

RESEARCH STUDY

Mobile Phones and Internet Use in Cambodia 2016



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DEVELOPMENT
INNOVATIONS



Executive Summary

This study examines Cambodian phone users’ knowledge, attitudes and practices in relation to Khmer-language reading, writing, and search habits, and identifies the factors motivating (and discouraging) their use of Khmer script. It also attempts to identify changes and trends in the way Khmer-enabled phones are used, including as a means of accessing the Internet — in particular Facebook.

The study's findings respond to a need for data on **phones’** effectiveness as a tool with which government and civil society organizations can communicate with citizens and beneficiaries throughout the country, and provide them with information and services in Khmer. The results enable quantification of the population of Cambodian phone owners who are able to send and receive SMS messages in Khmer, as well as access the Internet and use Facebook in the language.

Data collected in September 2016 shows that Cambodia’s phone market is saturated, with over 96% of Cambodians claiming to own their own phone, and more than 99% being reachable through some sort of phone. The proportion of citizens using more than one phone stayed at 13%, while one Cambodian in four uses more than one mobile operator. These numbers are similar to those reported in previous years.

The results show that 76% of Cambodians own phones with Khmer script capability, indicating a 21% increase over the past year.

Some 48% of Cambodians were found to have at least one smartphone. The ability to display Khmer is more common in smartphones (90%) than in dumb phones (66%). **Smartphone users’ ability to display Khmer** was shown to improve with education level.

It was found that almost half of Cambodians (48%) claim to have accessed the Internet or Facebook, and that five of every six respondents in this group have their own Facebook accounts. Smartphones are by far the most common means of accessing Facebook; only 3% of Facebook users access the social media site solely through computers, while 80% access it exclusively through phones.

In 2016 Internet/Facebook became the most important channel through which Cambodians access information (30%) — surpassing TV (29%) and almost doubling radio (15%) — and it is expected to continue gaining market share yearly.

One of **the study’s most** interesting findings is the fact that almost a third of Cambodians now use the Internet to read and write — activities once limited to the classroom or office. This reading and writing activity allows them to access more information, enhance their communication skills, and increase their level of social participation.

Among other significant results this year was yet another reduction in the gender

gap in access to information, and the discovery that one in three smartphones in Cambodia is an iPhone, potentially making Apple a more important target for those who develop software for the local market.

To increase the rate of adoption of Khmer in phones, however, text-prediction functions and input methods will need to be improved.

Table of Contents

1.	Introduction	1
1.1	Background of the study	1
1.2	Research problems/significance	1
1.3	Research purposes and objectives	2
2.	Means and Methods.....	3
2.1	Populations of the study.....	3
2.2	Sample sizes.....	3
2.3	Sampling	4
2.4	Questionnaire and observation data sheet	4
2.5	Data collection.....	4
2.6	Data management	5
2.7	Data analysis.....	5
2.8	Research ethics.....	6
3.	Results.....	7
3.1	Demographics of the sample.....	7
3.2	Owning a mobile phone	7
3.3	Number of phones and operators used	8
3.4	Smartphones	9
3.5	Khmer language in phones.....	10
3.6	Mobile Payment	20
3.7	Response to the main question (Khmer-enabled phones).....	21
4	Discussion	22
4.1	Owning or having access to a phone.....	22
4.2	Phones	22
4.3	Phones supporting Khmer	22
4.4	Writing and reading in Khmer script	23
4.5	Internet and Facebook	23
4.6	Preferred media for receiving news	24
4.7	Gender-related aspects of phone and Facebook use.....	24
5	Conclusions and recommendations	25
	Appendix A: The Questionnaire Instrument	27

Mobile Phones and Internet Use in Cambodia 2016¹

1. Introduction

1.1 Background of the study

It is only in the past eight years that standardization of the use of Khmer script in computers has been achieved (a process accelerated by the KhmerOS and Open School programs²). The adoption of the Unicode standard has permitted the development of modern websites and blogs in Khmer, translation of computer applications, the creation of vernacular social networks, and the permanent storage of textual information that remains readable even if the legacy fonts are lost.

This change has also permitted the use of Khmer in phones.

Starting in 2005, a few manufacturers of simple phones began to develop support for Khmer script. During the first few years, however, the number of phones did not reach the critical mass required to trigger widespread use, while input methods were too complicated for everyday users. The Latin script was used to write in Khmer, despite the small number of people who could understand it and the limits it placed on vocabulary, allowing only poor communication among youth.

A turning point was reached in 2013, as the arrival of smartphones coincided with an increase in interest in the Internet. Before long, the smartphone became most **users' only means** of accessing the Internet. By 2015, a third of **Cambodia's** population was doing so regularly, mostly via their smartphones.

Phones have also become an important communication and service-provision tool for civil society organizations and government agencies. The Asia Foundation, USAID's Development Innovations and the Open Institute undertake this study in order to aid civil society's efforts to integrate technology and development programs by supplying organizations with crucial, up-to-date information on how Cambodian society is using telephony and the Internet.

1.2 Research problems/significance

With the way now cleared for the use of Khmer in phones, and with new models of both smart and dumb phones permitting the use of Khmer, it is important to

1 This work was made possible by the generous support of the American people through the United States Agency for International Development (USAID). Half of the data presented in this report was collected with the support of The Asia Foundation. The content of the report does not necessarily reflect the views of USAID, the United States government, or The Asia Foundation.

2 The Open Institute's KhmerOS program has worked since 2004 to help standardize the use of Khmer script in society and government by using Unicode. The Open Schools Program, also housed at the Open Institute, has supported the Ministry of Education in the standardization to Unicode and the teaching of Unicode to all students in grades 11 and 12. www.open.org.kh – www.khmeros.info

quantify the penetration of these Khmer-enabled phones, and to identify the point of critical mass at which users start writing to each other in Khmer. The percentage of users whose phones support Khmer was last determined by Phong and Sola in 2015 (63.3%), but rapid changes in technology and demand quickly render such information outdated. It is necessary to continually update data on the percentage of phones that support Khmer script. Without this information, it would be impossible to gauge the effectiveness of SMS as a tool for communicating with and providing services to the public by civil society organizations and government agencies. Nor is it possible to fully understand how Khmer-enabled smartphones facilitate access to social networks in Khmer — the fastest growing means of communication in Cambodia among youth — without knowing their penetration rate. Determining the number of Khmer-enabled phone users, and how many of them have access to the Internet, also gives us a baseline from which to measure their growth, and changes in their relationship, over time.

1.3 Research purposes and objectives

The purposes of this study are to gauge the Khmer-language capability of smart and non-smart mobile phones currently available in Cambodia; to determine the penetration rates of these phones; to assess the level of actual usage of Khmer script in Khmer-enabled phones; to learn which models are being used to access the Internet/Facebook; and to chart changes in these factors over the course of 2012-2016. It also aims to identify factors that motivate or discourage the use of Khmer in phones, and to study consumer demand for Khmer-enabled phones.

2. Means and Methods

2.1 Populations of the study

The study is limited to Cambodian citizens aged 15 to 65 who live inside the country.

The study includes three population groups: (a) people who were at home when data collection was conducted (office hours); (b) people not available at home during these hours but who could be reached at their workplace or where they eat lunch; and (c) indigenous minorities, also interviewed at home.

A population projection to 2013 based on the 2008 census and adjusted for natural decrease yields an estimated population for this age group of 9,606,450 citizens. This is consistent with the population approximation in the Cambodian Inter-Censal Population Survey 2013.

A sample of 2,000 participants was considered sufficient for this study (confidence interval = 2.19; confidence level = 95%).

2.2 Sample sizes

For the purposes of this study, the ratio of Cambodians living in rural areas to those in urban areas was estimated at 70:30. According to the National Institute of Statistics, in 2008 the ratio was 80.5:19.5. However, given the rapid increase in the urban population since then (mostly due to growth in the urban-based garment and hospitality industries), we believe this statistic is outdated. Our analysis found that most garment industry workers are of rural origin and are censed in their rural homes, but live and work in urban areas; they are included in the sample as part of the urban population. These migrant factory workers represent 6% of population. The additional 4% that is considered as urban is made mostly out of students, white-collar workers, hospitality workers, and entertainment workers. While only partially supported by hard data, we are confident our 30% estimate for the urban population is closer to **today's reality** than is the 2008 figure.

The size of the main sample — 2,000 participants — is sufficient to yield an answer to the **study's central** question with a confidence interval of 2.19 and a confidence level of 95%.

Some 84% of the sample was collected at households across the country. These respondents were selected based on official national census data. Their gender, age and location of residence are proportionate – based on census data – to those of their provinces of origin. The remaining 16% was made up of white-collar employees (government officials, NGO workers, private company staff), and blue-collar workers (garment industry, restaurant and entertainment workers) in Phnom Penh.

2.3 Sampling

Multi-stage sampling using the Probability Proportional to Size (PPS) method was used to select a nationally representative sample of 15- to 65-year-olds from participating households.

Cambodia's 24 provinces are categorized into five regions — central plain; Tonle Sap; coastal; plateau/mountain; and Phnom Penh. Kampong Cham represented the central plain region; Battambang the Tonle Sap region (including data from floating villages, represented by Kampong Luong in Pursat); Preah Sihanouk the coastal region; and Stung Treng the plateau and mountain region. These provinces were chosen as they possess the standard characteristics included in **the study's** requirements.

A total of 69 villages (28 urban) were selected across the five regions. Within each region the number of urban and rural villages was calculated matching the urban-rural proportion of the province. In each village, 25 respondents were selected. Urban and rural respondents were sampled independently, with the respective numbers of rural and urban villages corresponding to the urban-rural makeup of that particular region's **population** as recorded in the 2008 national census. The cumulative population was divided by the number of villages in the categories to generate the sampling for interviews.

A random number between one and the sampling number was generated using Microsoft Excel's RAND function. The first village to be selected was the one corresponding to this number. Subsequent villages were selected by adding the sampling interval to the previous random number.

