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Three-quarters of smartphone owners use location-based services

74% of smartphone owners use their phone to get real-time location-based information, and 18% use a geosocial service to “check in” to certain locations or share their location with friends

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<http://pewinternet.org/Reports/2012/Location-based-services.aspx>

Summary of findings

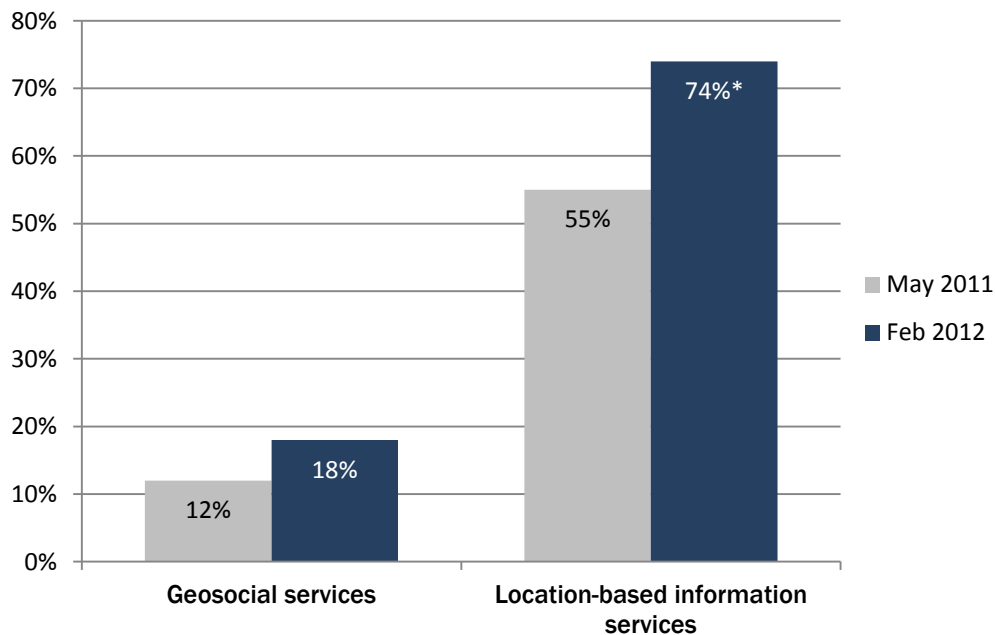
As smartphone ownership rises, almost three-quarters of smartphone owners use their phone to get real-time location-based information, and almost one in five use a geosocial service like Foursquare

Almost three-quarters (74%) of smartphone owners get real-time location-based information on their phones as of February 2012, up from 55% in May 2011. This increase coincides with a rise in smartphone ownership overall (from 35% of adults in 2011 to 46% in 2012), which means that the overall proportion of U.S. adults who get location-based information has almost doubled over that time period—from 23% in May 2011 to 41% in February 2012.

Use of location-based information and geosocial services among smartphone owners, over time

For location services: % of smartphone owners who use their phone to get directions, recommendations, or other information related to their present location.

For geosocial services: % of smartphone owners who use a service such as Foursquare or Gowalla to “check in” to certain locations or share their location with friends.



* Slight wording change since May 2011.

Source: Pew Research Center’s Internet & American Life Project April 26–May 22, 2011 and January 20–February 19, 2012 tracking surveys. For 2011 data, n=2,277 adults ages 18 and older, including 755 interviews conducted on respondent’s cell phone. For 2012 data, n=2,253 adults and survey includes 901 cell phone interviews. Both 2011 and 2012 data include Spanish-language interviews.

Meanwhile, more smartphone owners are using geosocial services like Foursquare or Gowalla¹ to “check in” to certain places and share their location with friends. Some 18% of smartphone owners use geosocial services on their phones, up from 12% in 2011. This translates to 10% of all adults as of February 2012, up from 4% in May 2011.

Three-quarters of smartphone owners get real-time location-based information, and one in five use geosocial services

% of adults within each group who use their cell phone to get directions, recommendations, or other information related to their present location, and the % who use a geosocial service such as Foursquare or Gowalla to “check in” to certain locations or share their location with friends.

	All adults	All cell owners	Smartphone owners
Get location-based directions/information	41%	46%	74%
Use a geosocial or “check-in” service	10%	11%	18%

Source: Pew Research Center’s Internet & American Life Project January 20–February 19, 2012 tracking survey of 2,253 adults, including 901 cell phone interviews. Interviews were conducted in English and Spanish.

Some 75% of smartphone owners use at least one of these services, as shown in the following table. Not surprisingly, nearly all of the smartphone owners who use geosocial services (93%) also report getting location-based directions and information.

(continued on the following page)

¹ Facebook acquired Gowalla at the end of 2011, and the check-in service was shut down a few months later. Leslie Horn, “Gowalla Shuts Down Following Facebook Acquisition.” PCMag.com, March 12, 2012. <http://www.pcmag.com/article2/0,2817,2401433,00.asp>

Who uses geosocial and location-based services?

% of adult smartphone owners within each group who use a geosocial service such as Foursquare to “check in” to certain locations or share their location with friends and the % who use their smartphone to get directions, recommendations, or other information related to their present location. (46% of adults now have smartphones.)

	Location-based directions & info	Geosocial services	Total (those who said “yes” to use of at least one of those services)
All smartphone owners	74%	18%	75%
Gender			
Men	73	17	74
Women	75	20	76
Age			
18-29	80	23	82
30-49	75	17	75
50+	64	14	66
Race/Ethnicity			
White, non-Hispanic	76	17	77
Black, non-Hispanic	66	21	67
Hispanic (English- and Spanish-speaking)	71	23	71
Household Income			
Less than \$40,000	69	23	71
\$40,000-\$74,999	77	21	77
\$75,000+	79	15	81
Education level			
High school grad or less	65	20	67
Some college	76	19	77
College grad	79	16	80

Source: Pew Research Center’s Internet & American Life Project January 20-February 19, 2012 tracking survey of 2,253 adults, including 901 cell phone interviews. Interviews were conducted in English and Spanish. Both questions focused on cell phone-based use of location-based services, and were asked of cell phone owners.

Among smartphone owners, younger adults are more likely than older adults to use both location-based information services and geosocial “check-in” services. However, while smartphone owners in lower-income households are *less* likely² to use location-based information services, they are *more* likely to use geosocial services like Foursquare.

