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Reading in the mobile era

A study of mobile reading
in developing countries



Reading in the mobile era: *A study of mobile reading in developing countries*

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ABOUT THE REPORT

For centuries, limited access to text has been a barrier to literacy. Reading requires books. Without them literacy remains out of reach.

Today, however, this barrier is receding thanks to the spread of inexpensive mobile technology. Basic mobile phones offer a new, affordable and easy-to-use portal to reading material.

While UNESCO research indicates that hundreds of thousands of people in countries like Ethiopia, Nigeria and Pakistan are reading on mobile devices, very little is known about these readers. This information gap hampers efforts to expand the footprint of mobile reading and realize the educational and socio-economic benefits associated with increased reading.

Drawing on findings from a year-long study, this report explains the habits, preferences and demographic profiles of mobile readers in seven developing countries. By painting a picture of how mobile reading is practiced today and by whom, it offers insights into how mobile technology can be leveraged to better facilitate reading in countries where literacy rates are low.

The report was created through an ongoing partnership between UNESCO, Nokia and Worldreader and is part of a two-paper series on mobile reading. The other complementary publication, *Reading without Books*, reviews mobile reading initiatives around the world, identifying their strengths and weaknesses in order to steer the development of future projects. Cumulatively, the two publications explain how mobile technology can empower readers and further literacy in developing countries and beyond.

ACKNOWLEDGEMENTS

This publication is the culmination of a year-long partnership between UNESCO, Nokia and Worldreader.

The principal author of the report is Mark West of UNESCO. Han Ei Chew of United Nations University co-authored the chapters on methodology and findings.

Elizabeth Hensick Wood was the project lead for Worldreader and she provided invaluable support throughout the project. Regular assistance was also provided by Steven Vosloo, a former project coordinator at UNESCO, and Sanna Eskelinen from Nokia.

Mark Shoebridge and his team at biNu helped on the technical side by consolidating back-end user data generated on the Worldreader Mobile platform. Hsin-Yi Sandy Tsia, a doctoral student at Michigan State University, worked closely with Mr Chew to clean survey datasets, and Améline Peterschmitt, a graduate student at Oxford University, provided research assistance to Mr West. Rebecca Kraut made outstanding editorial contributions to the report.

Additional thanks are owed to Albert Motivans and Nhung Truong (UNESCO Institute of Statistics); Clara Miralles Codorniu, Sarah Jaffe, Zev Lowe, Darina Lucheva, Alex Polzin, Periša Ražnatović, and Danielle Zacarias (Worldreader); Tim Wightman (biNu); David Atchoarena, Diane Boulay, Soojin Cho, Anita Diaz, Catherine Domain, Subbarao Ilapavuluri, Xiaowei Lui, Fengchun Miao, Francesc Pedró, Lydia Ruprecht and Katie Travers (UNESCO Paris); Rusyda Djamhur (UNESCO Jakarta); Paul Mpayimana (UNESCO Addis Ababa); Fakhar Uddin (UNESCO Islamabad); Alisher Umarov (UNESCO New Delhi); and Ngozi Awuzie (UNESCO Abuja).

The project was supported by Nokia through a partnership with UNESCO that seeks to help governments and other organizations better utilize mobile devices for education.

INTRODUCTION

READING AND THE MATTHEW EFFECT

For decades social scientists have used a passage from the Gospel of Matthew to describe a phenomenon of widening inequality:

For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath. (Matthew 25:29, King James Version)

The meaning is unambiguous: 'those who have get more, and those who don't get less'. The pattern and persistence of inequality is evoked with such regularity that the Biblical passage – with its blunt, if blameless, observation – is often reduced to a phrase: the Matthew Effect.

To be sure, the Matthew Effect resonates loudly and across disciplines. Economists use the term to describe the endurance of wealth and the repetition of poverty, sociologists to explain why awards are disproportionately given to people who are already well-known, and physicians to articulate how access to health care early in life determines future health outcomes. But the group that cites the Matthew Effect most frequently is educators, particularly reading specialists. Study after study has shown that when it comes to questions of literacy, people who read often become better readers, and better reading leads to success in school and other areas of life. Conversely, people who do not read fail to acquire habits of literacy, which can lead to problems cultivating new skills and difficulties that transcend education. Keith Stanovich, the scholar widely credited with describing the Matthew Effect's relevance to education, put the situation starkly: 'Reading affects everything you do' (1986). Those who cultivate the skill 'shall be given and...have abundance'; those who do not face a much harder path.

Reading is many things, but it always and must necessarily begin with access to text, and more aptly books. Yet in many parts of the world this access is either non-existent or sorely lacking. Many people from Lagos to La Paz to Lahore – whether experienced readers looking for a good story or new readers taking tentative first steps towards literacy – do not read for one reason: they don't have books. In Africa a majority of children have never owned a book of their own, and it is not uncommon for ten to twenty students to share a single textbook in school (Books for Africa, n.d.). A well-respected study of 16 sub-Saharan African countries found that most primary schools have few or no books, and in many countries these low levels are

not improving (SACMEQ, 2010). This considerably slows the reading acquisition process and consequently affects learning in all other school subjects. Professor Emmanuel Nolue Emenanjo, a Nigerian scholar and writer, compared the library per population ratios of several countries and found, perhaps unsurprisingly, that higher ratios correspond to higher levels of illiteracy. In Japan, where 99 per cent of people can read and write, there is 1 library for every 47,000 people; in Nigeria, by contrast, the ratio is 1 library to 1,350,000 people (Ajeluorou, 2013). Emenanjo estimates that Nigeria currently meets less than 1 per cent of its book needs, contributing to an illiteracy rate of over 40 per cent (UNESCO, 2014). His calculation is based on a modest definition of book needs, which assumes every primary-school student should have four to six books, and every secondary-school and tertiary-school student eight books.

While the problem of book access is most urgent in developing countries, it impacts rich countries as well. Susan B. Neuman, a researcher in the United States, found that the ratio of books per children in middle-class neighbourhoods in the USA is a respectable 13 to 1. But in poor neighbourhoods the ratio inverts dramatically: 1 book for every 300 children (Neuman, 2007). Beyond lacking disposable income to purchase print resources, poor people are disadvantaged in other ways. According to Neuman, school libraries in poor communities are often shuttered, whereas school libraries in middle-income neighbourhoods are generally thriving centres of reading, with one or more full-time librarians. Similarly, public libraries in low-income areas are open less regularly and for fewer hours than libraries in middle-income communities. This correlation between wealth and book access can be seen in nearly every country on Earth and cuts across geographic lines. UNICEF data reveal that over 50 per cent of wealthy families in developing countries have 3 or more books in their households for children under the age of 5, but this figure generally drops to just 5 per cent for poor families (UNICEF, 2012). People in poor communities, whether in developed or developing countries, generally do not have enough reading material, let alone material that is current, level-appropriate and relevant to readers' interests. The expression 'too many books, too little time' signals, by global standards, a decidedly 'affluent' dilemma – the privilege of abundance. For millions of readers and would-be readers, the expression is more appropriate in reverse: 'too much time, too few books'.

Historically, book shortages are not new. From the earliest clay tablets and papyrus scrolls to modern on-demand digital printing presses that Gutenberg would scarcely recognize, there has always been a dearth of physical text. Even in the twenty-first century, despite enormous advances in publishing, paper books are expensive to design, expensive to print, expensive to distribute, and fragile. Since the invention of written language, books have been the prized possessions of the elite, the province of kings, priests,

scholars – in a word, the rich. This is still true today: New York and Paris have world-class libraries and book stores, while large cities in many developing countries have a handful of run-down buildings containing only a smattering of titles, many of them outdated. Books convey learning and learning translates into power. Empires throughout time have gone to great lengths to create and collect books (and, at times, keep them from enemies), but there are never enough; physical text is and remains a scarce commodity.

As the world population surges and global literacy rates climb, more readers are demanding access to text than ever before. This is a 'good problem'. Literacy is a cornerstone of education and opens doors of opportunity in virtually all communities. And thankfully, in the twenty-first century, governments are usually committed to helping citizens become strong readers: libraries, once accessible only to political and religious leaders,

have been opened to the public; textbooks are commonly distributed in schools; and reading instruction, although far from universal, is more widely available now than at any time in the past. What was once a mysterious and privileged art is today widely regarded as a human right. The paramount importance of literacy is inscribed in a number of international frameworks, including UNESCO's Education for All (EFA) goals and the broader United Nations Millennium Development Goals (MDGs). But despite this progress and recognition, books still constitute a bottleneck. UNESCO estimates that worldwide 774 million adults and 123 million young people cannot read or write (UIS, 2013b). For many of these people illiteracy can be traced – at least in part – to an inability to access text.

The world faces a fundamental challenge: how to bring text to the millions of people who do not have enough.

DIGITAL BOOKS AND MOBILE READING

The world faces a fundamental challenge: how to bring text to the millions of people who do not have enough. Fortunately, the internet is helping to level the playing field. It has accelerated the spread of information and, in many instances, democratized access to it. Digital networks, computer processors and liquid crystal display (LCD) screens remove production constraints that have kept reading material prohibitively expensive for centuries. Increasingly, paper and ink are being replaced by bits and bytes, and physical distribution channels are being streamlined by cables that can carry electronic information to the farthest corners of the planet almost instantaneously. At the same time ever-improving search tools are making the vast repositories of online text easy to use and navigate. Today a robust internet connec-

tion gives a person access to more text than in all of the physical libraries ever built.

While this is transformational by any measure, there are still gaps. Only 40 per cent of the world's population is online and in developing countries 16 per cent fewer women than men use the internet (ITU, 2013). Geographic inequity is especially startling. Today in Africa only 7 per cent of households are connected to the internet, compared with 77 per cent in Europe. Although fixed-line internet technology has certainly expanded access to text, it is hardly a panacea. Many people lack access to computers as well as books, and hence remain cut off from textual information that is foundational to education, employment and engagement in the world at large.

The question remains: How do we bring text to the unreachable? How do we make reading material accessible to, say, a girl from a poor family in the northeast of Ethiopia where over 50 per cent of her female peers will never go to school (UNESCO, 2013a)? How do we provide text to young people in remote Pakistani villages, or adults living in slums outside Rio de Janeiro? What mechanisms exist to get books into the hands of the poorest people on Earth?

The answer – at least in the immediate term – is mobile devices, and more precisely mobile phones.

Why mobile phones? Because people have them. Recent data from the United Nations indicate that of the estimated 7 billion people on Earth, over 6 billion now have access to a working mobile phone. To put this number in perspective, only 4.5 billion people have access to a toilet (United Nations, 2013). Collectively, mobile devices are the most ubiquitous information and communication technology (ICT) in history. More to the point, they are plentiful in places where books are scarce.

While mobile phones are still used primarily for basic communication, they are also – and increasingly – a gateway to long-form text. For a fraction of the cost of a physical book, it is often possible to access the same book via a mobile device. And this capacity is not restricted to smartphones: today even the least expensive mobile handsets allow users to access and read books. Across developing countries, there is evidence of women and men, girls and boys reading multiple books and stories on mobile phones that can be purchased for less than 30 US dollars. Mobile reading is not a future phenomenon but a right-here, right-now reality.

UNESCO is committed to encouraging mobile reading as a way to help people get on the right side of the Matthew Effect. The more pathways to reading, the better, and mobile devices represent perhaps the most promising pathway of all, due to their unprecedented proliferation. Stimulating people to utilize mobile devices as books can prompt a virtuous cycle. A small amount of mobile reading can beget more reading and eventually, following from the Matthew Effect, ensure people 'have in

abundance,' not only books themselves, but the benefits of strong literacy skills.

THE CURRENT STUDY

The current study – by breaking down who reads on mobile devices and for what reasons – is a roadmap for governments, organizations and individuals who wish to help people better leverage mobile technology for reading.

