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E-book Reading Jumps; Print Book Reading Declines

23% of Americans ages 16 and older read an e-book in the past year, up from 16% the year before. The share who read a print book declined to 67%, from 72%

Lee Rainie
Director, Pew Internet Project

Maeve Duggan
Research Assistant, Pew Internet Project

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

http://libraries.pewinternet.org/2012/12/27/e-book-reading-jumps-print-book-reading-declines/

Findings

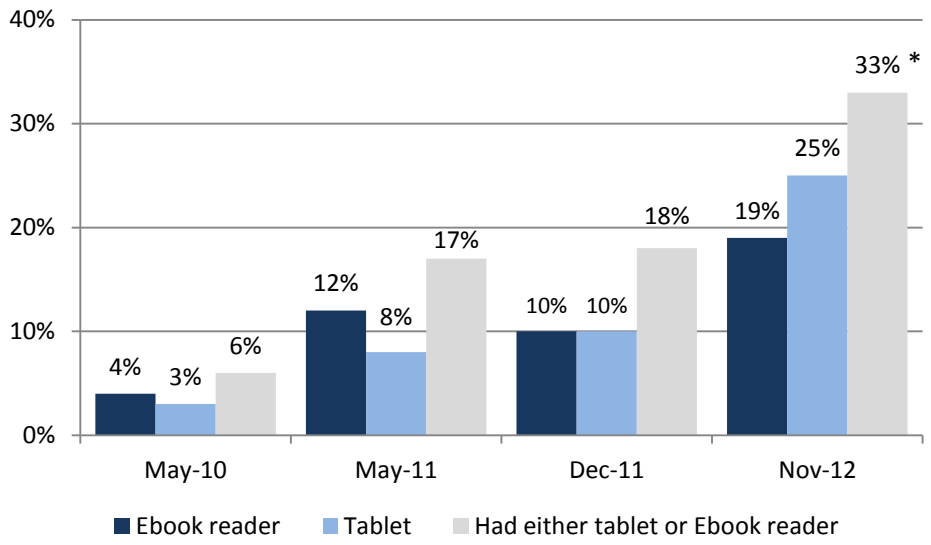
The population of e-book readers is growing. In the past year, the number of those who read e-books increased from 16% of all Americans ages 16 and older to 23%. At the same time, the number of those who read printed books in the previous 12 months fell from 72% of the population ages 16 and older to 67%.

Overall, the number of book readers in late 2012 was 75% of the population ages 16 and older, a small and statistically insignificant decline from 78% in late 2011.

The move toward e-book reading coincides with an increase in ownership of electronic book reading devices. In all, the number of owners of either a tablet computer or e-book reading device such as a Kindle or Nook grew from 18% in late 2011 to 33% in late 2012. As of November 2012, some 25% of Americans ages 16 and older own tablet computers such as iPads or Kindle Fires, up from 10% who owned tablets in late 2011. And in late 2012 19% of Americans ages 16 and older own e-book reading devices such as Kindles and Nooks, compared with 10% who owned such devices at the same time last year.

E-reading device ownership

% of Americans who own e-book readers, tablet computers, and at least one of those devices



Source: Most recent data from Pew Research Center Internet & American Life Project Library Services survey. October 15-November 10, 2012. N=2,252 Americans ages 16 and older. Interviews were conducted in English and Spanish and on landline and cell phones. Margin of error is +/- 2.3 percentage points for the total sample.
* Surveys for December 2011 and November 2012 involved those ages 16 and older. Previous samples were of adults age 18 and older.

This move toward e-books has also affected libraries. The share of recent library users[1] who have borrowed an e-book from a library has increased from 3% last year to 5% this year.[2] Moreover, awareness of e-book lending by libraries is growing. The share of those in the overall population who are aware that libraries offer e-books has jumped from 24% late last year to 31% now.[3]

These latest figures come from a survey by the Pew Research Center's Internet & American Life Project which was conducted on October 15-November 10, 2012 among 2,252 Americans ages 16 and older. The margin of error is plus or minus 2.3 percentage points.

