PewResearchCenter

NUMBERS, FACTS AND TRENDS SHAPING THE WORLD

FOR RELEASE APRIL 1, 2015

U.S. Smartphone Use in 2015

Nearly two-thirds of Americans now own a smartphone. 19% of Americans rely to some extent on a smartphone for internet access, but the connections to digital resources that they offer are tenuous for many of these users.

FOR FURTHER INFORMATION ON THIS REPORT:

Aaron Smith, Senior Researcher
Dana Page, Communications Manager

202.419.4372
www.pewresearch.org

RECOMMENDED CITATION: Pew Research Center, April, 2015, "The Smartphone Difference"
Available at: http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015/

About This Report

This report examines the increasingly important role that smartphones play in helping Americans access, share, and create information and communicate with others. It places a particular focus on the sometimes-fragile financial and technical circumstances of those who rely heavily on their smartphones for internet access. The report documents the continued growth in the number of Americans with smartphones through data captured in two omnibus polls in November 2014. These findings are supplemented by a survey of the role of smartphones in users' lives that was conducted among 2,188 smartphone owners in Pew Research Center's American Trends Panel in October 2014.

To complement this core data, the report utilizes a form of survey known as "experience sampling" to gather data about how Americans use their smartphones on a day-to-day basis. Respondents were asked to complete two surveys per day for one week (using either a mobile app they had installed on their phone or by completing a web survey) and describe how they had used their phone in the hour prior to taking the survey. This produces a unique and intimate portrait of smartphone usage—the apps and features that are used most frequently, the locations where smartphone use is most prevalent, and the benefits and emotions that smartphones inspire.

Pew Research Center is a nonpartisan fact tank that informs the public about the issues, attitudes and trends shaping America and the world. It does not take policy positions. It conducts public opinion polling, demographic research, media content analysis and other empirical social science research. The center studies U.S. politics and policy views; media and journalism; internet and technology; religion and public life; Hispanic trends; global attitudes and U.S. social and demographic trends. All of the center's reports are available at www.pewresearch.org.

Pew Research Center is a subsidiary of The Pew Charitable Trusts, its primary funder. This report was made possible by The Pew Charitable Trusts, which received support for the project from the John S. and James L. Knight Foundation.

This report is a collaborative effort based on the input and analysis of the following individuals.

Aaron Smith, *Senior Researcher*
Kyley McGeeney, *Research Methodologist*
Maeve Duggan, *Research Analyst*
Lee Rainie, *Director, Internet, Science & Technology*
Scott Keeter, *Director, Survey Research*

© Pew Research Center 2015

Summary of Findings

The traditional notion of "going online" often evokes images of a desktop or laptop computer with a full complement of features, such as a large screen, mouse, keyboard, wires, and a dedicated high-speed connection. But for many Americans, the reality of the online experience is substantially different. Today nearly two-thirds of Americans own a smartphone, and 19% of Americans rely to some degree on a smartphone for accessing online services and information and for staying connected to the world around them — either because they lack broadband at home, or because they have few options for online access other than their cell phone.

Indeed, 7% of Americans own a smartphone but have *neither* traditional broadband service at home, *nor* easily available alternatives for going online other than their cell phone. This report documents the unique circumstances of this "smartphone-dependent" population, and also explores the ways in which smartphone owners use their phones to engage in a wide range of activities.

Below are some more details about these major findings on the state of smartphone ownership in America today, based on a series of surveys conducted by Pew Research Center in association with the John S. and James L. Knight Foundation:

Nearly two-thirds of Americans are now smartphone owners, and for many these devices are a key entry point to the online world

64% of American adults now own a smartphone of some kind, up from 35% in the spring of 2011. Smartphone ownership is especially high among younger Americans, as well as those with relatively high income and education levels.

Key Themes of This Report

10% of Americans own a smartphone but do not have broadband at home, and 15% own a smartphone but say that they have a limited number of options for going online other than their cell phone. Those with relatively low income and educational attainment levels, younger adults, and non-whites are especially likely to be "smartphone-dependent."

Smartphones are widely used for navigating numerous important life activities, from researching a health condition to accessing educational resources. Lower-income and "smartphone-dependent" users are especially likely to turn to their phones for navigating job and employment resources.

A majority of smartphone owners use their phone to follow along with breaking news, and to share and be informed about happenings in their local community.

Smartphones help users navigate the world around them, from turn-by-turn driving directions to assistance with public transit. This is especially true for younger users.

An "experience sampling" of smartphone owners over the course of a week illustrates how young adults have deeply embedded mobile devices into the daily contours of their lives.

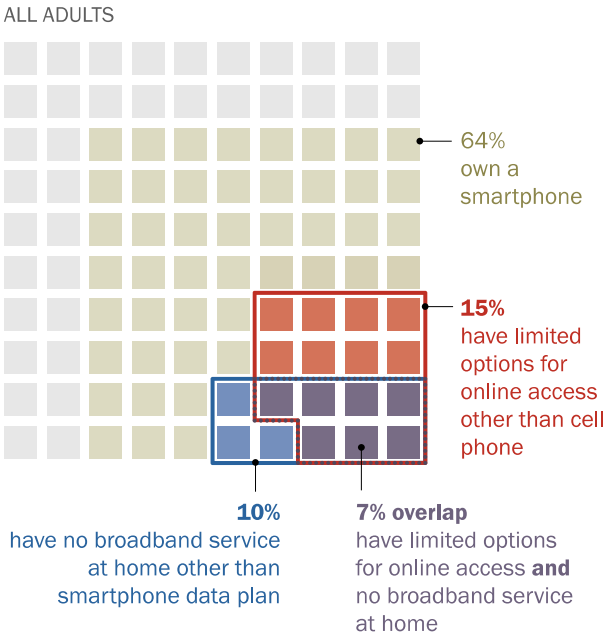
The experience sampling survey illustrates that smartphone usage often produces feelings of productivity and happiness, but that many users also feel distracted or frustrated after mobile screen encounters.

And for a number of Americans, smartphones serve as an essential connection to the broader world of online information. The survey measured reliance on smartphones for online access in two different ways — first, by asking smartphone owners whether or not they have traditional broadband service at home, and second, whether they have a reasonable number of options for accessing the internet in general from any location. It found that:

- 10% of Americans own a smartphone but *do not have any other form of high-speed internet access at home* beyond their phone's data plan.
- Using a broader measure of the access options available to them, 15% of Americans own a smartphone but say that they have a *limited number of ways to get online other than their cell phone*.

The "Smartphone-Dependent" Population: 7% of Americans Rely Heavily on a Smartphone for Online Access

% of U.S. adults who have a smartphone, but lack other broadband internet service at home, and/or have limited options for going online other than their cell phone



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

In all, one-in-five American adults (19%) indicate that at least one of those conditions apply to them, and 7% of the public says that *both* of these conditions apply — that is, they do not have broadband access at home, and also have relatively few options for getting online other than their cell phone. Throughout this report, we refer to this latter group as "smartphone-dependent" users.

Certain groups of Americans rely on smartphones for online access at elevated levels, in particular:

- **Younger adults** — 15% of Americans ages 18-29 are heavily dependent on a smartphone for online access.
- **Those with low household incomes and levels of educational attainment** — Some 13% of Americans with an annual household income of less than $30,000 per year are smartphone-dependent. Just 1% of Americans from households earning more than $75,000 per year rely on their smartphones to a similar degree for online access.

- **Non-whites** — 12% of African Americans and 13% of Latinos are smartphone-dependent, compared with 4% of whites.

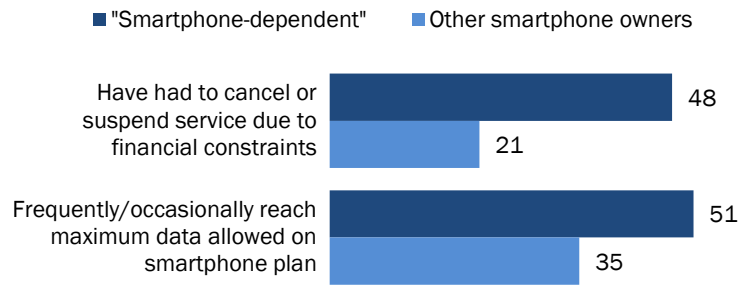
Compared with smartphone owners who are less reliant on their mobile devices, these smartphone-dependent users are less likely to own some other type of computing device, less likely to have a bank account, less likely to be covered by health insurance, and more likely to rent or to live with a friend or family member rather than own their own home.

The connections to online resources that smartphones facilitate are often most tenuous for those users who rely on those connections the most

Even as a substantial minority of Americans indicate that their phone plays a central role in their ability to access digital services and online content, for many users this access is often intermittent due to a combination of financial stresses and technical constraints.

Smartphone Ownership is Often Most Tenuous for Those Who Rely on Their Devices the Most

% of smartphone owners in each group who have experienced the following



Pew Research Center American Trends Panel survey, October 3-27 2014. "Smartphone dependent" users lack broadband service at home, and/or have limited options for internet access other than their cell phone.

PEW RESEARCH CENTER

Nearly half (48%) of smartphone-dependent Americans have had to cancel or shut off their cell phone service for a period of time because the cost of maintaining that service was a financial hardship. In addition, 30% of smartphone-dependent Americans say that they "frequently" reach the maximum amount of data that they are allowed to consume as part of their cell phone plan, and 51% say that this happens to them at least occasionally. Each of these figures is substantially higher than those reported by smartphone owners with more access options at their disposal.

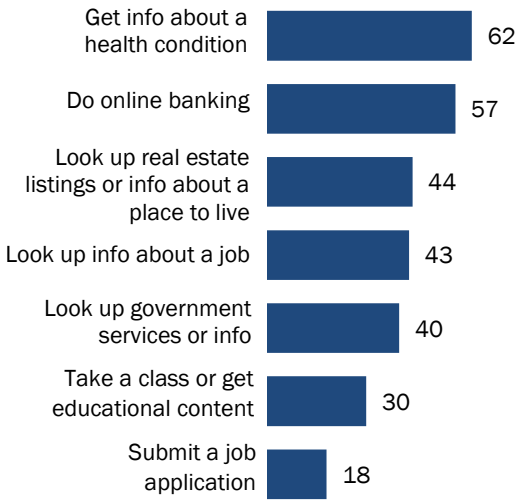
Smartphone owners of all kinds use their phone to help navigate numerous important life events; lower income and "smartphone-dependent" users are especially likely to use their phone for job and employment resources

Smartphones are used for much more than calling, texting, or basic internet browsing. Users are turning to these mobile devices as they navigate a wide range of life events:

- 62% of smartphone owners have used their phone in the past year to *look up information about a health condition*.
- 57% have used their phone to do *online banking*.
- 44% have used their phone to look up *real estate listings* or other information about a place to live.
- 43% to look up *information about a job*.
- 40% to look up *government services or information*.
- 30% to *take a class or get educational content*.
- 18% to *submit a job application*.

More than Half of Smartphone Owners Have Used Their Phone to get Health Information, do Online Banking

% of smartphone owners who have used their phone to do the following in the last year



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

Lower-income smartphone owners are especially likely to use their phone during a job search. Compared with smartphone owners from households earning $75,000 or more per year, those from households earning less than $30,000 annually are nearly twice as likely to use a smartphone to look for information about a job — and more than four times as likely to use their phone to actually submit a job application.

Similarly, "smartphone-dependent" users are much more likely to use their smartphones to access career opportunities. 63% of these smartphone-dependent users have gotten job information on their phone in the last year, and 39% have used their phone to submit a job application.

Young adults (85% of whom are smartphone owners) are also incorporating their mobile devices into a host of information seeking and transactional behaviors. About three-quarters of 18-29 year old smartphone owners have used their phone in the last year to get information about a health

condition; about seven-in-ten have used their phone to do online banking or to look up information about job; 44% have consumed educational content on their phone; and 34% have used their phone to apply for a job.

A majority of smartphone owners use their phone to follow along with breaking news, and to share and be informed about happenings in their local community; smartphones also help users navigate the world around them, from turn by turn driving directions to assistance with public transit

A substantial majority of smartphone owners use their phone to follow along with news events near and far, and to share details of local happenings with others:

- 68% of smartphone owners use their phone at least occasionally to *follow along with breaking news events*, with 33% saying that they do this "frequently."
- 67% use their phone to *share pictures, videos, or commentary about events happening in their community*, with 35% doing so frequently.
- 56% use their phone at least occasionally to *learn about community events or activities*, with 18% doing this "frequently."

Each of these behaviors is common across a diverse group of smartphone owners. Mobile news consumption is common even among older smartphone owners, who tend to use these devices for more basic activities. Four-in-ten smartphone owners ages 65 and older use their phone at least occasionally to keep up with breaking news, half use it to share information about local happenings, and one-third use it to stay abreast of events and activities in their community.

Smartphones also play an important role in helping their owners navigate their environment and get where they need to go, especially as a mobile GPS for real-time driving directions:

- 67% of smartphone owners use their phone at least occasionally for *turn-by-turn navigation while driving*, with 31% saying that they do this "frequently."
- 25% use their phone at least occasionally to get *public transit information*, with 10% doing this "frequently."
- 11% use their phone at least occasionally to *reserve a taxi or car service*. Just 4% do so frequently, and 72% of smartphone owners never use their phone for this purpose.

Each of these behaviors is especially prevalent among younger smartphone owners: for instance, 17% of smartphone owners ages 18-29 use their phone to reserve a taxi or car service at least occasionally. Additionally, African American and Latino smartphone owners look up public transit

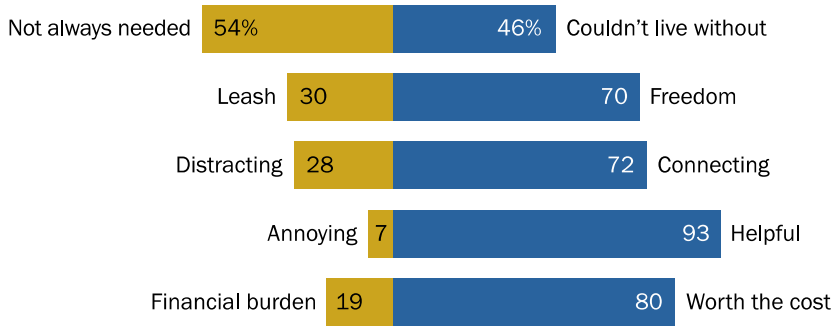
information on their phones at higher rates than whites (37% of black smartphone owners, 30% of Latinos, and 21% of whites do this at least on occasion).