To better understand how technology can facilitate reading, UNESCO, in partnership with Nokia and Worldreader, developed a survey to learn about the habits, preferences and attitudes of mobile readers. Specifically, the survey was designed to discover who reads on mobile phones and why; if and how mobile reading changes reading habits and attitudes towards reading; what people read and want to read on their mobile phones; what the central barriers are to mobile reading; and what factors predict people's intentions to read and keep reading on mobile phones.

The survey was completed by over 4,000 people in seven countries (Ethiopia, Ghana, India, Kenya, Nigeria, Pakistan and Zimbabwe) and supported by qualitative interviews with numerous respondents. The depth and breadth of data collection make this study the most comprehensive investigation of mobile reading in developing countries to date.

The findings are significant. Among other conclusions, UNESCO has learned that people read more when they read on mobile devices, that they enjoy reading more, and that people commonly read books and stories to children

from mobile devices. The study shows that mobile reading represents a promising, if still underutilized, pathway to text. It is not hyperbole to suggest that if every person on the planet understood that his or her mobile phone could be transformed – easily and cheaply – into a library brimming with books, access to text would cease to be such a daunting hurdle to literacy. An estimated 6.9 billion mobile subscriptions would provide a direct pipeline to digital books (GSMA, 2014).

The current study – by breaking down who reads on mobile devices and for what reasons – is a roadmap for governments, organizations and individuals who wish to help people better leverage mobile technology for reading. Knowing, for instance, that younger people are more likely to read on a mobile device than older people is instructive, as it indicates that older people will likely require significantly more guidance as they discover how to turn a device they may already own into a gateway to text. The study also

exposes governments to the idea that digital libraries and mobile reading initiatives may have more impact than traditional, paper-based interventions. In essence, the study shines light on a new strategy to bring text to the people who need it most.

It is important to qualify that access to books does not, by any means, assure or necessarily even promote literacy. Parachuting books to people

– whether through mobile phones or other mediums – is exactly that: dropping books and leaving. Deriving meaning from text is a deeply complex act that does not happen through exposure alone. People who think that literacy can be achieved by mere proximity to reading material should be reminded that it took the most talented linguists on the planet over a thousand years to decipher Egyptian hieroglyphs. The challenge wasn't access to hieroglyphs; it was figuring out what they communicated. Humans may have a language instinct, but there is nothing natural about reading; it is a skill that needs to be taught and practiced, again and again and again. It is UNESCO's hope that mobile reading will be integrated into broader educational systems that teach people how to use text productively – from access to comprehension, and all the stages in between.

Nevertheless, the primacy of access cannot be overstated. While it is true that books, by themselves, will not remedy the scourge of illiteracy, without them illiteracy is guaranteed. A key conclusion from this publication is that mobile devices constitute one tool – in a repertoire of other tools – that can help people develop, sustain and enhance their literacy skills. They can help people find good books and, gradually, cultivate a love of reading along with the myriad advantages that portends – educationally, socially and economically. This

report, by explaining who reads on mobile devices and why, illuminates how mobile reading can be encouraged and spread, with a goal of making book shortages obsolete and thereby eliminating a long-time obstacle to literacy.

While it is true that books, by themselves, will not remedy the scourge of illiteracy, without them illiteracy is guaranteed. A key conclusion from this publication is that mobile devices constitute one tool – in a repertoire of other tools – that can help people develop, sustain and enhance their literacy skills.

METHODOLOGY

The following sections describe the study's main objectives, research questions and data collection methods.

RESEARCH OBJECTIVES

The overall objective of this study is to better understand the habits, attitudes and preferences of mobile readers by examining when, how, why and to what extent people in developing countries read on mobile devices. The study also highlights current opportunities and challenges related to mobile reading, in order to inform the work of various stakeholders wanting to use mobile devices to increase reading on a large scale. Based on the findings, the study provides a set of recommendations and best practices for UNESCO Member States, non-governmental organizations (NGOs), inter-governmental organizations, and private and public foundations focused on enhancing literacy in developing countries.

RESEARCH QUESTIONS

To achieve the research objectives, the following questions were posed:

- Who are the people reading on mobile phones in developing countries?
- Why are people reading on their mobile phones?
- What are mobile readers' attitudes towards reading?
- What are the reading habits of mobile readers?
- Does mobile reading change readers' attitudes towards reading or their reading habits?
- What types of texts do people read on their mobile phones, and what do people want to read?
- What are the barriers to mobile reading?
- What predicts intentions to read on mobile phones?

DATA COLLECTION

Quantitative data were gathered using two methods: 1) a survey delivered through Worldreader Mobile, a mobile reading application (app), and 2) usage tracking on Worldreader Mobile servers. Qualitative telephone interviews were subsequently carried out to add context and depth to the quantitative findings.

Worldreader Mobile

Worldreader Mobile (WRM) is an application that allows people to access books and stories from a wide variety of mobile phones, including inexpensive feature phones. The application was launched in 2012 by Worldreader, a non-profit organization that seeks to eradicate illiteracy by delivering a large, culturally relevant library to people in low-income countries both digitally and inexpensively. Co-founded in 2010 by Colin McElwee and former Microsoft and Amazon.com executive David Risher, Worldreader provisions e-readers and e-books to children in African countries in addition to making its library accessible from mobile devices through WRM.

On average WRM had 334,000 unique active users per month during 2013 and is one of the most popular mobile reading applications in developing countries. Worldreader Mobile runs on the biNu platform which uses patented data compression technology to allow anyone with a data-connected mobile phone to access Worldreader's library of over 6,000 digital titles.

To read on WRM, users download the free application, which is available in several app stores including Google Play, Opera and GetJar. The application resides in the memory of the phone, but the books are stored in the cloud and all reading is done while the phone is connected to mobile data. Offline reading is not possible on WRM, as the books are never downloaded to the phone.

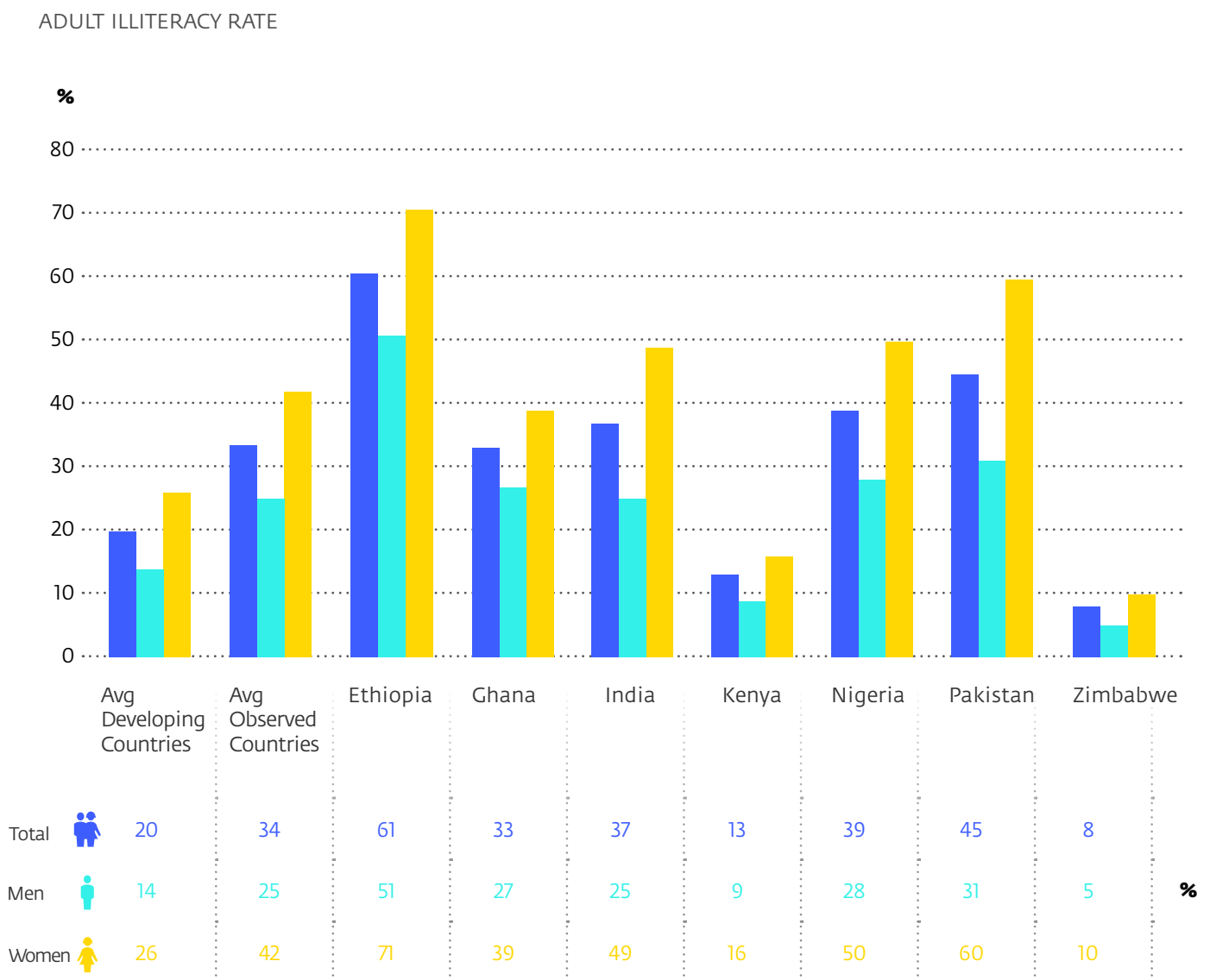
WRM books and stories encompass a variety of genres including romance, religion, education, health, action/adventure and more. Many of the titles are well-known and available in hardcover and paperback as well as in digital formats.

While most of the books in the WRM library are written in English, there are a growing number of titles in other languages including Hindi, Yoruba, Kiswahili, Twi and others. The WRM library has been growing steadily since the application was released and Worldreader actively seeks new agreements with publishers.

The vast majority of WRM books and stories can be read for free, although a small fee is incurred due to data use. In most countries, the data fees are equivalent to 2 US cents per 1000 pages read. Some titles are not freely accessible and need to be purchased by end users, generally with mobile credit. The price for a paid title is usually around 3.50 US dollars and, like the free books, is accessed via a mobile data connection.



The in-app survey was completed by 4,330 existing Worldreader Mobile users in seven developing countries: Ethiopia, Ghana, India, Kenya, Nigeria, Pakistan and Zimbabwe. Two criteria determined a country's inclusion in the research: a low literacy rate and a minimum of 6,000 established Worldreader users per month. Figure 1 shows the adult illiteracy rates for the seven countries surveyed. For most of these countries, illiteracy rates are significantly higher than the average of 20 per cent for developing countries (UIS, 2013b). In Ethiopia, for example, the adult illiteracy rate is over 60 per cent for the total population and over 70 per cent for women; in Pakistan the illiteracy rate is 45 per cent for all adults and 60 per cent for women. Kenya and Zimbabwe have considerably lower adult illiteracy rates of 13 per cent and 8 per cent respectively. Overall, the average adult illiteracy rate in the observed countries is 34 per cent, or approximately one-third of the population.