Who reads e-books

In the book-reading population, those most likely to read e-books include those with college or graduate degrees, those who live in households earning more than $75,000, and those whose ages fall between 30 and 49.

The tables below, which show increases among various demographic groups, are based on those who say they had read a book in the past 12 months, not the full population of those ages 16 and older.

[1] The way we defined recent library users changed between 2011 and 2012. In 2011, recent library users were those who had used a public library for at least one of eight activities in the previous twelve months. In 2012, we defined recent library users as those who had done one of the following things in the previous twelve months: visited a public library in person, gone on a public library website, or used a cell phone, e-reader or tablet to visit a public library website or access public library resources.

[2] The way we identified e-book borrowers has changed. In 2011, our question was addressed to those who had read e-books and the language was: In the past 12 months, have you used a public library to borrow or download an e-book?" This year the question was asked of all those who had used their library's website in the past 12 months and the question language was: "In the past 12 months, have you used a public library website to borrow or download an e-book?"

[3] In 2011, this question was asked of those who do not read e-books or those who read e-books but do not borrow them from the library. The figure cited here for 2011 is converted to all those ages 16 and older. In the recent survey it was asked of all adults.

E-book readers

Among those who read at least one book in the past 12 months, the percentage who read at least one e-book in that time period

	December 2011^ (n=2,474 book readers)	November 2012^^ (n=1,754 book readers)	Change in percentage points
All readers	**21**	**30**	**+9**
Men	22	30	+8
Women	20	31	+11
Age			
16-17 (n=91)	13	28	+15
18-29	25	31	+6
30-49	25	41	+16
50-64	19	23	+4
65+	12	20	+8
Race/ethnicity			
White, Non-Hispanic	21	31	+10
Black, Non-Hispanic	19	30	+11
Hispanic	19	24	+5
Annual household income			
Less than $30,000/yr	14	19	+5
$30,000-$49,999	18	28	+10
$50,000-$74,999	24	38	+14
$75,000+	34	44	+10
Education level			
No high school diploma	11	21	+10
High school grad	15	20	+5
Some College	22	31	+9
College +	30	42	+12
Urbanity			
Urban	22	34	+12
Suburban	22	32	+10
Rural	17	20	+3

Source: 2012 data from Pew Internet Library Services Survey, October 15 – November 10, 2012. N=2,252 people ages 16 and older. Interviews were conducted on landline and cell phones and in English and in Spanish. Margin of error is +/- 2.7 percentage points for recent readers.
2011 data from Pew Internet Reading Habits Survey, November 16 – December 21, 2011. N=2,986 people ages 16 and older. Interviews were conducted on landline and cell phones and in English and in Spanish. Margin of error is +/- 2.3 percentage points for recent readers.
^ In December 2011 survey, 78% of Americans ages 16+ had read a book in previous 12 months
^^ In November 2012 survey, 75% of Americans ages 16+ had read a book in previous 12 months

Who read books in the past 12 months

In the new Pew Internet survey 75% of Americans ages 16 and older said they had read a book in any platform in the previous 12 months. That is not statistically significantly different from the 78% who in late 2011 said in a survey they had read a book in the previous 12 months. Of them:

- 89% of the book readers said they had read a printed book. This translates into 67% of all those ages 16 and older.
- 30% of the book readers said they had read an e-book. This translates into 23% of all those ages 16 and older.
- 17% of the book readers said they had listened to an audio book. This translates into 13% of all those ages 16 and older.