Users view smartphones as freeing, connecting, helpful, and usually worth the cost — but not always essential

When asked to choose from a series of statements representing how they feel about their phone, a substantial majority of smartphone owners feel that these devices are "helpful" rather than "annoying," "connecting" rather than "distracting," and that they represent "freedom" rather than a "leash."

Despite Clear Benefits, 54% of Smartphone Owners Say Their Phone is "Not Always Needed"—but 46% Say it is Something They "Couldn't Live Without"

% of smartphone owners who say that the following items from each pair best describe how they feel about their phone



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

At the same time, smartphone owners are relatively divided on the essential necessity of mobile connectivity: 54% say that their phone is "not always needed," while 46% say that it is something they "couldn't live without." And while a substantial 80% majority of smartphone owners describe their phone as "worth the cost," 19% — and 29% of those who pay more than $200 per month for service — describe it as a "financial burden."

A special "experience sampling" survey of smartphone owners offers new insights into how Americans use their mobile devices

In addition to the surveys of smartphone owners that form the main findings of this report, the Pew Research Center also conducted an "experience sampling" survey of smartphone owners as part of this project. In the experience sampling survey, smartphone owners were contacted twice a day over a period of one week and asked how they had used their phone in the hour prior to taking the survey. This analysis offers new insights into how smartphone owners interact with their mobile devices on a day-to-day basis: the *features and apps* they use; the *locations* where that use happens; the *issues or problems* they use their phones to solve; and the *emotions* they feel as a result.

Text messaging is the most widely-used smartphone feature but voice/video calling remains popular, even among young smartphone owners; email continues to retain a place of prominence in the smartphone era

Fully 97% of smartphone owners used text messaging at least once over the course of the study period, making it the most widely-used basic feature or app; it is also the feature that is used most frequently, as the smartphone owners in this study reported having used text messaging in the past hour in an average of seven surveys (out of a maximum total of 14 across the one-week study period). Younger smartphone owners are especially avid users of text messaging, but this group has by no means abandoned voice calls—93% of smartphone owners ages 18-29 used voice or video calling on at least one occasion during the study period, and reported doing so in an average of 3.9 surveys.

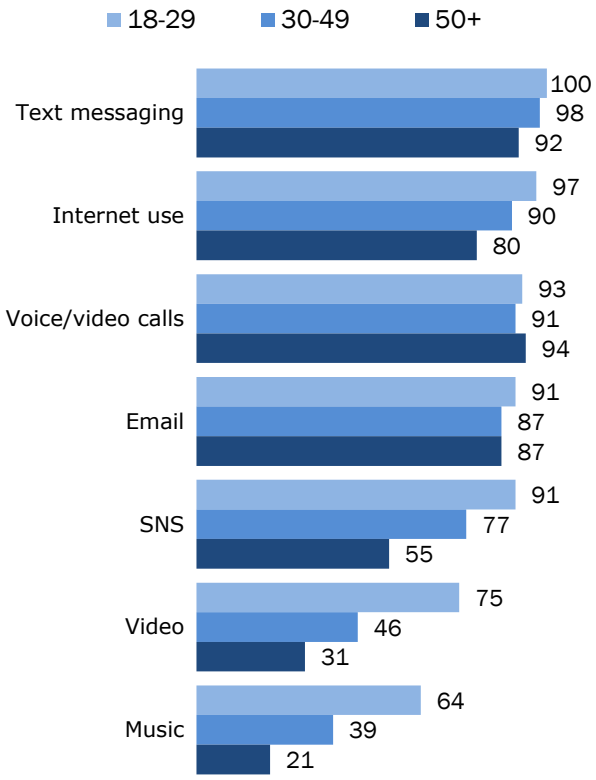
Email has long ranked as one of the most common activities that users take part in online since the desktop/laptop era, and it continues to play a prominent role in the mobile era as well. Some 88% of smartphone owners used email on their phone at least once over the course of the study period, making email a more widely-used smartphone feature than social networking, watching video, or using maps and navigation, among others.

Social networking, video consumption, and music/podcasts are especially popular with younger smartphone owners

Three smartphone features in particular — social networking, watching video, and listening

Some Features are Popular With a Broad Spectrum of Smartphone Owners; Social Networking, Watching Video, and Music/Podcasts are Especially Popular Among Young Users

% of smartphone owners in each age group who used the following features on their phone at least once over the course of 14 surveys spanning a one-week period



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

to music or podcasts — are especially popular with younger users. Fully 91% of smartphone owners ages 18-29 used social networking on their phone at least once over the course of the study period, compared with 55% of those 50 and older (a 36-point difference). These young smartphone owners reported using social networking in an average of 5.6 surveys, tied with internet use as the second-most frequent smartphone behavior among young adults after text messaging.

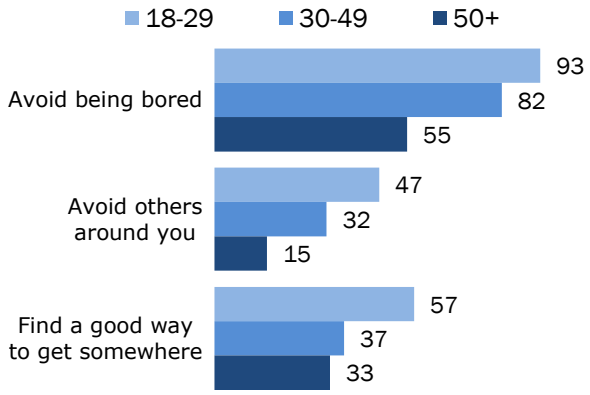
Features such as watching video and listening to music or podcasts are even more the domain of young smartphone owners. Three-quarters of younger smartphone owners (75%) indicated using their phone to watch videos at least once over the study period, compared with 31% of those 50 and older (a difference of 44 percentage points). And 64% of younger adults used their phones at one time or another to listen to music or podcasts — a 43-point difference compared with the 21% of older users who did so.

Young users are particularly likely to use a smartphone to avoid boredom — and ignore other people

Younger users stand out especially prominently when it comes to using their phone for two purposes in particular: avoiding boredom, and avoiding people around them. Fully 93% of 18-29 year old smartphone owners in the experience sampling study used their phone at least once to avoid being bored, with respondents in this age group reporting that they did so in average of 5.4 surveys over the one-week study period. Similarly, 47% of young smartphone owners used their phone to avoid interacting with the people around them at least once during the study period, roughly three times the proportion of older smartphone owners who did so.

Younger Users More Likely to Use Their Phone for Preventing Boredom, Avoiding Others, Getting Somewhere

% of smartphone owners in each age group who used their phone for the following reasons at least once over the course of 14 surveys spanning a one-week period



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

Smartphones frequently inspire their owners to feel "productive" and "happy" — but can also lead to distraction and frustration

When it comes to the emotions that people experience as a result of having a smartphone, "productive" and "happy" lead the way—79% and 77% of smartphone owners, respectively, indicated that their phone made them feel this way at least once over the course of the study period. But smartphones do not always inspire positive feelings, as 57% of smartphone owners reported feeling "distracted" thanks to their phone, and 36% reported that their phone made them feel "frustrated."

Younger smartphone owners tend to experience a wider range of these emotions compared with older users—they are more likely to report feeling positive emotions like "happy" or "grateful," but also more likely to report negative emotions like "distracted" and "angry."

More details about the data sources used in this report

This report is based on data from three different sources, each of which is discussed in more detail below.

Basic findings on smartphone ownership and demographics within the U.S. adult population (the first section of Chapter One) are based on telephone surveys conducted December 4-7 and 18-21, 2014 among 2,002 adults. These figures for overall smartphone ownership/usage were collected via telephone survey to make them consistent with past Pew Research Center measurements of smartphone adoption. The margin of error for the total sample of 2,002 adults is plus or minus 2.5 percentage points. For more details about this survey, see Appendix A.

Findings about how smartphone owners use their phones (the remainder of Chapter One, and Chapter Two) are drawn from the October wave of the American Trends Panel, conducted October 3-27, 2014 among 3,181 respondents (2,875 by Web and 306 by mail), including 2,188 smartphone owners. The margin of sampling error for the total sample of 2,188 smartphone owners is plus or minus 2.7 percentage points. For more details about this survey, see Appendix B.

Data about how smartphone owners use their phones over the course of one week (Chapter 3) is taken from the American Trends Panel "experience sampling" survey, conducted November 10-16, 2014 among 1,635 respondents. Respondents were asked to complete two surveys per day for seven days (14 in total), using either an app they had installed on their phone (n=697) or by completing a web survey (n=938). All findings in this report are based on respondents who completed 10 or more surveys over the course of the week-long study period (n=1,035). The

margin of sampling error for smartphone owners who completed 10 or more surveys is plus or minus 4.0 percentage points. For more details about this survey, see Appendix C.

Introduction

When the Pew Research Center began studying the social impact of the internet in 2000, the act of going online was typically a stationary activity. Users would sit down at a computer, log in to the internet (often using a dial-up connection), look up whatever information or services they were interested in, and then continue with their lives.

Today, people increasingly are accessing online services and information throughout the day, whenever and wherever they happen to be — and smartphones are often the primary vehicle for this "on the go" access. Previous Pew Research surveys have examined a number of different aspects of mobile phone ownership, from the activities that users engage in with their phones to their attitudes about the benefits and limitations of their devices. Other surveys have found that around one in ten Americans own a smartphone but lack traditional home broadband service, and that roughly one in five cell phone owners conduct most of their online browsing using their cell phone, rather than a computer or similar device.

This report builds on this existing body of research by conducting a deep examination of the state of smartphone ownership in America today.

Chapter One discusses the demographics of smartphone ownership, how much users pay for service, the problems they encounter in using their devices, and their attitudes towards their phones. This chapter also focuses on the extent to which many users depend on their smartphones for online access, and the sometimes-tenuous nature of these mobile connections.

Chapter Two looks more deeply at the ways in which smartphone owners use their phones to access services and information, with a particular focus on news, community information, and smartphones as a vehicle for navigating important life events (such as finding a new job or getting information about a health condition).

Chapter Three is based on a time-use survey in which smartphone owners were tracked over the course of one week and surveyed about how, where, and to what effect they were using their phones. This analysis allows for a more fine-grained look at how smartphone owners use their devices on a day-to-day basis, with a specific focus on differences between different age groups.

Chapter One — A Portrait of Smartphone Ownership

As smartphones have grown increasingly common in recent years, these devices have taken on a central role in the information lives of a substantial number of Americans. And yet, those Americans who rely most heavily on their smartphones as a gateway to online services and information are often the ones whose connections to their devices are most tenuous. This chapter of the report examines the general state of smartphone ownership in America today, with a focus on how these devices fit into the digital access options available to their owners.

64% of Americans now own a smartphone, up from 58% in early 2014

Nearly two-thirds of American adults (64%) now own a smartphone of some kind, up from 58% in early 2014. Smartphone ownership has increased by 29 percentage points since Pew Research conducted its first survey of smartphone ownership in the spring of 2011, when 35% of Americans were smartphone owners.

As in past surveys, smartphone ownership is highest among younger Americans, as well as those with relatively high income and education levels. Some 85% of Americans ages 18-29 are smartphone owners, as are 78% of college graduates and 84% of those living in households with an annual income of $75,000 or more per year.

Ownership levels remain particularly low among seniors, as just 27% of Americans 65 and older now own a smartphone. However, this does represent an 8-point increase in ownership among seniors compared with early 2014.

The cost of smartphone ownership

The ongoing monthly cost of smartphone ownership depends heavily on the type of plan one has. Some 29% of smartphone owners are on an **individual plan** (which includes pre-paid plans), and most of these users spend less than $100 per month on their cell phone bill: 34% of individual plan holders say that

Smartphone Ownership Highest Among Young Adults, Those With High Income/Education Levels

% of U.S. adults in each group who own a smartphone

All adults	64%
Male	66
Female	63
18-29	85
30-49	79
50-64	54
65+	27
White, non-Hispanic	61
Black, non-Hispanic	70
Hispanic	71
HS grad or less	52
Some college	69
College+	78
Less than $30,000/yr	50
$30,000-$49,999	71
$50,000-$74,999	72
$75,000 or more	84
Urban	68
Suburban	66
Rural	52

Combined analysis of Pew Research Center surveys conducted December 4-7 and 18-21, 2014.

PEW RESEARCH CENTER

their monthly bill is less than $50, and 43% say that their bill is between $50 and $100. Just 2% of smartphone owners on individual plans pay $150 or more per month for service.

An additional 68% of smartphone owners belong to some sort of **group or family plan**, and these services tend to be more expensive on a monthly basis compared with individual plans. Among group or family plan holders who are wholly responsible for the cost of their monthly bill, 57% pay between $100 and $200 per month, and one-in-five (21%) pay $200 or more to maintain their smartphone service.[1]

How Much Smartphone Owners Pay for Service

% of smartphone owners who pay the following each month for their cell phone service

	Individual Plan	Group Plan*
<$50	34%	2%
$50-<$100	43	13
$100-<$150	14	31
$150-<$200	2	26
$200 or more	<1	21

Pew Research Center American Trends Panel survey, October 3-27 2014. *Group plan category includes only respondents who personally pay their entire monthly service cost themselves

PEW RESEARCH CENTER

23% of smartphone owners have had to cancel or suspend their service in the past due to financial constraints

For many smartphone owners, the ongoing cost of ownership can be a financial hardship: 23% have had to cancel or shut off their cell phone service for a period of time because it was too expensive to maintain. These financial challenges are especially common among lower-income smartphone owners, as fully 44% of smartphone owners with an annual household income of less than $30,000 have had to let their service lapse at some point or another.

Along with lower-income users, African Americans and Latinos are around twice as likely as whites to have canceled or cut off their smartphone service, and younger smartphone owners are substantially more likely to have done so compared with older adults.

Lower-income smartphone owners tend to subscribe to relatively low-cost plans covering only themselves as individuals rather than higher-cost group or family plans. Accordingly, individual plan subscribers are around twice as likely to have canceled or cut back service as those on group or family plans (34% of individual plan members and 18% of family plan members have done so), and those with relatively low-cost plans are actually *more* likely to have canceled or suspended service than those with more expensive plans.