FIGURE 1**Average adult illiteracy rates**

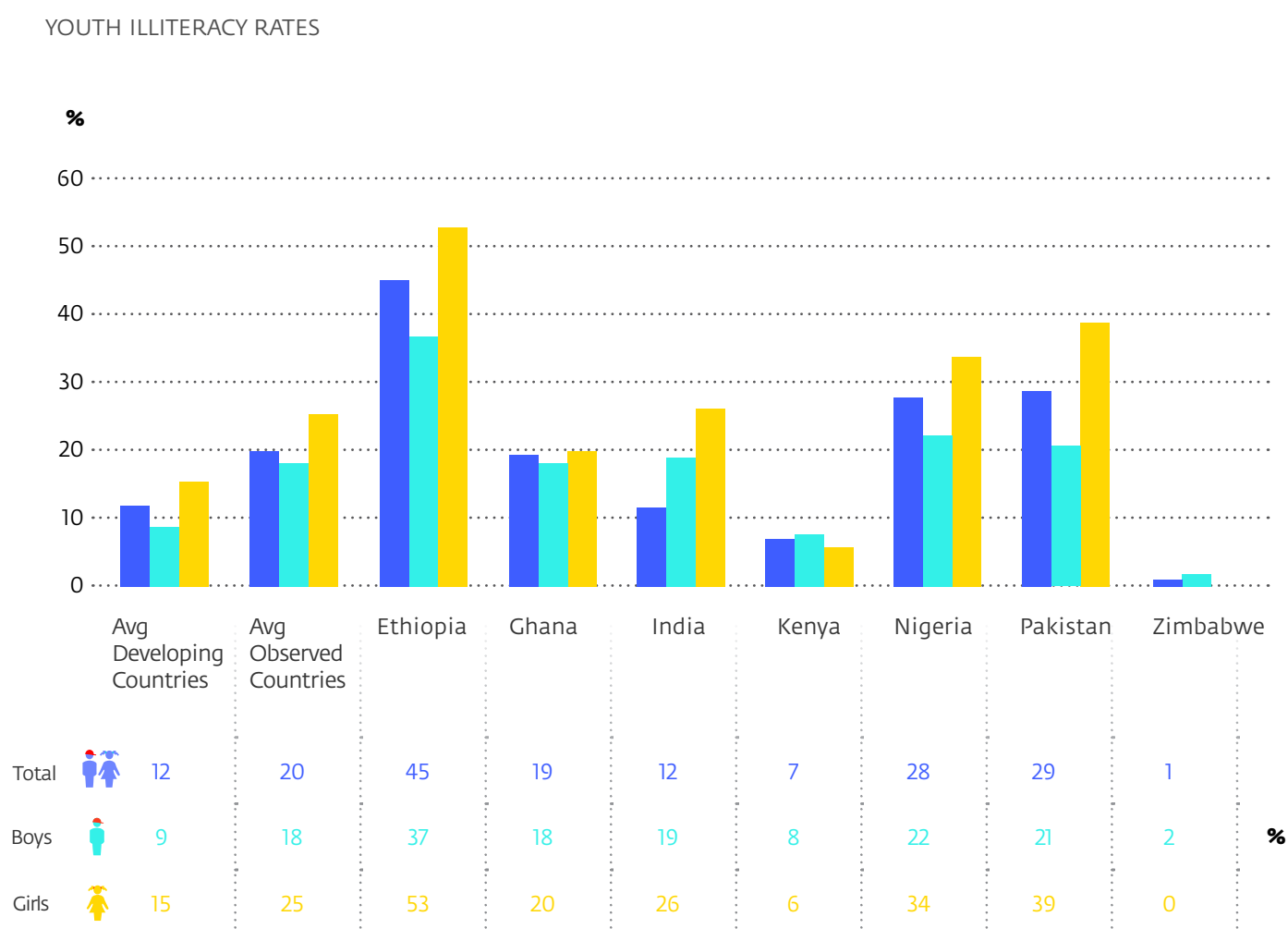
Source: UNESCO Institute for Statistics (UIS) database, 2013

Youth illiteracy in the surveyed countries follows a similar pattern, with most rates significantly higher than the average of 12 per cent for developing countries (see Figure 2). Again Ethiopia's average is the highest among the countries observed, at 45 per cent, followed by Pakistan and Nigeria. Kenya and Zimbabwe are exceptions, with youth illiteracy rates of 7 per cent and 1 per cent respectively. The average youth illiteracy rate for all seven countries included in the study is 20 per cent, or one-fifth of the population.

The survey tool was written in English and comprised thirty multiple-choice questions, approximately half of which were five-point Likert items aimed at gauging the respondent's level of agreement or disagreement with certain statements (see Appendix A for a sample survey). The survey tool was tested in each of the target countries for comprehension and appropriateness, and some questions were revised or tailored accordingly.

FIGURE 2

Average youth illiteracy rates



Source: UNESCO Institute for Statistics (UIS) database, 2013

An invitation to participate in the survey appeared on the mobile displays of all Worldreader Mobile users in the target countries from 1 April 2013 to 31 May 2013. The survey invitation included the offer of a small financial incentive of US\$0.50, given in mobile credit, to users who completed the survey. A Worldreader Mobile user was allowed to fill in the survey questionnaire only once.

Each completed questionnaire was matched to the respondent's actual reading frequency on Worldreader Mobile. Respondents were categorized into four groups:

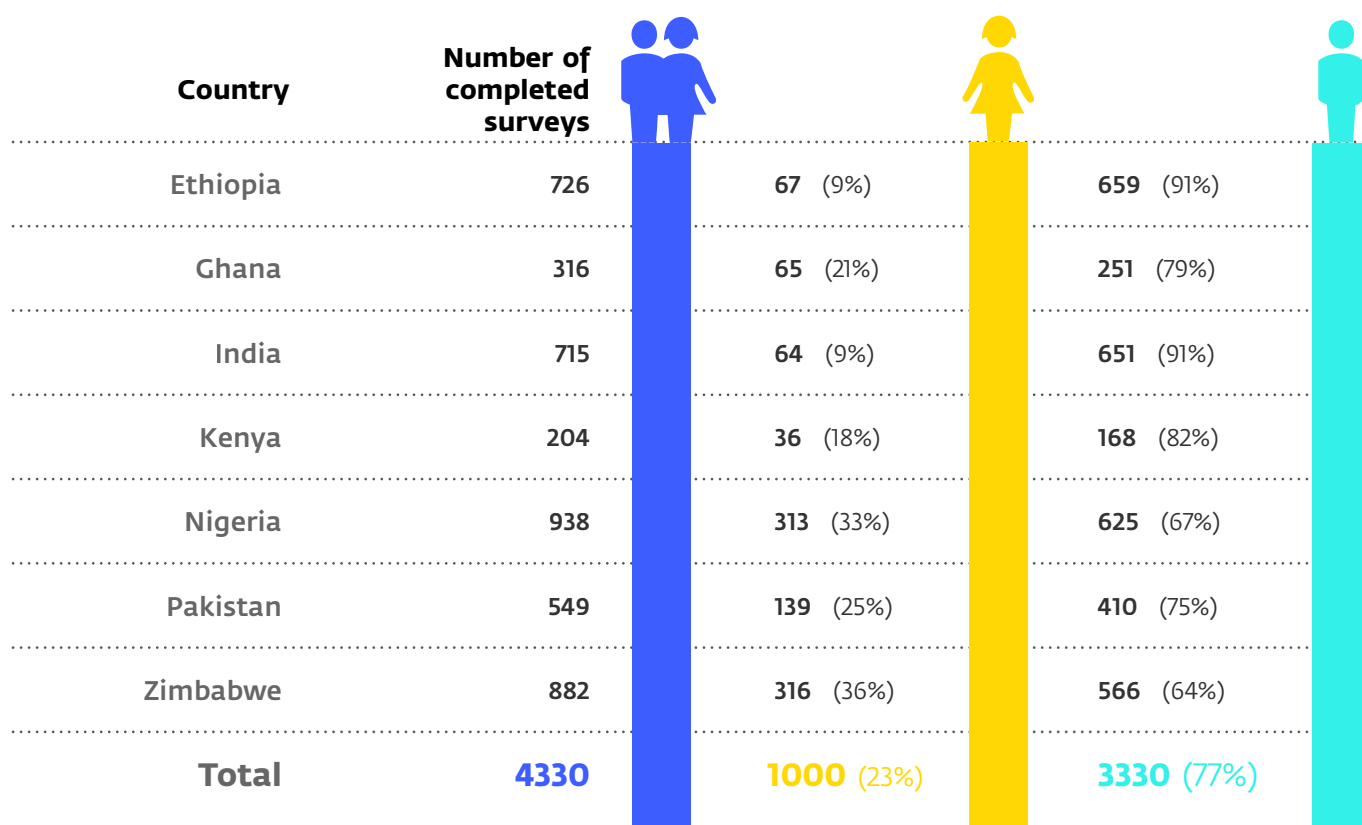
1. **Occasional Readers** – read 2–4 times per month
2. **Frequent Readers** – read 5–20 times per month
3. **Habitual Readers** – read 21–40 times per month
4. **Power Readers** – read more than 40 times per month

These categories allowed for actual usage to be examined along with demographic characteristics, self-reported attitudes and perceptions about mobile reading.

The number of completed surveys in each country was capped at 1,000 for budgetary reasons. Surveys that contained large amounts of missing data or lacked authenticity were dropped from the analysis.

Despite the offer of a financial incentive, attaining the target level of completed surveys (500) was unsuccessful in Kenya and Ghana. The poor response rate was attributed to low penetration of Worldreader Mobile in these countries.

The final tabulation of high-quality completed surveys was 4,330. Figure 3 shows the frequency of survey completion by country. The most surveys were completed by users in Nigeria, followed by Zimbabwe, Ethiopia and India. In all countries, significantly more male users completed the survey than female users, with males constituting 77 per cent of the total respondents. In spite of this imbalance, the number of female respondents is far from negligible; in most countries females comprised around one-fifth to one-third of the total respondents.

FIGURE 3**Number of completed in-app surveys by country****USAGE MONITORING**

To understand actual reading patterns, trends and preferences in the countries surveyed, the following Worldreader Mobile data were monitored in all seven countries over the three-month period of the study (April to June 2013):

1. **Individual user data** (all users)
 - Time spent reading per user (measured in minutes per month)
 - Number of pages read per user (measured by number of times user clicked on 'Next page' within a book)
2. **Individual data from the 10,000 most active users** (defined by total time spent reading per month)
 - Time spent reading per user
 - Number of pages read per user
 - Country location of user
 - Declared gender

3. **Menu clicks** (all users)
 - Total clicks on 'Books from my country'
 - Total clicks on 'Books in my language'
 - Total clicks on 'Books at my level'
4. **User search queries** (measured by frequency of words searched)
5. **Top book titles opened and at least partially read**

By using automated data monitoring the study was able to capture actual reading behaviours, which were cross-correlated with data from the in-app survey to aid in analysis.

QUALITATIVE TELEPHONE INTERVIEWS

In addition to the surveys and usage monitoring, qualitative telephone interviews were conducted with survey respondents to give context to the quantitative findings. These interviews were conducted during the month of June 2013 (see Appendix B for a copy of the interview questions).

Survey respondents who were classified as Frequent Readers were invited via email to participate in a telephone interview conducted at their convenience. Only participants who agreed to be contacted were interviewed. Ultimately, researchers completed seventeen interviews with respondents from Ethiopia (3), Ghana (4), India (2), Nigeria (4) and Zimbabwe (4). No one in Kenya or Pakistan agreed to be interviewed. The interviews were conducted in English, comprised 15 questions and lasted approximately 10 minutes each. With the permission of each interviewee, the calls were recorded and later transcribed.

LIMITATIONS

The generalizability of the current findings is limited in that they were obtained solely from users of Worldreader Mobile. The users who completed the survey were also volunteers. Those who chose to participate and complete the survey are different from non-users or other users who chose not to participate. It may be that those who completed the survey had more favourable views about mobile reading than those who did not. This was a compromise that the project team had to make in order to reach out to a large number of respondents in all the target countries while working with the resources and mode of data collection available for the study.