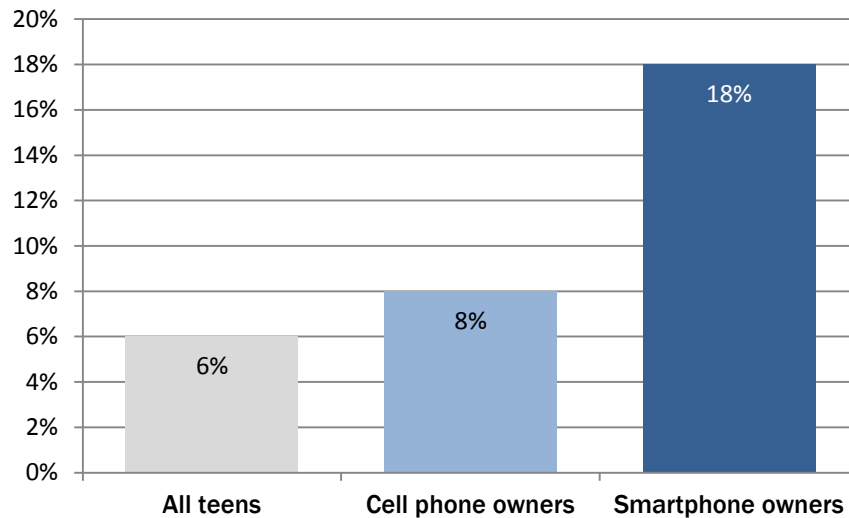
² than smartphone owners in higher-income households

Teens and geosocial services

As of July 2011, almost one in five teen smartphone owners (18%) use a geosocial service such as Foursquare. This works out to 8% of teen cell phone owners and 6% of all teens ages 12-17. In general, older teens ages 14 to 17 are more likely to use geosocial services than 12 and 13-year-olds.

Use of geosocial services by teens ages 12-17

% of American teens (ages 12-17) within each group who use a geosocial service such as Foursquare or Gowalla to “check in” to certain locations or share their location with friends, as of July 2011.



Source: The Pew Research Center's Internet & American Life Project, Teen/Parent Survey, April 19–July 14, 2011. n=799 teens 12-17 and a parent or guardian. Interviews were conducted in English and Spanish, by landline and cell phone.

Background: Smartphone adoption

Smartphone ownership among American adults has risen over the past year. Almost half of adults (46%) now have smartphones, up from 35% in May 2011. Another two in five (41%) have more basic cell phones, and 12% of adults do not own a cell phone of any kind.³ Younger adults are still much more likely to own smartphones than older adults, even compared with older adults with similar levels of education or household income.

³ Aaron Smith, “Nearly half of American adults are smartphone owners.” Pew Internet, March 1, 2012. <http://pewinternet.org/Reports/2012/Smartphone-Update-2012.aspx>

Smartphone ownership demographics

% of adults within each group who own a smartphone. "Smartphone ownership" includes those who say their phone is a smartphone, or who describe their phone as running on the Android, BlackBerry, iPhone, Palm or Windows platforms.

	May 2011	Feb. 2012
All adults (age 18+)	35%	46%
Men	39	49
Women	31	44
Race/Ethnicity		
White, non-Hispanic	30	45
Black, non-Hispanic	44	49
Hispanic (English- and Spanish-speaking)	44	49
Age		
18-29	52	66
30-49	45	59
50-64	24	34
65+	11	13
Household Income		
Less than \$30,000/yr	22	34
\$30,000-\$49,999	40	46
\$50,000-\$74,999	38	49
\$75,000+	59	68
Education level		
No high school diploma	18	25
High school grad	27	39
Some college	38	52
College+	48	60

Source: Pew Research Center's Internet & American Life Project April 26–May 22, 2011 and January 20–February 19, 2012 tracking surveys. For 2011 data, n=2,277 adults ages 18 and older, including 755 interviews conducted on respondent's cell phone. For 2012 data, n=2,253 adults and survey includes 901 cell phone interviews. Both 2011 and 2012 data include Spanish-language interviews.

About the survey

The results in this report for adults age 18 and older are based on data from telephone interviews conducted by Princeton Survey Research Associates International from January 20 to February 19, 2012, among a nationally representative sample of 2,253 adults, age 18 and older. Telephone interviews were conducted in English and Spanish by landline and cell phone. For results based on the total sample, one can say with 95% confidence that the error attributable to sampling is plus or minus 2.3 percentage points.

The results in this report for teens ages 12-17 are based on data from telephone interviews conducted by Princeton Survey Research Associates International from April 19 to July 14, 2011, among a nationally representative sample of 799 teens ages 12 to 17 years old and their parents living in the continental United States. Telephone interviews were conducted in English and Spanish by landline and cell phone. Statistical results are weighted to correct known demographic discrepancies. For results based on the total sample, one can say with 95% confidence that the error attributable to sampling is plus or minus 4.8 percentage points.

Location-based information services

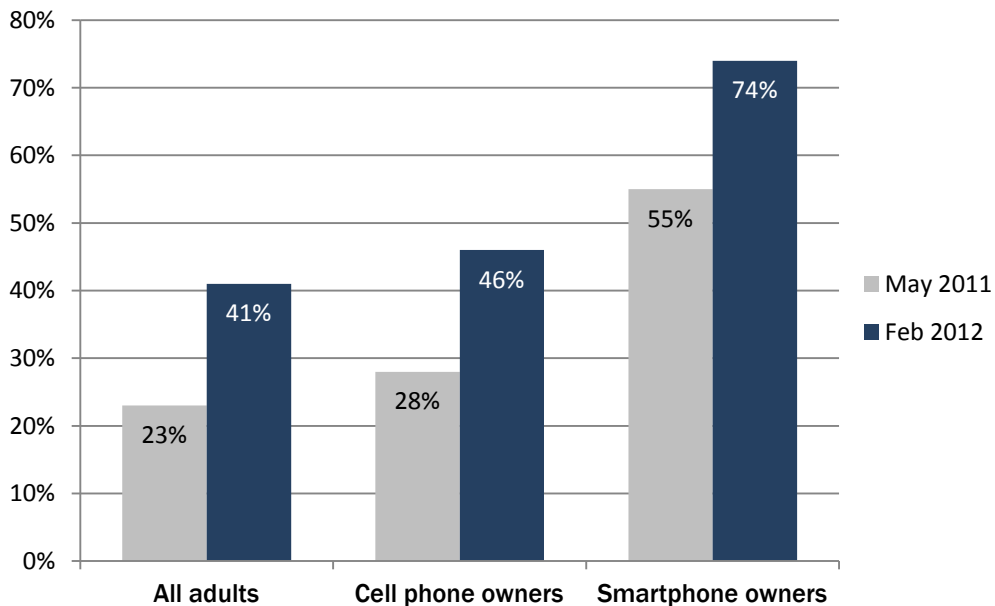
Almost half of adult cell phone owners (and three-quarters of smartphone owners) use their phones to get real-time location-based information

Almost three-quarters (74%) of smartphone users use their phones to get directions or recommendations based on their current location, up from 55% in May 2011. This works out to 41% of all adults (23% in May 2011).