Systematic sampling was used to select households. In each village, the data collection team leader consulted the village chief to ascertain the actual number of households in the village; from this number they derived the interval used by the data collectors to select households. At the village level, purposive sampling was applied to select individual respondents. Interviewers visited the households and interviewed the persons they met, screening out those who did not meet the gender/age requirements.

2.4 Questionnaire and observation data sheet

The general population survey questionnaire was designed to elicit the following:

- Demographic information
- **Characteristics of respondents' mobile phones**
- Knowledge of, attitudes toward, and practices involving phone use

In addition to the questionnaire, the form included a data sheet on which the interviewers were asked to record their observations.

2.5 Data collection

Data was collected in two forms: interview responses and **interviewers'**

observations. Face-to-face verbal interviews were conducted using a standardized questionnaire; interviewers read the questions to the respondents and noted the answers. They also recorded their direct observations about the respondents' phones, both before and after sending them an SMS in Khmer.

Interviewers administered an electronic questionnaire. Responses and observations were recorded on tablet computers using the Open Data Kit mobile data-collection application.

Recruitment/training of field-workers

Each data-collection team comprised one supervisor and five data collectors. In total, four supervisors and 20 data collectors were recruited and trained by Open Institute researchers.

Training was prepared and conducted by Open Institute in order to familiarize field-workers with the aims and objectives of the research; improve their knowledge of the survey's methodology, ethics and data-collection techniques; familiarize them with the questionnaire; and to help build, through interactive practice sessions, the interpersonal communication and other skills needed to administer the questionnaire.

Fieldwork

Data collection was conducted over a period of two weeks in September 2016. Field supervisors were responsible for ensuring the quality of all work. Quality assurance was achieved through observation, spot checks and group meetings at the end of each work day. Supervisors observed selected interviews in order to evaluate and improve interviewers' performance and to catch errors or misinterpretation of questions.

The supervisors also oversaw the process of field editing; every questionnaire was checked in the field for accuracy, completeness, **respondent's** eligibility and consistency. Spot checks were carried out by the authors, who visited the selected households to confirm that the interviews were conducted, listen to household members and observe interviewers' **attitudes** toward them and the respondents.

2.6 Data management

All data was checked by the supervisors before being synchronized with the central database.

All completed questionnaires were **stored in the Open Institute's server.**

2.7 Data analysis

IBM SPSS Statistics Version 20 and OpenOffice 4 were used to analyze the data. Descriptive analysis was used to determine the frequencies of the key variables and all survey questions. Analysis uses descriptive statistics (frequencies) to describe the differences in the numbers of phone users.

In cases that appeared to indicate a trend, the data was analyzed with far greater precision to ensure that any conclusions on the existence of a trend were backed by data.

Comparison with baseline survey data collected in 2013, 2014, and 2015 provided an idea of the changes that took place over those three years.

2.8 Research ethics

All interviewers and fieldwork team members were trained in ethical issues, including confidentiality and anonymity. All selected respondents were given basic information about the study and asked to give their consent to participate in it. Respondents were allowed to skip questions or to withdraw from the study at any time.

No identifying information relating to the respondents was included in data used in the analysis. On the data sets, ID numbers were used instead of participants' names. All completed questionnaires were **stored in the Open Institute's server**. Only those people responsible for data analysis had access to the database.

3. Results

3.1 Demographics of the sample

Of the 2,061 participants between the ages of 15 and 65 interviewed for the study, 44% resided in urban areas and 56% in locations considered rural. Female respondents accounted for 56%, males for 44%. Almost one-third of the respondents (33%) were single, while 62% were married. Participants were chosen from three age groups: 15-24 (33%), 25-39 (35%) and 40-65 (31%). The average age of the respondents was 33.5 years.

A majority of the participants had some level of education (36% to the primary level, 31% lower secondary, 18% upper secondary). Some 7% of respondents had completed a **bachelor's** degree and a few had finished a **master's** degree. Only 6% had received no formal schooling at all.

Studies conducted in Cambodia usually assume the population's **gender balance** to be 50:50. Because 56.1% of the participants in our sample were female, however, all relevant calculations were adjusted to ensure that the results faithfully reflected the gender breakdown.

The differences between the actual sample and the intended sample were due to unavailability of sufficient men and young people in several of the randomly selected villages; many people in these categories had moved to urban areas or to other countries to find work.

The study takes into account the fact that the proportions of rural and urban participants surveyed do not correspond to these **groups'** actual proportions in the overall population. The 44-56% urban-rural sample has been weighted to reflect the estimated reality of a 70%-30% rural-urban population split.

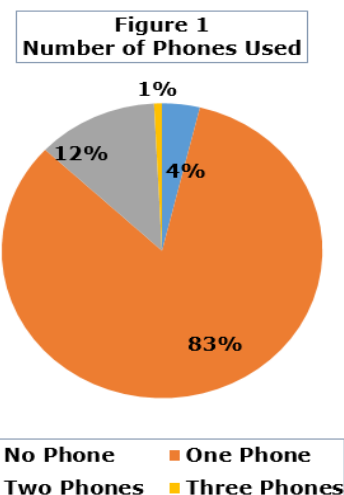
3.2 Owning a mobile phone

Of the 2,061 respondents interviewed for this survey, **96% said they owned their own mobile phone(s)** (a 0.8% increase from 2014 and up 4.5% from 2013) and showed it (or them) to the interviewer (ownership was 97% in urban areas, 95% in rural areas). Some 95% of women were found to own a phone, versus 98% of men.

Of the 4% who did not have a phone, more than nine out of 10 were contactable through a household phone. Only five respondents out of the total 2,061 were unable to provide a phone number through which they could be contacted (0.2%).

3.3 Number of phones and operators used

Respondents were asked how many phones they owned. The vast majority of respondents (83%) used only one mobile phone; a far smaller group used two (12%), and only a handful (1%) used three. Based on this data, Cambodians use an average of 1.08 phones per person (up from 0.98 in 2013). Women use an average of 1.03 phones, whereas men use an average of 1.14 phones (1.17 urban; 1.05 rural)



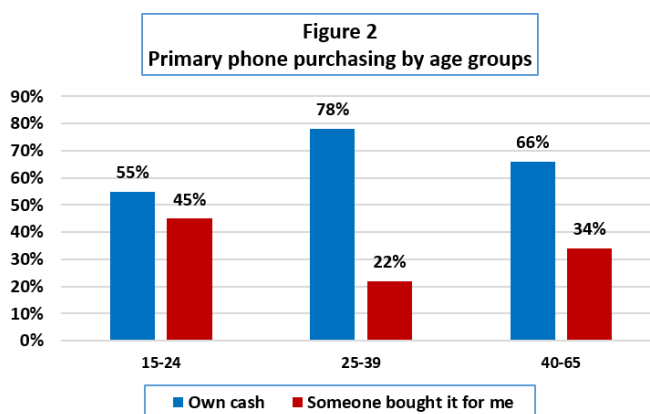
Regarding the number of operators used, it was found that 27% of Cambodians use SIMs from more than one operator (35% urban, 21% rural; 35% of males, 21% of females). Only 3% of respondents reported using SIMs from more than two operators. The average number of operators per user is 1.2 (up from 1.11 in 2013). This yields 1.11 operators per phone, the same ratio as in 2013.

The total number of phones used by Cambodians aged 15 to 65 is estimated at 10,384,837 (up 1.7% from 2015, 3% from 2014, and 10% from 2013).

The total number of operator connections (SIMs) used by Cambodians aged 15 to 65 is estimated at 11,584,823 (up 0.6% from 2015, a 2% decrease from 2014, and up 8.6% from 2013).

Phone purchasing

None of the respondents had borrowed money to buy their phone; users either bought the phones with their own money (66%) or somebody else bought it for them (34%). The percentage of men who used their own money was larger than percentage of women (77%/58%).



While there were moderate differences among age groups, the group between 25 and 34 was the one that bought more phones with its own money, while only 50% of those under 25 were able to buy the phone by themselves.

4% of the respondents said they owned their own tablet(s) (7% ownership in urban areas versus 2% ownership in rural areas). Some 2% of women were found to own a tablet, versus 6% of men. Over **8% of respondents declared that they owned their own computer(s)**. Urban residents were found to own

computer more often than rural residents (13% versus 4%) and more men than women owned a computer (13% versus 4%).

3.4 Smartphones

The percentage of Cambodians who own at least one smartphone is **48%**, up 21% from 2015, 83% from 2014 and almost 140% from 2013. Some 60% of urban residents had at least one smartphone, whereas the figure for rural residents was only 42% (41% of females, 54% of males). Ownership of smartphones was also found to increase with education level, from 27% of those with no formal education to 82% of university students and graduates.