FINDINGS

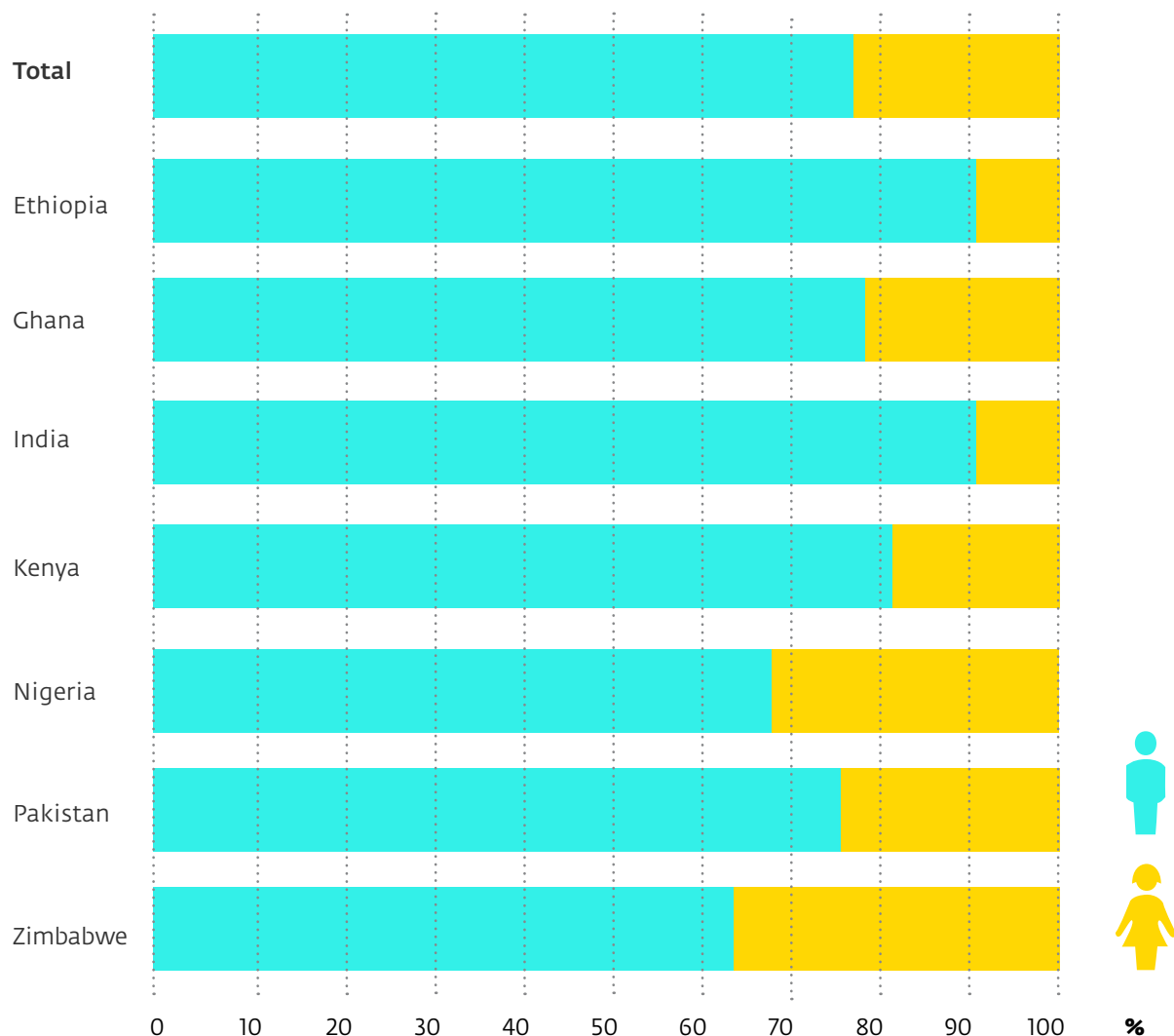
The following sections discuss the findings of the study, organized according to the research questions described above.

WHO ARE THE PEOPLE READING ON MOBILE PHONES IN DEVELOPING COUNTRIES?

The demographics of mobile readers generally mirror mobile phone ownership patterns in developing countries. Male users dominate in numbers and this was unsurprising. However, further analysis revealed usage patterns that provide cause for optimism about the impact of mobile reading on literacy rates among marginalized groups. In particular, women appear to be using mobile devices as a portal to reading material, in spite of their lower rates of mobile phone ownership. The following sections discuss the demographic profiles of survey respondents in terms of gender, age and education level.

GENDER

Survey data indicate that in absolute terms, male mobile readers vastly outnumber female mobile readers in the countries studied. On average, there are approximately 3 male mobile readers to every 1 female. The gender gap is narrowest in Nigeria and Zimbabwe, where the ratio is 2 males to 1 female. The most pronounced gaps are in Ethiopia and India, where the ratio is 9 males to 1 female. Figure 4 shows the percentage of men and women mobile readers overall and by individual country.

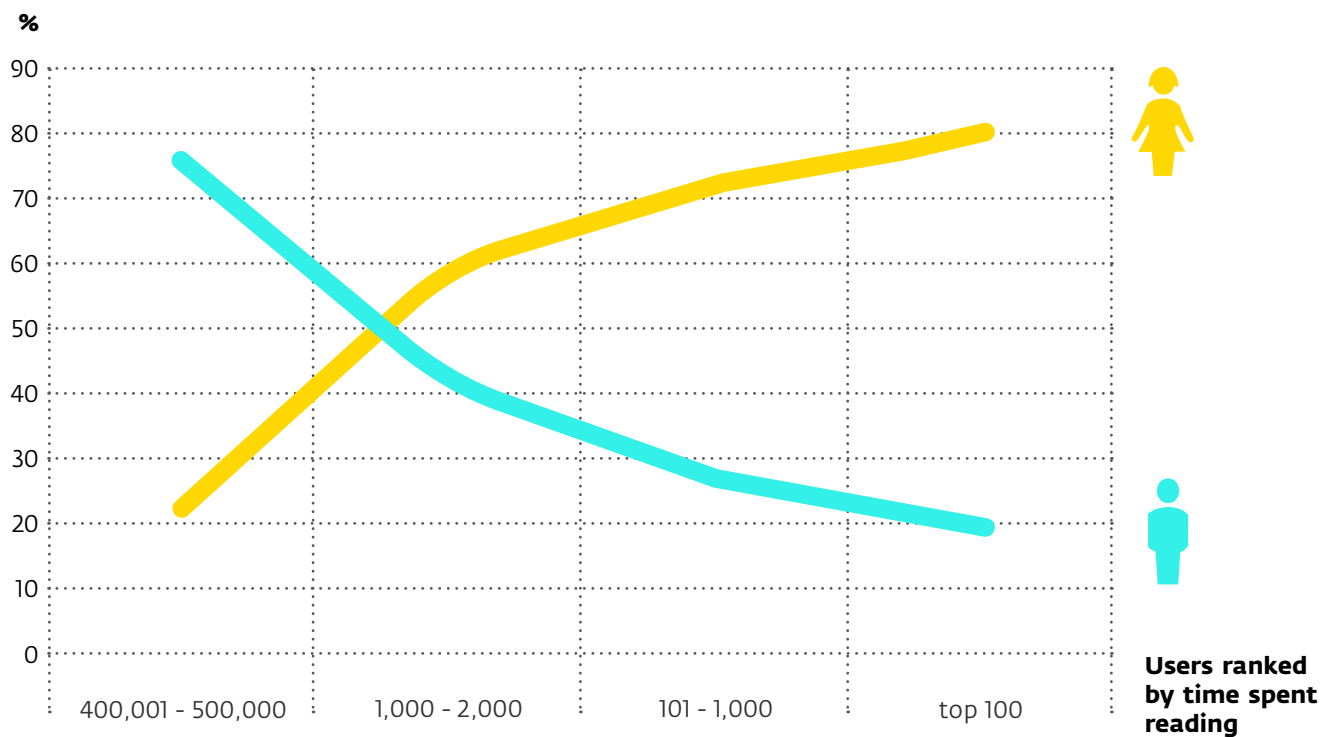
FIGURE 4**Male and female mobile readers by country**

These acute gender gaps seem to reflect mobile phone ownership patterns in the countries surveyed rather than holistic reading habits. In low- and middle-income countries, a woman is 21 per cent less likely to own a mobile phone than a man (GSMA Development Fund and Cherie Blair Foundation for Women, 2010). This figure increases to 23 per cent if she lives in sub-Saharan Africa, 24 per cent in the Middle East and 37 per cent if she lives in South Asia. The gap widens further in the case of data-enabled phones (which are required to run the Worldreader Mobile application), as men in developing countries are far more likely than women to own higher-end

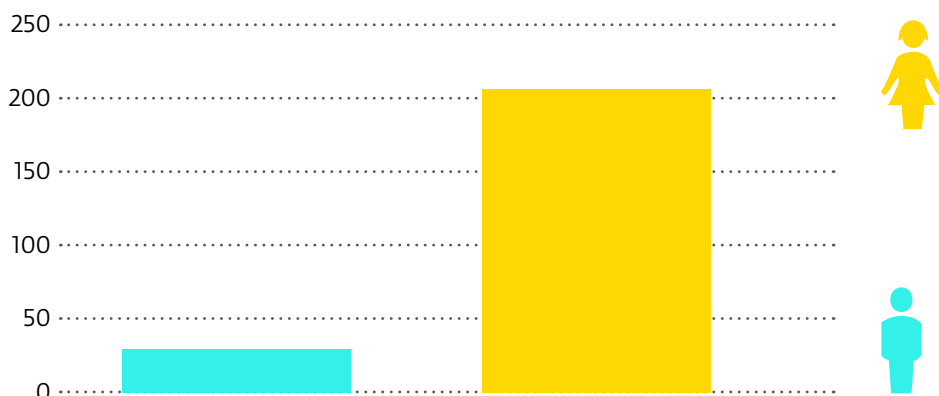
phones and use mobile data. In Egypt, Jordan and Lebanon, for example, around 70 per cent of men use smartphones, whereas only about 30 per cent of women do so (Broadband Commission, 2013). A global study of women living on less than US\$2 per day found that while 77 per cent of these women had made a mobile phone call and 37 per cent had sent a text message, only 2 per cent had ever used mobile internet services (GSMA mWomen, 2012).

Nevertheless, the gender gap for survey respondents is slightly narrower than the gender gap for the user base of biNu, the platform that allows Worldreader Mobile and other 'smartphone-type' apps to function on feature phones. Females constitute only 15 per cent of total biNu users but 23 per cent of Worldreader Mobile users. Given the relatively low number of female users in absolute terms, this ratio indicates that women show a much higher interest in mobile reading than the numbers suggest at first glance.

Usage data collected also indicate that as the frequency of mobile reading increases, the proportion of female users climbs. In fact, the gender balance tilts to a female majority for the most active readers across countries. Among the top 2,000 active readers, over 59 per cent are female; among the top 1,000 active readers, 72 per cent are female; and among the top 100 active readers, 80 per cent are female. Figure 5 presents Worldreader Mobile user activity disaggregated by gender.

FIGURE 5**Most active readers by gender**

The switch from a male majority to a female majority as usage level intensifies is one of the most significant findings in this report, as it suggests that once women start reading on their phones, they tend to be more highly engaged and read more. Usage data on time spent reading back up this conclusion: female mobile readers spend significantly more time reading per month than males (see Figure 6).

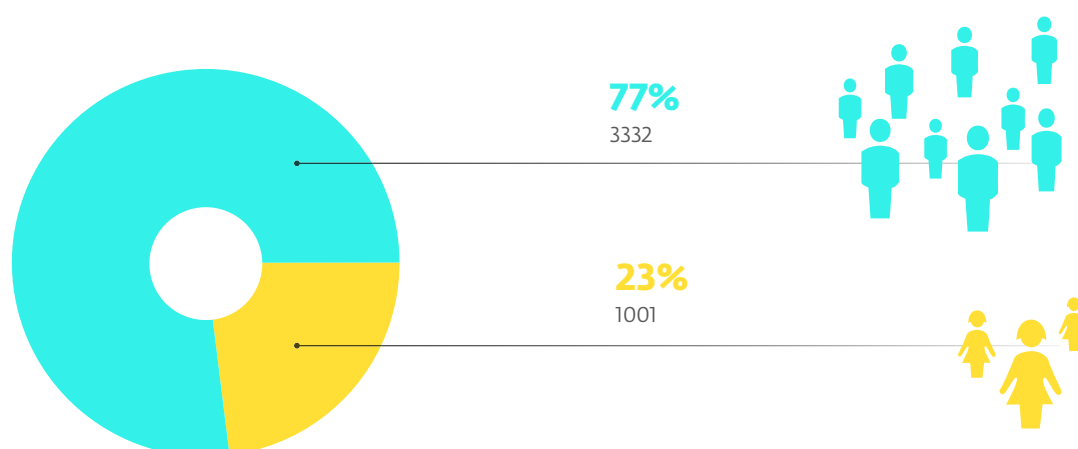
FIGURE 6**Time spent reading per month by minute****Minutes**

On average, women spent 207 minutes per month reading on their mobile phones during the three-month period of the study. Men, by contrast, read about 33 minutes per month. Women also tended to read more frequently and for longer periods at a time. During the study period, men read 3 to 4 times a month for around 10 minutes each time, while women read around 11 times per month for about 19 minutes each time. In terms of hours read per month, women performed 66 per cent of the total reading completed during the study period, despite the fact that they only constitute 23 per cent of the total readers (see Figure 7).