This was the second time the Pew Internet Project has asked about general location-based services, which can range from GPS-enabled map services to reviews of nearby attractions using an app or a browser.

More adults are using their phones for location-based information

Do you ever use your cell phone to get directions or other information related to a location where you happen to be? (Asked of adults 18+)



Note: Slight wording change. In May 2011, the question was “Do you ever use your cell phone to get directions, recommendations, or other information related to *your present location?*”

Source: Pew Research Center’s Internet & American Life Project April 26–May 22, 2011 and January 20–February 19, 2012 tracking surveys. For 2011 data, n=2,277 adults ages 18 and older, including 755 interviews conducted on respondent’s cell phone. For 2012 data, n=2,253 adults and survey includes 901 cell phone interviews. Both 2011 and 2012 data include Spanish-language interviews.

Among smartphone owners, those ages 18-49 are more likely to use location-based information services than smartphone owners age 50 and older, and whites are more likely to use these services than African Americans. Those in households making at least \$40,000 per year are more likely to use location-based

information services than lower-income households, and smartphone owners with at least some college experiences are more likely to than those who have not attended college.

In general, these patterns of usage are very similar to what they were in May 2011, as shown in the following table.

Demographics of smartphone owners who use their phones to get location-based information, over time

% of adults in each group who use their smartphone to get directions, recommendations, or other information related to their present location, in May 2011 and February 2012. (Some 46% of adults have smartphones, up from 35% in May 2011.)

	May 2011	February 2012
All smartphone owners (age 18+)	55%	74%
Gender		
Men	57	73
Women	54	75
Age		
18-29	60	80
30-49	58	75
50+	45	64
Race/Ethnicity		
White, non-Hispanic	59	76
Black, non-Hispanic	53	66
Hispanic (English- and Spanish-speaking)	44	71
Household Income		
Less than \$40,000	51	69
\$40,000-\$74,999	54	77
\$75,000+	64	79
Education level		
High school grad or less	41	65
Some college	59	76
College grad	66	79

Note: Slight wording change. In May 2011, the question was “Do you ever use your cell phone to get directions, recommendations, or other information related to *your present location*?” In February 2012, the question was “Do you ever use your cell phone to get directions or other information related to *a location where you happen to be*?”

Source: Pew Research Center’s Internet & American Life Project April 26–May 22, 2011 and January 20–February 19, 2012 tracking surveys. For 2011 data, n=2,277 adults ages 18 and older, including 755 interviews conducted on respondent’s cell phone. For 2012 data, n=2,253 adults and survey includes 901 cell phone interviews. Both 2011 and 2012 data include Spanish-language interviews.

Slightly more recent data [from April 2012](#) shows that 65% of smartphone owners say they have used their phone to get turn-by-turn navigation or directions while driving, with 15% doing so on a typical day. Additionally, in the past 30 days a third (33%) of smartphone owners have used their phone for up-to-the-minute traffic or public transit information to find the fastest way to get somewhere. More information about how Americans are using their phones for a variety of real-time activities is available in our recent report, [“Just-in-time Information through Mobile Connections.”](#)⁴

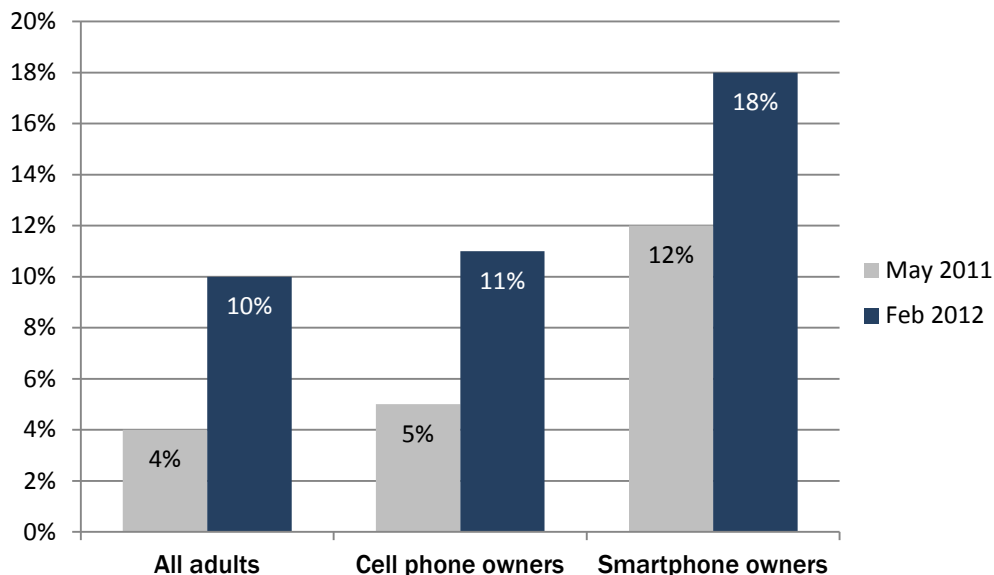
Geosocial services

Almost one in five adult smartphone owners use geosocial services

Some 18% of smartphone owners use geosocial or “check-in” services like Foursquare, up from 12% in May 2011. This works out to 10% of all adults (up from 4% in May 2011).