Figure 3
Smart-phone Penetration in Cambodia from 2013 to 2016

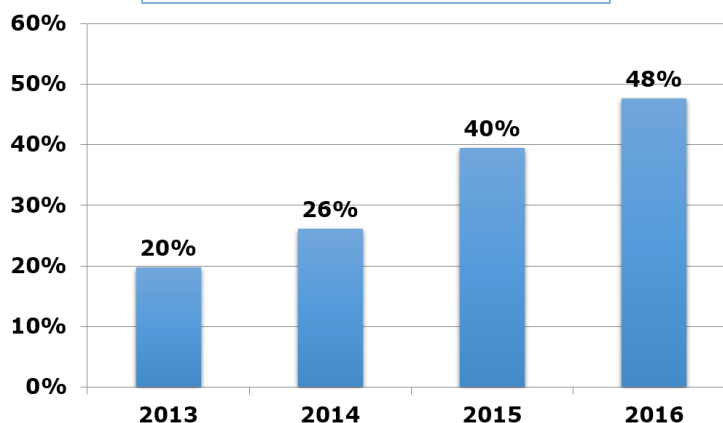
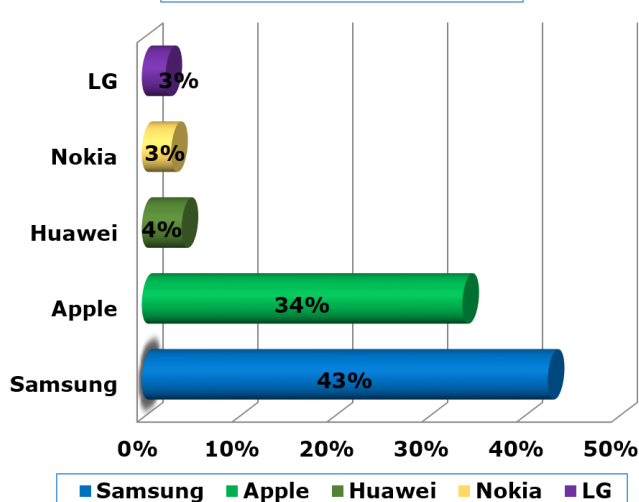


Figure 4
Smart Phone by Manufacturer



Regarding the **brand of smartphone** used, Samsung accounted for 43% of the market (down from 49% in 2014), followed by Apple with 34% (up from 25% in 2015, 20% in 2014, and 22% in 2013). Huawei accounted for 4.2% (up from 0% in 2013), while Nokia claimed 3% (down from 19% in 2013), and LG 2.5% (down from 5% in 2014). Other manufacturers (including Singtech, True, Camfone, Sony Ericsson, i-mobile, and HTC) amounted to 13%.

Among Samsung smartphones, the Galaxy Note model accounted for 20%, followed by Galaxy Note 2 (8%), Galaxy S4 (6%), Galaxy S3 (5%), Galaxy S2 (4%), Galaxy Note 3 (4%), Galaxy Grand (3%), and other models (49.2%).

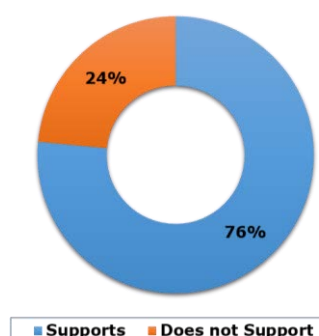
Among Apple smartphones, the iPhone 5 model accounted for 40%, followed by iPhone 5s (20%), iPhone 4 (13%), iPhone 6 (9%), iPhone 6 Plus (8%), iPhone 4s (5%), and iPhone 6s (3%).

No Huawei or Nokia smartphones were identified as significant.

3.5 Khmer language in phones

The study found that, after adjusting for location and gender, **76% of Cambodians aged 15 to 65 had at least one phone through which it was possible to send and receive messages in Khmer script** (up 21% from 2015, 49% from 2014, and 160% from 2013). It was found that 71% of women had such a phone, versus 82% of men. The number of women using Khmer-enabled phones was up by 188% from the 2013 study, while for men the growth rate was 138%, indicating a reduction in the gender gap.

Figure 5
Cambodians who have a phone that support Khmer



Support for Khmer was found to be more extensive in urban areas than in rural areas (82% versus 74%), but the urban/rural gap has been slowly narrowing since 2013.

Ownership rates of Khmer-enabled phones were found to increase with the level of education, from 55% of those with no formal education to 92% of university students and graduates (89% of women versus 96% of men).

Figure 6
Khmer-enabled Phones Penetration in Cambodia from 2013 to 2016

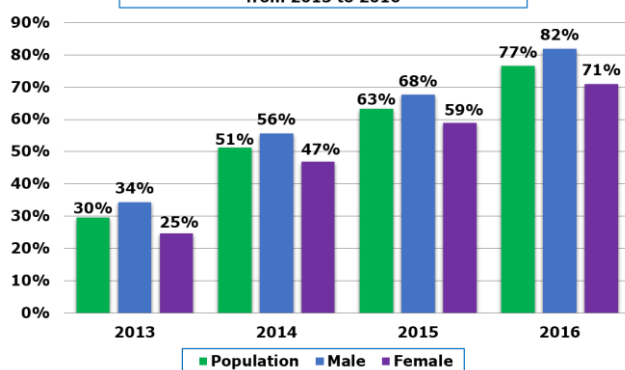
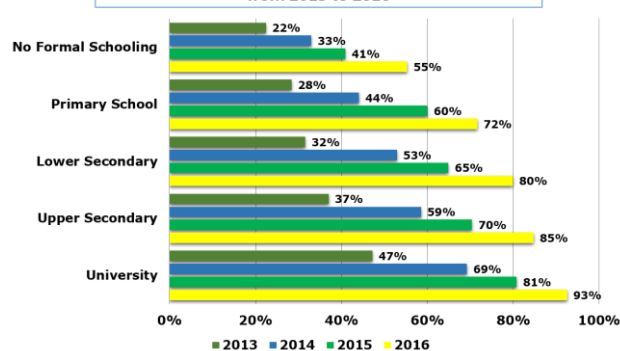


Figure 7
Khmer-enabled Phone Penetration by Level of Education from 2013 to 2016

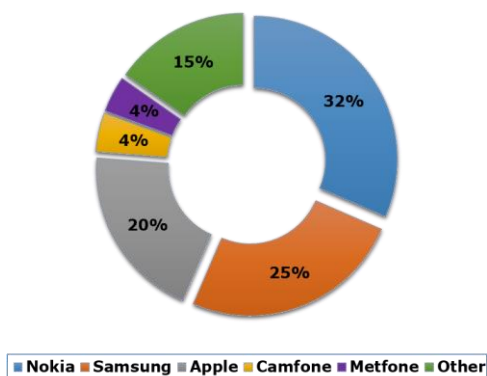


Some 90% of smartphones were found to support Khmer script. This represents an increase of 15% from 2015, 42% from 2014, and 116% from 2013. **For non-smartphones, the percentage was 66%.** This is a 17% increase from 2015, 38% from 2014 and 114% from 2013.

3.5.1 Manufacturers of phones that support Khmer script

Nokia phones account for 39% of all phones in Cambodia. The four other brands with a significant presence are Samsung (22%), Apple (16%), Camfone (4%) and Metfone (3%).

Figure 8
Khmer-enabled Phones
by Phone Manufacturer



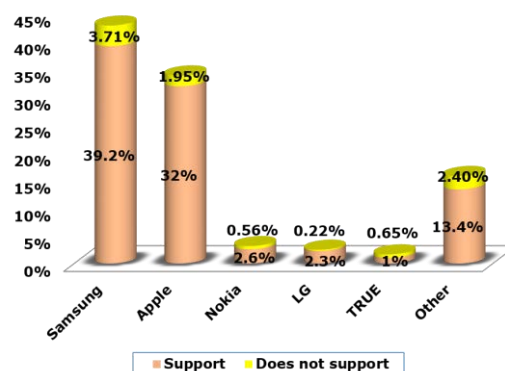
Nokia models account for 31% of all phones that support Khmer, followed by Samsung (25%), Apple (20%), Camfone (4%), and Metfone (4%). The remaining 15% was distributed among a large number of manufacturers.

Among Nokia phones, just a handful of models offer most of the support for Khmer script. The Nokia 105 accounted for 33.4% of the brand's Khmer-supported models, followed by the Nokia 108 (12.5%), Nokia 107 (11.4%) and Nokia 101 (7%).

96% of Apple and Huawei smartphones supported Khmer, followed by Samsung (91%) and Nokia (82%).

Among Samsung models, the Galaxy Note accounted for 21%, followed by the Galaxy Note 2 (9%), Galaxy S4 (5%), Galaxy S2 (5%), Galaxy S3 (4%), Galaxy Grand (4%), Galaxy Grand2 (4%), and Galaxy Grand Prime (3%).

Figure 9
Distribution of Smart Phone by Brand and Their Support for Khmer Script



3.5.2 Respondents' beliefs versus the observed reality

Respondents were asked if the phone(s) they used supported Khmer text (Unicode). The interviewer then sent an SMS in Khmer to each of the phones and checked to see if the message was correctly displayed.

Some 66% of users believed their main phone supported Khmer; 16% believed their main phone did not support Khmer; and 13% admitted not knowing.

Inspections of the phones after they had been sent an SMS in Khmer showed that the **users'** perceptions were not always correct.

The discrepancies between **users'** perceptions and the actual capability of the phones to display Khmer went in both directions: some users thought their phone supported Khmer when it did not; others mistakenly believed their phone was not equipped to display Khmer. In particular:

- 2% of those who thought their main phone could receive Khmer Unicode messages were wrong: their phones could not receive such messages (down from 86% wrong in 2013).
- 26% of those who thought their phone did not support Khmer were wrong:

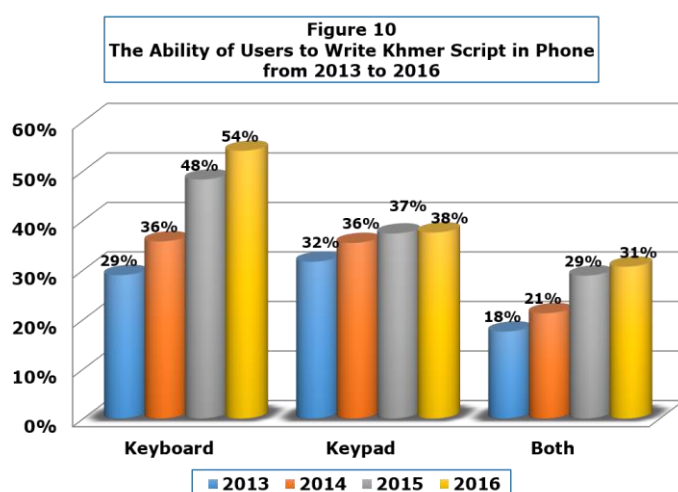
their phones did have the capacity to support the script (down from 82% wrong in 2013). Of those who did not know whether their main phone supported Khmer, 62% had phones that did offer such support.