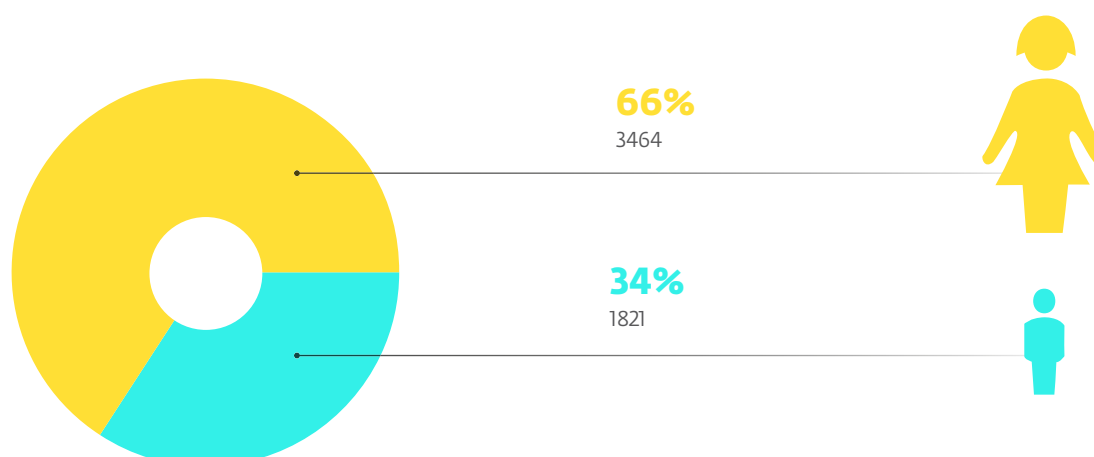
Although men currently make up the majority of mobile readers, women clearly dominate in terms of both frequency of app use and time spent reading. This finding is consistent with research suggesting that women read more than men. In the United States for example, women read nineteen books a year on average, while men read only fifteen (Pew Research Center, 2012).

FIGURE 7**Number of readers and reading time**

NUMBER OF READERS



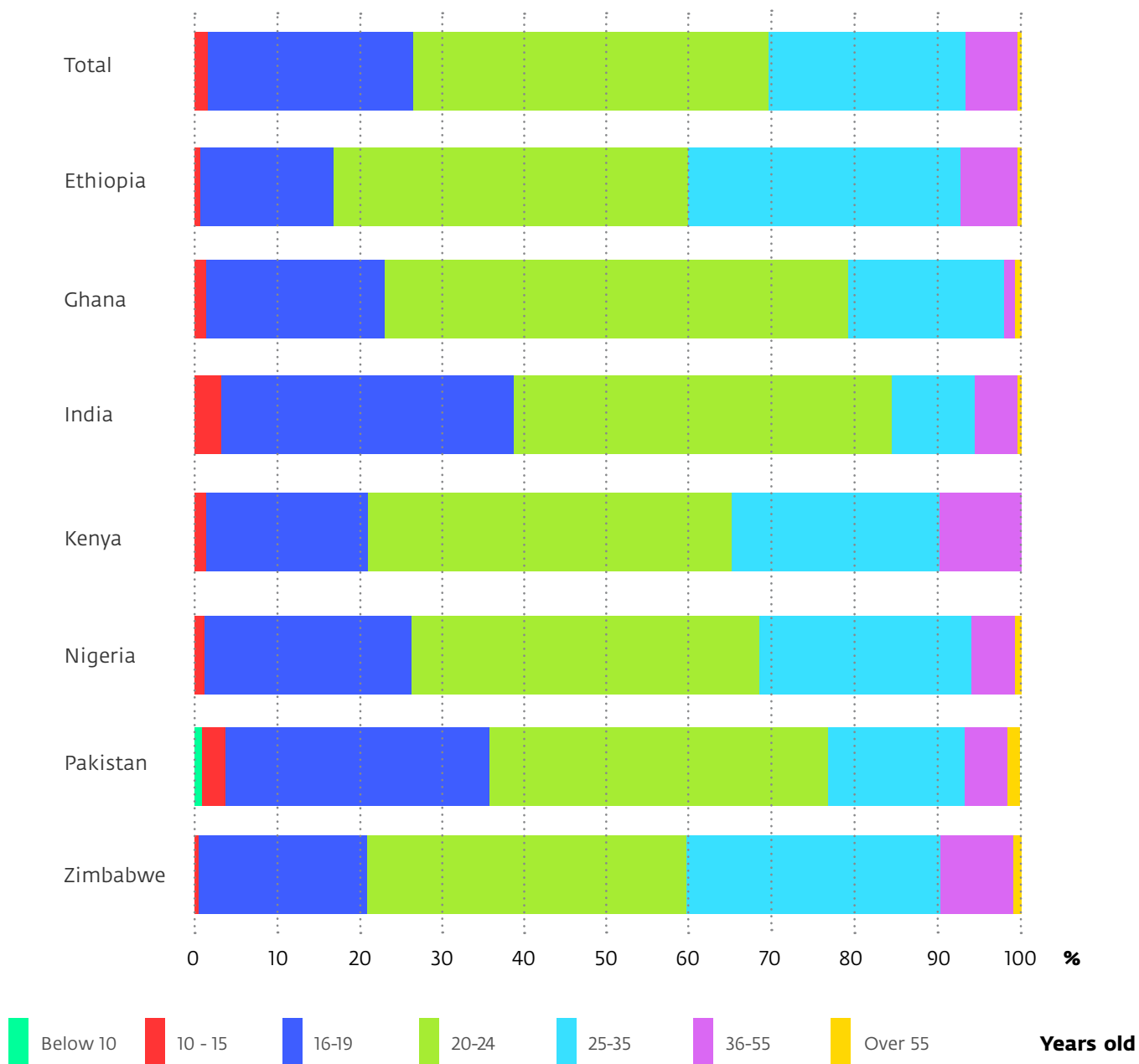
TOTAL READING TIME (ALL READERS)

**AGE**

In terms of age, Worldreader Mobile users are young: the average survey respondent was 24 years old. Over 90 per cent of the survey respondents were aged 35 and below, and two-thirds of respondents were under 24 years old. Across all countries, fewer than 1 in 10 mobile respondents were over the age of 35. This age gap was most severe in Ghana, where only 6 out of 316 respondents, or less than 2 per cent, were 36 or older. Figure 8 shows the ages of mobile readers by country.

FIGURE 8

Age of mobile readers by country



Older readers were particularly conspicuous in their absence from the data, implying that older demographic groups are less likely to read on their mobile phones. This finding is perhaps unsurprising, given that young people around the world are more likely to own a mobile phone than older people. In sub-Saharan Africa, for example, a Gallup poll conducted across 17 countries indicates that 63 per cent of people aged 19 to 29 have mobile phones. This percentage declines slightly to 60 per cent for people between the ages of 30 and 45, and drops further to 51 per cent for people aged 46 and older (Tortora and Rheault, 2011). Younger people are also more likely to use a mobile phone for activities other than calling. An international survey conducted by the Pew Research Center's Global Attitudes Project found that in nearly all

countries studied, 18- to 29-year-olds are more likely to access the internet on their mobile phone than people aged 50 or older (Pew Research Center, 2011). Of the twenty-one countries surveyed by the Pew project, more than half are considered developing countries and several overlap with the current study, including India, Kenya and Pakistan. Finally, literacy rates for youth (ages 15 to 24) are higher than the overall literacy rates for adults (age 15 or older) in all of the countries surveyed (UIS, 2013b). It stands to reason that if young people are more likely to be literate, own mobile phones and access the internet through their phones, they are also more likely to become mobile readers.

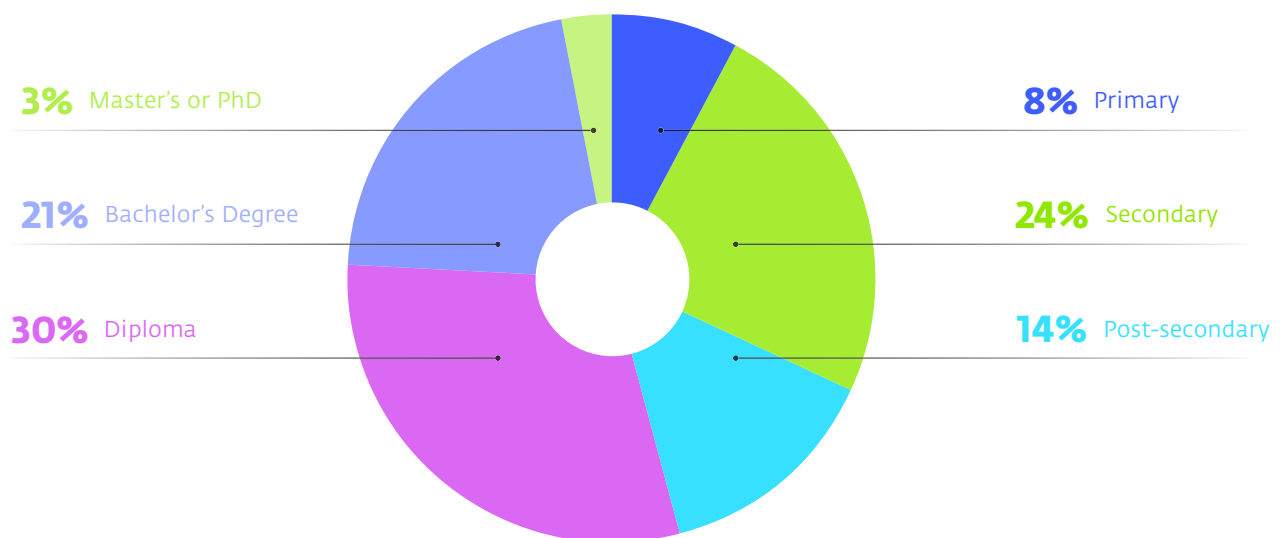
EDUCATION LEVEL

The survey respondents tended to be more highly educated than national averages in the countries studied. More than 24 per cent of the respondents reported that they had completed a bachelor's degree or above (see Figure 9). By contrast, the average gross enrolment ratio in tertiary education for all seven countries was a mere 8.5 per cent, with Kenya having the lowest, at 4 percent, and India the highest at 18 per cent (UIS, 2012b). (The gross enrolment ratio is defined as the total enrolment in a given level of education, regardless of age, expressed as a percentage of the official school-age population for the same level of education.)