[1] Calculating the true "cost" of a group or family plan is complicated by the fact that survey respondents may not be wholly or even partially responsible for the cost of their service. Some 57% of group or family plan members indicate that they pay for their entire smartphone bill themselves; however, 24% are responsible for only a portion of their total monthly bill, while 19% say that the entirety of their monthly bill is paid for by someone else. For the sake of simplicity, the cost figures discussed in this paragraph and the chart that follows refer only to those family plan members who are personally responsible for the full cost of their monthly cell phone service.

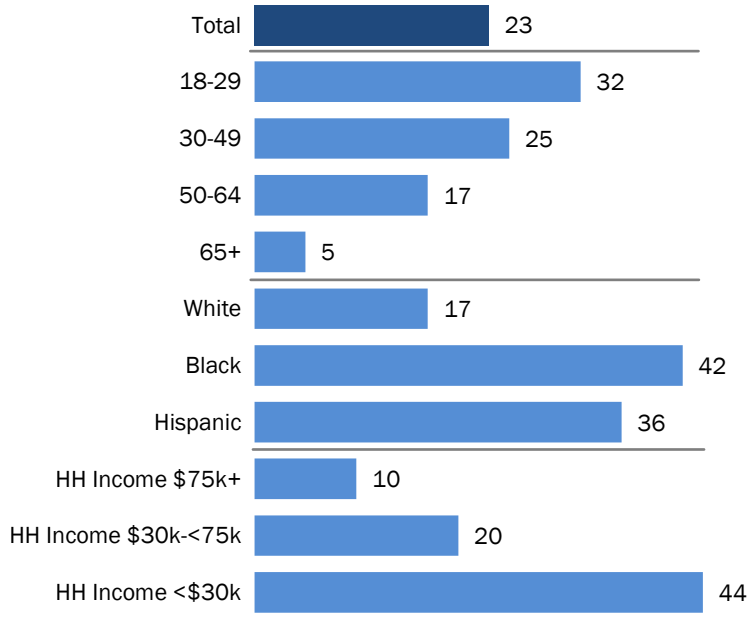
Smartphone owners encounter a range of problems with their devices, from functional to financial

Smartphone owners encounter a range of issues and challenges when trying to use their phones, some of which relate to the physical function of the phone itself. This survey asked smartphone owners about three such issues and found that:

- 49% of smartphone owners experience *content that they are trying to access not displaying properly* on their phone at least on occasion, with 10% saying that this happens to them "frequently."
- 47% experience *poor or dropped signal quality* that prevents them from using their phone, with 11% saying that this happens to them "frequently."
- 46% experience *apps that they have downloaded not working correctly*, with 9% experiencing this "frequently."

Lower-income and Minority Smartphone Owners are Especially Likely to Have Canceled or Cut Off Service

% of smartphone owners who have canceled or cut off service for a period of time because maintaining their service was a financial burden



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

Each of these issues impacts a fairly wide spectrum of smartphone owners, although certain groups do report problems with apps not working correctly at somewhat elevated rates. These include African Americans (55% of whom experience at least occasional problems with their smartphone's apps), those with relatively low household incomes (52% of those earning less than $30,000 per year experience this), and those younger than 50 (half of smartphone owners ages 18-49 have at least occasional problems with apps, compared with 39% of those 50 and older).

Along with these questions about functional problems smartphone owners might face, the survey also asked about three potential challenges relating to the financial cost or contractual constraints of smartphone ownership and found that:

- 37% of smartphone owners *reach the maximum amount of data that they are allowed to use as part of their plan* at least on occasion. Fully 15% of smartphone owners say that this happens to them "frequently."
- 27% at least occasionally encounter a *monthly bill that is substantially higher than they expected it to be*, with 7% saying that this happens to them "frequently."
- 9% experience *unexpected charges from in-app purchases* at least occasionally. Just 2% of smartphone owners say that this happens "frequently," and 60% indicate that this never happens to them.

Many Smartphone Owners Experience Higher Than Expected Bills, Reaching of Data Caps

% of smartphone owners who experience the following "frequently" or "occasionally"

	Reach max amount of data allowed	Monthly bill much higher than expected
All smartphone owners	37%	27%
18-29	48	32
30-49	38	27
50-64	25	22
65+	19	21
White, non-Hispanic	31	22
Black, non-Hispanic	43	36
Hispanic	49	34
HS grad or less	43	30
Some college	35	28
College+	32	22
Less than $30,000/yr	43	28
$30,000-$74,999	35	28
$75,000 or more	32	24

Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

These financial and contractual limitations more consistently impact non-whites, younger users, and those with relatively low household incomes. Roughly one-third of African American and Latino smartphone owners experience much higher-than-expected monthly bills at least on occasion, and about one-in-ten indicate that surprisingly high bills happen to them "frequently." Similarly, 43% of black smartphone owners, 49% of Latinos, and 48% of those ages 18-29 say that they reach the maximum amount of data they are allowed to use on their plan at least occasionally, with around one-in-five from each group indicating that this happens to them frequently.

The "smartphone-dependent" population: 7% of Americans own a smartphone, but indicate a shortage of other online access options — either at home or elsewhere

Many smartphone owners have ample options at their disposal when they need to go online: 85% have a high-speed broadband connection at home, 87% own a desktop or laptop computer, and

53% own a tablet computer in addition to their smartphone. At the same time, smartphones serve as a crucial connection point to the broader world of online information for many Americans.

The survey measured this reliance on smartphones for online access in two different ways — first, by asking smartphone owners whether or not they have traditional broadband service at home, and second, whether they have a reasonable number of options for accessing the internet in general — and found that:

- 10% of Americans own a smartphone but *do not have any other form of high-speed internet access at home* beyond their phone's data plan.
- Using a broader measure of the access options available to them, 15% of Americans own a smartphone but say that they have a *limited number of options for going online other than their cell phone*.[2]

In all, 19% of Americans fall into one or the other of these categories, and 7% of the public indicates that both conditions apply to them — that is, they own a smartphone but lack any other type of high-speed access at home, *and* have limited options for going online other than their cell phone. Throughout this report, we will refer to this 7% of Americans as "smartphone-dependent" users.

Demographically, several groups of Americans rely especially heavily on smartphones for online access. These include:

- **Those with low household incomes and low levels of educational attainment** — Some 13% of Americans with an annual household income of less than $30,000 per year are smartphone-dependent, and 9% of those with a high school diploma or less fall into this category as well. By comparison, just 1% of Americans from households with an annual income of $75,000 or more depend on their smartphone for internet access to a similar degree.
- **Younger adults** — Fully 15% of Americans ages 18-29 are heavily dependent on a smartphone for online access (20% of have a smartphone but not traditional broadband service, and 25% have a smartphone but have relatively limited options for going online otherwise).
- **Non-whites** — 12% of African Americans and 13% of Latinos are smartphone-dependent, compared with just 4% of whites.

[2] These two questions were asked only of smartphone owners: 15% of smartphone owners indicate that they do not have broadband service at home, and 21% indicate that they have limited options for online access other than their smartphone. The October 2014 wave of the American Trends Panel found that 68% of Americans are smartphone owners, and that 68% ownership figure was used to derive the "general population" results cited in this section of the report.

In addition to their demographic differences, these smartphone-dependent users also differ substantially from the rest of the smartphone adopter population in terms of the technology devices they own and financial assets they possess. Compared with other smartphone owners, they are less likely to own a traditional computer (50% do so, compared with 91% of other smartphone owners) or tablet (27% vs. 56%); less likely to have a bank account (63% vs. 91%); and less likely to be covered by health insurance (71% vs. 87%). They are also less likely to own their current residence, and more likely to rent or to live with a friend or family member.

Young Adults, Non-Whites, Lower Income Americans are Especially Dependent on Smartphones for Online Access

% of American adults in each group who have a smartphone but lack broadband at home, or have limited options for online access other than their cell phone

	% who have a smartphone and…		
	Do not have broadband at home	Have few access options other than cell phone	Total "Smartphone-Dependent"*
All adults	**10%**	**15%**	**7%**
Male	10	12	5
Female	11	18	8
18-29	20	25	15
30-49	11	16	6
50-64	6	11	4
65+	4	7	2
White, non-Hispanic	7	12	4
Black, non-Hispanic	21	19	12
Hispanic	17	23	13
HS grad or less	15	19	9
Some college	10	16	7
College+	4	7	2
Less than $30,000/yr	19	24	13
$30,000-$74,999	8	14	5
$75,000 or more	3	5	1
Urban	12	17	8
Suburban	9	14	6
Rural	11	14	7

Pew Research Center American Trends Panel survey, October 3-27 2014. *"Smartphone dependent" users are those who own a smartphone but have no broadband at home, and have limited access options beyond their cell phone.

PEW RESEARCH CENTER

Perhaps unsurprisingly given their demographic profile, many of these smartphone-dependent users gravitate towards relatively low-cost plans: among those who pay for at least some portion of their plan, 27% say that their monthly bill is less than $50. But at the same time, many devote fairly substantial resources towards maintaining their cell phone service: 29% spend between $100 and $200 per month, and 5% say that their monthly bill is $200 or more.

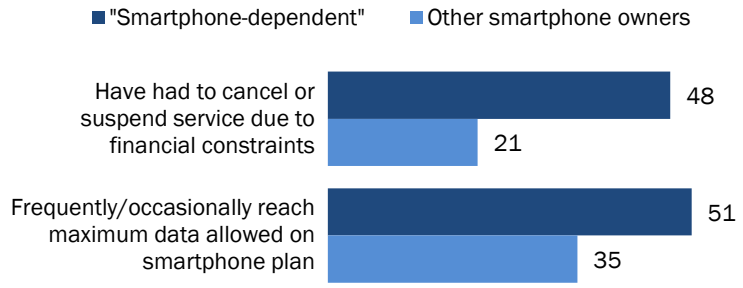
Smartphone ownership is often most financially tenuous for the subset of users who depend on their mobile devices most heavily

Even as a sizeable number of Americans indicate that their phone plays a central role in their ability to access digital services and online content, for many of these users this access is tenuous thanks to a combination of financial constraints and technical limitations.

In terms of financial constraints, fully 48% of smartphone-dependent Americans have had to cancel or shut off their cell phone service for a period of time because the cost of maintaining that service was a financial hardship. That is double the rate among those who have broadband at home and/or ample alternate access options (just 17% of these smartphone owners have had to cancel or suspend their service).

Smartphone Ownership is Often Most Tenuous for Those Who Rely on Their Devices the Most

% of smartphone owners in each group who have experienced the following



Pew Research Center American Trends Panel survey, October 3-27 2014. "Smartphone dependent" users lack broadband service at home, and/or have limited options for internet access other than their cell phone.

PEW RESEARCH CENTER

In addition, 30% of smartphone-dependent Americans "frequently" reach the maximum amount of data that they are allowed to consume as part of their cell phone plan, and 51% say that this happens to them at least occasionally. Each of these figures is significantly higher than those reported by other smartphone owners.

Chapter Two — Usage and Attitudes Toward Smartphones

Smartphones often serve as a go-to source for staying informed about breaking news and community happenings, getting from place to place, conducting transactions, and navigating life events such as finding a new job or getting information about a health condition. This chapter of the report looks in more detail at the specific activities that smartphone owners engage in, and the types of information that they seek out on their mobile devices.

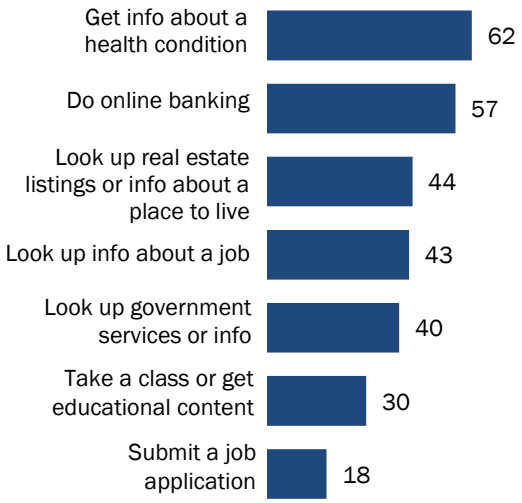
Smartphone owners use their phones to access a wide range of services and information

One key objective of this study was to determine the extent to which smartphone owners turn to their phones to access services or information pertaining to important life events, such as applying for a job, addressing a health issue, or finding a new place to live. The survey asked whether or not they had accessed several different types of information or services within the past year using their cell phone, and found that:

- 62% of smartphone owners have used their phone in the last year to *look up information about a health condition*.
- 57% have used their phone to do *online banking*.
- 44% have used their phone to look up *real estate listings* or other information about a place to live.
- 43% to look up *information about a job*.
- 40% to look up *government services or information*.
- 30% to *take a class or get educational content*.
- 18% to *submit a job application*.

More Than Half of Smartphone Owners Have Used Their Phone to Get Health Information or Do Online Banking

% of smartphone owners who have used their phone to do the following in the last year



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

Lower income and smartphone-dependent users rely especially heavily on their smartphones for job and employment resources

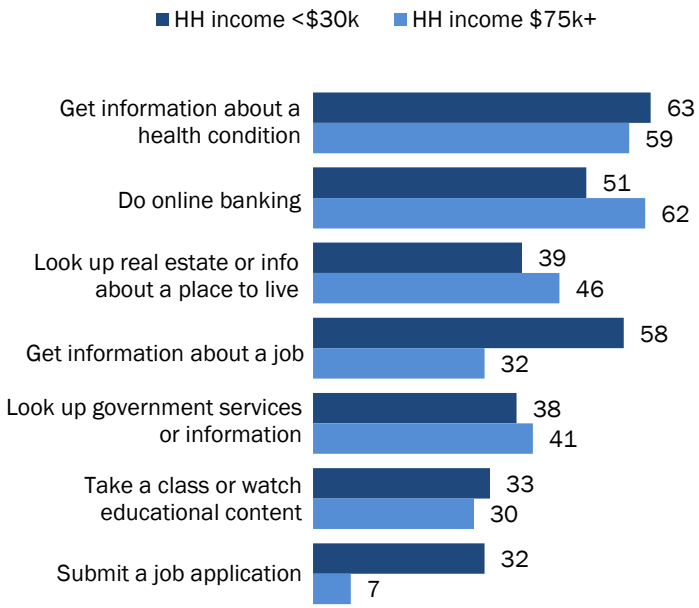
Lower-income and higher-income smartphone owners obtain certain types of information (health, education, or government content, for example) on their phone at similar rates, and higher-income users are a bit more likely to use their phone for real estate searches or to engage in online banking. However, lower-income users are substantially more likely to utilize their phone when seeking out and applying for jobs.