All told, those book readers consumed a mean (average) of 15 books in the previous 12 months and a median (midpoint) of 6 books — in other words, half had read fewer than six and half had read more than six. That breaks down as follows:

- 7% of Americans ages 16 and older read one book in the previous 12 months
- 14% had read 2-3 books in that time block
- 12% had read 4-5 books in that time block
- 15% had read 6-10 books in that time block
- 13% had read 11-20 books in that time block
- 14% had read 21 or more books in that time block

Book readers

% of all Americans ages 16+ who read at least one book in the past 12 months either all or part of the way through (including those who read printed books and e-books and those who listen to audio books)

	Overall book reading population	Mean number of books (average among book readers)	Median number of books (midpoint among book readers)
Full sample (n=2,252)	**75%**	**15**	**6**
Men (n=1,059)	70	13	5
Women (n=1,193)	81*	17*	8
Age			
16-17 (n=101)	90****	13	5
18-29 (n=369)	80***	13	7
30-49 (n=369)	77**	16	7
50-64 (n=586)	72	15	6
65+ (n=531)	67	18*	7
Race/ethnicity			
White, Non-Hispanic (n=1,572)	78*	16*	8
Black, Non-Hispanic (n==243)	74*	11	5
Hispanic (n=277)	60	13	5
Annual household income			
Less than $30,000/yr (n=629)	66	14	6
$30,000-$49,999 (n= 586)	78*	18	7
$50,000-$74,999 (n= 628)	81*	15	7
$75,000+ (n=567)	84*	15	7
Education level			
No high school diploma (n=254)	55	10	5
High school grad (n=610)	66*	17*	5
Some College (n=562)	82**	13*	6
College + (n=812)	90***	18**	10
Urbanity			
Urban (n=721)	78	14	6
Suburban (n=1,090)	75	16	7
Rural (n=440)	72	17	7

Source: 2012 data from Pew Internet Library Services Survey, October 15 – November 10, 2012. N=2,252 people ages 16 and older. Interviews were conducted on landline and cell phones and in English and in Spanish. Margin of error is +/- 2.3 percentage points for the total sample and +/- 2.7 percentage points for recent readers.

* indicates statistically significant difference compared with others in same grouping

E-book borrowing from libraries

This move toward e-books has also affected libraries. The share of recent library users who have borrowed an e-book from a library has increased from 3% last year to 5% this year.

Beyond that, there is growing public awareness that the vast majority of public libraries now lend e-books. In the entire population of those ages 16 and older, the number who are aware that libraries offer e-book loans increased from 24% last year to 31% now. At the same time, there has been a drop in the number of people who do not know whether their local library has an e-book borrowing program. Now, 57% say they don't know if their library offers e-books. Last year, 63% of those ages 16 and above did not know if their library offered e-books for borrowing.[4]

[4] In 2011, this question was asked of those who do not read e-books or those who read e-books but do not borrow them from the library. The figure cited here for 2011 is converted to all those ages 16 and older. In the recent survey it was asked of all adults.

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The Pew Research Center's Internet & American Life Project is an initiative of the Pew Research Center, a nonprofit "fact tank" that provides information on the issues, attitudes, and trends shaping America and the world. The Pew Internet Project explores the impact of the internet on children, families, communities, the work place, schools, health care and civic/political life. The Project is nonpartisan and takes no position on policy issues. Support for the Project is provided by The Pew Charitable Trusts. More information is available at pewinternet.org.

Advisors for this research

A number of experts have helped Pew Internet in this research effort:

Larra Clark, American Library Association, Office for Information Technology Policy
Mike Crandall, Professor, Information School, University of Washington
Allison Davis, Senior Vice President, GMMB
Catherine De Rosa, Vice President, OCLC
LaToya Devezin, American Library Association Spectrum Scholar and librarian, Louisiana
Amy Eshelman, Program Leader for Education, Urban Libraries Council
Sarah Houghton, Director, San Rafael Public Library, California
Mimi Ito, Research Director of Digital Media and Learning Hub, University of California Humanities Research Institute
Patrick Losinski, Chief Executive Officer, Columbus Library, Ohio
Jo McGill, Director, Northern Territory Library, Australia
Dwight McInvaill, Director, Georgetown County Library, South Carolina
Bobbi Newman, Blogger, Librarian By Day
Carlos Manjarrez, Director, Office of Planning, Research and Evaluation, Institute of Museum and Library Services
Johana E. Orellana-Cabrera, American Library Association Spectrum Scholar and librarian at City of Irvine (CA) Public Libraries
Mayur Patel, Vice President for Strategy and Assessment, John S. and James L. Knight Foundation
Sharman Smith, Executive Director, Mississippi Library Commission
Michael Kelley, Editor in Chief, Library Journal