In gender terms, men were aware that their main phone supported Khmer slightly more often than women (87% versus 82.1%).

Among smartphone users, there was a large difference in awareness levels depending on the brand. Nokia smartphone users showed the lowest level; only 78% were aware that their phone supported Khmer script. Among Samsung smartphone users the proportion rose to 92%, while for Apple it climbed to 96%. From 2013 to 2014 all these percentages were very similar; virtually all the growth occurred between 2014 and 2016.

3.5.3 Ability to write in Khmer script using phones

In this section the term *user* refers to phone owners aged from 15 to 65 who have at least one phone that can send and receive SMS messages in Khmer.



Of this group, 38% claimed to know how to use the keypad of a dumb phone to type Khmer script (a 1% decrease from 2015, up 6% from 2014 and up 19% from 2013). Some 54% claimed to know how to use a smartphone keyboard (up 12% from 2015, up 51.2% from 2014 and up 87% from 2013). Some 31% reported knowing how to type through both methods (up 6% from 2015, 44% from 2014

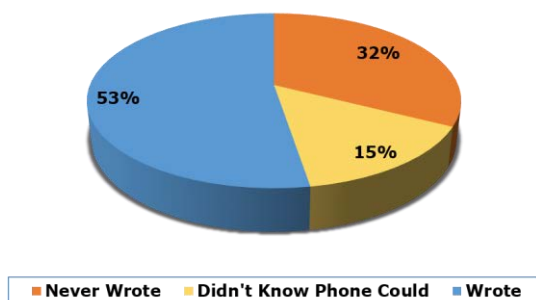
and 74% from 2013).

Among users with at least one smartphone that could operate in Khmer, 79% said they were able to type in Khmer on an actual keyboard (an increase of 6% from 2015, 16% from 2014, and 41% from 2013). Among this group, those who had finished high school stood out; 93% of them claimed to type in Khmer. Among high school graduates in urban areas, the proportion rises to 95%.

3.5.4 Writing in Khmer script

As reported above, 85% of those with Khmer-supporting phones were aware that their phones had this capability.

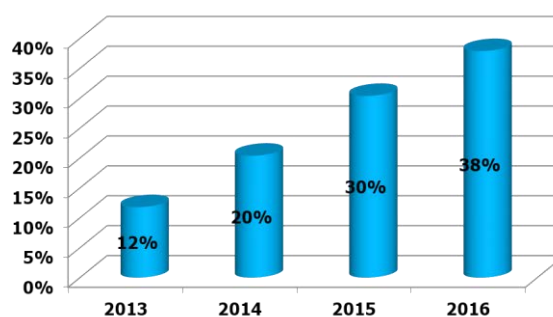
Figure 11
Writing Khmer Script in Phone



Viewing this data another way, we see that 15% of those with phones supporting Khmer did not realize it, while 32% had never used their phones to write in Khmer Unicode. Only 53% had written in Khmer at some point or another.

Some 42% of users — equivalent to 38% of the whole study population — claimed to have written in Khmer script on their phones at some point, a 38% increase from 2015, a 106% increase from 2014, and a 269% increase from 2013. Men wrote in Khmer script on their phones slightly more often than women did (42% for men, 32% for women). Rates of growth in the use of Khmer script differed significantly depending on gender (19.3% growth over 2015 for men versus 34.8% for women; 85% growth over 2014 for men versus 96% for women). Relative to 2013, these growth rates were 270.8% for women and 180% for men. All numbers show that the gender gap is slowly closing.

Figure 12
Khmer Script Writing in Phone of Users from 2013 to 2016

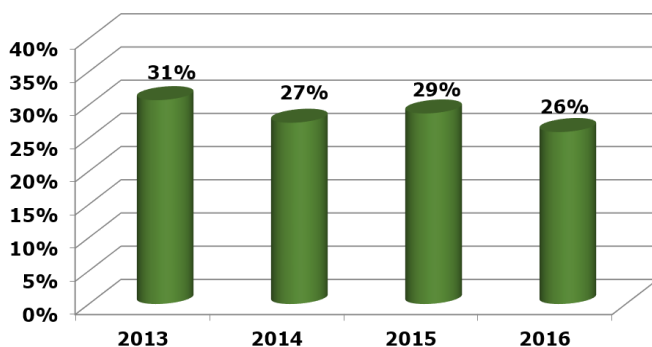


Some 30% of users — equivalent to 27% of the whole study population — claimed to write in Khmer script on their phones daily or weekly. Broken down by age group (focusing on those in which the practice was more common), 45% of those under 25 used Khmer daily or weekly (versus 32% in 2015, 25% in 2014, and 6% in 2013, and representing growth of 41% on-year, 80% over two years and 669% over three years). Daily/weekly use of Khmer was reported by 35% of users aged 25-34 (versus 24% in 2015, 17% in 2014 and 3% in 2013, for growth of 43% on-year, 100% over two years, and 1,021% over three years). Among those aged 35-44 21% reported daily/weekly use of Khmer (versus 13.6% in 2015, 10% in 2014, and 0.5% in 2013 and representing growth of 52% on-year, 102% over two years, and 4,024% over three years).

3.5.5 Writing in Khmer using Latin script

Some 29% of the phone users (26% of the total study population) claimed to have written in Khmer using Latin characters at some point. This number was unchanged from last year but represents a 7% decrease from 2013.

Figure 13
Latin Script Writing in Phone of Users
from 2013 to 2016

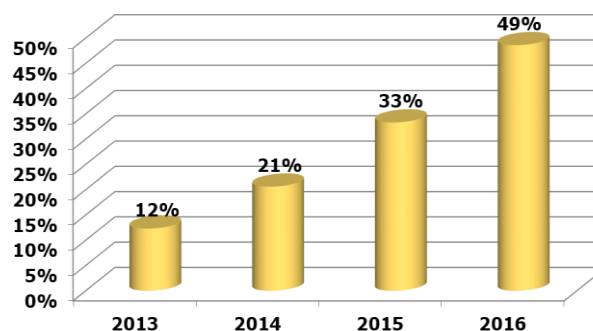


Some 17% of users (15% of the study population) — claimed to use the Latin alphabet to write in Khmer on their phones daily or weekly. Looking at the age groups in which the practice was most common, 36% of those under 25 did so daily or weekly (versus 28% in 2015, 29% in 2014, and 26% in 2013). For those aged 25-34 the percentage was 14% (versus 13% in 2015, 12% in 2014, and 5% in 2013), while for those 35-44 it grew to 6% (from 4% in 2015, 2% in 2014, and 1% in 2013). Only the 35-44 age group saw a significant increase (up 32% from 2015, 216% from 2014, and 533% from 2013).

3.5.6 Reading in Khmer

Some 54% of users — equivalent to 49% of the study population — claimed to have read something in Khmer script on their phones at some point (up 62% from 2015, 162% from 2014, and a 354% increase from 2013). A slightly higher proportion of men read Khmer on their phones than did women (58% for men, 47% for women). The percentages of women and men claiming to have read in Khmer on their phones grew at very similar rates from 2014 (up 65% for men, 61% for women). Looking at three-year cumulative growth rates (since 2013), the increase for women (164%) was bigger than the increase for men (144%).

Figure 14
Khmer Script Reading in Phone of Users
from 2013 to 2016



Some 36% of users — equivalent to 32% of the study population — claimed to read Khmer script on their phones daily or weekly. Looking at the age groups among which the practice was most frequent, 46% of those under 25 read in Khmer daily or weekly (versus 28% in 2015, 23% in 2014, and 6% in 2013, and representing 66% growth on-year, 99% over two years, and 624% over three years). For those aged 25-34 the rate was 41% (versus 25% in 2015, 21% in 2014, and 3% in 2013, which represents growth of 66% on-year, 95% over two years, and 1,300% over three years). For those aged 35-44 the rate was 30% (versus 14% in 2015, 10% in 2014, and 0.7% in 2013, for growth of 108% on-year, 193% over two years, and 4,124% over three years).

3.5.7 Reasons given for not typing in Khmer script

The main reasons offered by respondents for never writing in Khmer script, (even if their phones supported the language and they were able to type using Khmer Unicode) were, in order of importance:

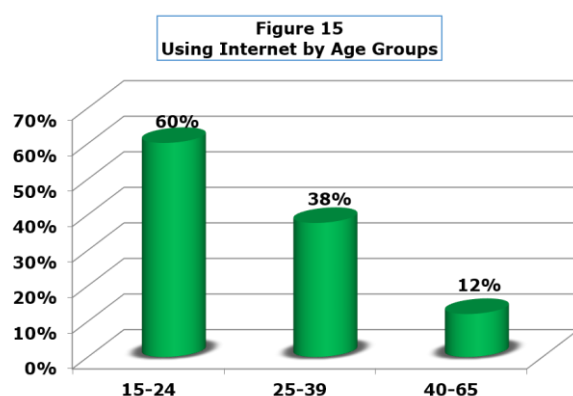
1. They did not know how to use their phones' **Khmer script function** (37%).
2. Writing in Khmer script was difficult and time consuming (18%).
3. They could not read or write Khmer (illiteracy) (26%).
4. Typing Khmer script is not necessary (16%).
5. None of their relatives or friends used Khmer on their phones (14%).

It was also found that respondents preferred calling to typing a message in Khmer.