Compared with smartphone owners from households earning $75,000 or more per year, smartphone owners from households earning less than $30,000 annually are nearly twice as likely to use their phone to look for information about a job—and more than four times as likely to use their phone to actually submit a job application. Just 7% of smartphone owners from higher-income households have applied for a job using their phone in the last year, but 32% of smartphone owners from lower-income households have done so.

Similarly, "smartphone-dependent" users (that is, the 9% of smartphone owners who lack another form of high-speed access, and also have limited internet access options besides their smartphone) are much more likely than other smartphone owners to utilize their phone as part of a job search. Some 63% of these smartphone-dependent users have gotten job information on their phone in the last year, and 39% have used their phone to submit a job application.

Lower-income Smartphone Owners Much More Likely to Use Their Phone for Job Seeking

% of smartphone owners in each income category who have used their phone in the last year to…



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

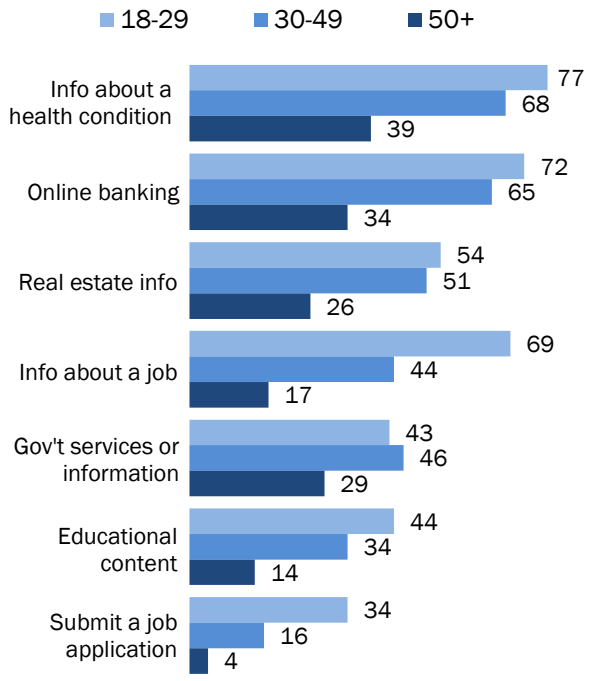
Younger adults use their smartphones to access a wide range of services and content

Where lower-income and smartphone-dependent users stand out primarily when it comes to using their phone for job resources and information, young adults incorporate mobile devices into a host of information seeking and transactional behaviors at a higher level than older users.

Three-quarters of 18-29 year old smartphone owners have used their phone in the last year to get information about a health condition; seven-in-ten have used their phone to do online banking or to look up information about job; 44% have consumed educational content on their phone; and 34% have used their phone to apply for a job. In each instance, these young adults are significantly more likely than smartphone owners in other age groups to use their phone for these reasons.

Young Adults Rely Heavily on Their Smartphones for Job Seeking, Educational Content, and Health Information

% of smartphone owners in each age group who have used their phone in the last year to do the following



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

Nearly one-in-three smartphone owners frequently use their phone for navigation or turn-by-turn driving directions; one-in-ten use it frequently for public transit information

Smartphones play an important role in helping their owners navigate their environment and get where they need to go, especially as a mobile GPS for real-time driving directions:

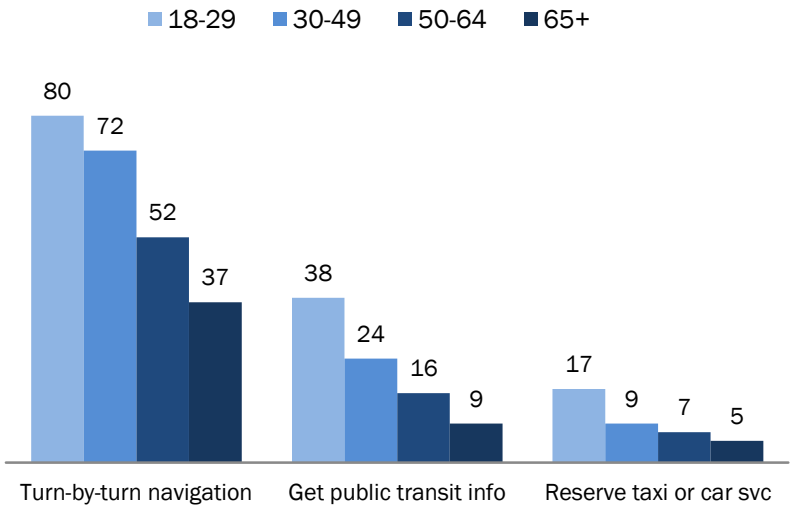
- 67% of smartphone owners use their phone at least occasionally for *turn-by-turn navigation while driving*, with 31% saying that they do this "frequently."
- 25% use their phone at least occasionally to get *public transit information*, with 10% doing this "frequently."
- 11% use their phone at least occasionally to *reserve a taxi or car service*. Just 4% do so frequently, and 72% of smartphone owners never use their phone for this purpose.

Each of these behaviors is especially prevalent among younger smartphone owners. Fully 80% of smartphone owners ages 18-29 use their phone at least occasionally for turn-by-turn driving directions; 38% do so to get public transit information; and 17% do so to reserve a taxi or car service. Each of these is substantially higher than among smartphone owners in other age groups, although turn-by-turn driving assistance is relatively common across a range of ages.

Whites, blacks, and Latinos are equally likely to use their smartphones for turn-by-turn driving directions and to reserve a taxi or car service, but African American and Latino smartphone owners look up public transit information on their phone at much higher rates than whites do (37% of black smartphone owners, 30% of Latinos, and 21% of whites do this at least on occasion).

Young Adults are Especially Likely to Use Their Phone for Navigation – Either by Car, Public Transit, or Taxi

% of smartphone owners in each age group who use their phone frequently/occasionally for…



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

Residents of the transit-dense Northeast are also especially likely to access public transit information on a smartphone. Fully 41% of smartphone owners who live in the Northeast get public transit information on their phone at least occasionally, with 19% doing so "frequently." By contrast, just 23% of westerners—and 20% of Midwesterners and southerners—use their phone for this purpose at least occasionally, and roughly six-in-ten Midwesterners and Southerners say that they "never" use their phone to navigate public transit.

A majority of smartphone owners use their phone to follow along with breaking news, and to share and be informed about happenings in their local community

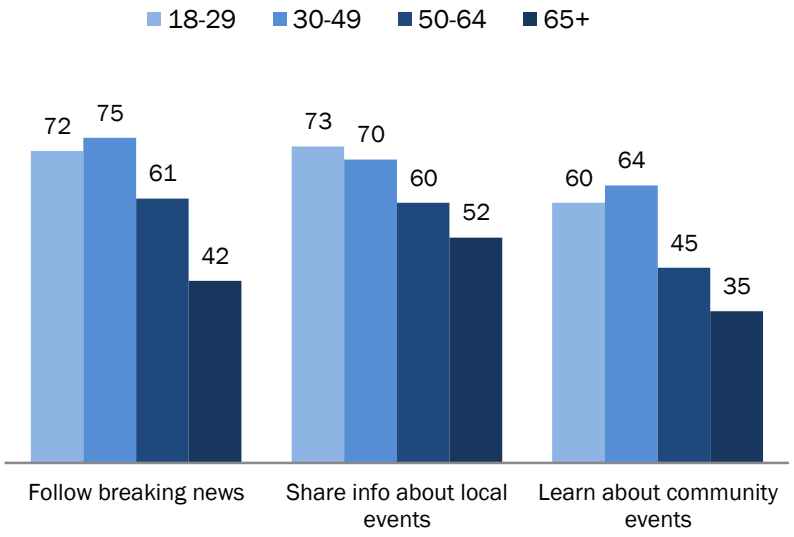
A substantial majority of smartphone owners use their phone to follow along with news events near and far, and to share details of local happenings with others:

- 68% of smartphone owners use their phone at least occasionally to *follow along with breaking news events*, with 33% saying that they do this "frequently."
- 67% use their phone to *share pictures, videos, or commentary about events happening in their community*, with 35% doing so frequently.
- 56% use their phone at least occasionally to *learn about community events or activities*, with 18% doing this "frequently."

Using smartphones to keep up with breaking news, and to share or learn about local happenings, are each common across a relatively wide range of demographic groups. Smartphone owners age 65 and older are among the groups that are least likely to engage in these behaviors; even so, four in ten older smartphone owners use their phone at least occasionally to keep up with breaking news, while half use them to share information about local happenings, and one third use them to stay abreast of events and activities in their community.

Using One's Phone for News and Community Info is Popular Across a Range of Ages

% of smartphone owners in each age group who use their phone frequently/occasionally to…



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

In addition, some 8% of smartphone owners use their phone at least occasionally to *make a monetary donation to a charitable or political cause*. Just 2% do so frequently, and 77% of smartphone owners say that they never use their phone for this purpose. Overall there are very few demographic differences when it comes to using one's smartphone to make a political or charitable contribution.

17% of smartphone owners have used their phone to report a problem in their neighborhood

Along with using their phone to share and keep up with neighborhood happenings, 17% of smartphone owners have used their phone to *report a problem in their neighborhood* (such as a pothole or missing street sign) to the local authorities.

Those with some college education or a college degree are more likely to have done this with their phone than those who have not attended college (20% vs. 12%), and usage of smartphones for this purpose is more common among 50-64 year olds (22% have done so) than among those ages 18-29 (14%) or 65 and older (13%).

Half of smartphone owners have used their phone to get help in an emergency situation

Fully 53% of smartphone owners indicate that they have been in an emergency situation where having their phone available helped resolve the situation.[3] Smartphone owners in various demographic groups have encountered this situation at relatively high rates, although younger owners are especially likely to have used their phone in an emergency (59% of 18-29 year old smartphone owners have experienced this).

How Smartphones Help in Emergencies

53% of smartphone owners have used their phone to get help in an emergency situation; here are some recent situations they describe

Car accident / flat tire / roadside assistance	50%
Report a possible crime	14
Medical emergency / call doctor	8
911 / emergency call (general)	5
Lost / stranded / need directions	3
Fire, gas leak, water leak	3
Locked out of house	2

Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

When asked to describe a recent emergency in which having a smartphone proved helpful, scenarios involving cars or driving were by far the most commonly-mentioned situation: 50% of those who have used their phone to resolve an emergency said that their recent experience involved a car accident, flat tire, roadside assistance, or other automotive emergency. These are a few representative quotes from their responses:

- "A car accident happened right in front of me and both drivers involved in the accident did not have their cell phones with them."
- "Car broke down on freeway. Used my cell to call AAA and to obtain rental car, where they picked me up right there on the freeway. I also called a garage to arrange repairs to my vehicle."

[3] A 2011 survey found that 43% of smartphone owners had used their phone for help in an emergency situation in the preceding 30 days. See http://www.pewinternet.org/2011/08/15/focus-on-smartphone-owners/ for more information

- "Got a flat tire in the middle of the interstate, called AAA and looked up nearest store to replace the tire."
- "I had a flat tire on the freeway at night, without my cell phone I would have been terrified."

An additional 14% of those who have been helped by their smartphone in an emergency said that they witnessed or experienced a potential crime and used their phone to get help or notify the authorities, while 8% described a recent experience in which their phone was helpful in a medical emergency.

44% of smartphone owners have had a problem doing something they needed to do because they didn't have their phone with them

Reliance on smartphones can also have an unintended downside, as 44% of smartphone owners have experienced a situation in which they had a hard time accomplishing some sort of task because they did not happen to have their cell phone with them.[4] When asked to describe a recent time that this happened to them, the largest group (representing 25% of those who have experienced the situation) mentioned having trouble getting somewhere because they didn't have their phone to look up an address or get directions.

Here are some quotes from people in this situation:

- "I was going somewhere for the first time and needed a GPS system, but I had left my phone at home."
- "Finding the location of a business when staying in a new town."
- "I left my cell behind and ran into a detour in an unfamiliar area while low on gas. I had to find my way without a map or my phone for the first time in many years."
- "I was trying to use the Chicago public transit system to travel from a restaurant back to a friend's apartment. I would usually use my cell phone to get directions."

What People Have Trouble Doing Without Their Smartphones

44% of smartphone owners have had trouble doing something because their phone wasn't with them; here are some recent situations they describe

Getting directions or finding an address	25%
Trying to meet someone / let someone know you're running late	13
Call someone or get in touch with others (general)	10
Look up online info or complete online transaction	9
Access email, calendar, or address book	9
Get help in an emergency	8
Shopping (forgot list, needed advice, etc)	6
Online banking	2
Work-related tasks	2

Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

[4] A 2011 survey found that 34% of smartphone owners had trouble doing something without their phone in the preceding 30 days. See http://www.pewinternet.org/2011/08/15/focus-on-smartphone-owners/ for more information

- "I'm a chauffeur for a limousine business in a suburban county. If I don't have my cell phone with me I cannot find a lot of the places that I need to go because I use it for my navigation."
- "Left to pick up take out, knew general location of restaurant but assumed I could use phone to find exact spot when close. Drove around for a long time before finding it."

Another 13% mentioned how they have had trouble coordinating with other people because they didn't have their cell phone handy:

- "I couldn't let someone know I would be late for an appointment."
- "I did not know where my son was and had no way to be in touch with him to see if he was OK."
- "Needing to find my child in a crowded store."
- "Did not know when or where to meet my ride, because I was accustomed to having them call me when it was time to pick me up."
- "I couldn't tell my boss I was running late due to traffic."

One in ten (9%) described being unable to look up a specific piece of online information, and 9% mentioned a situation in which they needed to access their calendar, address book, or email but didn't have their phone available:

- "Couldn't find the answer to a group question."
- "Needed to look up a medical condition on Google but phone was not available."
- "I couldn't enter a concert because my ticket could only be scanned by the barcode from a phone."
- "Couldn't look up severe weather conditions/forecast when in wilderness."
- "I rely on my phone for keeping track of the time of my appointments."
- "I was unable to see my calendar and couldn't tell if I already had an appointment for that time when trying to make another."
- "Trying to check and return a work email on the road."
- "My phone truly is an extension of me and assists me in performing various tasks."