FIGURE 9

Educational attainment

HIGHEST LEVEL OF EDUCATION COMPLETED

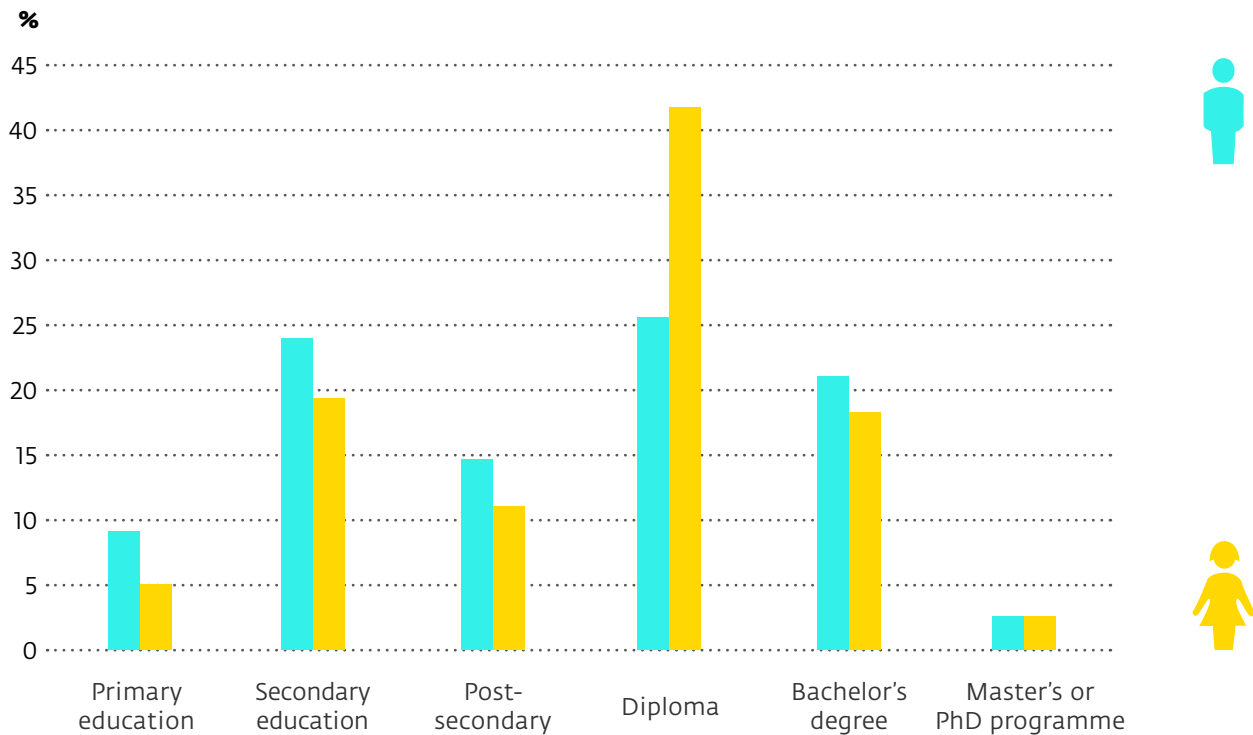


Note: The education categories used in this study correspond to the following International Standard Classification of Education (ISCED) levels: Primary – ISCED level 1; Secondary – ISCED levels 2 and 3 (lower secondary and upper secondary education); Post-secondary – ISCED level 4 (post-secondary, non-tertiary education); Diploma – ISCED level 5 (short-cycle tertiary education); Bachelor's Degree – ISCED level 6; Master's or PhD – ISCED levels 7 and 8 (UIS, 2011).

Females in the survey were generally more highly educated than males: 63 per cent of female respondents had achieved a diploma or above, compared with 51 per cent of males (see Figure 10).

FIGURE 10

Educational attainment by gender

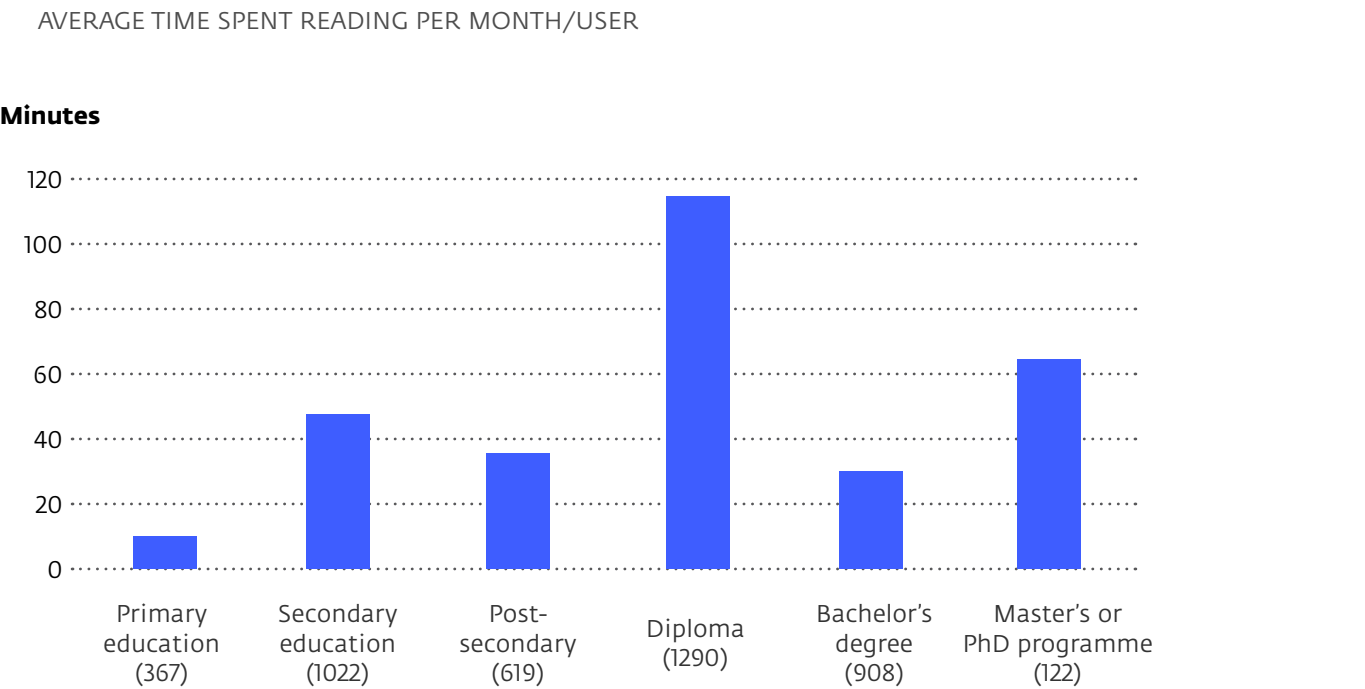


Note: The education categories used in this study correspond to the following International Standard Classification of Education (ISCED) levels: Primary – ISCED level 1; Secondary – ISCED levels 2 and 3 (lower secondary and upper secondary education); Post-secondary – ISCED level 4 (post-secondary, non-tertiary education); Diploma – ISCED level 5 (short-cycle tertiary education); Bachelor's Degree – ISCED level 6; Master's or PhD – ISCED levels 7 and 8 (UIS, 2011).

This gender difference in educational attainment could explain why women are more active readers than men. Usage data indicate that the amount of time spent reading per month was also highest for users who had achieved a diploma (see Figure 11).

FIGURE 11

Time spent reading by educational attainment



Note: The education categories used in this study correspond to the following International Standard Classification of Education (ISCED) levels: Primary – ISCED level 1; Secondary – ISCED levels 2 and 3 (lower secondary and upper secondary education); Post-secondary – ISCED level 4 (post-secondary, non-tertiary education); Diploma – ISCED level 5 (short-cycle tertiary education); Bachelor's Degree – ISCED level 6; Master's or PhD – ISCED levels 7 and 8 (UIS, 2011).

One might expect time spent reading to increase with education level, yet this does not seem to be the case. Monthly reading time declined for users who had achieved a bachelor's degree, to a level lower than the average reading time for users who had completed secondary or post-secondary (non-tertiary) education. Reading time rose again for users with a master's or doctoral degree but was still lower than the average for users who had attained a diploma. This pattern could be explained by two possible scenarios. First, the peak at the diploma level could be due to young people actively reading on their mobile phones to study for entrance examinations to bachelor's programmes. Usage data on the top search terms, presented later in this report, are consistent with this scenario. Second, the drop in mobile reading at the higher education levels may be due to the fact that these people are more likely to have access to paper books and other digital platforms, including tablets and computers, and are therefore less reliant on mobile phones for reading.

Summary: Who are mobile readers?

1. In absolute numbers, mobile readers are predominantly male. However, female users greatly outnumber males at higher levels of usage, and female mobile readers spend significantly more time reading per month than males.

2. Although people of various ages use mobile technology to access long-form reading material, mobile readers are typically young. Older people were noticeably absent from the survey data.

3. Mobile readers tend to be more educated than the general population, and female mobile readers are more educated than males. The most active mobile readers are those who have achieved a diploma but have not completed a higher education degree such as a bachelor's, master's or PhD. Interestingly, mobile readers with higher education degrees are not the most active users, presumably because they have alternative channels through which to access reading material.

WHY ARE PEOPLE READING ON THEIR MOBILE PHONES?

The survey also asked users why they were reading on their mobile phones. Originally, it was hypothesized that people read on mobile phones because they lacked access to paper books and stories. While this did turn out to be one of the reasons, the survey results indicate that, overwhelmingly, convenience ranks as the primary reason people read on mobile devices in developing countries. Popular secondary reasons include affordability, a preference for mobile reading over paper books and, to a lesser extent, lack of access to paper books and stories.

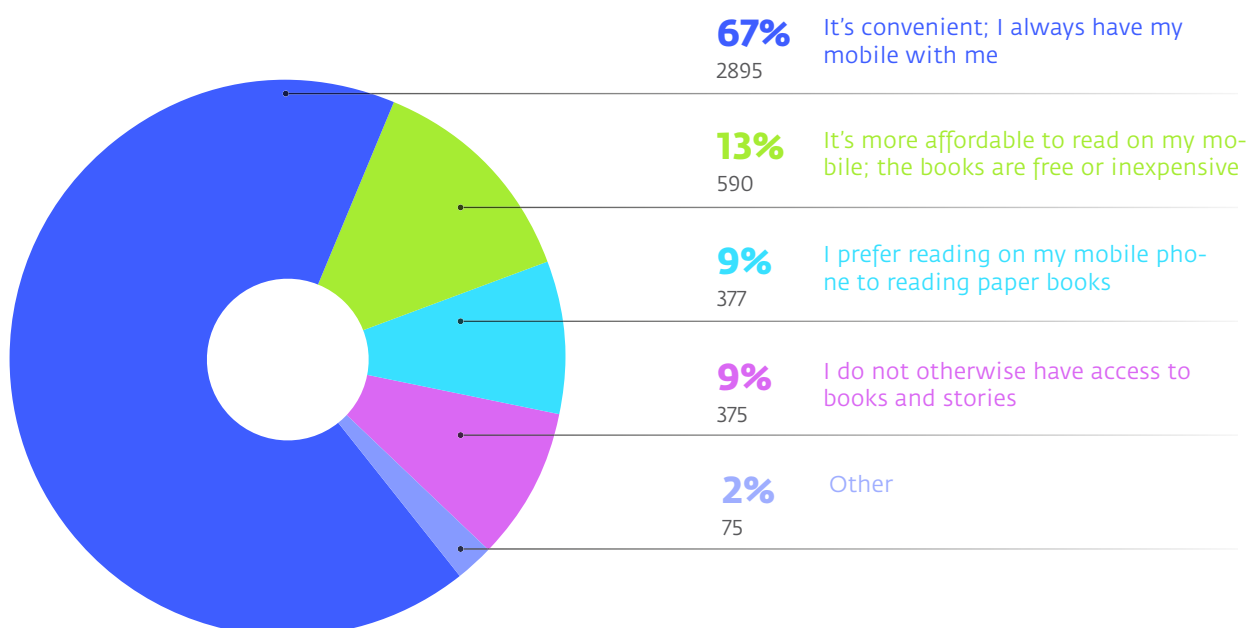
PRIMARY REASON: CONVENIENCE

Two out of three survey respondents cited convenience as their main reason for reading on their mobile phone.

The qualitative telephone interviews corroborated survey results, with interviewees frequently citing convenience as the primary benefit of mobile reading.

FIGURE 12

Primary reason for reading on mobile phone





MEET TINASHE

a student of human resource management in Zimbabwe who likes to read romance and drama on her mobile phone.

'I actually read more on my mobile than I used to. I think it is because I can carry my phone everywhere I go and it is quite easier than carrying a book, and it is always there when I want to read.'

