Pew Internet
Pew Internet & American Life Project

a project of the
PewResearchCenter

NOVEMBER 25, 2012

Cell Phone Activities 2012

Photo taking, texting, and accessing the internet are the most popular activities people pursue with their mobile phones

Maeve Duggan
Research Assistant, Pew Internet Project

Lee Rainie
Director, Pew Internet Project

Pew Research Center's Internet & American Life Project
1615 L St., NW – Suite 700
Washington, D.C. 20036
Phone: 202-419-4500

http://pewinternet.org/Reports/2012/Cell-Activities.aspx

Main Findings

Fully 85% of American adults own a cell phone and now use the devices to do much more than make phone calls. Cell phones have become a portal for an ever-growing list of activities. In nationally representative phone surveys in the spring and summer, the Pew Research Center's Internet & American Life Project obtained readings on some of the most popular activities:

Cell Phone Activities

The % of cell phone owners who use their cell phone to…

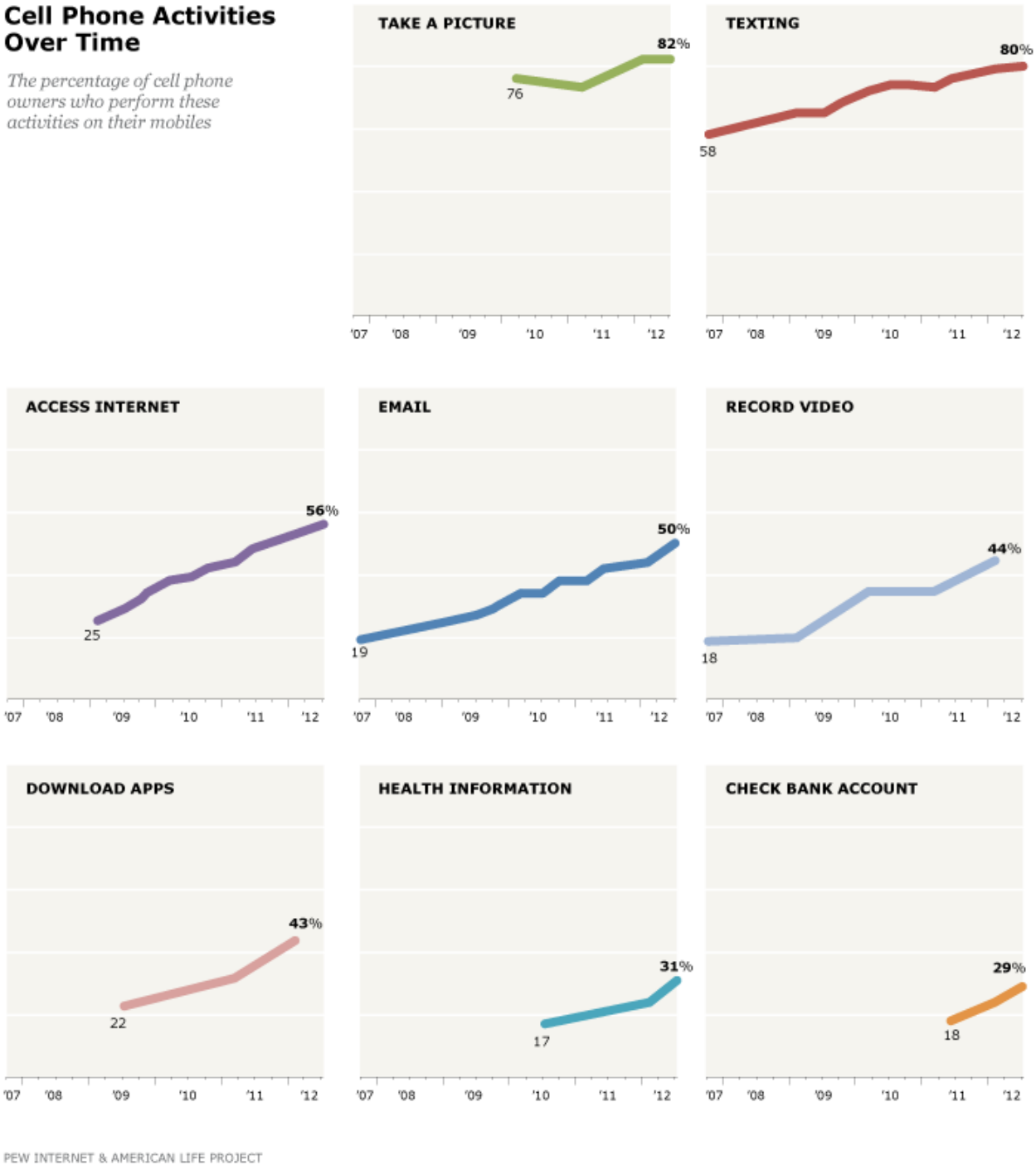
82	Take a picture
80	Send or receive text messages
56	Access the internet
50	Send or receive email
44	Record Video*
43	Download Apps*
31	Look for health or medical information online
29	Check bank account balance or do any online banking