The potential factors and conditions cited by respondents as being most likely to encourage them to write in Khmer were:

1. Being trained to type in Khmer (42.1%)
2. Simpler input methods that would allow them to type in Khmer more quickly (30.4%)
3. Receiving Khmer language training (22.7%)
4. Having their friends and relatives do so (18.8%)
5. Having Khmer characters on their phone's keypad (11.4%)

3.5.8 Use of Internet on phones



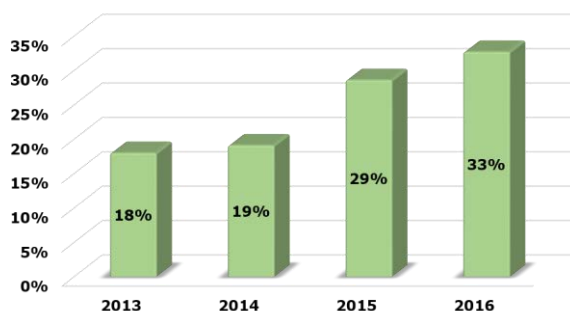
Some 37% of Cambodians claimed to use the Internet or to have used it at one time (48% urban versus 31% rural). Many more men than women claimed to use or to have used the Internet (48%/26%). Use of the Internet was also found to decrease dramatically with age, from 60% of those aged 15 to 25, to 12% of those aged 40 to 65.

The three most important reasons for seeking access to the Internet were given as:

1. For entertainment purposes (music, movies, etc.) (74.4%)

2. To get news about Cambodia (33.2%)
3. To access information on various topics (health, agriculture, etc.) (30.2%)

Figure 16
Use of Internet in Phones in Cambodia from 2013 to 2016



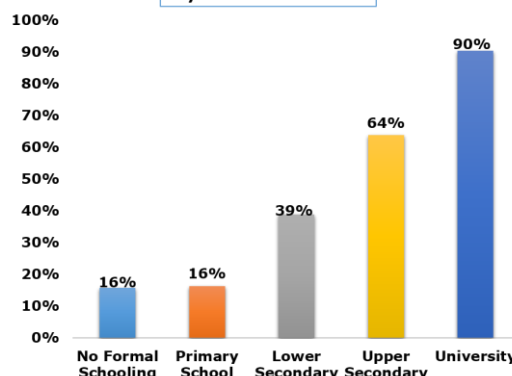
Some 33% of Cambodians claimed to access the Internet using their own phone (up 15% from 2015, 72% from 2014, and 82% from 2013). This percentage was as high as 42% for urban users and as low as 27% for rural users. The percentage of men who said they used or had used the Internet on their own phones was higher than for women (42%/24%). Accessing the Internet via **one's own**

phone was also found to decrease sharply by age group, from 52% of those aged between 15 and 25 to 11% of those aged 40 to 65.

In contrast, the rate at which users accessed the Internet from their own phone was found to dramatically increase with education level, from 16% of those with no formal schooling to 90% of university students and graduates.

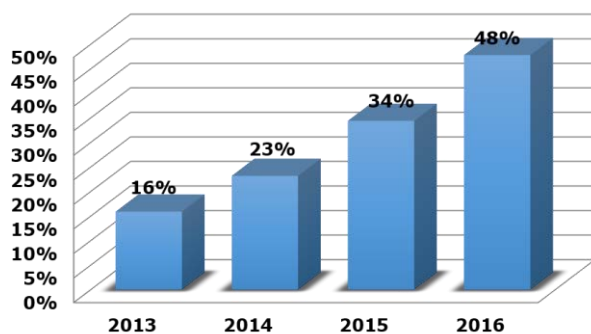
- 57% of those who access the Internet via their smartphone claim to read Khmer on their phone daily or weekly.
- 56% of those who access the Internet from their smartphone claim to write in Khmer script on their phones daily or weekly.

Figure 17
Using Internet in Phone by Level of Education



3.5.9 Use of Facebook on phones

Figure 18
Facebook Usage in Cambodia from 2013 to 2016



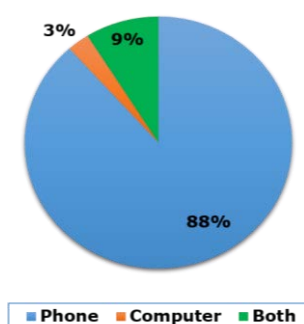
Some 48% of Cambodians say they use or have used Facebook (an increase of 39% from 2015, 106% from 2014 and 200% from 2013). The percentage was 61% for urban residents and 41% for rural residents. Men claimed to use Facebook more than women (55% versus 41%).

Some 40% of phone users said they had their own Facebook account (up

26% from last year and 110% since 2014). Men made this claim more often than women (47% versus 33%). Some 54% of urban residents said they have at least one account, versus 33% for rural residents.

The higher number of self-declared Facebook users than Internet users presumably reflects the fact that some respondents **don't know that when they use Facebook they are using the Internet**. The difference between the number of Facebook users and the number of account holders probably indicates that one out of every six uses a phone belonging to a friend or family member to access Facebook.

Figure 19
Tools of Using Facebook



Of these Facebook account holders, 97% said they access Facebook from their phone (85% said they access it **solely** from their phone). Only 3% accessed the site solely from a computer.

Among Facebook account holders, some 97% of men accessed the site via their phones, versus 98% of women. Among men, 78% used Facebook **only** on their phones, versus 93% for women (73% urban versus 92% rural).

Some 90% of Facebook account holders had only one Facebook account, 9% had two, and 1% had more than two accounts. The average number of accounts per person was 1.1 (same for both urban and rural, men and women).

Asked why they had joined Facebook, the following factors were cited (in descending order of importance):

1. To stay in touch with friends (35%)
2. To obtain information about events in Cambodia (34%)
3. To stay in touch with family (12%)
4. For entertainment purposes and to play games (7%)
5. To obtain information on a variety of topics (7%)

Interviewees were then asked to state the reasons that Facebook was valuable to them. In descending order of importance, it was found that phone users access Facebook to:

1. Obtain information about events in Cambodia (35%)
2. Stay in touch with friends (25%)
3. Obtain information on a variety of topics (11%)

4. Stay in touch with family (10%)
5. For entertainment purposes and to play games (10%)

Asked what three activities they engaged in most often when using Facebook, in descending order of frequency, they said:

1. Looking at pictures (64%)
2. Chatting via Facebook message or Facebook messenger (49%)
3. Liking or sharing posts (42%)

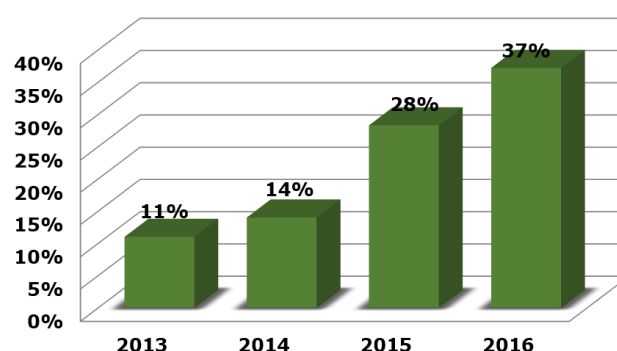
Facebook users who had their own accounts were asked how much they would trust information found on Facebook and other social media. The findings are expressed in the following table:

Information on Facebook and other social media is believed when:	Level of Trust						
	0%	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%	Don't know
It is posted by an individual I trust	0.1%	5.3%	12.8%	45.6%	20.2%	15.7%	0.2%
It is shared by an individual I trust	1.9%	9.3%	23.0%	44.8%	12.4%	7.9%	0.7%
It is posted by organization I trust	0.3%	3.0%	10.5%	32.8%	28.1%	24.9%	0.5%
It is shared by organization I trust	1.8%	8.4%	18.2%	43.8%	18.2%	9.0%	0.6%
It includes pictures	0.6%	8.1%	16.9%	37.1%	21.3%	15.9%	0.1%
It includes videos	0.5%	4.1%	11.6%	29.9%	24.1%	29.7%	0.1%
There are many likes/shares	1.6%	4.7%	12.4%	32.0%	26.1%	22.5%	0.8%
It is from a Cambodian source	0.6%	4.4%	11.1%	34.1%	27.8%	21.8%	0.3%
It is from an international source	2.4%	9.9%	19.8%	33.1%	19.2%	13.0%	2.6%
It seems true or possibly true	2.6%	7.3%	15.1%	28.2%	24.2%	21.8%	0.8%

Participants' trust of information that they find in Facebook does not seem to be strongly affected by any of the factors studied. The two factors that seem to conduct to a higher level of trust (at least 50% of the participants claim to trust information in 60% or more of the cases) are either news being supported by a video or being published by a trusted organization.

Some 37% of Cambodians said they use Facebook on their own phones (up from 28% in 2015, 14% in 2014, and 11% in 2013). Some 45% of respondents claimed to use Facebook and also had a phone that supported Khmer, but only 36% used Facebook on their Khmer-enabled phones. Members of this 36% were divided into four categories: those who claimed to

Figure 20
Facebook Usage in Phones in Cambodia from 2013 to 2016



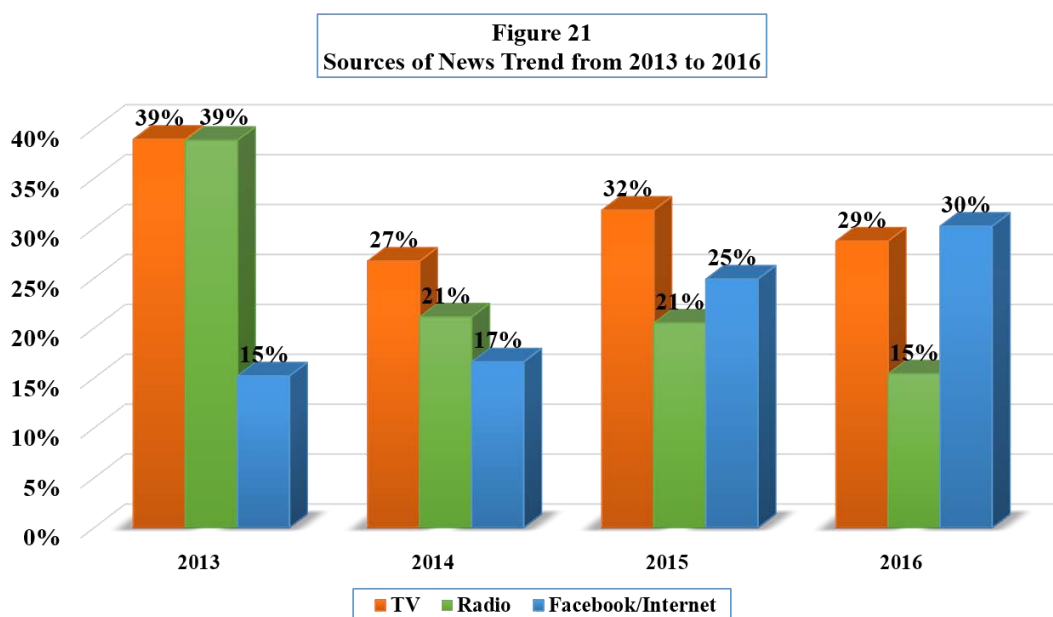
write on Facebook in both Khmer and Latin characters (47%); those who wrote only in Khmer characters (36%); those who wrote only in Latin characters (3%); and those who never wrote in Khmer (14%).