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Survey questions

Library Services Survey

Final Topline 11/14/2012

Data for October 15 – November 10, 2012

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

Sample: n=2,252 people **age 16 or older** nationwide, including 1,125 cell phone interviews
Interviewing dates: 10.15.2012 – 11.10.2012

Margin of error is plus or minus 2.3 percentage points for results based on Total [n=2,252]
Margin of error is plus or minus 2.5 percentage points for results based on those who have ever used a public library [n=1,981]
Margin of error is plus or minus 2.5 percentage points for results based on those who have ever visited a public library [n=1,920]

Q4 Next I have some questions about reading... During the past 12 months, about how many BOOKS did you read either all or part of the way through? Please include any print, electronic, or audiobooks you may have read or listened to.[5]

	current		Feb 2012	Dec 2011
%	23	None	23	18
	7	1 book	6	6
	14	2-3 books	17	13
	12	4-5 books	13	12
	15	6-10 books	14	15
	13	11-20 books	11	14
	14	More than 20 books	13	17
	1	Don't know	2	3
	1	Refused	1	1

Q5 Thinking about all of the books you have read in the past 12 months, were any of those... [INSERT ITEMS IN ORDER]? Were any of those... [INSERT NEXT ITEM]?
Based on those who read any books in the past 12 months

	Yes	no	Don't know	Refused
Printed books				
Current [N=1,754]	89	10	1	*
February 2012 [N=1,377][6]	90	10	*	*
December 2011 [N=2,474]	93	7	*	*
Audiobooks				
Current	17	83	*	0
February 2012	15	85	*	*

[5] In February 2012, the question was added after interviewing began and trend results are based on Total respondents who were asked the question [N=1,850].
[6] In February 2012, the question was added after interviewing began and trend results are based on respondents who were asked the question and who read any books in the past 12 months.

December 2011	14	86	*	0
Electronic books, also called e-books				
Current	30	69	*	*
February 2012	29	71	*	*
December 2011	21	78	*	*

28 As far as you know, does your public library loan out e-books?[7]

	current		dEC 2011
%	31	Yes	22
	12	No	14
	57	Don't know	63
	*	Refused	*

Q18 In the past 12 months, have you used a public library WEBSITE to do any of the following? (First,/Next,) in the past 12 months, have you use a public library website to [INSERT FIRST TWO ITEMS; RANDOMIZE]? Next, how about to... [INSERT ITEMS; RANDOMIZE REMAINING ITEMS]?

Based on Form B who have gone on a public library website in the past 12 months [N=288]

	YES	NO	(VOL.) CAN'T DO THIS ON WEBSITE	DON'T KNOW	REFUSED
a. Borrow or download an e-book	22	78	*	0	0

[7] In December 2011, question was asked of those who do not read e-books or e-book readers who do not get e-books at the public library [N=2,874].

Methodology

Library Services Survey
Prepared by Princeton Survey Research Associates International for the Pew Research Center's Internet & American Life Project November 2012

SUMMARY

The Library Services Survey, conducted by the Pew Research Center's Internet & American Life Project and funded by the Bill & Melinda Gates Foundation, obtained telephone interviews with a nationally representative sample of 2,252 people ages 16 and older living in the United States. Interviews were conducted via landline (n_{LL}=1,127) and cell phone (n_C=1,125, including 543 without a landline phone). The survey was conducted by Princeton Survey Research Associates International. The interviews were administered in English and Spanish by Princeton Data Source from October 15 to November 10, 2012. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for results based on the complete set of weighted data is ±2.3 percentage points. Results based on the 1,945 internet users[8] have a margin of sampling error of ±2.5 percentage points.
Details on the design, execution and analysis of the survey are discussed below.