Certainly, convenience can mean different things to different users. Yet the aspect of convenience most often evoked when discussing mobile technology is accessibility. While reading habits may differ vastly depending on the country, it seems that mobile reading is popular for a reason that transcends political and cultural boundaries: whether in North America or rural Ethiopia, people appear to like mobile reading because their device is 'always there'. Convenience can also refer to the portability of electronic reading materials compared with paper versions. Instead of having to carry multiple heavy books around, readers can access different books on their compact mobile phones wherever they are.

This finding echoes global trends showing that convenience is a powerful driver of mobile reading. Because of their multiple uses and portable form, phones are often carried around, offering instant access to content throughout the day. Even in countries where most people have access to paper books and e-readers, mobile phone reading is on the rise, presumably because of the ubiquity of the device. Of the 220 million people in China who read electronic media, over half use their mobile phone to read, and almost 25 million only read books on their mobile phone (Osnos, 2012). A Pew study on e-reading habits in the USA found that 29 per cent of people who read e-books do so on their mobile phones (Pew Internet, 2012). Mobile reading appears to be gaining traction among readers worldwide, perhaps most rapidly in developing countries where physical books and other e-reading devices are scarce.

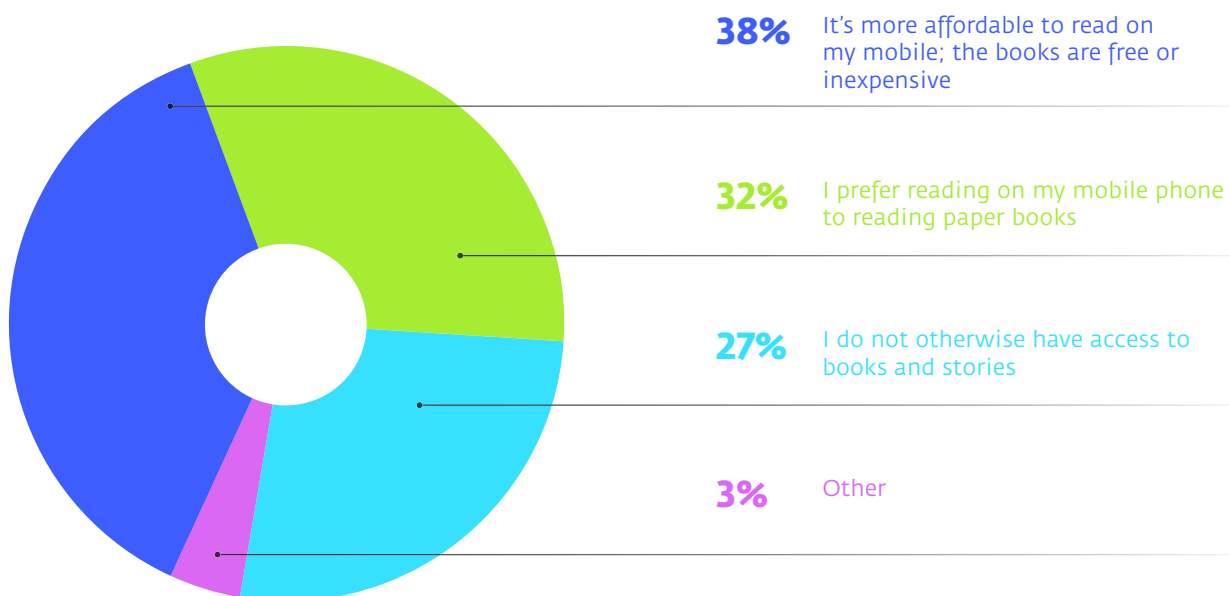
SECONDARY REASONS: AFFORDABILITY, PREFERENCE AND LACK OF ACCESS TO BOOKS

Of the respondents who cited convenience as their primary reason for reading on their mobile phone, 38 per cent cited affordability as their second-most-important reason (see Figure 13). This trend holds across genders and countries.

However, affordability tends to matter slightly more to women than to men. Just over one-third of the men surveyed indicated affordability as their second-most-important reason for reading on mobile phones, compared with 43 per cent of women. One reason for this might be that women in the countries surveyed tend to have less access to discretionary money and are therefore more budget-conscious. Another reason might be that women read more on their phones. The study found that the more active a reader is, the more likely he or she is to cite affordability as a secondary reason for mobile reading. Figure 14 shows the direct relationship: the vertical axis represents the percentage of users within each usage level who cited affordability as their second reason for reading on their mobile phone, after convenience. This trend is not surprising, as the more books a mobile reader consumes, the more money he or she saves when compared with the cost of purchasing paper books.

FIGURE 13

Secondary reasons for mobile reading, after convenience



Of the same group that listed convenience as their primary reason for mobile reading, 32 per cent cited a preference for reading on their mobile phones (as opposed to reading paper books) as a second reason for mobile reading. A slightly smaller number of respondents – 27 per cent – cited a lack of access to books and stories as their second reason. Four per cent of respondents cited other reasons.



MEET CHARLES

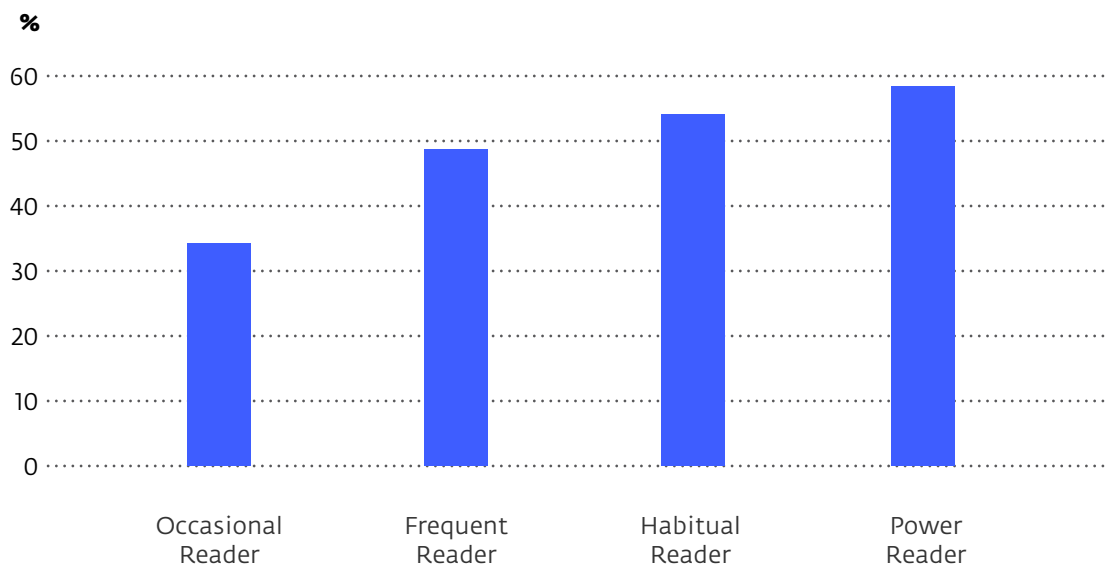
a teacher and mobile reader in Zimbabwe. Charles reads to his class from his mobile phone and cites lack of available printed content as his primary reason for reading on his mobile phone.

'We live in a remote area where there are no libraries, and the books I have in my own small library are the ones which I have already read. So this is now giving me a chance to choose from a variety of fiction titles.'

FIGURE 14

Affordability as second reason for mobile reading

IT'S MORE AFFORDABLE TO READ ON MY MOBILE; THE BOOKS ARE FREE OR INEXPENSIVE.



WHAT ARE MOBILE READERS' ATTITUDES TOWARDS READING?

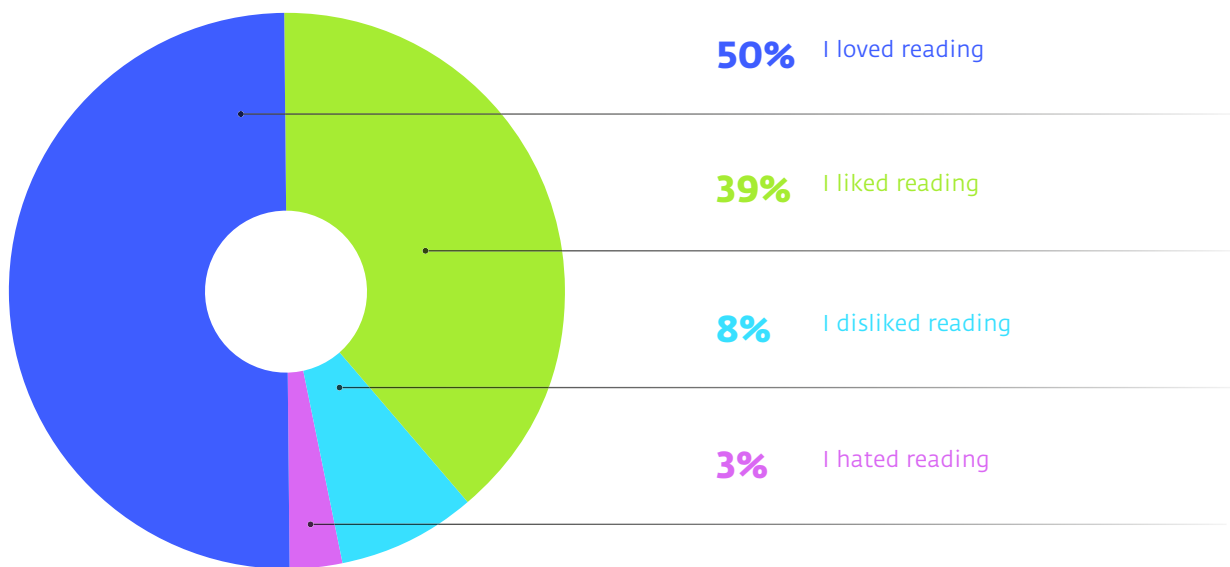
Overall, the survey shows that people seem to enjoy reading more when they use mobile devices to access text. For respondents who already held positive attitudes towards reading in general, mobile reading reinforced and amplified those dispositions. For people who disliked or hated reading prior to reading on their mobile phones, the experience tended to change their attitude towards reading for the better.

REINFORCING POSITIVE ATTITUDES

Survey data represented in Figure 15 indicate that the vast majority of mobile readers – 89 per cent – either loved or liked reading in general before they began reading on their mobile phones. Not surprisingly, individuals who already like to read appear to be more inclined to read on a mobile device.