One in ten adults use geosocial or “check in” services

Do you ever use your cell phone to use a service such as Foursquare or Gowalla to “check in” to certain locations or to share your location with your friends? (Asked of adults 18+)



Source: Pew Research Center’s Internet & American Life Project April 26–May 22, 2011 and January 20–February 19, 2012 tracking surveys. For 2011 data, n=2,277 adults ages 18 and older, including 755 interviews conducted on respondent’s cell phone. For 2012 data, n=2,253 adults and survey includes 901 cell phone interviews. Both 2011 and 2012 data include Spanish-language interviews.

⁴ Lee Rainie and Susannah Fox, “Just-in-time Information Through Mobile Connections.” Pew Internet, May 7, 2012. <http://pewinternet.org/Reports/2012/Just-in-time.aspx>

While there are still some differences in geosocial use among smartphone owners of different demographic groups, the differences are not as strong as they were in May 2011. Among smartphone owners, the most striking differences in usage are still by age group: Some 23% of young adults ages 18-29 use geosocial services (up from 18% in 2011), compared with 14% of smartphone owners 50 and older (up from 2% in 2011).

Unlike as with location-based information services, smartphone owners with lower household incomes are somewhat *more* likely to use these services than those in higher-income households. There are no significant differences among smartphone owners by race or ethnicity.

Demographics of smartphone owners who use geosocial services on their phones, over time

% of adult smartphone owners within each group who use a geosocial service such as Foursquare or Gowalla to "check in" to certain locations or share their location with friends, in May 2011 and February 2012. (Some 46% of adults have smartphones, up from 35% in May 2011.)

	May 2011	February 2012
All smartphone owners (age 18+)	12%	18%
Gender		
Men	12	17
Women	11	20
Age		
18-29	18	23
30-49	12	17
50+	2	14
Race/Ethnicity		
White, non-Hispanic	7	17
Black, non-Hispanic	17	21
Hispanic (English- and Spanish-speaking)	25	23
Household Income		
Less than \$40,000	18	23
\$40,000-\$74,999	14	21
\$75,000+	8	15
Education level		
High school grad or less	13	20
Some college	12	19
College grad	10	16

Source: Pew Research Center's Internet & American Life Project April 26–May 22, 2011 and January 20–February 19, 2012 tracking surveys. For 2011 data, n=2,277 adults ages 18 and older, including 755 interviews conducted on respondent's cell phone. For 2012 data, n=2,253 adults and survey includes 901 cell phone interviews. Both 2011 and 2012 data include Spanish-language interviews.

Recent changes in the geosocial landscape

Since our previous survey, Facebook ended its mobile location-sharing service “Facebook Places” and shifted its focus to using a general location “layer” that runs throughout its other services. In this set-up, location is yet another piece of information that can be “tagged” on to another piece of content, like a name or date, as opposed to a stand-alone service.⁵ (In May 2011, we found that 14% of social media users used automatic location-tagging on their posts.⁶) Facebook acquired the mobile geosocial service Gowalla in December 2011, and the service ended in early 2012.⁷

Around 1 in 20 teens use geosocial services

Background: Smartphone ownership among teens

As of July 2011, some 23% of all those ages 12-17 say they have a smartphone.⁸ Our recent report, “[Teens, Smartphones & Texting](#),” found that ownership is highest among older teens: 31% of those ages 14-17 have a smartphone, compared with just 8% of those ages 12-13. Teens whose parents have a college education are also slightly more likely to have a smartphone (26%) than teens whose parents have a high school diploma or less (19%).

In addition, another 54% of teens have a regular cell phone (or are not sure what kind of phone they have), and 23% do not have a cell phone at all.

Teens and geosocial services

Among smartphone owners, teens’ use of geosocial services as of July 2011 is similar to that of adults in February 2012: 18% of teen smartphone owners ages 12-17 use geosocial services, compared with 18% of adult smartphone owners age 18 and older.⁹ Overall, 6% of all American teens use geosocial services on their cell phones, as shown in the table on the following page.

⁵ Stephen Lawson, “Facebook to help third parties use location-related data.” Computerworld, April 3, 2012. http://www.computerworld.com/s/article/9225821/Facebook_to_help_third_parties_use_location_related_data?taxonomyid=15

⁶ Kathryn Zickuhr and Aaron Smith, “28% of American adults use mobile and social location-based services.” Pew Internet, September 6, 2011. <http://pewinternet.org/Reports/2011/Location/Report/Social-media.aspx>

⁷ Leslie Horn, “Gowalla Shuts Down Following Facebook Acquisition.” PCMag.com, March 12, 2012. <http://www.pcmag.com/article2/0,2817,2401433,00.asp>

⁸ Amanda Lenhart, “Teens, Smartphones & Texting.” Pew Internet, March 19, 2012.

<http://pewinternet.org/Reports/2012/Teens-and-smartphones/Cell-phone-ownership/Smartphones.aspx>

⁹ As with our adult surveys, the question focused on cell phone-based use of location-based services, and was asked of cell phone owners. “Teens, Smartphones & Texting” (2012). <http://pewinternet.org/Reports/2012/Teens-and-smartphones/What-teens-do-with-phones/Location-based-services.aspx>

Use of geosocial services by teens and adults

% of American teens (ages 12-17) and adults (age 18+) within each group who use a geosocial service such as Foursquare or Gowalla to “check in” to certain locations or share their location with friends.

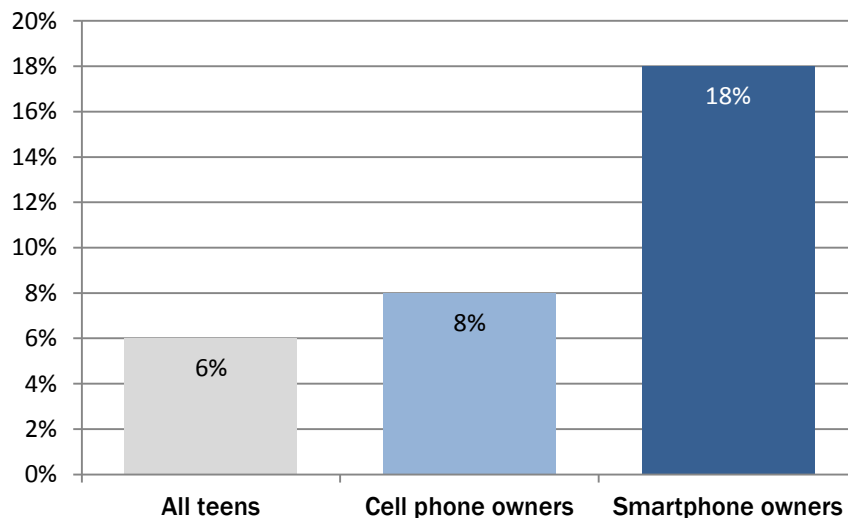
		All	All cell owners	Smartphone owners
Teens (ages 12-17)	July 2011	6%	8%	18%
Adults (age 18+)	February 2012	10%	11%	18%

Sources: The Pew Research Center's Internet & American Life Project, Teen/Parent Survey, April 19–July 14, 2011. n=799 teens 12-17 and a parent or guardian. Interviews were conducted by landline and cell phone. // Pew Research Center's Internet & American Life Project January 20–February 19, 2012 tracking survey of 2,253 adults, including 901 cell phone interviews. // Both surveys included Spanish-language interviews.