DESIGN AND DATA COLLECTION PROCEDURES

Sample Design
A combination of landline and cellular random digit dial (RDD) samples was used to represent all adults in the 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 probabilities in proportion to their share of listed telephone households from active blocks (area code + exchange + two-digit block number) that contained three or more residential directory listings. The cellular sample was not list-assisted, but was drawn through a systematic sampling from dedicated wireless 100-blocks and shared service 100-blocks with no directory-listed landline numbers.

Contact Procedures
Interviews were conducted from October 15 to November 10, 2012. As many as 7 attempts were made to contact every sampled telephone number. Sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample. Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. Interviewing was spread as evenly as possible across the days in field. Each telephone number was called at least one time during the day in an attempt to complete an interview.
For the landline sample, interviewers asked to speak with the youngest male or female ages 16 or older currently at home based on a random rotation. If no male/female was available, interviewers asked to speak with the youngest person age 16 or older of the other gender. This systematic respondent

[8] Internet user is defined based on those accessing the internet occasionally, sending or receiving email, and/or accessing the internet on a cell phone, tablet, or other mobile handheld device.

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 age 16 or older and in a safe place before administering the survey. Cellular respondents were offered a post-paid cash reimbursement for their participation.

WEIGHTING AND ANALYSIS

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.[9] This weighting also adjusts for the overlapping landline and cell sample frames and the relative sizes of each frame and each sample.

This first-stage weight for the i^{th} case can be expressed as:

$$WT_i = \frac{1}{\left(\frac{S_{LL}}{S_{CP}} \times \frac{1}{AD_i}\right)} \; if \; respondent \; has \; no \; cell \; phone$$

$$WT_i = \frac{1}{\left(\frac{S_{LL}}{S_{CP}} \times \frac{1}{AD_i}\right) + R} \; if \; respondent \; has \; both \; kinds \; of \; phones$$

$$WT_i = \frac{1}{R} \; if \; respondent \; has \; no \; land \; line \; phone$$

Where S_{LL} = size of the landline sample
S_{CP} = size of the cell phone sample
AD_i = Number of adults in the household
R = Estimated ratio of the land line sample frame to the cell phone sample frame

The equations can be simplified by plugging in the values for S_{LL} = 1,127 and S_{CP} = 1,125. Additionally, we will estimate of the ratio of the size of landline sample frame to the cell phone sample frame R = 0.60. The final stage of weighting balances sample demographics to population parameters. The sample is balanced by form to match national population parameters for sex, age, education, race, Hispanic origin, region (U.S. Census definitions), population density, and telephone usage. The Hispanic origin was split out based on nativity; U.S born and non-U.S. born. The White, non-Hispanic subgroup is also balanced on age, education and region. The basic weighting parameters came from a special analysis of the Census Bureau's 2011 Annual Social and Economic Supplement (ASEC) that included all households in the United States. The population density parameter was derived from Census data. The cell phone usage parameter came from an analysis of the July-December 2011 National Health Interview Survey.[10][11] Weighting was accomplished using Sample Balancing, a special iterative sample weighting program that simultaneously balances the distributions of all variables using a statistical technique called the *Deming*

[9] i.e., whether respondents have only a landline telephone, only a cell phone, or both kinds of telephone.
[10] Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December, 2011. National Center for Health Statistics. June 2012.
[11] The phone use parameter used for this 16+ sample is the same as the parameter we use for all 18+ surveys. In other words, no adjustment was made to account for the fact that the target population for this survey is slightly different than a standard 18+ general population survey.

Algorithm. Weights were trimmed to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the national population. Table 1 compares weighted and unweighted sample distributions to population parameters.

