%	9.4%	7.0%	4.28	3
International news (BBC)	10.8%	11.7%	11.3%	10.5%	0.31	3
Alternative news	6.0%	6.0%	5.1%	3.5%	1.42	3
LISTSERV	4.1%	10.5%	4.9%	8.4%	27.64**	3
Web portal	37.4%	44.8%	41.6%	54.7%	17.81**	3

Note: % responding yes is a combination of “yesterday” and “ever” measures

\*p < .05, \*\*p < .01

Table 7  
Improvement Item and Overall Scale Means by Ethnic Group

<b>Improvement Items</b>	<b>Caucasians (n=2954)</b>	<b>African- Americans (n=316)</b>	<b>Latinos (n=430)</b>	<b>Asians (n=86)</b>	<b>F-Score</b>
How much has the Internet improved your ability to...					
Shop	2.39	2.43	2.44	1.83 <sup>a,b,c</sup>	6.56**
Acquire health care information	2.84	2.75	2.64 <sup>a</sup>	2.24 <sup>a,b,c</sup>	10.14**
Pursue hobbies/interests	2.32	2.42	2.14 <sup>a,b</sup>	1.77 <sup>a,b,c</sup>	10.38**
Do your job	2.49 <sup>b</sup>	2.68	2.32 <sup>a,b</sup>	1.71 <sup>a,b,c</sup>	14.69**
Connect w/local community groups	2.82	2.61 <sup>a</sup>	2.54 <sup>a</sup>	2.34 <sup>a</sup>	12.39**
Overall Improvement Scale	12.81	12.86	12.11 <sup>a,b</sup>	9.94 <sup>a,b,c</sup>	16.57**

Note: Scale 1 = a lot of improvement; 4 = no improvement at all

\*p < .05, \*\*p < .01

Superscripts indicate statistically significant differences at p < .05 using the Least Significant Difference procedure for post hoc analysis:

<sup>a</sup> superscript indicates more improvement than Caucasians

<sup>b</sup> superscript indicates more improvement than African-Americans

<sup>c</sup> superscript indicates more improvement than Latinos

<sup>d</sup> superscript indicates more improvement than Asians

## Notes

<sup>1</sup>The Pew Internet & American Life Project bears no responsibility for the interpretations presented or conclusions reached based on analysis of the data contained in this report.

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