Source: Pew Research Center's Internet & American Life Project, Summer Tracking Survey, August 7-September 6, 2012. N=2,581 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (1,206 cell calls were completed). Margin of error is +/- 2.2 percentage points.

* Video and Apps data from Pew Internet's Spring Tracking Survey, March 15-April 3, 2012. N= 1,954 cell phone owning adults 18 and older. Margin of error is +/- 2.6 percentage points.

Over time, the number of cell owners performing each activity has grown.

(See chart below.)



Additional Demographic Analysis

Younger adults, people with higher levels of education, and those living in households earning $75,000 or more are more likely than others to have performed several of the cell phone activities the Pew

Internet Project queried. What follows are tables of the demographic composition of those who perform these core cell phone activities.

Taking pictures

Taking pictures is the most popular cell phone activity and there are only modest differences between demographic groups. Young adults and those who live in households with relatively higher incomes are the likeliest to snap a picture with their mobile phone.

Smile! You're on camera (phone)

% of cell phone owners who use their phone to take a picture

All cell phone owners (n=2,581)	82%
Men (n=1,163)	82
Women (n=1,418)	81
Age	
18-29 (n=451)	94***
30-49 (n=770)	90**
50-64 (n=710)	78*
65+ (n=599)	44
Race/ethnicity	
White, Non-Hispanic (n=1,586)	80
Black, Non-Hispanic (n=434)	79
Hispanic (n=351)	85
Annual household income	
Less than $30,000/yr (n=690)	77
$30,000-$49,999 (n=456)	83
$50,000-$74,999 (n=345)	85*
$75,000+ (n=646)	90**
Education level	
No high school diploma (n=187)	65
High school grad (n=681)	79*
Some College (n=679)	85*
College + (n=1,020)	86**

Source: Pew Research Center's Internet & American Life Project, Summer Tracking Survey, August 7-September 6, 2012. N=2,581 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (1,206 cell calls were completed). Margin of error is +/- 2.2 percentage points.

* indicates statistically significant difference compared with others in same grouping

Texting

The vast majority of cell phone owners send and receive text messages. Large numbers of cell owners across all demographic groups do so, with the exception of mobile phone owners 65 and older. Texting is nearly universal among young adults, ages 18-29.

Texting

% of cell phone owners who use their phone to send or receive text messages

All cell phone owners (n=2,581)	80%
Men (n=1,163)	81
Women (n=1,418)	80
Age	
18-29 (n=451)	97***
30-49 (n=770)	92**
50-64 (n=710)	72*
65+ (n=599)	34
Race/ethnicity	
White, Non-Hispanic (n=1,586)	79
Black, Non-Hispanic (n=434)	80
Hispanic (n=351)	85
Annual household income	
Less than $30,000/yr (n=690)	78
$30,000-$49,999 (n=456)	78
$50,000-$74,999 (n=345)	89**
$75,000+ (n=646)	90**
Education level	
No high school diploma (n=187)	65
High school grad (n=681)	75
Some College (n=679)	85**
College + (n=1,020)	86**

Source: Pew Research Center's Internet & American Life Project, Summer Tracking Survey, August 7-September 6, 2012. N=2,581 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (1,206 cell calls were completed). Margin of error is +/- 2.2 percentage points.
* indicates statistically significant difference compared with others in same grouping

Mobile internet access

More than half of cell phone owners (56%) access the internet through their phone. This is especially prevalent among those under 50, the well-educated, and those living in households with a higher annual income. African-Americans and Hispanic cell phone owners are more likely than whites to access the internet through their phone.