Table 1: Sample Demographics

Parameter (16+)		Unweighted	Weight
Gender			
Male	48.7%	47.0%	48.7%
Female	51.3%	53.0%	51.3%
Age			
16-24	16.0%	14.2%	16.5%
25-34	17.3%	13.2%	16.9%
35-44	16.6%	12.3%	15.6%
45-54	18.3%	16.6%	18.0%
55-64	15.4%	18.5%	15.3%
65+	16.3%	23.6%	16.5%
Education			
Less than HS Graduate	16.4%	11.3%	16.0%
HS Graduate	29.4%	27.1%	29.2%
Some College/Assoc Degree	27.5%	25.0%	26.6%
College Graduate	26.8%	36.1%	27.6%
Race/Ethnicity			
White/not Hispanic	67.4%	69.8%	66.4%
Black/not Hispanic	11.6%	10.8%	11.5%
Hisp - US born	7.0%	7.1%	7.1%
Hisp - born outside	7.3%	5.2%	7.0%
Other/not Hispanic	6.7%	5.6%	6.5%
Region			
Northeast	18.3%	16.6%	18.9%
Midwest	21.7%	22.6%	21.6%
South	36.8%	36.5%	36.7%
West	23.2%	24.3%	22.8%
County Pop. Density			
1 - Lowest	19.9%	23.2%	20.2%
2	20.0%	18.8%	19.8%
3	20.1%	21.7%	20.2%
4	20.0%	19.8%	20.2%
5 - Highest	20.0%	16.5%	19.6%
Household Phone Use			
LLO	7.0%	5.6%	6.8%
Dual - few, some cell	39.0%	49.8%	39.5%
Dual - most cell	18.8%	20.3%	18.9%
CPO	35.2%	24.1%	34.6%

Effects of Sample Design on Statistical Inference

Post-data collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. PSRAI calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called "design effect" or *deff* represents the loss in statistical efficiency that results from systematic non-response. The total sample design effect for this survey is 1.24.

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

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

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

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

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

The survey's *margin of error* is the largest 95% confidence interval for any estimated proportion based on the total sample— the one around 50%. For example, the margin of error for the entire sample is ±2.3 percentage points. This means that in 95 out every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 2.3 percentage points away from their true values in the population. The margin of error for estimates based on form 1 or form 2 respondents is ±3.3 percentage points. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as respondent selection bias, questionnaire wording and reporting inaccuracy, may contribute additional error of greater or lesser magnitude.

RESPONSE RATE

Table 2 reports the disposition of all sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible respondents in the sample that were ultimately interviewed. At PSRAI it is calculated by taking the product of three component rates:[12]

Contact rate – the proportion of working numbers where a request for interview was made[13]

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

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

Cooperation rate – the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused
Completion rate – the proportion of initially cooperating and eligible interviews that were completed
Thus the response rate for the landline sample was 11.4 percent. The response rate for the cellular sample was 11 percent.

Table 2:Sample Disposition

Landline	Cell	
27,813	23,844	Total Numbers Dialed
1,100	404	Non-residential
1,120	45	Computer/Fax
8	----	Cell phone
13,815	9,183	Other not working
1,577	321	Additional projected not working
10,193	13,891	Working numbers
36.6%	58.3%	Working Rate
526	107	No Answer / Busy
3,296	4,073	Voice Mail
27	11	Other Non-Contact
6,344	9,700	Contacted numbers
62.2%	69.8%	Contact Rate
373	1,504	Callback
4,749	6,630	Refusal
1,222	1,566	Cooperating numbers
19.3%	16.1%	Cooperation Rate
40	42	Language Barrier
----	375	Screen out / Child's cell phone
1,182	1,149	Eligible numbers
96.7%	73.4%	Eligibility Rate
55	24	Break-off
1,127	1,125	Completes
95.3%	97.9%	Completion Rate
11.4%	11.0%	Response Rate