Shopping-related issues are also relatively common, as 6% described having trouble shopping without their phone — either because their shopping list was on the phone itself, because they needed to call someone for assistance, or because they wanted to look up additional information on a product while they were in the store:

- "I wasn't able to make an informed decision on purchasing an item because I couldn't compare prices."

- "I forgot my phone at home and when I got to the store I couldn't remember everything I was supposed to be getting, so it took two trips to get what I needed."
- "Grocery shopping—did not have access to my grocery list and left my cell phone on the table as I left the house. UGH!!!"
- "I was at the store and wanted to check if my spouse needed anything, but had forgotten my phone so could not contact him."

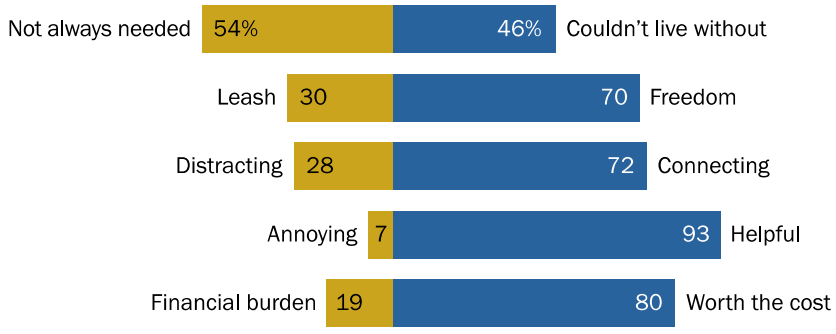
How smartphone owners view their phones: freeing, connecting, helpful, and generally worth the cost — but not always essential

When asked how they feel about their phones, smartphone owners paint a generally positive picture — connecting rather than distracting, helpful rather than frustrating, and ultimately worth the cost of ownership. But despite these benefits, users are fairly evenly divided on whether or not their phone is an essential component of their lives that they could not possibly live without.

The survey presented smartphone owners with a series of phrases that might describe their phone, and asked them to choose the one that most closely matches how they themselves feel. The choices presented to them, and their responses to those choices, are discussed in more detail below.

Despite Clear Benefits, 54% of Smartphone Owners Say Their Phone is "Not Always Needed"—but 46% Say it is Something They "Couldn't Live Without"

% of smartphone owners who say that the following items from each pair best describe how they feel about their phone



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

"Not always needed" vs. "Couldn't live without" — Smartphone owners are nearly evenly divided on this question; 54% say that their phone is "not always needed," while 46% say that it is something they "couldn't live without." Women and African Americans have higher than average levels of attachment: half of female smartphone owners (52%) say that their phone is something that they couldn't live without (compared with 39% of men), as do 57% of African American smartphone owners (compared with 46% of whites).

Interestingly, responses to this question are not correlated with whether or not someone has plentiful access options beyond their cell phone. Some 49% of smartphone-dependent Americans say that their phone is "something they couldn't live without," nearly identical to the 46% of users with more plentiful access options who say the same. Indeed, there are a notable lack of differences between smartphone-dependent users and other smartphone owners across all of these choice pairs.

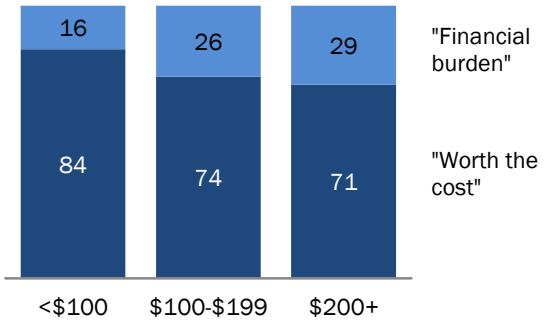
"Freedom" vs. "Leash" — A substantial majority of smartphone owners (70%) feel that their phone represents "freedom," while 30% feel that it represents a "leash." Older adults are actually *more* likely than younger users to find their smartphones freeing: 78% of smartphone owners over the age of 50 say that their phone represents "freedom," compared with 66% of those ages 18-49. Similarly, 34% of 18-49 year olds say that their phone represents a "leash" (compared with 21% of those 50 and older).

"Connecting" vs. "Distracting" – As with the "freedom" vs. "leash" choice pair, a substantial majority of smartphone owners (by a 72% to 28% margin) feel that their phone is "connecting" rather than "distracting." This question also exhibits a relatively pronounced age split, with younger adults being more likely to describe their phone as "distracting." Some 37% of 18-29 year olds selected the "distracting" option, compared with 29% of 30-49 year olds and 18% of those 50 and older.

"Helpful" vs. "Annoying" – Fully 93% of smartphone owners describe their phone as "helpful," while just 7% feel that "annoying" is a better descriptor. There is very little variation in the responses to this question, as every demographic group chooses "helpful" by an overwhelming margin.

Pricier Smartphone Plans More Likely to be Seen as a Financial Burden

% of smartphone owners who say their phone is "worth the cost" vs. a "financial burden", by cost of monthly service plan



Pew Research Center American Trends Panel survey, October 3-27 2014.

PEW RESEARCH CENTER

"Worth the cost" vs. "Financial burden" – A substantial majority of smartphone owners (80%) describe their phone as "worth the cost," although one-in-five (19%) describe it as a "financial burden." There is relatively little variation across demographic groups on this question, although users with expensive service plans are more likely to say that the cost of maintaining

their service is a financial burden. Fully 29% of those who pay more than $200 per month for their cell phone service describe their plan as a financial burden, compared with 16% of users whose plan costs less than $100 per month.

Chapter 3 — A "Week in the Life" Analysis of Smartphone Users

Pew Research Center technology surveys (such as those that form the basis of Chapters 1 and 2 of this report) typically ask respondents whether they use various devices or online platforms, the ways in which they incorporate those tools and platforms into their lives, and the impact of those technologies on their attitudes and experiences. These traditional survey methodologies can help provide a broad view of the use and impact of technology among the American public. But survey respondents often have trouble remembering and providing precise details of their day-to-day lives—such as the number of times they have taken a particular action in the course of a week.

In an effort to gain a more fine-grained view into the ways that smartphone owners use their devices on a daily basis, Pew Research conducted a week-long survey of smartphone owners. In this survey, respondents were contacted on multiple occasions (by email, text message, and/or via an app installed on the respondent's phone) and asked a short series of questions about how they had used their phone *in the hour prior to taking the survey*. This type of survey, in which respondents are asked about their experiences or behaviors at specific times over the course of the study period, is known as an "experience sampling" survey.

These findings provide a unique glimpse into several different aspects of smartphone ownership, such as:

- Which behaviors and experiences are the *most widespread* within the smartphone owner population (that is, which ones are used or experienced by the largest subset of users over the course of a typical week).
- Which behaviors and experiences are the *most frequently used* among smartphone owners (that is, which ones occur with the greatest regularity throughout the course of the week).

Details of the study, and the findings from this week-long survey of smartphone users, are discussed in more detail below.

How Pew Research conducted this experience sampling survey of smartphone owners

Participants in the experience sampling study were recruited from the 2,188 smartphone owners who responded to the American Trends Panel survey that forms the basis of Chapters 1 and 2 of this report. Upon completion of the main survey, these respondents were asked if they would be willing to take part in a follow-up study, in which they would complete a series of short surveys about their smartphone use over a period of one week.

Respondents who agreed to take part in the follow-up study were contacted twice a day for a period of seven days. Each time, they were asked a short series of questions about how they had used their smartphone in the hour prior to taking the survey. Specifically, they were asked to indicate the *features or apps* they had used on their phone; the *locations* where they had used their phone; the *issues or problems* they had used their phone to solve; and the *emotions* they felt as a result of having their phone with them.

The specific times on which the individual surveys were administered are listed below:

- Day 1 (Monday, November 10 2014): 8am and 3pm
- Day 2 (Tuesday): 9am and 4pm
- Day 3 (Wednesday): 10am and 5pm
- Day 4 (Thursday): 11am and 6pm
- Day 5 (Friday): Noon and 7pm
- Day 6 (Saturday): 1pm and 8pm
- Day 7 (Sunday, November 16 2014): 2pm and 9pm

A total of 1,635 respondents completed at least one survey over the course of the week-long study period. The analysis that follows is based on the 1,035 participants who completed 10 or more surveys over the study period.[5]

For a more detailed description of the study methodology, please see the Study Methods section of this report.

Apps and features: how smartphone owners use their devices

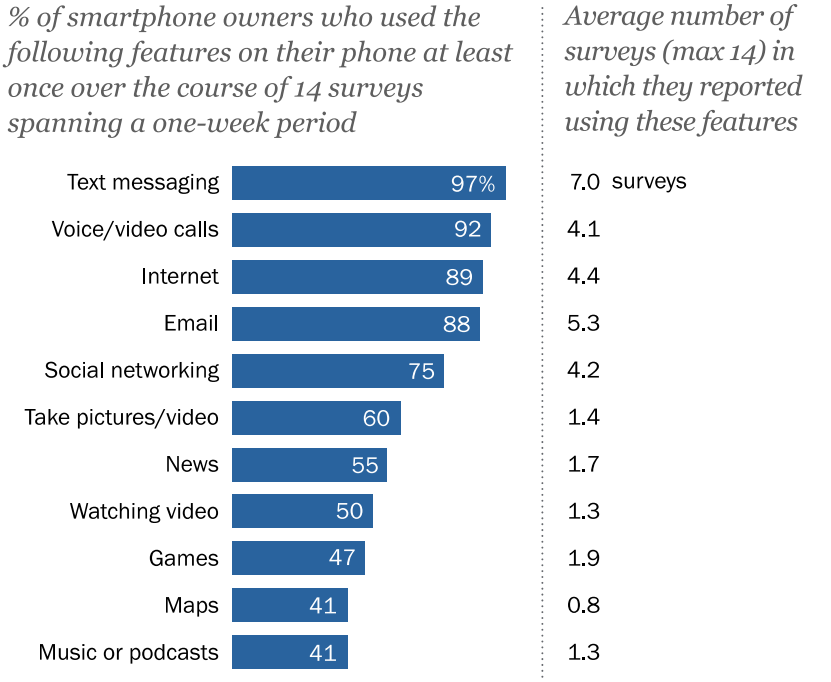
The first question in the survey asked respondents to indicate *which apps and features they had used on their phone* in the preceding hour, apart from answering the survey. These findings indicate that certain features are used nearly universally and relatively frequently among a diverse range of smartphone owners, including text messaging, voice and video calls, internet use, and email. Other features are extremely popular among certain groups of users but less widely-used among others. For example, social media, listening to music, and watching video are all extremely common among younger smartphone owners but less common among older age groups. A third category of features are less prevalent overall but appeal to a relatively wide cross-section of users, such as gaming and news consumption.

[5] The "ten or more completions" cutoff point was chosen to ensure that the reporting in this section was conducted on a reasonably consistent group of respondents. Demographically, the group discussed in this report differs only marginally from the entire pool of 1,635 respondents.

The "Big Four" smartphone apps and features: text messaging, voice calls, internet use, and email

Four smartphone features — text messaging, voice and video calling, using email, and using the internet — stand out as the most widely used out of the eleven apps and features evaluated in this study. Nearly all of the smartphone owners surveyed (97%) used text messaging at least once over the course of the study period. Text messaging is followed closely in popularity by voice calling (engaged in by 92% of smartphone owners), using the internet (89%), and using email (88%).

Text Messaging, Voice/Video Calls, Internet, Email Rank Among Most Popular Smartphone Features



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

In addition to being the most *widely-used* smartphone feature, text messaging is also the most *frequently-used*. These smartphone owners reported using text messaging in the past hour in an average of 7 different surveys over the course of the study period (out of a maximum of 14). By comparison, they reported using email in an average of 5.3 surveys, internet use in an average of 4.4 surveys, and voice/video calling in an average of 4.1 surveys.

These smartphone features are also popular with users from a wide range of age groups. For example, 100% of 18-29 year old smartphone owners used text messaging at least once over the course of the study,[6] but so did 92% of those 50 and older. These age-related differences are even more modest for email (91% of 18-29 year olds and 87% of those 50 and older used email at least

[6] A total of n=202 smartphone owners ages 18-29 completed at least 10 surveys over the course of the week-long study period. Out of these 202 respondents, just one respondent did not use text messaging at least once over the course of the week.

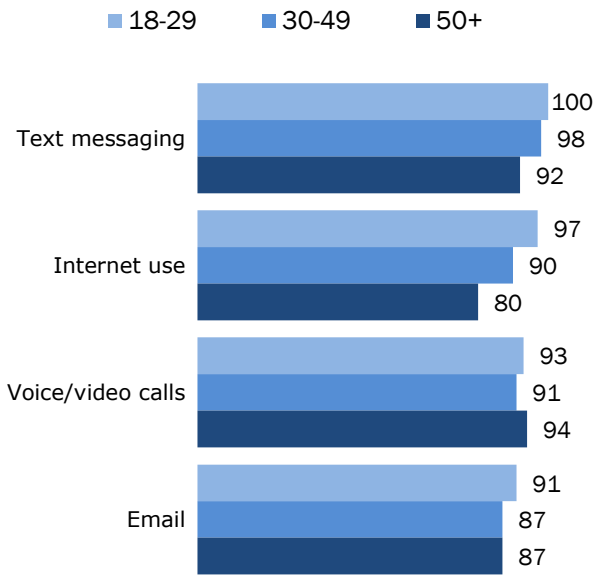
once) and voice/video calling (93% of 18-29 year olds did this, as did 93% of those 50 and older). Internet use, though quite common among older adults, is near-ubiquitous among younger users—fully 97% of 18-29 year old smartphone owners used their phone to go online at least once during the study period, compared to 80% of those 50 and older.

As with teens, text messaging supplements — rather than replaces — voice calling among adults

Pew Research surveys of teens and technology have found that voice calling and text messaging go hand in hand, and this correlation also holds true for the adult population: Put simply, adults who do more text messaging tend to do more voice calling as well. Smartphone owners who use text messaging relatively infrequently (defined as reporting text messaging use in 1-5 surveys over the course of this study period) reported making voice calls in an average of 2.6 surveys; those who use text messaging moderately frequently (in 6-10 surveys) reported making voice calls in an average of 4.3 surveys; and those who use text messaging very frequently (in 11 or more surveys) reported making voice calls in an average of 6.4 surveys.