Additionally, looking at the data from a different perspective, it was found that:

- 79% of smartphones are used for accessing Facebook.
- 94% of Facebook users who access it via their smartphones actually have phones that support Khmer, but only 56% of them claim to read Khmer on their phones daily or weekly, and only 55% claim to write in Khmer script on their phones daily or weekly.
- 94% of users of Khmer-enabled smartphones access Facebook via their phones.

3.5.10 News sources

The study found that for respondents, the most important source of news about Cambodia was Facebook/Internet (30%), followed by TV (29%), word of mouth (23%) and radio (15%). In 2015, TV was the most important source, followed by Facebook/Internet. Radio was the third-most important source.

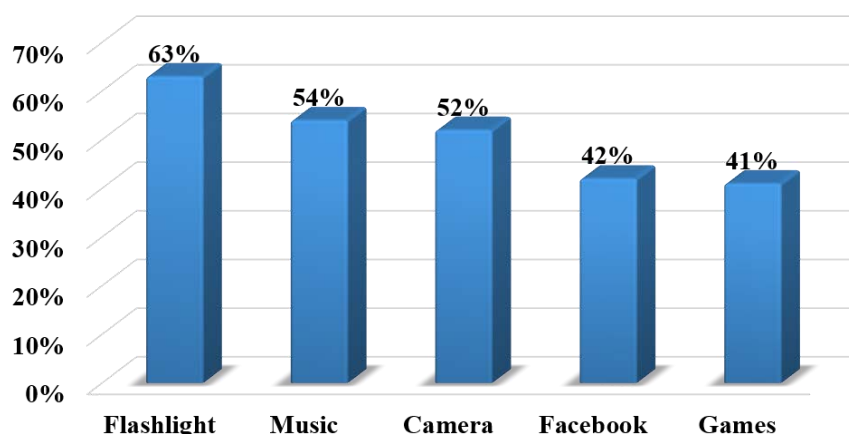


3.5.11 Use of applications in phones

The study found that the activities for which respondents used their phones most frequently were using the flashlight (63%), listening to music (54%), taking pictures (52%), using Facebook (42%), and playing games (41%).

Messenger (by Facebook) is the top messaging app used (20% of respondents).

Figure 20: Use of Applications in Phones



It is followed by LINE (12%), Instagram (4%), Viber (3%), Skype (3%), WhatsApp (2%), WeChat (2%), and Tango (1%).

Asked to name the three applications they most wanted on their next phone, respondents cited a large number of apps, but Facebook claimed the most interest (70% of respondent); it was followed by YouTube (28%), and accessing the Internet in general (24%). The top three messaging apps respondents wished to have on their next phone were Skype (10%), LINE (7%), and Messenger (6%).

3.6 Mobile Payments

30% of respondents claimed that they had never used any mobile payment system. There were few differences in usage between men and women, with more significant differences in relation to location; 34% of rural participants claim that they had never used them, with only 25% of urban participants making this claim.

It was found that Wing was the service most (96% of mobile service users), followed by eMoney (18%), TrueMoney (15%), and AMK (8%).

The declared purposes of using the mobile payment were:

- Sending money (85%)
- Receiving money (74%)
- Payment of bills (15%)
- Buying pre-paid cards (14%)
- Payment of loans (1%)
- Purchasing online products (1%)

3.7 Response to the main question (Khmer-enabled phones)

The results of this study are expressed with 95% security (confidence level).

The confidence interval (m) is calculated using the formula:

$$m = \text{sqrt} ((t^2 \times p (1-p))/n)$$

n = sample size

t = confidence level (standard value of 1.96 for 95% confidence level)

p = proportion of the sample who use Khmer phones

m = confidence interval

Given that the weighted percentage of users with phones that support Khmer is 76.5%, with a sample of 2,061 we can calculate the intervals for both confidence levels.

For 95% confidence, the confidence interval is 2.16. We can therefore express the result as:

With 95% certainty ($p \leq 0.05$), $76.5 \pm 2.16\%$ of Cambodians between the ages of 15 and 65 have phones that support Khmer Unicode messaging.

This implies that we are 95% certain that between 7,141,435 and 7,556,434 Cambodians between the ages of 15 and 65 have at least one phone that supports Khmer.

4 Discussion

4.1 Owning or having access to a phone

The growth in the number of phone owners from 94% to 96% of the population over the past year indicates a saturated market with little room for growth in terms of number of users. The most important change this study reveals is in the quality of the phones being used; this change is consistent with the fundamental economic changes that are taking place in Cambodia. We estimate that 10,384,837 phones are in use in the country, accounting for most of the consumers that can afford them.

It was found that for young people, not having a phone was often a temporary condition brought about because their phone was broken, lost or stolen, and they did not have the money to replace it at that time. Among older people, we often found that they did not own a phone because they did not feel they needed one for communication purposes. However, the mobility of the younger generation, whether to seek work in a garment or other factory, or to work in another country, has led them to push phones onto their parents as a means of communication. Research that Open Institute is undertaking at this time shows that this reality does not apply to indigenous groups, among whom penetration is much lower.

4.2 Phones

Growth in smartphone penetration has significantly increased from last year, with 48% of Cambodians aged 15 to 65 owning at least one (up from 21% last year, which saw slower growth than in previous years). This growth is not surprising, given the **phones'** popularity and low cost, along with economic development and the growing demand for access to the Internet, particularly Facebook. It must be emphasized that in numerical terms the growth in new users of smartphones in 2016 is larger than last year's, though in percentage terms it is smaller. The use of smartphones is — as expected — highest among the educated urban youth. Among brands, Apple grew the most during the past year; with 36% more Apple phones cited this year than in the 2015 study (down from a growth of 50% in the previous period, but still growing in absolute numbers).

4.3 Phones supporting Khmer

The 21% increase in the number of users with phones that support Khmer in the past year likely reflects the fact that almost all new phones now sold in the country support Khmer script natively or have such support systematically installed. Still, the most recent growth figure is smaller than in the previous period, probably due to a pocket of resistance in the form of long-lasting, simple and inexpensive phones that are not yet being replaced, such as the Nokia 1280, which still accounts for 10% of all phones being used, despite not having been sold for three years. Some 76% of Cambodians are currently able to send and receive messages in Khmer. This proportion is expected to rise to almost 90% in the next two years as the old phones are phased out, promising the attainment of the critical mass

required for the launch of services that use Khmer text. It is already at 90% for smartphones.

Almost all phone users who thought their phone had Khmer-script capability were right, whereas one in four of those who thought their phones did not support Khmer were wrong. This is a huge change from 2013, when over 80% of users were unaware of their phone's ability to display Khmer.

4.4 Writing and reading in Khmer script

Mobile telephony has brought a huge change to Cambodian culture: reading and writing outside of school or work. Over a third of Cambodians now read every day or every week on their phones, and 27% write with this same frequency. Many more do it occasionally and know how to use keyboards. These numbers are increasing quickly. This piece of data has to be weighed against the fact that only 2% of Cambodians currently read newspapers (a sign of the low level of interest in reading), and the fact that Facebook and the Internet more generally have become the main sources of news for Cambodians, in both text and video form (see data below).

It is significant that — proportionally — the strongest growth is occurring in the age group that almost never wrote before: those above 40 years of age. The main barrier for this group seems to be illiteracy, as it includes most of the 26% of respondents who declared themselves illiterate. For one third the motivation to write Khmer is still not strong enough.

The main reason for not typing in Khmer changed from a lack of motivation in 2015 (no need, my family and friends do not use it) to **technical barriers (don't know how to type, too difficult)**, as cited by half of those who do not type, lack of motivation and illiteracy share the other half.

4.5 Internet and Facebook

Over 37% of Cambodians aged 15 to 65 claimed to use the Internet or to have used it at some point. As expected, the percentage of urban residents who use the Internet is much higher than that of rural residents (48% vs 31%). More than 86% of users in this group accessed the Internet through their phones; not very different from the previous year.

Almost half of Cambodians (48%) said they used or had used Facebook. (This is considerably more, intriguingly, than those who claimed to have used the Internet!) Most of **this group's members** (40% of respondents) said they had their own Facebook account. This represents an increase of 26% in the use of Facebook in the past year (compared to a gain of 66% the year before). As in previous years, the most commonly cited reason for joining the site — ***"To stay in touch with friends"*** — tends to change after they have used it for some time to ***"getting information about events or hot news in Cambodia."*** Most of these Facebook users claim to believe only 41-60% of the information they receive via Facebook

(sometimes) on average. Regardless of who posted, shared and liked it, where it was from, or the type of media, these users found it hard to fully believe or disbelieve this information.

In Cambodia, Facebook is accessed mainly via phone, with 97% of Facebook users having it via their phones. Only 3% of users access the site solely from a computer, while over 85% access it solely from a phone (up from 80 last year; a large part of the increase in access is taking place through phones, not computers).