Accessing the internet

% of cell phone owners who use their phone to access the internet

All cell phone owners (n=2,581)	56%
Men (n=1,163)	57
Women (n=1,418)	56
Age	
18-29 (n=451)	77***
30-49 (n=770)	69**
50-64 (n=710)	40*
65+ (n=599)	13
Race/ethnicity	
White, Non-Hispanic (n=1,586)	52
Black, Non-Hispanic (n=434)	60*
Hispanic (n=351)	66*
Annual household income	
Less than $30,000/yr (n=690)	52
$30,000-$49,999 (n=456)	51
$50,000-$74,999 (n=345)	60**
$75,000+ (n=646)	71***
Education level	
No high school diploma (n=187)	38
High school grad (n=681)	47
Some College (n=679)	62**
College + (n=1,020)	66**

Source: Pew Research Center's Internet & American Life Project, Summer Tracking Survey, August 7-September 6, 2012. N=2,581 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (1,206 cell calls were completed). Margin of error is +/- 2.2 percentage points.

* indicates statistically significant difference compared with others in same grouping

Email on mobile phones

Half of cell phone owners send or receive email on their device. This is especially true of those who are young adults, have higher levels of education, and who live in households that have relatively high annual income.

Email on phones

% of cell phone owners who use their phones to send or receive email

All cell phone owners (n=2,581)	50%
Men (n=1,163)	49
Women (n=1,418)	50
Age	
18-29 (n=451)	65**
30-49 (n=770)	61**
50-64 (n=710)	38*
65+ (n=599)	12
Race/ethnicity	
White, Non-Hispanic (n=1,586)	48
Black, Non-Hispanic (n=434)	51
Hispanic (n=351)	53
Annual household income	
Less than $30,000/yr (n=690)	39
$30,000-$49,999 (n=456)	45
$50,000-$74,999 (n=345)	56**
$75,000+ (n=646)	70***
Education level	
No high school diploma (n=187)	24
High school grad (n=681)	39*
Some College (n=679)	54**
College + (n=1,020)	63***

Source: Pew Research Center's Internet & American Life Project, Summer Tracking Survey, August 7-September 6, 2012. N=2,581 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (1,206 cell calls were completed). Margin of error is +/- 2.2 percentage points.

* indicates statistically significant difference compared with others in same grouping

Recording video

In our April 2012 survey, 44% of cell phone owners said they had used their phones to record video. Those ages 18-29 are the most likely to do so, with nearly 7 out of 10 young people reporting this behavior. African-Americans, those who live in households with higher incomes, and the college-educated are also more likely to record video on their phone.

Recording video on cell phones

% of cell phone owners who use their phone to record video

All cell phone owners (n=1,954)	44%
Men (n=895)	43
Women (n=1,059)	44
Age	
18-29 (n=340)	68***
30-49 (n=562)	54**
50-64 (n=587)	23*
65+ (n=429)	9
Race/ethnicity	
White, Non-Hispanic (n=1,404)	40
Black, Non-Hispanic (n=234)	52*
Hispanic (n=180)	47
Annual household income	
Less than $30,000/yr (n=447)	36
$30,000-$49,999 (n=316)	43
$50,000-$74,999 (n=272)	54**
$75,000+ (n=538)	53**
Education level	
No high school diploma (n=156)	41
High school grad (n=542)	38
Some College (n=490)	47*
College + (n=752)	48*

Source: Pew Research Center's Internet & American Life Project, Spring Tracking Survey, March 15-April 3, 2012. N=1,954 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (903 cell calls were completed). Margin of error is +/- 2.6 percentage points.

* indicates statistically significant difference compared with others in same grouping

Downloading Apps

Just over 40% of cell phone owners said they had downloaded an app to their phone in the April 2012 survey. Again, our findings show that apps are most popular among young people, those in higher income homes, and the college-educated. African-Americans are also more likely to download apps.