Text Messaging, Internet, Email, and Voice/Video Calls are Widely-Used by Smartphone Owners of Many Ages

% of smartphone owners in each age group who used the following features on their phone at least once over the course of 14 surveys spanning a one-week period



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

Similarly, young adults use text messaging more frequently than older adults—but do not exhibit corresponding lower rates of voice calling. Smartphones owners ages 18-29 reported using text messaging in nearly two more surveys over the course of the study period compared with those ages 50 and older—young adults reported using text messaging in an average of 7.8 surveys, while those 50 and older did so in an average of 6 surveys. But despite these fairly pronounced differences in text messaging frequency, rates of voice calling for older and younger smartphone owners are nearly identical:

young adults reported using voice calling in an average of 3.9 surveys over the course of the study, while those age 50 and older did so in an average of 4.2 surveys.

Disproportionately popular with young people: Social networking, watching videos, listening to music/podcasts

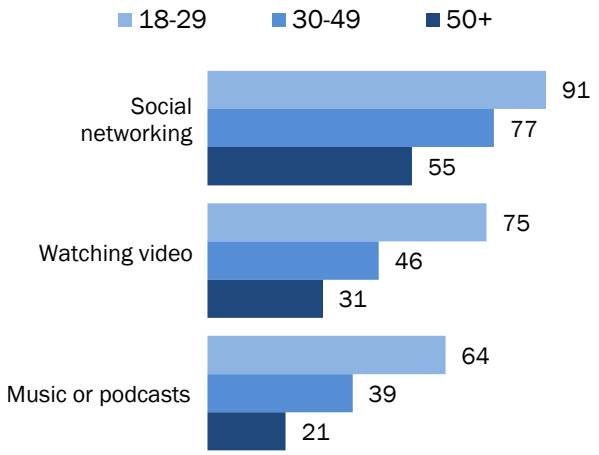
Activities such as social networking, watching video, and listening to music or podcasts vary substantially in terms of their overall popularity. At the high end, 75% of smartphone owners indicated using social networking on their phone in the previous hour at least once during the study period, while on the low end 41% used their phone at least once to listen to music or podcasts. But although they differ in terms of their overall usage rates, they share the common characteristic of having especially high rates of engagement among younger smartphone owners.

Young smartphone owners are particularly avid participants in social media activities. Fully 91% of smartphone owners ages 18-29 used social networking on their phone at least once over the course of the study period, compared with 55% of those 50 and older (a 36-point difference). These young smartphone owners reported using social networking on their phone in the prior hour in an average of 5.6 surveys, which is tied with internet use as the second-most frequent smartphone behavior among young adults.

These differences between older and younger smartphone owners are even more pronounced when it comes to watching videos and listening to music or podcasts. Three-quarters of younger smartphone owners (75%) used their phone to watch a video at least once over the study period, compared with 31% of those 50 and older (a difference of 44 percentage points). And 64% of younger adults used their phone at one time or another to listen to music or podcasts—a 43-point difference compared with the 21% of older users who did so.

Use of Smartphones for Social Media, Video Watching, and Music/Podcasts is Especially Common Among Young Users

% of smartphone owners in each age group who used the following features on their phone at least once over the course of 14 surveys spanning a one-week period



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

Other activities and apps: News, games, maps/traffic, and taking pictures or video

The remaining apps and activities (news, games, maps and navigation, and taking pictures or video) occupy a middle ground between the two groups discussed above. They are not as widely used as activities like text messaging or voice calling—but they also exhibit more modest differences across age groups compared with activities like social networking.

Of this group of activities, picture-taking and news consumption are the most common: 60% of smartphone owners used their phones for taking pictures or video at least once over the course of the study period, and 55% used their phone for news over the same time period. Games and maps/traffic are slightly less common: 47% and 41% of smartphone owners, respectively, used their phone for these purposes at least once in the course of the study period.

Each of these behaviors is more prevalent among younger smartphone owners than among older users, although these differences are generally modest in comparison with activities like social networking. There is a 16-point gap between those ages 18-29 and those 50 and older when it comes to using one's phone for games; a 13-point gap for taking pictures and video; an 11-point gap for using maps and navigation; and an 8-point gap for getting news.

The locations where people use their smartphones: Home, work, en route

Smartphone owners used their phones in a wide range of locations during the experience sampling survey, but home was by far the most common—99% of smartphone owners in this study used their phone at home at least once during the previous hour over the course of the study period, reporting that they did so in an average of 6.8 surveys over the week.

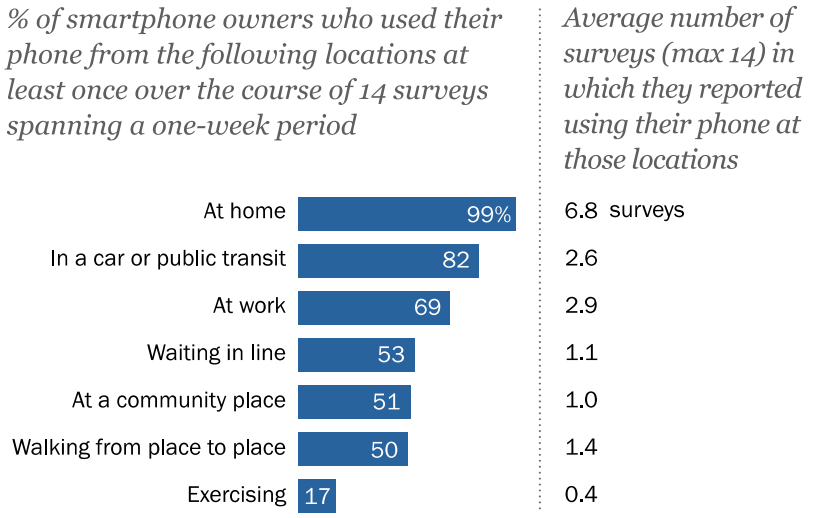
Many smartphone owners use their phones while in a car or on public transit (82% indicated having done so at least once), and usage at work is also common (69% used their phone at work at least once). Notably, not all the study participants are employed full-time—among those who are, fully 91% used their smartphone at work over the study period, reporting doing so in an average of 4.3 separate surveys.

Usage of smartphones in locations other than home, work, or in a car or public transit is less prevalent. Around half of respondents indicated that they used their phone at least once in the previous hour over the course of the study period while waiting in line (53%), while at a community location like a coffees shop or park (51%), or while walking from place to place (50%).

Just one in five smartphone owners (17%) indicated that they had used their smartphone while exercising in the previous hour over the course of the study.[7]

Home usage is ubiquitous among smartphone owners both young and old, and smartphone owners ages 18-29 and those 50 and older are similarly prone to using their phones while in a car or on public transit (85% of younger users and 79% of older users did so), as well as in a community place like a park or coffee shop (49% of both younger and older smartphone owners used their phone in this type of location over the course of the study period).

Smartphones Used Frequently at Home and in Transit, Less Often While Exercising



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

However, younger adults are substantially more likely to use their smartphone while walking from place to place. Almost two-thirds of 18-29 year olds (64%) did this at least once during the week-long study period, compared with 48% of smartphone owners ages 30-49 and 37% of those 65 and older. Smartphone owners ages 18-29 are also a bit more likely than those 50 and older to use their phone while waiting in line (55% vs. 43%) and while exercising (21% vs. 11%).

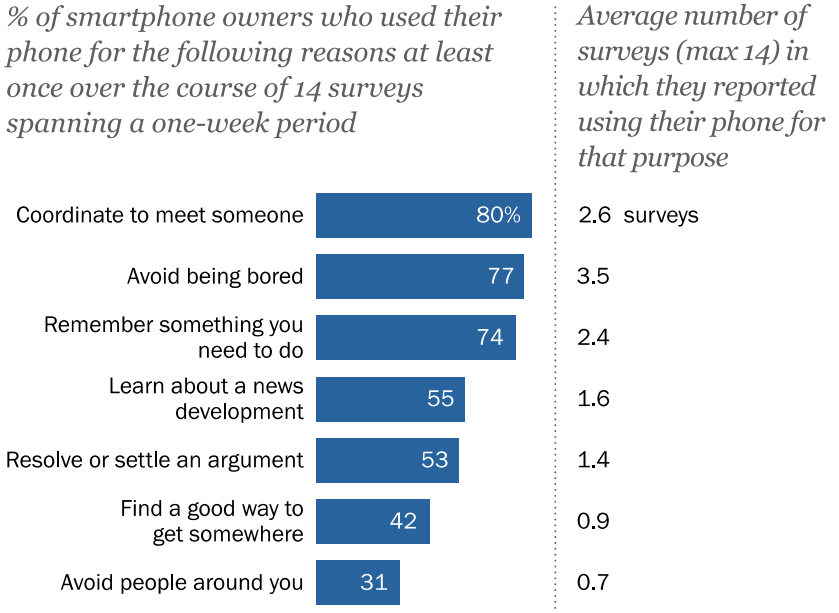
[7] Note that due to space limitations, the experience sampling study was not able to collect detailed information about the locations respondents had visited or the activities they had engaged in during the hour prior to taking the survey. As such, locations that people visit regularly (such as home or work, in particular) are likely to be heavily represented in this analysis.

The problems people use their smartphones to solve

Smartphone owners use their phones to solve a range of social and informational problems as they go about their daily lives. The experience sampling survey asked smartphone owners about seven different types of problems they might use their phones to help solve, the most prevalent of which are:

- *Coordinating with others* — 80% of smartphone owners reported using their phone to help coordinate meeting with someone at least once over the course of the study period, reporting that they did so in an average of 2.6 surveys.
- *Avoiding boredom* — 77% of smartphone owners reported that they turned to their phone to avoid being bored, reporting that they did so in an average of 3.5 surveys.
- *Reminders and life logistics* — 74% of smartphone owners used their phone at least once to help remember something they needed to do (in an average of 2.4 different surveys).

Coordinating With Others, Avoiding Boredom, and Reminders are Among the Most Common Problems Smartphones Help Address



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

Other problem-solving behaviors are somewhat less prevalent. Just over half of smartphone owners in this study (55%) used their phone at least once to learn about an important news development, and a similar number (53%) used their phone to resolve an issue or settle an argument. Some 42% used their phone at least once to find a good way to get somewhere they needed to go, and almost one-in-three (31%) used their phone to avoid having to deal with people around them.

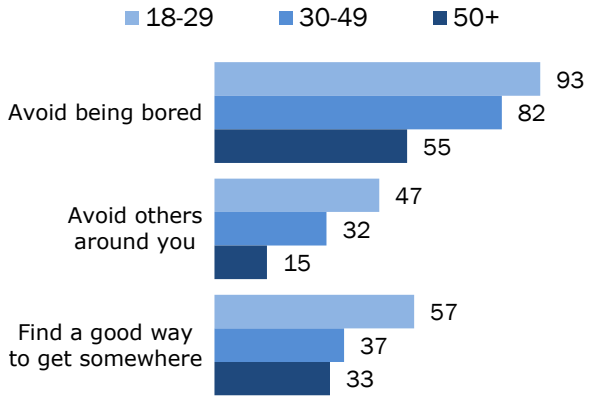
Younger users are much more likely to use their phones to avoid boredom — and also to avoid other people

Younger users stand out especially prominently when it comes to using their phones for two purposes in particular: avoiding boredom, and avoiding people around them. Fully 93% of 18-29 year old smartphone owners used their phone at least once to avoid being bored, with respondents in this age group reporting doing so during the previous hour in an average of 5.4 surveys over the one-week study period. Similarly, 47% of young smartphone owners used their phone to avoid interacting with the people around them at least once during the study period, roughly three times the proportion of older smartphone owners who did so. Younger users were also substantially more likely than older users to say that they had used their phone to help them find a good way to get somewhere — 57% did so.

At the same time, certain types of information are equally common among younger and older users. There are few age-related differences when it comes to using one's phone to resolve or settle an argument, learn about a news development, coordinate with meeting someone, or be reminded of a task or appointment.

Younger Smartphone Owners More Likely to Use Their Phone for Preventing Boredom, Avoiding Others, Getting Somewhere

% of smartphone owners in each age group who used their phone for the following reasons at least once over the course of 14 surveys spanning a one-week period



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

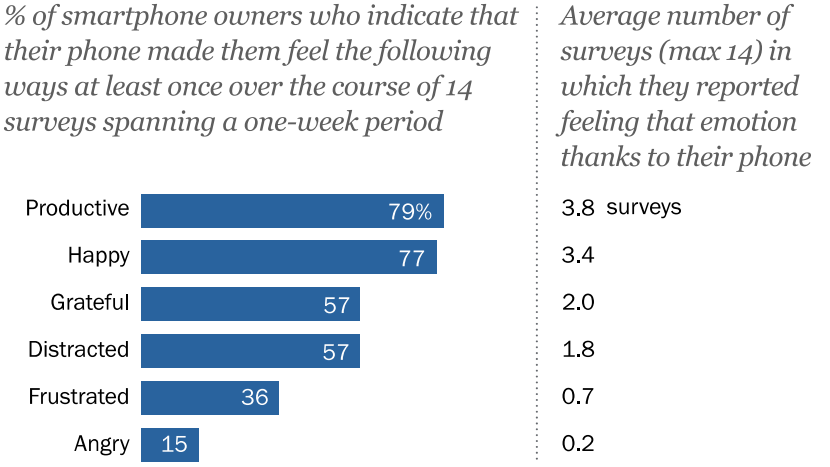
Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

The emotional impact of smartphones

When it comes to the emotions that people experience as a result of their smartphones, "productive" and "happy" lead the way — 79% and 77% of smartphone owners, respectively, indicated that their phone made them feel this way at least once over the course of the study period. On average, users reported feeling "productive" in 3.8 surveys and "happy" in 3.4 surveys. At the other end of the spectrum, just 15% of smartphone owners indicated that their phone made them feel "angry" at any point during the course of the study.