Facebook was the most common choice when participants were asked which app they would want in their next phone (named by 23%, followed by a very broad range of preferred applications). Facebook is currently the most popular social media site in Cambodia, but not even close to being the most popular application. That honor goes to the built-in flashlight, followed by music players and cameras. Facebook was next, followed by games in general. (Facebook has surpassed playing games.). **Facebook's Messenger lead in personal messaging (20% of users)** is only significantly challenged by LINE (12%).

4.6 Preferred media for receiving news

One of this study's more interesting findings is that the Internet/Facebook has become — for the first time — **Cambodians'** most important source of information about Cambodia, surpassing TV and radio. This represents a huge change and mirrors, less drastically, changes taking place in developed countries, where television has also been displaced.

4.7 Gender-related aspects of phone and Facebook use

Once again, the numbers show a narrowing of the access-to-information gap between men and women. The gap is still there, but it is expected to continue to narrow as more and more Cambodians use smartphones and the Internet.

It is interesting to note that the proportion of each gender that owns a smartphone -- 54% of men and 41% of women — and has access to Facebook are nearly identical (1 in 6 users in each group does not use the phone to access the Internet). This is a qualitative change from last year, when the percentage of women who owned a smartphone but did not use it for Facebook/Internet access was much higher than the equivalent male group (women made in the past less efficient use of smartphones for communication).

5 Conclusions and recommendations

While the annual percentage growth on the number of new smartphone and Facebook in 2016 users has decreased for the first time since 2013, the absolute number of new users in 2016 is still larger than the numbers of new users in 2015.

The biggest change we have seen this year is Internet/Facebook surpassing TV to become **Cambodians'** most important source of news about Cambodia. While both TV and radio have lost some of their influence, they remain strong (TV much more so than radio). But what is important is the trend: We expect an increase not only in Internet penetration but also in the importance that the users give to Internet (in becoming their main source of news); currently 75% of Internet/Facebook users consider the channel to be their main source of news; this percentage will probably increase in the future, further consolidating the Internet/Facebook as the main channels for trusted news.

This development brings with it another change. For the first time, Cambodians are actually reading and writing outside of class or work. News that in the past they would have received only in video or audio form via TV or radio, they now read on the Internet. Almost a third of the population is now reading news stories (and writing about what they read — another thing they did not do in the past, as newspaper circulation has never exceeded 3% of the population).

Cambodians are not only reading more, but also participating more in society and engaging in more private communication through writing on their phones. This represents a huge qualitative shift in a society in which, until recently, encouragement to read outside of school was almost entirely absent. Now it is not through encouragement, but through self-motivation for purposes of entertainment, communication and social participation, that the change is taking place. Hitherto, few Cambodian children have learned the habit of reading from their parents. (There was no example set, as most parents did not read). But an emerging generation of readers can now be expected to set such an example, and to bequeath the habits of reading and writing to subsequent generations (albeit via the medium of the telephone, rather than the book and notebook).

Not all smartphones are used to access the Internet. Some 48% of Cambodians use smartphones, but only five out of every six (40% of all Cambodians) are connected to the Internet via their smartphones. One smartphone in every six is still not connected. However, the trend is toward fewer and fewer unconnected smartphones, as the financial barrier is already very small for those who already have a device and an active SIM (the **consumer's** incremental cost of adding Internet use when they already have an active mobile line is very small). It should also be remembered that the number of people identifying as smartphone Facebook users is 20% larger than the number of phones that can access Facebook; for every five smartphone users who access the site, there is at least one person doing so through a friend's phone.

Additionally, the gender gap in phone and Internet usage is gradually being narrowed, without recourse to any external intervention. As it moves toward saturation, the market naturally reduces gender gaps.

This year saw another increase in the number of Khmer-enabled phones replacing non-supporting phones. At the current rate of replacement, a level near 90% should be reached next year, as pre-2013 phones (not able to display Khmer) reach the end of their lives.

Special note should also be taken of the local success of Apple, which now manufactures one in three phones used in Cambodia. The iPhone needs to be taken seriously by application developers targeting the Cambodian market.

To accelerate the adoption of Khmer script use in phones, it is the **authors' belief** that the development of better input methods and improved text-prediction capabilities for Khmer text needs to be encouraged. This includes Khmer speech recognition, which will be the input method of the future; at the present stage, however, concentrating on smarter keyboards is recommended.

Appendix A: The Questionnaire Instrument

Interviewer Name	
Interviewer No.	
Date of Interview	/ / 2016
Interview Length	From: To:

Informed Consent

Hello, my name isI work for Open Institute as data collector. The Open Institute is conducting the study on "Mobile Phone and Internet in Cambodia 2016" funded by Development Innovations and Asia Foundation. The study aims at quantifying the number of Cambodians who have phones that allow them to communicate in Khmer script and number of Cambodian who use smart-phone and Internet, as well as understanding their circumstances and the groups that they belong to. The selected-sites of this study are Phnom Penh, Kampong Cham (newly-formed Tbongkhmum), Battambang (floating village in Pursat also), Stung Treng and Sihanouk Ville. The target group of the study is the Cambodian aged from 15 to 65 years old.

All information you provide will be highly kept as confidential and will not be seen by anyone outside of the research team. This is not a test and there is no right or wrong answer.

Your information is of vital importance to us and we hope you can be involved in the interview. It is your choice whether or not to take part in this interview. If you do choose to participate, you have the right not to answer any question or to stop the interview at any time.

This interview will be taken approximately 15 minutes.

Do you have any question for us? Yes No

Do I have your permission to proceed the interview? Yes No

Questions	Response	Skip Rule
* = "Single response is allowed" and *** = "Multiple responses are allowed"		
Section I: Demographic Information		
D1. Province	Drop-down list of all provinces	
D2. District	Drop-down list of all districts in selected province	
D3. Commune	Drop-down list of all communes in selected district	
D4. Village	Drop-down list of all villages in selected commune	
D5. Location of residence *	1 = Urban 2 = Rural	
D6. Type of respondents	1 = Household 2 = Garment Worker 3 = Restaurant Worker 4 = Restaurant Customer 5 = Massage Worker 6 = Entertainment Worker	
1. Age	
2. Gender *	0 = Male 1 = Female	
3. Marital status *	1 = Single (never married) 2 = Married (living with a partner) 3 = Widowed 4 = Divorced/separated 5 = Other (specify).....	
3.a Where is your nuclear family located? *	Dropdown of provinces	
4. Level of education *	1 = No formal schooling 2 = Primary school 3 = Lower secondary school 4 = Upper secondary school 5 = University 6 = Postgraduate 7 = Technical/vocational 8 = Other (specify)..... 99 = Don't know	
4.a.1 Do you have a Tablet or computer? *	0 = No 1 = Tablet 2 = Computer 3 = Both	
4.a.2 Do you use a Tablet or computer? *	0 = No 1 = Tablet 2 = Computer 3 = Both	
5. Do you have a mobile phone? *	0 = No 1 = Yes	<ul style="list-style-type: none"> • If the answer is "0 = No", go to questions 6b and 7 and terminate the interview • If the answer is "1 =

		Yes", go to question 6a and then skip to question 8
6a. Do you usually bring your phone wherever you go? *	0 = No 1 = Yes	
6b. Does anybody in your household have a phone? *	0 = No 1 = Yes	
6. If somebody asks you to which phone they can call you, whose phone number do you tell them to call? ***	0 = I don't give them a phone number 1 = Spouse 2 = Neighbour relative 3 = Neighbour not-relative 4 = Friend 5 = Phone booth 6 = Other (specify).....	
Section II: Characteristics of Phone		
7. How many phone do you use?	
8. Which network/mobile phone company(s) do you use most? ***	0 = Not applicable 1 = Cellcard 2 = Metfone 3 = SMART 4 = Beeline 5 = Qb 6 = Excel 7 = Other (specify).....	
9. What is the phone number that you use most?	
10. How much money do you usually spend per month on cell phone credit?	
11. For how long have you been using cell phones?	
12. What are the characteristics of the cellphone(s) do you use?		
13a. Brand *	1 = Apple 2 = LG 3 = HTC 4 = Nokia 5 = Beeline 6 = Smart 7 = Cellcard 8 = Metfone 9 = Motorola 10 = Samsung 11 = Sony Erickson 12 = BlackBerry 13 = I-Call 14 = Hiya 15 = Huawei 16 = OnePlus 17 = Asus	

		18 = Alcatel 19 = Black View 20 = Philips 21 = Lenovo 22 = ZTE 23 = i-mobile 24 = Camfone 25 = Sugar 26 = Copy of original phone: copy of..... 27 = Other (specify)..... 99 = Don't know	
	13b. Model	
	13c. Smart/non-smart *	1 = Smart 2 = Non-smart	
	13d. Input method *	1 = Keyboard 2 = Numeric pad	
	13e. How did you purchase this mobile device?*	1 = My cash – did not borrow 2 = Someone bought it for me 3 = Installment from shop 4 = Borrowed from bank 5 = Borrowed from MFI 6 = Borrowed from Money lender 7 = Borrowed from Relatives 8 = Borrowed from Friends 9 = Other (specify)..... 88 = Don't want to answer	
Section III: Knowledge, Attitudes and Practice			
	13. Do you know how to write Khmer script in a phone that has a numeric pad? *	0 = No 1 = Yes	
	14. Do you know how to write Khmer script in a phone with a real keyboard? *	0 = No 1 = Yes	
	15. Can your cellphone(s) display or write in Khmer script? *	0 = No 1 = Yes 2 = Don't know 3 = Not applicable	<i>If the answer of this question is different from "1 = Yes", please go to question 25</i>
	16. Please indicate how often do you write Khmer script in your phone(s)? *	1 = Never 2 = Rarely 3 = Every month 4 = Every week 5 = Every day	<ul style="list-style-type: none"> • <i>If the answer of this question is different from "1 = Never", please go to question 20</i> • <i>If the answer of this question is "1 = Never", please go on with questions 18 & 19 but skip question 20</i>
	17. If you do not write Khmer script in your phone(s),	1 = Illiteracy 2 = No critical mass 3 = Difficult to type	