Downloading apps

% of cell phone owners who have downloaded an app to their phone

All cell phone owners (n=1,954)	43%
Men (n=895)	45
Women (n=1,059)	41
Age	
18-29 (n=340)	65***
30-49 (n=562)	53**
50-64 (n=587)	25*
65+ (n=429)	8
Race/ethnicity	
White, Non-Hispanic (n=1,404)	40
Black, Non-Hispanic (n=234)	50*
Hispanic (n=180)	44
Annual household income	
Less than $30,000/yr (n=447)	32
$30,000-$49,999 (n=316)	41*
$50,000-$74,999 (n=272)	50*
$75,000+ (n=538)	57**
Education level	
No high school diploma (n=156)	32
High school grad (n=542)	37
Some College (n=490)	44**
College + (n=752)	52***

Source: Pew Research Center's Internet & American Life Project, Spring Tracking Survey, March 15-April 3, 2012. N=1,954 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (903 cell calls were completed). Margin of error is +/- 2.6 percentage points.

* indicates statistically significant difference compared with others in same grouping

Mobile banking

Online banking is especially prevalent among those ages 18-29, those with higher levels of education, and the African-Americans and Hispanics who own cell phones.

Mobile banking

% of cell phone owners who use their phones to check bank account balances or do any online banking

All cell phone owners (n=2,581)	29%
Men (n=1,163)	30
Women (n=1,418)	29
Age	
18-29 (n=451)	45***
30-49 (n=770)	33**
50-64 (n=710)	21*
65+ (n=599)	7
Race/ethnicity	
White, Non-Hispanic (n=1,586)	26
Black, Non-Hispanic (n=434)	34*
Hispanic (n=351)	35*
Annual household income	
Less than $30,000/yr (n=690)	27
$30,000-$49,999 (n=456)	31
$50,000-$74,999 (n=345)	34
$75,000+ (n=646)	35*
Education level	
No high school diploma (n=187)	13
High school grad (n=681)	24*
Some College (n=679)	35**
College + (n=1,020)	35**

Source: Pew Research Center's Internet & American Life Project, Summer Tracking Survey, August 7-September 6, 2012. N=2,581 cell phone owning adults ages 18 and older. Interviews were conducted in English and Spanish and on landline and cell phones (1,206 cell calls were completed). Margin of error is +/- 2.2 percentage points.

* indicates statistically significant difference compared with others in same grouping

Survey questions

Summer Tracking Survey 2012

Final Topline 09/10/2012

Data for August 7–September 6, 2012

Princeton Survey Research Associates International for
the Pew Research Center's Internet & American Life Project

Sample: n=3,014 national adults, age 18 and older, including 1,206 cell phone interviews
Interviewing dates: 08.07.2012 – 09.06.2012

Margin of error is plus or minus 2 percentage points for results based on Total [n=3,014]
Margin of error is plus or minus 3 percentage points for results based on internet users [n=2,392]
Margin of error is plus or minus 3 percentage points for results based on cell phone owners [n=2,581]
Margin of error is plus or minus 3 percentage points for results based on online health seekers [n=1,741]
Margin of error is plus or minus 4 percentage points for results based on caregivers [n=1,171]

QL1 Do you have a cell phone... or a Blackberry or iPhone or other device that is also a cell phone?[1]

	yes	no	Don't know	Refused
Current	85	15	*	0
August 2012	89	10	0	*
April 2012	88	12	*	*
February 2012	88	12	0	*
December 2011	87	13	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

[1] 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.

April 2008	78	22	*	--
January 2008	77	22	*	--
Dec 2007	75	25	*	--
Sept 2007	78	22	*	--
April 2006	73	27	*	--
January 2005	66	34	*	--
Nov. 23-30, 2004	65	35	*	--

SMPH Some cell phones are called "smartphones" because of certain features they have. Is your cell phone a smartphone, such as an iPhone, Android, Blackberry or Windows phone, or are you not sure?[2]
Based on cell phone owners

	current		April 2012	Feb 2012	May 2011
%	53	Yes, smartphone	46	45	33
	40	No, not a smartphone	44	46	53
	6	Not sure/Don't know	10	8	14
	*	Refused	*	*	*
	[n=2,581]		[n=1,954]	[n=1,961]	[n=1,914]