"Productive" and "Happy" are Common Smartphone-Related Emotions — but Many Feel "Distracted" and "Frustrated" as Well



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

Younger users are especially likely to say that their phone makes them feel "distracted" and "frustrated," but also more likely to feel "happy" and "grateful"

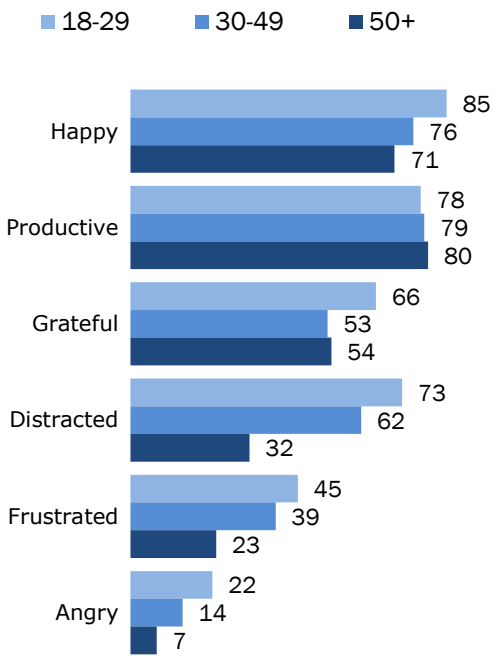
Younger smartphone owners tend to experience a wider range of emotions vis-à-vis their phone compared with older users—from positive ones like "happy" or "grateful," to more negative feelings like "distracted" and "angry."

Feelings of smartphone-induced distraction are especially common among younger adults. Fully 73% of 18-29 year old smartphone owners indicated that their phone made them feel "distracted" during the study period, 11 percentage points higher than among those ages 30-49 and 41 percentage points higher than among those 50 and older. Younger users were also around three times as likely as those 50 and older to say that their phone made them angry at one point or another during this study (22% vs. 7%). At the same time, younger users are significantly more likely than those in other age groups to indicate that they experienced being happy or grateful as a result of their phone.

Smartphone owners reported feeling "productive" thanks to their phones at high rates across a range of age groups — 78% of 18-29 year olds, 79% of 30-49 year olds, and 80% of those 50 and older reported that their smartphone made them feel this way.

For Younger Adults, Smartphones Inspire a Range of Emotions — from Happy and Grateful, to Distracted and Frustrated

% of smartphone owners in each age group who indicate that their phone made them experience the following emotions at least once over the course of 14 surveys spanning a one-week period



Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

Respondents were contacted twice a day over the course of one week (14 total surveys) and asked how they had used their phone in the preceding hour (besides completing the survey). Only those respondents who completed 10 or more surveys over the course of the study period are included in this analysis.

PEW RESEARCH CENTER

Appendix A: About the December Week 1 and Week 3 Omnibus Survey

The PSRAI December 2014 Omnibus Weeks 1 & 3 obtained telephone interviews with a nationally representative sample of 2,002 adults living in the continental United States. Telephone interviews were conducted by landline (1,001) and cell phone (1,001, including 605 without a landline phone). The survey was conducted by Princeton Survey Research Associates International (PSRAI). Interviews were done in English and Spanish by Princeton Data Source from December 4-7, 2014 (1,001) and from December 18-21, 2014 (1,001). Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is ± 2.5 percentage points.

December Omnibus Week 1 and December Omnibus Week 3 were run as separate studies. The sample for each survey was weighted independently, not as a combined sample, although both studies used the same sample design, contact procedures, weighting procedures and weighting parameters. Details on the design, execution and analysis of the surveys are discussed below.

Sample Design

For each survey, 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 drawn with equal probabilities 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.

Contact Procedures

December Week 1 interviews were conducted December 4 to 7, 2014 and December Week 3 interviews were conducted December 18 to 21, 2014. As many as three attempts were made to contact every sampled telephone number. For each study, 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 when necessary.

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. 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 interviewing.

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.

Weighting and Analysis

Because the studies were run at separate periods, the sample for each wave was weighted separately and not as one combined study. The weighting procedures detailed below were used for both surveys.

Weighting is generally used in survey analysis to compensate for sample designs and patterns of non-response that might bias results. The sample was weighted to match national adult general population parameters. A two-stage weighting procedure was used to weight the dual-frame sample.

The first stage of weighting corrected for different probabilities of selection associated with the number of adults in each household and each respondent's telephone usage patterns. 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 balanced 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 basic weighting parameters came from the US Census Bureau's 2012 American Community Survey data. The population density parameter was derived from Census 2010 data. The telephone usage parameter came from an analysis of the July-December 2013 National Health Interview Survey.

Weighting was accomplished using the SPSSINC RAKE, an SPSS extension module that simultaneously balances the distributions of all variables using the GENLOG procedure. 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.

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 unequal weights. The combined total design effect for both surveys is 1.31.

The margins of error reported and statistical tests of significance are adjusted to account for the survey's design effect, a measure of how much efficiency is lost from the weighting procedures.

Response Rate

Tables 2 and 3 report 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. Response rates are computed according to American Association of Public Opinion Research standards. Thus for December Week 1, the response rate for the landline samples was 5 percent and the response rate for the cellular samples was 4 percent. For December Week 3, the response rate for the landline samples was 6 percent and the response rate for the cellular samples was 8 percent.

Table 2. December Week 1 Sample Disposition

Landline	Cell	
1,138	77	OF = Out of Frame
1,134	77	Non-residential/Business
4	----	Cell in landline frame
20,211	3,078	NWC = Not working/computer
19,248	3,063	Not working
963	15	Computer/fax/modem
4,670	2,828	$UHUO_{NC}$ = Non-contact, unknown if household/unknown other
4,555	9,543	UO_{NC} = Non-contact, unknown eligibility
4,517	9,496	Voice mail
38	47	Other non-contact
2,802	3,710	UO_R = Refusal, unknown if eligible
2,378	2,583	Refusals
424	1,127	Callbacks
27	50	O = Other
----	108	SO = Screen out
----	108	Child's cell phone
84	101	R = Refusal, known eligible
501	500	I = Completed interviews
33,988	19,995	T = Total numbers dialed
27.2%	81.6%	e1 = $(I+R+SO+O+UO_R+UO_{NC})/(I+R+SO+O+UO_R+UO_{NC}+OF+NWC)$ - Est. frame eligibility of non-contacts
100.0%	84.8%	e2 = (I+R)/(I+R+SO) - Est. screening eligibility of unscreened contacts
37.0%	27.4%	CON = $[I + R + (e2*[O + UO_R])]/[I + R + (e2*[O + UO_R + UO_{NC}]) + (e1*e2*UHUO_{NC})]$
14.7%	13.2%	COOP = $I/[I + R + (e2*[O + UO_R])]$
5.4%	**3.6%**	**AAPOR RR3=$I/[I+R+[e2*(UO_R+UO_{NC}+O)]+[e1*e2*UHUO_{NC}]]$ = CON*COOP**

Table 3. December Week 3 Sample Disposition

Landline	Cell	
1,156	138	OF = Out of Frame
1,146	138	Non-residential/Business
10	----	Cell in landline frame
20,574	5,749	NWC = Not working/computer
19,612	5,716	Not working
962	33	Computer/fax/modem
3,156	672	$UHUO_{NC}$ = Non-contact, unknown if household/unknown other
3,974	3,767	UO_{NC} = Non-contact, unknown eligibility
3,953	3,758	Voice mail
21	9	Other non-contact
3,479	4,583	UO_R = Refusal, unknown if eligible
3,265	3,521	Refusals
214	1,062	Callbacks
19	42	O = Other
----	371	SO = Screen out
----	371	Child's cell phone
132	172	R = Refusal, known eligible
500	501	I = Completed interviews
32,990	15,995	T = Total numbers dialed
27.2%	61.6%	e1 = $(I+R+SO+O+UO_R+UO_{NC})/(I+R+SO+O+UO_R+UO_{NC}+OF+NWC)$ - Est. frame eligibility of non-contacts
100.0%	64.5%	e2 = (I+R)/(I+R+SO) - Est. screening eligibility of unscreened contacts
46.1%	57.6%	CON = $[I + R + (e2*[O + UO_R])]/[I + R + (e2*[O + UO_R + UO_{NC}]) + (e1*e2*UHUO_{NC})]$
12.1%	13.7%	COOP = $I/[I + R + (e2*[O + UO_R])]$
5.6%	**7.9%**	**AAPOR RR3=$I/[I+R+[e2*(UO_R+UO_{NC}+O)]+[e1*e2*UHUO_{NC}]]$ = CON*COOP**

Survey Questions

SMART1 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?

Among cell phone owners [n=1,802]

		CURRENT
%	Yes, is a smartphone	66
	No, is not a smartphone	27
	Not sure / Don't know	7
	Refused	*

SMART2 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, or something else?

Among cell phone owners [n=1,802]

		CURRENT
%	Android	33
	iPhone	30
	Windows	3
	Blackberry	1
	Basic cell phone - unspecified (VOL.)	10
	Flip phone - unspecified (VOL.)	6
	Samsung - unspecified (VOL.)	5
	LG - unspecified (VOL.)	2
	Tracfone (VOL.)	1
	Nokia - unspecified (VOL.)	1
	Motorola - unspecified (VOL.)	*
	Pantech - unspecified (VOL.)	*
	Something else	3
	Don't know	4
	Refused	1

Appendix B: About the American Trends Panel October Wave

The American Trends Panel (ATP), created by the Pew Research Center, is a nationally representative panel of randomly selected U.S. adults living in households. Respondents who self-identify as internet users (representing 89% of U.S. adults) participate in the panel via monthly self-administered Web surveys, and those who do not use the internet participate via telephone or mail. The panel is being managed by Abt SRBI.

Data in this report are drawn from the October wave of the panel, conducted October 3-27, 2014 among 3,181 respondents (2,875 by Web and 306 by mail). The margin of sampling error for the full sample of 3,181 respondents is plus or minus 2.3 percentage points, and the margin of sampling error for the 2,188 smartphone owners is plus or minus 2.7 percentage points.

All current members of the American Trends Panel were originally recruited from the 2014 Political Polarization and Typology Survey, a large (n=10,013) national landline and cellphone random digit dial (RDD) survey conducted January 23rd to March 16th, 2014, in English and Spanish. At the end of that survey, respondents were invited to join the panel. The invitation was extended to all respondents who use the internet (from any location) and a random subsample of respondents who do not use the internet.

Of the 10,013 adults interviewed, 9,809 were invited to take part in the panel. A total of 5,338 agreed to participate and provided either a mailing address or an email address to which a welcome packet, a monetary incentive and future survey invitations could be sent. Panelists also receive a small monetary incentive after participating in each wave of the survey.

The ATP data were weighted in a multi-step process that begins with a base weight incorporating the respondents' original survey selection probability and the fact that some panelists were subsampled for invitation to the panel. Next, an adjustment was made for the fact that the propensity to join the panel and remain an active panelist varied across different groups in the sample. The final step in the weighting uses an iterative technique that matches gender, age, education, race, Hispanic origin, telephone service, population density and region to parameters from the U.S. Census Bureau's 2012 American Community Survey. It also adjusts for party affiliation using an average of the three most recent Pew Research Center general public telephone surveys, and for internet use using as a parameter a measure from the 2014 Survey of Political Polarization. Sampling errors and statistical tests of significance take into account the effect of weighting. The Hispanic sample in the American Trends Panel is predominantly native born and English speaking.

The following table shows the unweighted sample sizes and the error attributable to sampling that would be expected at the 95% level of confidence for different groups of smartphone owners in the survey:

Group	Unweighted sample size	Plus or minus ...
Smartphone owners	2,188	2.7 percentage points
18-29	402	6.4 percentage points
30-49	763	4.7 percentage points
50-64	673	5.0 percentage points
65+	343	6.9 percentage points
White, non-Hispanic	1,668	3.1 percentage points
Black, non-Hispanic	170	9.9 percentage points
Hispanic	199	9.1 percentage points
HS grad or less	316	7.2 percentage points
Some college	601	5.2 percentage points
College+	1,269	3.6 percentage points
Less than $30,000/yr	401	6.4 percentage points
$30,000-$74,999	725	4.8 percentage points
$75,000 or more	961	4.1 percentage points
Smartphone-dependent	110	12.3 percentage points
Non-dependent	2,078	2.8 percentage points

Sample sizes and sampling errors for other subgroups are available upon request.

In addition to sampling error, one should bear in mind that question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of opinion polls.

The Web component of the October wave had a response rate of 78% (2,875responses among 3,673[8] Web-based individuals enrolled in the panel); the mail component had a response rate of 55% (306 responses among 555 non-Web individuals enrolled in the panel). Taking account of the response rate for the 2014 Survey of Political Polarization (10.6%), the cumulative response rate for the October ATP wave is 3.4%.

[8] Prior to this wave, 962 web panelists who had never responded were removed from the panel. The response rate including these panelists would have been 62%. Mail panelists who never responded were not yet removed.

Survey questions

ASK ALL

SMARTPHONE. Which type of cell phone do you have? [*If you have multiple cell phones, select the one you use most often*]

Oct 3-27 2014	
68	**NET** Smartphone
28	iPhone
33	Android
1	Blackberry
2	Windows
0	Symbian
4	Some other type of smartphone
24	I have a cell phone, but it's not a smartphone
6	I do not have a cell phone **[EXCLUSIVE PUNCH]**
1	No answer

ASK CELL PHONE OWNERS (SMARTPHONE=1-7) [N=3,019]:

COST1. Do you have an individual cell phone plan, or are you part of a group or family plan?

Oct 3-27 2014	
35	Individual plan, including prepaid
61	**NET** Group or family plan
34	Group or family plan, and I pay for the entire bill
14	Group or family plan, and I pay for a portion of the bill
13	Group or family plan, and I don't pay for any of the bill
4	Not sure
1	No answer

ASK IF KNOW TYPE OF PLAN AND PAY SOME PORTION OF BILL (COST1=1-3) [N=2,568]:

COST2. How much do you PERSONALLY pay or contribute each month for your cell phone service (including your voice, texting, and/or data plan)? **[IF COST1=3, Group or family plan, and I pay for a portion of the bill: "***If you only pay for a portion of a group or family plan, please indicate that amount.***"]**

Oct 3-27 2014	
27	Less than $50
28	$50 to less than $100
18	$100 to less than $150
11	$150 to less than $200
8	$200 or more
3	I pay nothing because someone else pays my bill
1	Not sure
4	Prefer not to say
*	No answer

ASK CELL PHONE OWNERS (SMARTPHONE=1-7) [N=3,019]:

COST3. Have you ever had to cancel or shut off your cell phone service for a period of time because the cost of maintaining the service was too expensive?