<p>would you please tell the reason why? ***</p>	<p>4 = Time consuming 5 = Typing Khmer script is not necessary 6 = Busyness 7 = Don't like typing Khmer script 8 = Don't know how to type 9 = Other (specify)..... 99 = Don't know</p>	
<p>18. If you do not write Khmer script, what factors will encourage you to write it in your phone(s)? ***</p>	<p>1 = Need critical mass 2 = Need typing training 3 = Simplify and improve the method of typing 4 = Khmer characters should be displayed in button 5 = Need to learn Khmer language 6 = Other (specify)..... 99 = Don't know</p>	
<p>19. If you are writing Khmer script in your phone(s), would you please tell the reason why? ***</p>	<p>1 = To uphold Khmer language 2 = Wants readers to easily understand 3 = Don't know English 4 = Can write what I really want to express 5 = Improve Khmer writing 6 = Saving contact name or song title 7 = Other (specify)..... 99 = Don't know</p>	
<p>20. Please indicate how often do you read SMS or email or news in Khmer script in your phone(s)? *</p>	<p>1 = Never 2 = Rarely 3 = Every month 4 = Every week 5 = Every day</p>	<ul style="list-style-type: none"> • <i>If the answer of this question is different from "1 = Never", please go to question 24</i> • <i>If the answer of this question is "1 = Never", please go on with questions 22 & 23 but skip question 24</i>
<p>21. If you never read SMS or email or news in Khmer script in your phone(s), please tell the reason why? ***</p>	<p>1 = Illiteracy 2 = No critical mass 3 = No SMS, news or email in Khmer to read 4 = Don't know how to check SMS, news or email 5 = Other (specify)..... 99 = Don't know</p>	
<p>22. If you never read SMS or email or news in Khmer script in your phone(s), what factors will encourage you to do it? ***</p>	<p>1 = Need critical mass 2 = Khmer characters should be displayed in button 3 = Need to learn Khmer language 4 = There must have SMS, news or email in Khmer to read</p>	

	5 = Need someone to teach how to check SMS, news or email 6 = Other (specify)..... 99 = Don't know	
23. If you are reading SMS or email or news in Khmer script through your phone(s), would you please tell the reason why? ***	1 = To know the meanings 2 = Comprehensively easy to read 3 = Don't know English 4 = Spend less time to read 5 = Friends and relatives also use Khmer script 6 = Other (specify)..... 99 = Don't know	
24. Please indicate how often do you write Khmer language in your phone(s) using Latin characters? *	1 = Never 2 = Rarely 3 = Every month 4 = Every week 5 = Every day	
25. Have you ever heard about the word "Facebook"? *	0 = No 1 = Yes	<i>If the answer of this question is "0 = No", please go to question 31</i>
26. Have you ever used Facebook? *	0 = No 1 = Yes	
27a1. Do you have own Facebook account?	0 = No 1 = Yes	<i>If the answer of this question is "0 = No", please go to question 29</i>
27a2. How many Facebook account do you have?	
27c. Why did you initially join Facebook? *	1 = To stay in touch with family 2 = To stay in touch with friends 3 = Business reasons 4 = Get information about events in Cambodia 5 = Get information on a variety of topics 6 = Express or share my opinions 7 = For entertainment and games 8 = Other (specify)..... 99 = Don't know	
27d. Now, what is most valuable in Facebook for you? *	1 = To stay in touch with family 2 = To stay in touch with friends 3 = Business reasons 4 = Get information about events in Cambodia 5 = Get information on a variety of topics 6 = Express or share my opinions 7 = For entertainment and games 8 = Other (specify)..... 99 = Don't know	

	27e. What do you do the most often in Facebook? ***	1 = Read posts 2 = Read short articles 3 = Look at pictures 4 = Watch videos 5 = Like or share posts 6 = Create posts 7 = Play games 8 = Chat in Facebook messenger 9 = Other (specify)..... 0 = No	
	27f. How many percentage would you trust information in Facebook when:		
	27f1. It is posted by individual I trust? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f2. It is shared by individual I trust? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f3. It is posted by organization I trust? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f4. It is shared by organization I trust? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f5. It includes pictures? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f6. It includes videos? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f7. There are many likes/shares? *	1 = 0% 2 = 1%-20% 3 = 21%-40%	

		4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f8. It is from a Cambodian source? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f9. It is from an international source? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f10. It seems true/might? *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27f11. Other reasons..... *	1 = 0% 2 = 1%-20% 3 = 21%-40% 4 = 41%-60% 5 = 61%-80% 6 = 81%-100%	
	27b. Do you use Facebook in a phone, in a computer, or in both? *	1 = Phone 2 = Computer 3 = Both	<i>If the answer of this question is "2 = Computer", please go to question 29</i>
	27. Do you use Facebook on your phone? *	0 = No 1 = Yes	<i>If the answer of this question is "0 = No", please go to question 29</i>
	28. Do you ever write Khmer in Facebook with Khmer script? *	0 = No 1 = Yes	
	29. Do you ever write Khmer in Facebook with Latin characters? *	0 = No 1 = Yes	
	30. Have you ever heard about the word "Internet"? *	0 = No 1 = Yes	<i>If the answer of this question is "0 = No", please go to question 33</i>
	31a. Do you use Internet? *	0 = No 1 = Yes	<i>If the answer of this question is "0 = No", please go to question 33</i>
	31b. What are the three most important reasons for you to use Internet? ***	0 = No 1 = Get news about Cambodia 2 = Get international news	

		<p>3 = Read social news from friends and family</p> <p>4 = Share social news from friends and family</p> <p>5 = Access information on various topics (i.e. health, agriculture)</p> <p>6 = Develop new skills or knowledge</p> <p>7 = Access public government information</p> <p>8 = Express your opinion about current events</p> <p>9 = Entertainment (music, movies, etc.)</p> <p>10 = Professional/work related</p> <p>11 = Other (specify).....</p>	
	31. Do you use Internet on your phone? *	<p>0 = No</p> <p>1 = Yes</p>	
	32. What applications do you use in your phone(s)? ***	<p>0 = No</p> <p>1 = Sending and receiving SMS in Khmer</p> <p>2 = Sending and receiving E-mail</p> <p>3 = Camera</p> <p>4 = Internet</p> <p>5 = Reading the news</p> <p>6 = Facebook</p> <p>7 = Skype</p> <p>8 = WhatsApp</p> <p>9 = Viber</p> <p>10 = Line</p> <p>11 = Listen to music</p> <p>12 = Watching movies</p> <p>13 = Game</p> <p>14 = Radio</p> <p>15 = Twitter</p> <p>16 = YouTube</p> <p>17 = LinkedIn</p> <p>18 = Wikipedia</p> <p>19 = Pinterest</p> <p>20 = Reddit</p> <p>21 = Instagram</p> <p>22 = Messenger</p> <p>23 = Dictionary</p> <p>24 = Matchstix</p> <p>25 = WeChat</p> <p>26 = Tango</p> <p>27 = Telegram</p> <p>28 = Calculator</p> <p>29 = Map</p> <p>30 = Flashlight</p> <p>31=MS. Office</p> <p>32=App read news</p> <p>33 = Other (specify).....</p>	

<p>33. Among the phone applications in the picture (show the pictures), which one is more interesting to you in a phone? ***</p>	<p>99 = Don't know 0 = No 1 = Sending and receiving SMS in Khmer 2 = Sending and receiving E-mail 3 = Camera 4 = Internet 5 = Reading the news 6 = Facebook 7 = Skype 8 = WhatsApp 9 = Viber 10 = Line 11 = Listen to music 12 = Watching movies 13 = Game 14 = Radio 15 = Twitter 16 = YouTube 17 = LinkedIn 18 = Wikipedia 19 = Pinterest 20 = Reddit 21 = Instagram 22 = Messenger 23 = Dictionary 24 = Matchstix 25 = WeChat 26 = Tango 27 = Telegram 28 = Calculator 29 = Map 30 = Flashlight 31 = MS. Office 32 = App read news 33 = Other (specify)..... 99 = Don't know</p>	
<p>34. What are your three main sources of news about Cambodia? ***</p>	<p>0 = No 1 = TV 2 = Radio 3 = Newspapers 4 = Internet 5 = Facebook 6 = From SMS 7 = From telephony voice service 8 = Mobile phone applications 9 = Word of mouth 10 = Other (specify)..... 99 = Don't know</p>	
<p>35. Have you ever received any automatic call from your mobile operators? *</p>	<p>0 = No 1 = Yes</p>	

36. If you have, how often have you picked up that automatic call? *	1 = Very frequently 2 = Frequently 3 = Occasionally 4 = Rarely 5 = Never	
37. Do you use any mobile payment system?	0 = No 1 = Wing 2 = Smartluy 3 = AMK 4 = Emoney 5 = TrueMoney 6 = Ly Hour 7 = Asia Wei Luy 8 = Other (specify)..... 99 = Don't know	
38. If you use, what is the primary purpose of using this mobile payment system?	1 = Sending money to family or others 2 = Receiving money 3 = Payment of loans 4 = Payment of bills 5 = Buying pre-paid cards 6 = Buying things online 7 = Other (specify)..... 99 = Don't know	
Observation Part		
V1. Are you likely to vote in the commune election in 2017 or national election in 2018?	0 = None 1 = National election 2 = Commune election 3 = Both 88 = I don't want to answer 99 = Don't know	
O1. After sending a Khmer script SMS to each one of the phones, are you able to see the Khmer SMS correctly? *	0 = No 1 = Yes 2 = Some, but incorrect 3 = Not applicable	
O2. Did you take a picture of the phones? *	0 = No 1 = Yes	
O3. If the user has affirmed using FB in his/her own phone, do you see respondent's Facebook account on his/her phone? *	0 = No 1 = Yes	

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