CELL1 Please tell me if you ever use your cell phone to do any of the following things. Do you ever use your cell phone to [INSERT ITEMS; ALWAYS ASK a-b FIRST in order; RANDOMIZE c-f]?[3]
Based on cell phone owners

	yes	no	don't know	refused
Send or receive email				
Current [N=2,581]	50	50	*	0
April 2012 [N=1,954]	44	56	*	*
August 2011 [N=1,948]	42	58	*	0
May 2011 [N=1,914]	38	62	0	*
December 2010 [N=1,982]	38	62	*	*
November 2010 [N=1,918]	34	66	0	*
September 2010 [N=2,485]	34	66	*	0
May 2010 [N=1,917]	34	66	0	0
January 2010 [N=1,891]	30	70	0	0
December 2009 [N=1,919]	29	70	*	*
September 2009 [N=1,868]	27	73	*	0
April 2009 [N=1,818]	25	75	*	0
December 2007 [N=1,704]	19	81	0	--
Send or receive text messages				

[2] Prior to the current survey, question wording was slightly different: "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?"
[3] In May 2011, the question was asked of all Form B cell phone owners and Form A cell phone owners who said in CELL7 that they do more than make calls on their phone. The percentages shown here are based on all cell phone users, counting as "no" Form A cell phone owners who said in CELL7 they use their phones only for making calls. Prior to May 2011, question was asked of all cell phone owners. Prior to January 2010, 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]?" In January 2010, question wording was "Please tell me if you ever use your cell phone or Blackberry or other handheld device to do any of the following things. Do you ever use it to [INSERT ITEMS]?" For January 2010, December 2009, and September 2009, an answer category "Cell phone can't do this" was available as a volunteered option; "No" percentages for those trends reflect combined "No" and "Cell phone can't do this" results.

Current	80	20	*	0
April 2012	79	21	*	*
August 2011	76	24	*	*
May 2011	73	27	0	0
December 2010	74	26	*	*
November 2010	71	28	*	0
September 2010	74	26	*	0
May 2010	72	28	0	0
January 2010	69	31	*	0
December 2009	68	32	*	0
September 2009	65	35	*	0
April 2009	65	35	*	0
December 2007	58	42	0	--
Take a picture				
Current	82	18	*	*
April 2012	82	18	0	0
May 2011	73	27	*	0
May 2010	76	24	*	*
Access the internet[4]				
Current	56	44	0	0
April 2012	53	46	*	*
August 2011	48	52	*	0
May 2011	44	56	0	0
December 2010	42	58	*	*
November 2010	39	61	*	*
September 2010	39	61	*	0
May 2010	38	62	0	0
January 2010	34	66	0	0
December 2009	32	67	*	0
September 2009	29	71	*	0
April 2009	25	74	*	*
Check your bank account balance or do any online banking[5]				
Current	29	70	*	*
April 2012	24	75	*	0
May 2011	18	81	0	8

From April 2012 survey

Spring Tracking Survey 2012 Final Topline 04/10/2012
Data for March 15–April 3, 2012

[4] In December 2007, item wording was "Access the internet for news, weather, sports, or other information"
[5] In April 2012, question was asked of Form A cell phone owners who use the internet or email on their cell phone or download apps to their cell phone [N=953]; results are re-percentaged on all Form A cell phone owners.

Sample: n=2,254 national adults, age 18 and older, including 903 cell phone interviews
Interviewing dates: 03.15.2012 – 04.03.2012

Margin of error is plus or minus 2 percentage points for results based on Total [n=2,254]
Margin of error is plus or minus 3 percentage points for results based on internet users [n=1,803]
Margin of error is plus or minus 3 percentage points for results based on cell phone owners [n=1,954]

Q17 Please tell me if you ever use your cell phone to do any of the following things. Do you ever use your cell phone to [INSERT ITEMS; ALWAYS ASK a-b FIRST in order; RANDOMIZE c-f]?[6]

Based on cell phone owners

Download a software application or "app" [7]	Yes	No	Don't know	refused
Current	43	57	*	*
May 2011	31	69	*	0
September 2009	22	78	1	0
Record a video				
Current	44	56	*	*
May 2011	34	66	0	*
May 2010	34	66	*	0
April 2009	19	81	0	0
December 2007	18	82	0	--