In general, older teens ages 14 to 17 are more likely to use geosocial services than 12 and 13-year-olds. (In our sample the largest group of teens who broadcast their location was 17-year-olds.) There are no statistically significant differences in use of geosocial services by gender, race, household income, or parents' education level. For more information about teens and geosocial services (presented in terms of all teens, as opposed to only teen smartphone owners), see our recent report, [“Teens, Smartphones & Texting.”](#)

Use of geosocial services by those ages 12-17 (July 2011)

% of American teens (ages 12-17) within each group who use a geosocial service such as Foursquare or Gowalla to “check in” to certain locations or share their location with friends, as of July 2011.



Source: The Pew Research Center's Internet & American Life Project, Teen/Parent Survey, April 19–July 14, 2011. n=799 teens 12-17 and a parent or guardian. Interviews were conducted in English and Spanish, by landline and cell phone.

Methodology: Adults

This report is based on the findings of a survey on Americans' use of the Internet. The results in this report are based on data from telephone interviews conducted by Princeton Survey Research Associates International from January 20 to February 19, 2012, among a sample of 2,253 adults, age 18 and older. Telephone interviews were conducted in English and Spanish by landline (1,352) and cell phone (901, including 440 without a landline phone). For results based on the total sample, one can say with 95% confidence that the error attributable to sampling is plus or minus 2.3 percentage points. For results based Internet users (n=1,729), the margin of sampling error is plus or minus 2.7 percentage points. In addition to sampling error, question wording and practical difficulties in conducting telephone surveys may introduce some error or bias into the findings of opinion polls.

A combination of landline and cellular random digit dial (RDD) samples was used to represent all adults in the continental United States who have access to either a landline or cellular telephone. Both samples were provided by Survey Sampling International, LLC (SSI) according to PSRAI specifications. Numbers for the landline sample were selected with probabilities in proportion to their share of listed telephone households from active blocks (area code + exchange + two-digit block number) that contained three or more residential directory listings. The cellular sample was not list-assisted, but was drawn through a systematic sampling from dedicated wireless 100-blocks and shared service 100-blocks with no directory-listed landline numbers.

New sample was released daily and was kept in the field for at least five days. The sample was released in replicates, which are representative subsamples of the larger population. This ensures that complete call procedures were followed for the entire sample. At least 7 attempts were made to complete an interview at a sampled telephone number. The calls were staggered over times of day and days of the week to maximize the chances of making contact with a potential respondent. Each number received at least one daytime call in an attempt to find someone available. For the landline sample, interviewers asked to speak with the youngest adult male or female currently at home based on a random rotation. If no male/female was available, interviewers asked to speak with the youngest adult of the other gender. For the cellular sample, interviews were conducted with the person who answered the phone. Interviewers verified that the person was an adult and in a safe place before administering the survey. Cellular sample respondents were offered a post-paid cash incentive for their participation. All interviews completed on any given day were considered to be the final sample for that day.

Weighting is generally used in survey analysis to compensate for sample designs and patterns of non-response that might bias results. A two-stage weighting procedure was used to weight this dual-frame sample. The first-stage corrected for different probabilities of selection associated with the number of adults in each household and each respondent's telephone usage patterns.¹⁰ This weighting also adjusts for the overlapping landline and cell sample frames and the relative sizes of each frame and each sample.

The second stage of weighting balances sample demographics to population parameters. The sample is balanced to match national population parameters for sex, age, education, race, Hispanic origin, region (U.S. Census definitions), population density, and telephone usage. The Hispanic origin was split out based on nativity; U.S. born and non-U.S. born. The White, non-Hispanic subgroup is also balanced on age, education and region. The basic weighting parameters came from a special analysis of the Census

¹⁰ i.e., whether respondents have only a landline telephone, only a cell phone, or both kinds of telephone.

Bureau’s 2011 Annual Social and Economic Supplement (ASEC) that included all households in the United States. The population density parameter was derived from Census 2000 data. The cell phone usage parameter came from an analysis of the July-December 2010 National Health Interview Survey.¹¹

Below is the full disposition of all sampled telephone numbers:

Sample Disposition		
Landline	Cell	
33,732	22,499	Total Numbers Dialed
1,396	274	Non-residential
1,483	47	Computer/Fax
8	---	Cell phone
14,936	8,237	Other not working
3,094	467	Additional projected not working
12,815	13,474	Working numbers
38.0%	59.9%	Working Rate
1,031	156	No Answer / Busy
4,290	5,288	Voice Mail
40	16	Other Non-Contact
7,454	8,014	Contacted numbers
58.2%	59.5%	Contact Rate
513	1,256	Callback
5,491	5,273	Refusal
1,450	1,485	Cooperating numbers
19.5%	18.5%	Cooperation Rate
67	41	Language Barrier
---	524	Child's cell phone
1,383	920	Eligible numbers
95.4%	62.0%	Eligibility Rate
31	19	Break-off
1,352	901	Completes
97.8%	97.9%	Completion Rate
11.1%	10.8%	Response Rate

The disposition reports all of the sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible respondents in the sample that were ultimately interviewed. At PSRAI it is calculated by taking the product of three component rates:

- **Contact rate** – the proportion of working numbers where a request for interview was made

¹¹ Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December, 2010. National Center for Health Statistics. June 2011.

- **Cooperation rate** – the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused
- **Completion rate** – the proportion of initially cooperating and eligible interviews that were completed

Thus the response rate for the landline sample was 11 percent. The response rate for the cellular sample was 11 percent.