Oct 3-27 2014	
21	Yes, have done this
78	No, have not had to do this
*	No answer

ASK ALL:

COMP. Do you own a desktop or laptop computer?

Oct 3-27 2014	
80	Yes
19	No
1	No answer

ASK ALL:

TAB. Do own a tablet computer?

Oct 3-27 2014	
43	Yes
56	No
1	No answer

ASK SMARTPHONE OWNERS (SMARTPHONE=1-6) [N=2,188]:

SM1. Other than the data plan on your cell phone, do you have high-speed internet service at home (such as cable internet, DSL, FIOS, or satellite internet service)?

Oct 3-27 2014	
85	Yes, have high speed internet service at home
15	No, do not have high speed internet service at home
*	No answer

ASK SMARTPHONE OWNERS (SMARTPHONE=1-6) [N=2,188]:

SM2. Which of the following statements comes closest to describing how you use your cell phone to access online services and information, even if neither is exactly right?

Oct 3-27 2014	
22	Other than my cell phone, I have a limited number of ways to get online
78	I have a number of other options for getting online in addition to my cell phone
1	No answer

ASK SMARTPHONE OWNERS (SMARTPHONE=1-6) [N=2,188]:
SM3. How often… **[RANDOMIZE ITEMS SM3a-SM3f]**?

		Frequently	Occasionally	Rarely	Never	No answer
a.	Does content that you are trying to access on your cell phone not display properly					
	Oct 3-27, 2014	10	39	40	11	*
b.	Do apps that you've downloaded on your cell phone not work correctly					
	Oct 3-27, 2014	9	37	41	12	*
c.	Is your monthly cell phone bill substantially higher than you expected it to be					
	Oct 3-27, 2014	7	20	35	38	*
d.	Do you experience unexpected cell phone charges from in-app purchases					
	Oct 3-27, 2014	2	7	30	60	1
e.	Do you reach the maximum amount of data you are allowed to use as part of your cell phone plan					
	Oct 3-27, 2014	15	21	25	38	1
f.	Do poor or dropped signals prevent you from using your cell phone					
	Oct 3-27, 2014	11	36	43	10	*

ASK ALL:
EXPS. Which of the following have you done in the last year? **[RANDOMIZE A-F]** *[Check all that apply]*

		Yes	Not selected/ No answer
a.	Look for information about a job		
	Oct 3-27, 2014	43	57
b.	Submit a job application		
	Oct 3-27, 2014	31	69
c.	Access government services or information		
	Oct 3-27, 2014	41	59
d.	Take a class or watch educational content		
	Oct 3-27, 2014	40	60
e.	Look up information about a health condition		
	Oct 3-27, 2014	63	37

		Yes	Not selected/ No answer
f.	Look up real estate listings or information about a place to live		
	Oct 3-27, 2014	43	57
g.	I have not done any of these **[EXCLUSIVE PUNCH]**		
	Oct 3-27, 2014	16	84

ASK ALL:
BANK. Do you have an account with a bank?

Oct 3-27 2014	
86	Yes
12	No
2	No answer

ASK SMARTPHONE OWNERS (SMARTPHONE=1-6) [N=2,188]:
SM4. In the last year, have you used your cell phone to… **[RANDOMIZE SM4A-SM4G, MATCH SAME ORDER OF RANDOMIZATION OF A-F FROM EXPS WITH G ALWAYS LAST]**

		Yes, have done using cell phone	No, have not done using cell phone	No answer
a.	Look for information about a job			
	Oct 3-27, 2014	43	57	*
b.	Submit a job application			
	Oct 3-27, 2014	18	82	*
c.	Look up government services or information			
	Oct 3-27, 2014	40	60	*
d.	Take a class or watch educational content			
	Oct 3-27, 2014	30	69	*
e.	Look up information about a health condition			
	Oct 3-27, 2014	62	38	*
f.	Look up real estate listings or information about a place to live			
	Oct 3-27, 2014	44	56	*
g.	Do online banking (for example, pay a bill or transfer money)			
	Oct 3-27, 2014	57	42	*

ASK SMARTPHONE OWNERS (SMARTPHONE=1-6) [RANDOMIZE SM5A-SM5C] [N=2,188]:
SM5. How often, if ever, do you use your cell phone to…

		Frequently	Occasionally	Rarely	Never	No answer
a.	Get public transit information					
	Oct 3-27, 2014	10	15	21	54	*
b.	Reserve a taxi or car service					
	Oct 3-27, 2014	4	7	17	72	*
c.	Get turn-by-turn navigation while you are driving					
	Oct 3-27, 2014	31	36	17	16	*

RANDOMIZE ITEMS
ASK SMARTPHONE OWNERS (SMARTPHONE=1-6) [RANDOMIZE SM6A-SM6D] [N=2,188]:
SM6. How often, if ever, do you use your cell phone to…

		Frequently	Occasionally	Rarely	Never	No answer
a.	Follow along with breaking news events					
	Oct 3-27, 2014	33	35	16	16	*
b.	Share pictures, videos, or commentary with others about events happening in your community					
	Oct 3-27, 2014	35	32	18	14	*
c.	Make a monetary donation to a political or charitable cause					
	Oct 3-27, 2014	2	6	15	77	*
d.	Learn about events or activities in your community					
	Oct 3-27, 2014	18	38	23	21	*

ASK SMARTPHONE OWNERS (SMARTPHONE=1-6) [N=2,188]:
SM7. Have you ever used your cell phone to report a problem in your neighborhood (like a pothole or a missing street sign) to the local authorities?

Oct 3-27 2014	
17	Yes, have done this with my cell phone
9	Have done this, but not with my cell phone
74	No, have not done this
*	No answer

ASK CELL PHONE OWNERS (SMARTPHONE=1-7) [N=3,019]:
EMER1. Have you ever been in an emergency situation where having your cell phone helped resolve the issue?

Oct 3-27 2014	
52	Yes
48	No
1	No answer

ASK CELL PHONE OWNERS (SMARTPHONE=1-7) [N=3,019]:

PROB1. Have you ever been in a situation where you had trouble doing something because you didn't have your cell phone with you?

Oct 3-27 2014	
41	Yes
59	No
1	No answer

RANDOMIZE ITEMS SM8a-SM8e
ASK CELL PHONE OWNERS (SMARTPHONE=1-7) [N=3,019]:

SM8a. Which of the following statements most closely matches how you feel about your cell phone, even if neither one is exactly right? **[RANDOMIZE ORDER OF RESPONSE OPTIONS]**

Oct 3-27 2014	
59	Not always needed
40	Couldn't live without
1	No answer

RANDOMIZE ITEMS SM8a-SM8e
ASK CELL PHONE OWNERS (SMARTPHONE=1-7) [N=3,019]:

SM8b. Which of the following statements most closely matches how you feel about your cell phone, even if neither one is exactly right? **[RANDOMIZE ORDER OF RESPONSE OPTIONS]**

Oct 3-27 2014	
72	Freedom
27	Leash
1	No answer

RANDOMIZE ITEMS SM8a-SM8e
ASK CELL PHONE OWNERS (SMARTPHONE=1-7) [N=3,019]:

SM8c. Which of the following statements most closely matches how you feel about your cell phone, even if neither one is exactly right? **[RANDOMIZE ORDER OF RESPONSE OPTIONS]**

Oct 3-27 2014	
73	Connecting
27	Distracting
1	No answer

RANDOMIZE ITEMS SM8a-SM8e
ASK CELL PHONE OWNERS (SMARTPHONE=1-7) [N=3,019]:

SM8d. Which of the following statements most closely matches how you feel about your cell phone, even if neither one is exactly right? **[RANDOMIZE ORDER OF RESPONSE OPTIONS]**

Oct 3-27 2014	
91	Helpful
8	Annoying
*	No answer

Appendix C: About American Trends Panel Experience Sampling Study

The American Trends Panel (ATP) is a national, probability-based panel of US adults fielded for the Pew Research Center by Abt SRBI. A special Diary Study was fielded November 10 through 16, 2014, with smartphone users identified in the panel. This study consisted of 14 short surveys administered twice a day for seven consecutive days. The study was conducted using two different self-administered approaches or "treatments." One treatment required the panelist to download a special app to their phone, and then they used that app to complete the surveys. The other treatment was a normal Web survey, which could be completed on a mobile device, tablet, laptop or desktop computer. The app is only compatible with certain smartphones. Eligible panelists with a compatible phone were randomly assigned to participate in the app treatment (60%) or the normal Web survey treatment (40%). Eligible panelists with a non-compatible phone were assigned to the normal Web survey treatment. In total, 1,635 ATP members completed at least one of the 14 surveys, with 938 participating by Web and 697 participating with the app. The survey was administered in English and Spanish. Survey weights are provided to account for differential probabilities of selection into the panel, attrition, and differential nonresponse to the Diary Study.

Data in this report are drawn from the 1,035 respondents who completed at least ten of the 14 surveys over the course of the study period. The margin of sampling error for these 1,035 smartphone owners is plus or minus 4.0 percentage points.

Sample Design

The target population for the Diary Study was non-institutionalized smartphone owners age 18 and over, living in the US, including Alaska and Hawaii. The sample consisted of smartphone users identified and recruited in Wave 8 of the ATP, which was administered using the routine panel protocol. The ATP is a probability-based panel of adults in the United States. Currently all ATP panelists have been recruited from a large (n=10,013) national overlapping dual frame landline and cell phone random digit dial (RDD) survey conducted for the Pew Research Center. At the end of that RDD survey, respondents were invited to join the panel. The invitation was extended to all respondents who use the internet (from any location) and a random subsample of respondents who do not use the internet. The RDD survey was conducted from January 23rd to March 16th, 2014, in English and Spanish. Sample for the RDD survey was obtained from SSI. Please refer to the Pew Research Center Political Typology/Polarization Survey Methodology Report for additional information on the sample design for the RDD survey.

At the start of Wave 8, the ATP featured 4,228 active panel members, and 3,181 of them completed Wave 8. The Diary Study sample consisted of ATP panelists who had internet access, reported having a smartphone in Wave 8, and consented to participate in the smartphone follow-up (Diary) study. In total 2,188 Wave 8 panelists reported having a smartphone. Of those, 42 belonged to the non-internet arm of the panel and were ineligible for the Diary Study. Of the remaining 2,146 smartphone panelists, 1,945 consented to participate in the Diary Study. Among those consenting, 1,635 completed at least one of the 14 Diary Study surveys.

The Diary Study was conducted using two different self-administered approaches or "treatments." One treatment required the panelist to download a special app (SODA®) to their phone, and then they used that app to complete the surveys. The other treatment was a normal Web survey, which could be completed on a mobile device, tablet, laptop or desktop computer. SODA® is only compatible with iPhones, Androids and Blackberry phones. Eligible panelists with one of these three phone types were randomly assigned to participate in the app treatment (60%) or the normal Web survey treatment (40%). All of the eligible panelists with a different type of smartphone (e.g., Windows) were assigned to the normal Web survey treatment. Among the 1,211 panelists assigned to the app treatment, 292 declined the follow up survey invitation and were then asked if they would complete the Diary Study via normal Web surveys. Some 195 agreed to that offer.

Data Collection Protocol

ATP panelists who agreed to participate in the special week of surveys (Diary Study) were sent an email notifying them of the upcoming week of surveys on November 7, 2014. Respondents for whom we also had a residential address received a matching letter in the mail with $5 cash enclosed, while respondents without an address were emailed a $5 Amazon gift code as a pre-incentive. The data collection for the surveys was conducted from November 10-16, 2014.

An identical survey measuring smartphone usage was dispatched to each respondent twice daily for seven days, for a total of 14 surveys. All respondents were sent an email invitation. Those who agreed to receive text message reminders were sent those, and the SODA® app had an alarm feature that notified SODA respondents of the current survey's availability. Each survey was available for two hours, and the survey invitations were dispatched at the times specified in the table below based on the respondents' reported local time zone.

Survey Administration Contacts

Date	First Survey	Second Survey
Monday, November 10	8am	3pm
Tuesday, November 11	9am	4pm
Wednesday, November 12	10am	5pm
Thursday, November 13	11am	6pm
Friday, November 14	12pm	7pm
Saturday, November 15	1pm	8pm
Sunday, November 16	2pm	9pm

Pew Research Center American Trends Panel experience sampling survey, November 10-16 2014.

PEW RESEARCH CENTER

Panelists received $1 for each survey they completed during the week and an additional $5 bonus for completing 10 or more of the surveys during the week. Panelists who had previously selected a method of payment received their incentive based on their check or electronic Amazon gift code preference.

Weighting

The ATP data were weighted in a multi-step process that begins with a base weight incorporating the respondents' original survey selection probability and the fact that some panelists were subsampled for invitation to the panel. Next, an adjustment was made for the fact that the propensity to join the panel and remain an active panelist varied across different groups in the sample. The next step was a weighting cell adjustment for non-response to the experience sampling study since the response rate differed somewhat across the treatment groups. The final step in the weighting uses an iterative technique that matches gender, age, education, race, Hispanic origin, region and smartphone type to parameters for US adults who have a smartphone from the October 2014 wave of the ATP. Normally ATP samples are calibrated to benchmarks for the US adult population. For this study, however, the target population was US adults who have a smartphone. There are no official government statistics on the demographics of this population. The best available data were from the October 2014 wave of the American Trends Panel, which featured a national probability-based sample of 2,188 adult smartphone users.

The margins of error reported and statistical tests of significance are adjusted to account for the survey's design effect, a measure of how much efficiency is lost from the weighting procedures. The Hispanic sample in the American Trends Panel is predominantly native born and English

speaking. In addition to sampling error, one should bear in mind that question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of opinion polls.

The following table shows the unweighted sample sizes and the error attributable to sampling that would be expected at the 95% level of confidence for different groups in the survey:

Group	Unweighted sample size	Plus or minus ...
Smartphone owners, 10+ surveys completed	1,035	4.0 percentage points
18-29	202	9.1 percentage points
30-49	403	6.4 percentage points
50+	426	6.2 percentage points

Pew Research Center is a nonprofit, tax-exempt 501(c)3 organization and a subsidiary of The Pew Charitable Trusts, its primary funder.