[6] In May 2011, the question was asked of all Form B cell phone owners and Form A cell phone owners who said in CELL7 that they do more than make calls on their phone. The percentages shown here are based on all cell phone users, counting as "no" Form A cell phone owners who said in CELL7 they use their phones only for making calls. Prior to May 2011, question was asked of all cell phone owners. Prior to January 2010, 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]?" In January 2010, question wording was "Please tell me if you ever use your cell phone or Blackberry or other handheld device to do any of the following things. Do you ever use it to [INSERT ITEMS]?" For January 2010, December 2009, and September 2009, an answer category "Cell phone can't do this" was available as a volunteered option; "No" percentages for those trends reflect combined "No" and "Cell phone can't do this" results.
[7] In September 2009, item wording was "Download an application for your cell phone"

Methodology

August 2012 Tracking Survey

Princeton Survey Research Associates International for the Pew Research Center's Internet & American Life Project

These results come from two Pew Internet tracking surveys. One was conducted between August 7-September 6. 2012 with 3,014 American adults (ages 18+). Among them were 2,581 the cell phone owners and the margin of error in the survey for findings among cell owners is plus or minus 2.1 percentage points. The second survey was conducted between March 15-April 3, 2012 among 2,254 adults, including 1,954 cell owners, and has a margin of error of plus or minus 2.4 percentage points. Both surveys were conducted on landline and cell phones and in English and Spanish.

DESIGN AND DATA COLLECTION PROCEDURES

Sample Design

A combination of landline and cell random digit dial (RDD) samples was used to reach a representative sample of all adults the United States who have access to either a landline or cellular telephone. Both samples were disproportionately-stratified to increase the incidence of African-American and Hispanic respondents. Within strata, phone numbers were drawn with equal probabilities. The landline samples were list-assisted and drawn from active blocks containing three or more residential listing while the cell samples were not list-assisted, but were drawn through a systematic sampling from dedicated wireless 100-blocks and shared service 100-blocks with no directory-listed landline numbers.

Contact Procedures

Interviews were conducted from August 7 to September 6, 2012. As many as 7 attempts were made to contact every sampled telephone number. 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 phone number received at least one daytime call.

For the landline sample, interviewers asked to speak with either the youngest male or youngest female currently at home based on a random rotation. If no male/female was available at the time of the call, interviewers asked to speak with the youngest adult of the opposite sex. This systematic respondent selection technique has been shown to produce samples that closely mirror the population in terms of age and gender when combined with cell sample.

For the cell sample, interviews were attempted with the person who answered the phone. Interviewers first verified that the person was and adult and in a safe place before continuing with the interview.

WEIGHTING AND ANALYSIS

Weighting is generally used in survey analysis to adjust for effects of the sample design and to compensate for patterns of nonresponse that might bias results. The weighting was accomplished in multiple stages to account for the disproportionately-stratified sample, the overlapping landline and cell sample frames and differential non-response associated with sample demographics.

The first-stage of weighting compensated for the disproportionate sample design. This adjustment (called SAMPWT in the dataset) was computed by dividing the proportion of the population from each stratum by the proportion of sample drawn from the stratum. The landline and cell samples were drawn using the same relative sampling fractions within strata so the. Table 1 shows the SAMPWT values by strata.

Table 1. SAMPWT by Stratum

Strata	Population Dist'n	Sample Dist'n	SAMPWT
1	10.8%	4.1%	2.63
2	9.0%	3.4%	2.63
3	9.8%	3.7%	2.63
4	9.5%	3.6%	2.63
5	10.6%	8.1%	1.31
6	9.0%	10.2%	0.88
7	9.7%	11.1%	0.88
8	11.4%	17.4%	0.66
9	9.3%	17.8%	0.53
10	10.7%	20.5%	0.53

The second stage of weighting corrected for different probabilities of selection based on the number of adults in each household and each respondents telephone use (i.e., whether the respondent has access to a landline, to a cell phone or to both types of phone).

The second-stage weight can be expressed as:

$$\frac{1}{LL_i\left(\frac{S_{LL}}{S_{CP}} \times \frac{1}{AD_i}\right) + (CP_i \times R)}$$

LL_i	=1 if respondent has a landline phone and =0 if respondent has no landline phone
CP	=1 if respondent has a cell phone and =0 if respondent has no cell phone
S_{LL}	the size of the landline sample
S_{CP}	the size of the cell sample
R	the estimated ratio of the size of the landline sample frame to the size of the cell sample frame. For this survey R=0.55.