Winter Tracking Survey 2012

Final Topline

02/22/2012

Data for January 20–February 19, 2012

Princeton Survey Research Associates International for
the Pew Research Center's Internet & American Life ProjectSample: n=2,253 national adults, age 18 and older, including 901 cell phone interviews
Interviewing dates: 01.20.2012 – 02.19.2012Margin of error is plus or minus 2 percentage points for results based on Total [n=2,253]
Margin of error is plus or minus 3 percentage points for results based on cell phone owners [n=1,961]

Q10 Please tell me if you happen to have each of the following items, or not. Do you have...

	YES	NO	DON'T KNOW	REFUSED
a. A cell phone or a Blackberry or iPhone or other device that is also a cell phone ¹²				
Current	88	12	0	*
August 2011	84	15	*	*
May 2011	83	17	*	0
January 2011	84	16	*	*
December 2010	81	19	*	*
November 2010	82	18	0	*
September 2010	85	15	*	*
May 2010	82	18	*	0
January 2010	80	20	0	*
December 2009	83	17	0	*
September 2009	84	15	*	*
April 2009	85	15	*	*
Dec 2008	84	16	*	*
July 2008	82	18	*	--
May 2008	78	22	*	0
April 2008	78	22	*	--
January 2008	77	22	*	--
Dec 2007	75	25	*	--
Sept 2007	78	22	*	--
April 2006	73	27	*	--
January 2005	66	34	*	--
November 23-30, 2004	65	35	*	--

¹² Question was asked of landline sample only. Results shown here have been recalculated to include cell phone sample in the "Yes" percentage. In past polls, question was sometimes asked as an independent question and sometimes as an item in a series. In January 2010, question wording was "Do you have...a cell phone or a Blackberry or iPhone or other handheld device that is also a cell phone." In Dec 2008, Nov 2008, May 2008, January 2005 and Nov 23-30 2004, question wording was "Do you happen to have a cell phone?" In August 2008, July 2008 and January 2008, question wording was "Do you have a cell phone, or a Blackberry or other device that is also a cell phone?" In April 2008, Dec 2007, Sept 2007 and April 2006, question wording was "Do you have a cell phone?" Beginning December 2007, question/item was not asked of the cell phone sample, but results shown here reflect Total combined Landline and cell phone sample.

Q11 Some cell phones are called “smartphones” because of certain features they have. Is your cell phone a smartphone or not, or are you not sure?

Based on cell phone owners

	<u>CURRENT</u>		<u>MAY 2011</u>
%	45	Yes, is a smartphone	33
	46	No, is not a smartphone	53
	8	Not sure	14
	*	Refused	*
	[n=1,961]		[n=,1914]

Q12 Which of the following best describes the type of cell phone you have? Is it an iPhone, a Blackberry, an Android phone, a Windows phone, a Palm, or something else?

Based on cell phone owners

	<u>CURRENT</u>		<u>MAY 2011</u>
%	19	iPhone	10
	6	Blackberry	10
	20	Android	15
	2	Windows phone	2
	1	Palm	2
	16	Basic cell phone – unspecified (VOL.)	8
	8	Samsung – unspecified (VOL.)	7
	5	LG – unspecified (VOL.)	5
	4	Flip phone – unspecified (VOL.)	3
	3	Tracfone (VOL.)	2
	2	Motorola – unspecified (VOL.)	3
	1	Nokia – unspecified (VOL.)	2
	1	Pantech – unspecified (VOL.)	1
	6	Something else (SPECIFY)	16
	4	Don't know	13
	*	Refused	1
	[n=1,961]		[n=,1914]

Q15 Thinking of some things people might do on their CELL PHONES, do you ever use your cell phone to... [INSERT ITEMS IN ORDER]?¹³

Based on cell phone owners

	YES	NO	DON'T KNOW	REFUSED
a. Use a service such as Foursquare or Gowalla to 'check in' to certain locations or to share your location with your friends ¹⁴				
Current [N=1,961]	11	88	1	*
May 2011 [N=1,914]	5	94	*	0
b. Get directions or other information related to a location where you happen to be ¹⁵				
Current	46	53	*	*
May 2011	28	72	0	0
April 2009 [N=1,818]	18	82	*	*
December 2007 [N=1,704]	14	86	*	--

¹³ In May 2011, the question was asked of all Form B cell phone users and Form A cell phone users who said in CELL7 that they do more than make calls on their phone. The percentages are based on all cell phone users, counting as "no" Form A cell phone users who said in CELL7 they use their phones only for making calls. Also included as "no" are those who volunteered that their cell phone could not do that activity. Prior to May 2011, question was asked of all cell phone users and question wording was "Please tell me if you ever use your cell phone or Blackberry or other device to do any of the following things. Do you ever use it to [INSERT ITEM]?"

¹⁴ May 2011 item wording was "Use a service such as Foursquare or Gowalla to "check in" to certain locations or share your location with friends"

¹⁵ May 2011 item wording was "Get directions, recommendations, or other information related to your present location." April 2009 and December 2007 item wording was "Get a map or directions to another location"

Methodology: Teens

2011 Teens and Digital Citizenship Survey

Prepared by Princeton Survey Research Associates International for the Pew Research Center's Internet and American Life Project

JULY 2011

Summary

The 2011 Teens and Digital Citizenship Survey sponsored by the Pew Research Center's Internet and American Life Project obtained telephone interviews with a nationally representative sample of 799 teens ages 12 to 17 years old and their parents living in the continental United States. The survey was conducted by Princeton Survey Research Associates International. The interviews were conducted in English and Spanish by Princeton Data Source, LLC from April 19 to July 14, 2011. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is ± 4.8 percentage points.

In addition to the two surveys, this study conducted 7 focus groups with teens between the ages of 12 and 19 in the greater Washington, DC metro area in January and February 2011. Participants were recruited via word of mouth, email, schools, and non-profit organizations. A total of 57 youth participated in the focus groups, though each group averaged 8 to 14 people. Groups were co-ed, but were broken into middle school and high school aged youth. The groups were balanced for gender and crossed the socio-economic and family structure spectrum. Black youth were over-represented. All participants were required to have access to either a computer or a cell phone to participate. Participants were paid a \$40 cash incentive for their participation. Parental consent was obtained for all minor participants, as was the assent of the minor participants themselves. Eighteen and 19 year-old participants consented to their own participation.

Further details on the design, execution, and analysis of the teen and parent telephone survey are discussed below.

Design and Data Collection Procedures

Sample Design

A combination of landline and cellular random digit dial (RDD) samples was used to represent all teens and their parents in the continental United States who have access to either a landline or cellular telephone. Both samples were provided by Survey Sampling International, LLC (SSI) according to PSRAI specifications.

Both samples were disproportionately stratified to increase the incidence of blacks and Latinos. The same stratification scheme was used for both sample frames and was based on the estimated incidence of minority groups at the county level. All counties in the continental United States were divided into ten strata based on the estimated proportion of African American and Latino populations. Strata with higher minority densities were oversampled relative to strata with lower densities. Phone numbers were drawn

with equal probabilities within strata. The disproportionate sample design was accounted for in the weighting and does not affect the representative nature of the sample.¹⁶

Contact Procedures

Interviews were conducted from April 19 to July 14, 2011. As many as 7 attempts were made to contact and interview a parent at every sampled telephone number. After the parent interview, if the teen was not immediately available, an additional 7 calls were made to interview an eligible teen. Sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample. Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. Each telephone number received at least one daytime call in an attempt to complete an interview.

Contact procedures were slightly different for the landline and cell samples. For the landline sample, interviewers first determined if the household had any 12 to 17 year-old residents. Households with no teens were screened-out as ineligible. In eligible households, interviewers first conducted a short parent interview with either the father/male guardian or mother/female guardian. The short parent interview asked some basic household demographic questions as well as questions about a particular teen in the household (selected at random if more than one teen lived in the house.)

For the cell phone sample, interviews first made sure that respondents were in a safe place (for example, not driving) to talk and that they were speaking with an adult. Calls made to minors were screened-out as ineligible. If the person was not in a safe place to talk a callback was scheduled. Interviewers then asked if any 12- to 17-year-olds lived in their household. Cases where no teens lived in the household were screened-out as ineligible. If there was an age-eligible teen in the household, the interviewers asked if the person on the cell phone was a parent of the child. Those who were parents went on to complete the parent interview. Those who were not parents were screened-out as ineligible.

For both samples, after the parent interview was complete an interview was completed with the target child. Data was kept only if the child interview was completed.¹⁷

Interviewers were given instructions to tell parents – if asked – that they should not remain on the phone with the child during the interview, but that if they were concerned they could sit nearby. The interviewer then coded whether or not the parent remained on the phone with the child. In this survey, 90 of the 799 interviews (or 11%) had a parent listening on the phone during the child’s interview. Parents who elected to remain on the phone while their child completed the interview were more likely to be listening to the interviews of girls and children age 12 and to a lesser extent, age 13. These parents were also more likely to be white. Teens whose parents listened to their interview were less likely to use the internet, use social network sites, or go online using a mobile phone. Among those teens whose parents attended their interview who do use social network sites, they were more likely to report using Facebook than teens whose parents did not listen in. We elected to retain these interviews as a part of our larger sample – first because there were very few statistically significant differences between the

¹⁶ For more information on oversampling, see the Pew Research Center for People and Press’s website and their discussion of the implications of this survey technique: <http://www.people-press.org/methodology/sampling/oversamples/>

¹⁷ At the start of the field period, we used a modified screener that allowed us to complete a teen interview prior to a parent interview. After a few weeks in the field (April 19-June 1), it became clear that completing the teen interview first was not productive. Therefore the screener was modified to the one described here where a parent was always interviewed first. There are 16 “teen-first” interviews included in the overall sample.

responses of teens whose parents listened in, and those whose parents did not. Second, in the places where we did see modest differences, understanding what might be behind those differences was difficult to tease out – the age of the child may have been a factor, or how the parent parented that child, or the fact that the parent was listening to the interview. So rather than introduce additional bias into the data, we elected to leave the cases in the data set, and note in the text where the parent’s listening made a statistically significant difference in the responses of the teen.

Weighting and analysis

Weighting is generally used in survey analysis to compensate for patterns of nonresponse and disproportionate sample designs that might bias survey estimates. This sample was weighted in three stages. The first stage of weighting corrected for the disproportionate RDD sample designs. For each stratum the variable SAMPWT was computed as the ratio of the size of the sample frame in the stratum divided by the amount of sample ordered in the stratum.

The second stage of weighting involved correcting for different probabilities of selection based on respondents’ phone use patterns. Respondents who have both a landline and a cell phone have a greater chance of being sampled than respondents with access to only one kind of phone. To correct for this we computed a variable called PUA (Phone Use Adjustment). Respondents with one kind of phone (either landline or cell) were assigned a PUA of 0.5 while respondents with both types of phones were assigned a PUA of 1.0. SAMPWT and PUA were then multiplied together to use as an input weight (WEIGHT1) for post-stratification raking

The interviewed sample was raked to match national parameters for both parent and child demographics. The parent demographics used for weighting were: sex; age; education; race; Hispanic origin; number of 12- to 17-year-olds in household; phone use and region (U.S. Census definitions). The child demographics used for weighting were gender and age. The parameters came from a special analysis of the Census Bureau’s 2010 Annual Social and Economic Supplement (ASEC) that included all households in the continental United States. The phone use parameter was derived from recent PSRAI survey data.

Raking was accomplished using Sample Balancing, a special iterative sample weighting program that simultaneously balances the distributions of all variables using a statistical technique called the *Deming Algorithm*. Weights were trimmed to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the national population. Table 1 compares weighted and unweighted sample distributions to population parameters.