Both adjustments were incorporated into a first-stage weight that was used as an input weight for post-stratification. The data was raked to match sample distributions to population parameters. The African-American and White/Other samples were raked to match parameters for sex by age, sex by education, age by education and region. Hispanics were raked to match population parameters for sex by age, sex by education, age by education and region. In addition, the Hispanic group was raked to a nativity parameter.

The combined data was then raked to match population parameters for sex by age, sex by education, age by education, region, household phone use and population density. The white, non-Hispanic subgroup was also balanced by age, education and region. The telephone usage parameter was derived from an analysis of recently available National Health Interview Survey data[8]. The population density parameter is county-based and was derived from Census 2000 data. All other weighting parameters were derived from the Census Bureau's 2011 Annual Social and Economic Supplement (ASEC).

This stage of weighting, which incorporated each respondent's first-stage weight, 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*. The raking corrects for differential non-response that is related to particular demographic characteristics of the sample. This weight ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the population. Table 2 compares full sample weighted and unweighted sample demographics to population parameters.

Table 2. Sample Demographics

[8] Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December, 2011. National Center for Health Statistics. June 2012.

	Parameter	Unweighted	Weighted
Gender			
Male	48.6	44.4	48.9
Female	51.4	55.6	51.1
Age			
18-24	12.8	10.0	12.8
25-34	18.0	12.4	17.5
35-44	17.2	13.2	17.3
45-54	19.0	17.8	19.2
55-64	16.0	18.5	16.0
65+	17.0	28.1	17.3
Education (changed)			
Less than HS Graduate	13.3	9.0	11.7
HS Graduate	30.4	27.7	30.6
Some College/Assoc Degree	28.5	26.0	28.8
College Graduate	27.8	37.3	28.9
Race/Ethnicity			
White/not Hispanic	67.8	63.0	68.1
Black/not Hispanic	11.5	16.8	11.8
Hisp - US born	6.6	7.6	6.6
Hisp - born outside	7.4	6.8	7.0
Other/not Hispanic	6.7	5.7	6.5
Region			
Northeast	18.3	16.4	19.2
Midwest	21.7	19.0	22.1
South	36.8	41.5	36.1
West	23.2	23.0	22.6

(continued…)

Table 2. Sample Demographics *(…continued)*

County Pop. Density			
1 – Lowest	20.1	18.8	20.4
2	20.0	18.0	20.1
3	20.1	18.9	20.2
4	20.2	20.0	19.9
5 – Highest	19.6	24.4	19.3
Household Phone Use			
LLO	7.0	7.9	7.2

Dual - few,some cell	39.0	54.4	40.3
Dual - most cell	18.8	16.9	18.9
CPO	35.2	20.8	33.6

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 a disproportionate sample design and systematic non-response. The total sample design effect for this survey is 1.75.

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

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

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 ($\sqrt{deff}$). Thus, the formula for computing the 95% confidence interval around a percentage is:

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

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 ±2.4 percentage points. This means that in 95 out of every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 2.4 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, question wording and reporting inaccuracy may

contribute additional error of greater or lesser magnitude. Table 3 shows design effects and margins of error for key subgroups.

Table 3. Design Effects and Margins of Sampling Error

	Sample Size	Design Effect	Margin of Error
Total Sample	3,014	1.75	2.4 percentage points
White, not Hispanic	1,864	1.75	3.0 percentage points
African American, not Hispanic	497	1.62	5.6 percentage points
Hispanic	427	1.56	5.9 percentage points

RESPONSE RATE

Table 4 reports the disposition of all sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible sample that was ultimately interviewed.[9]

Table 4. Sample Disposition

Landline	Cell	
1807	1205	I=Completes
8660	10980	R=Refusal and breakoff
3941	5570	NC=Non contact
164	87	O=Other
40051	13668	OF=Business/computer/not working/child's cell phone
4225	619	UH/UO=Unknown household/Unknown other
0.27	0.57	AAPOR's e=(I+R+NC+O)/(I+R+NC+O+OF)
11.5%	**6.6%**	**AAPOR RR3=I/[I+R+NC+O+(e*UH/UO)]**

[9] The sample disposition codes and reporting are consistent with the American Association for Public Opinion Research standards.