Table 1: Sample Demographics

	<u>Parameter</u>	<u>Unweighted</u>	<u>Weighted</u>
<u>Census Region</u>			
Northeast	17.9	14.3	15.8
Midwest	22.2	16.4	20.7
South	36.4	41.6	38.9
West	23.5	27.8	24.5

	<u>Parameter</u>	<u>Unweighted</u>	<u>Weighted</u>
<u>Parent's Sex</u>			
Male	43.8	32.0	43.8
Female	56.2	68.0	56.2
<u>Parent's Age</u>			
LT 35	10.3	9.9	8.5
35-39	18.6	15.0	18.6
40-44	25	21.7	24.2
45-49	25.5	25.8	26.6
50-54	13.6	16.2	14.3
55+	7.0	11.4	7.7
<u>Parent's Education</u>			
Less than HS grad.	12.4	11.2	12.6
HS grad.	34.3	21.5	30.8
Some college	23.4	22.5	23.4
College grad.	29.9	44.8	33.3
<u>Parent's Race/Ethnicity</u>			
White~Hispanic	63.4	56.4	61.0
Black~Hispanic	11.7	15.7	12.8
Hispanic	18.1	21.9	19.6
Other~Hispanic	6.8	6.0	6.6
<u>Parent's Phone Use</u>			
Landline only	9.0	6.6	8.9
Dual Users	62.8	85.2	68.3
Cell Phone only	28.2	8.1	22.8
<u># of 12-17 Kids in HH</u>			
One	70.3	67.5	69.8
Two	25.0	27.2	24.9
Three+	4.7	5.4	5.3
<u>Kid's Sex</u>			
Male	51.0	48.9	51.4
Female	49.0	51.1	48.6
<u>Kid's Age</u>			
12	16.7	13.9	16.9
13	16.7	14.3	16.3
14	16.7	17.8	16.9
15	16.7	15.9	16.2
16	16.7	17.6	16.1
17	16.7	20.5	17.7

Effects of Sample Design on Statistical Inference

Post-data collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. PSRAI calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called "design effect" or *deff* represents the loss in statistical efficiency that results from systematic non-response. The total sample design effect for this survey is 1.95.

PSRAI calculates the composite design effect for a sample of size n , with each case having a weight, w_i , as:

$$deff = \frac{n \sum_{i=1}^n w_i^2}{\left(\sum_{i=1}^n w_i \right)^2} \quad \text{formula 1}$$

In a wide range of situations, the adjusted *standard error* of a statistic should be calculated by multiplying the usual formula by the square root of the design effect (*vdeff*). Thus, the formula for computing the 95% confidence interval around a percentage is:

$$\hat{p} \pm \left(\sqrt{deff} \times 1.96 \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \right) \quad \text{formula 2}$$

where \hat{p} is the sample estimate and n is the unweighted number of sample cases in the group being considered.

The survey's *margin of error* is the largest 95% confidence interval for any estimated proportion based on the total sample— the one around 50%. For example, the margin of error for the entire sample is $\pm 4.8\%$. This means that in 95 out every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 4.8 percentage points away from their true values in the population. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as respondent selection bias, questionnaire wording and reporting inaccuracy, may contribute additional error of greater or lesser magnitude.

Response Rate

Table 2 reports the disposition of all sampled callback telephone numbers ever dialed. The response rate estimates the fraction of all eligible respondents in the sample that were ultimately interviewed. At PSRAI it is calculated by taking the product of three component rates:¹⁸

- **Contact rate** – the proportion of working numbers where a request for interview was made¹⁹

¹⁸ PSRAI's disposition codes and reporting are consistent with the American Association for Public Opinion Research standards.

¹⁹ PSRAI assumes that 75 percent of cases that result in a constant disposition of "No answer" or "Busy" are actually not working numbers.

- **Cooperation rate** – the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused
- **Completion rate** – the proportion of initially cooperating and eligible interviews that agreed to the child interview and were completed

Thus the response rate for landline sample was 12 percent and the response rate for the cell sample was 7 percent.

Please see below for the sample disposition table.

Table 2: Sample Disposition

Landline	Cell	
209894	98227	T Total Numbers Dialed
10139	1364	OF Non-residential
9484	151	OF Computer/Fax
118	0	OF Cell phone
119777	34759	OF Other not working
10321	2467	UH Additional projected not working
60055	59486	Working numbers
28.6%	60.6%	Working Rate
3440	822	UH No Answer / Busy
12565	26222	UO_{NC} Voice Mail
206	60	UO_{NC} Other Non-Contact
43844	32382	Contacted numbers
73.0%	54.4%	Contact Rate
3251	5251	UO_R Callback
29595	21279	UO_R Refusal
10998	5852	Cooperating numbers
25.1%	18.1%	Cooperation Rate
518	204	IN1 Language Barrier
9541	5389	IN2 Child's cell phone
939	259	Eligible numbers
8.5%	4.4%	Eligibility Rate
321	78	R Break-off
618	181	I Completes
65.8%	69.9%	Completion Rate
12.1%	6.9%	Response Rate

Parent/Teen Digital Citizenship Survey

Final Topline

7/22/2011

Data for April 19 – July 14, 2011

Princeton Survey Research Associates International
for the Pew Research Center's Internet & American Life ProjectSample: n= 799 parents of 12-17 year olds, including an oversample of African-American and Latino families
799 teens ages 12-17

Interviewing dates: 04.19.2011 – 07.14.2011

Margin of error is plus or minus 5 percentage points for results based on total teens [n=799]

Margin of error is plus or minus 5 percentage points for results based on teen cell phone users [n=642]

K3 As I read the following list of items, please tell me if you happen to have each one, or not. Do you have...[INSERT IN ORDER]?

	YES	NO	DON'T KNOW	REFUSED
a. A cell phone... or a Blackberry, iPhone or other device that is also a cell phone ²⁰				
Current Teens	77	23	0	0
September 2009	75	25	0	0
February 2008	71	29	0	--
November 2007	71	29	0	--
November 2006	63	37	0	--
November 2004	45	55	0	--

K3a_1 Is that a smartphone or not... or are you not sure?

Based on teen cell phone users [N=642]

	CURRENT TEENS	
%	30	Yes, smartphone
	56	No, not a smartphone
	14	Not sure/Don't know
	0	Refused

²⁰ Prior to 2009, trend wording was "A cell phone"

K5 We're interested in the kinds of things you do when you use the internet. Not everyone has done these things. Please just tell me whether you ever do each one, or not. Do you ever...[INSERT; RANDOMIZE]?²¹

	YES	NO	(VOL.) CAN'T DO THAT / DON'T KNOW HOW	DON'T KNOW	REFUSED
<i>Item F: Based on teen internet users who have a cell phone {cont.,}</i>					
a. Use a service on your cell phone like Foursquare or Gowalla to "check in" to certain locations or share your location with friends					
Current Teens [N=634]	8	92	*	*	0

²¹ In 2004 & 2000 trends, question wording was "We're interested in the kinds of things you do when you go online. Not everyone has done these things. Please just tell me whether you ever do each one, or not. Do you ever...?" In November 2007, question was "As I read the following list of items, please tell me if you, personally, happen to have each one, or not. Do you have...?"