FIGURE 15

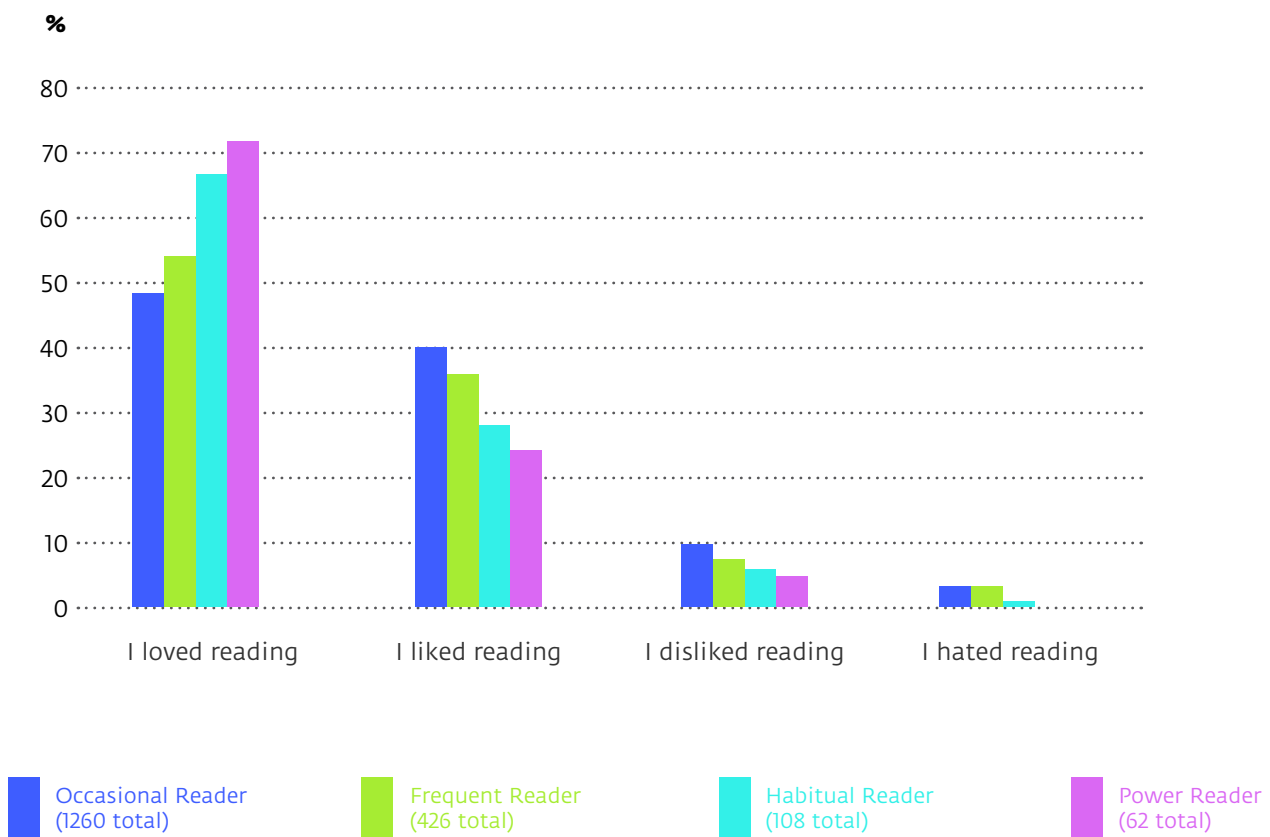
Attitudes towards reading prior to reading on a mobile phone



When these pre-existing attitudes were analysed along with reading frequency, it was found that the most active readers also had the most favourable views towards reading prior to engaging in mobile reading. As indicated in Figure 16, 71 per cent of Power Readers responded that they 'loved reading' prior to becoming mobile readers.

FIGURE 16

Attitudes towards reading prior to reading on a mobile phone by usage level

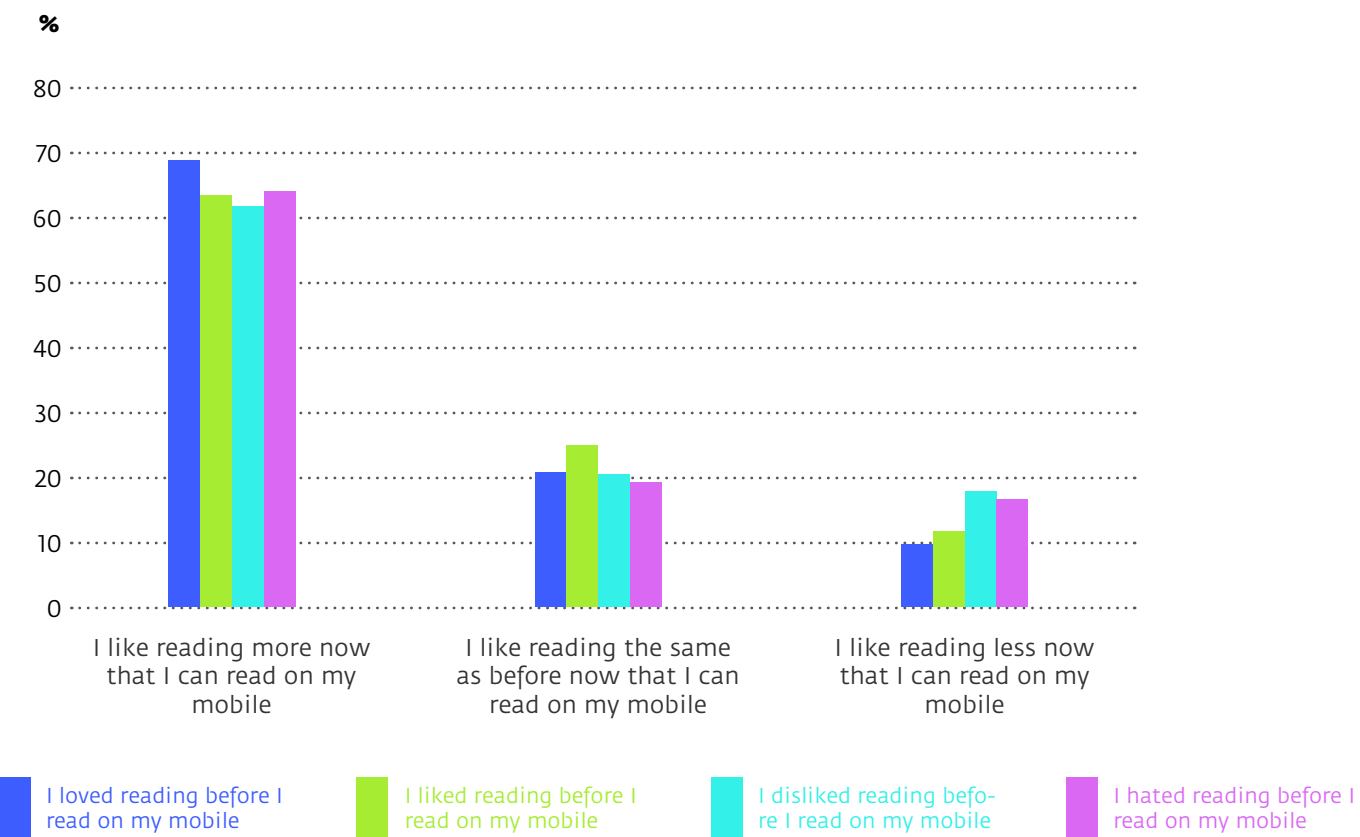


The majority of respondents (2 in every 3) reported that they enjoyed reading even more after they started reading on their mobile phones, regardless of their initial attitudes towards reading. Given the survey responses about the main reasons for mobile reading discussed in the previous section, it is likely that this increased enjoyment is linked, at least in part, to the convenience and affordability mobile reading offers. One in ten respondents reported that they liked reading less after reading on their mobile phones, though it is unknown why this was the case. It is possible that these readers encountered barriers to mobile reading (to be discussed later in the report) that led to their decreased enjoyment of reading. Figure 17 shows how the attitudes of different groups of users – those who loved, liked, disliked and hated reading prior to reading on mobile phones – changed after beginning mobile reading.

The critical reader may argue that the overwhelmingly positive attitudes were due to self-selection – it is possible that users who enjoy reading in general were more likely to respond to the survey. This potential bias is partially addressed by examining readers who had negative predispositions towards reading, as discussed in the following section.

FIGURE 17

Changed attitudes towards reading



CHANGING NEGATIVE ATTITUDES

While it was interesting to find that mobile reading amplified pre-existing positive attitudes towards reading, it was even more noteworthy to discover that mobile reading changed people’s negative attitudes towards reading. Of the 492 respondents who said they disliked or hated reading before reading on their mobile phones, 306 – 62 per cent – reported that they like reading more now. Figure 18 depicts attitudes towards reading before and after reading on mobile phones.

Of the same 492 respondents who disliked or hated reading before, 1 in 5 became Frequent, Habitual or Power Readers on Worldreader Mobile. These data strongly indicate that people who do not like to read in general may eventually enjoy reading more and read more avidly after they start reading on their mobile phone.

FIGURE 18

Attitudes before and after mobile reading

Attitudes before
reading on mobile phones



3834 (89%)

2154 loved reading

1681 liked reading



492 (11%)

374 disliked reading

118 hated reading

Attitudes after
reading on mobile phones

AMPLIFICATION OF POSITIVE ATTITUDES



2544 (66%)
liked reading more

888 (23%)
liked reading the same

403 (11%)
liked reading less



CHANGE IN POSITIVE ATTITUDES

CHANGE IN NEGATIVE ATTITUDES



306 (62%)
liked reading more

100 (20%)
liked reading the same

86 (18%)
liked reading less



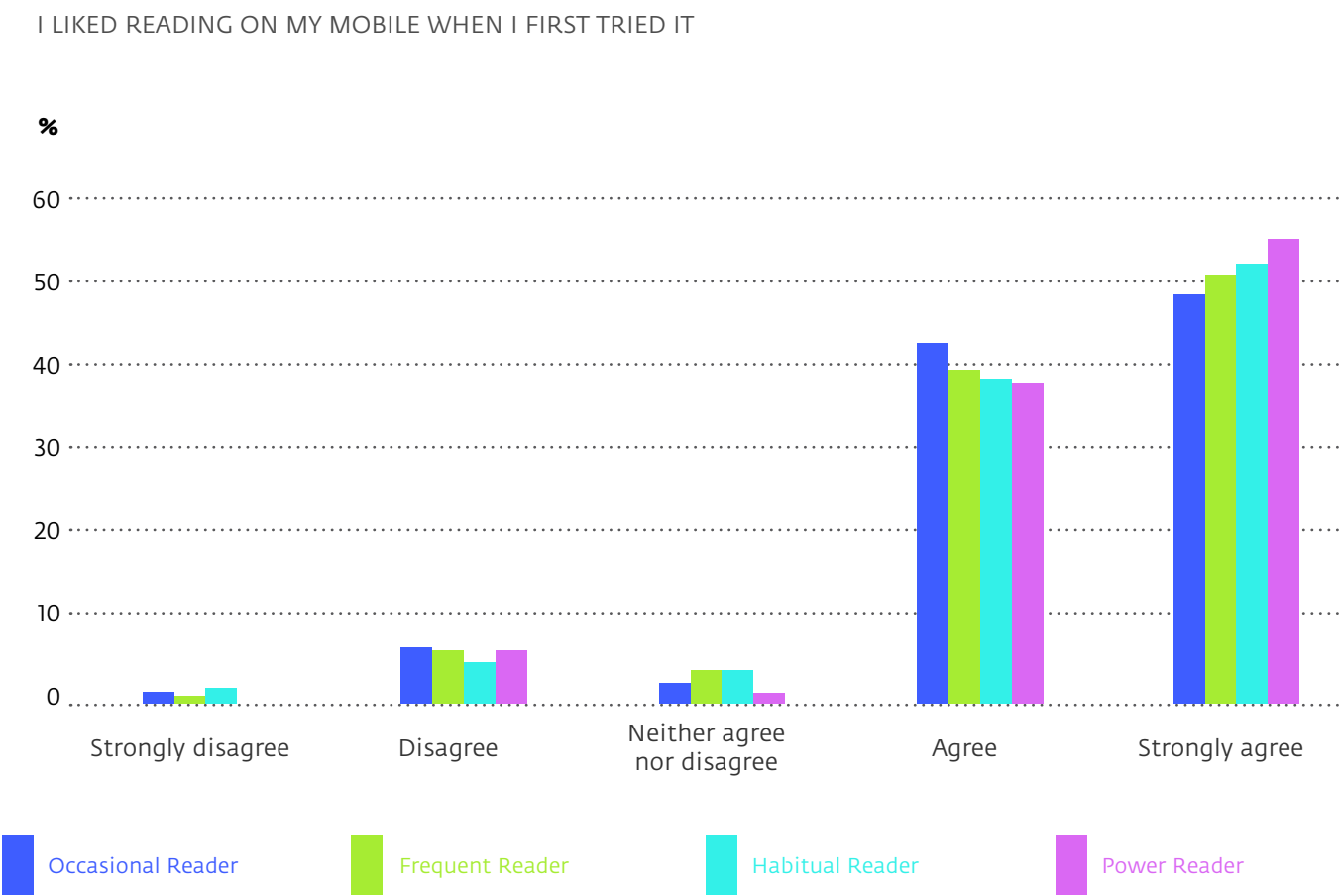
AMPLIFICATION OF NEGATIVE ATTITUDES

INITIAL ATTITUDES TOWARDS MOBILE READING

The survey also asked respondents about their initial attitudes towards mobile reading when they first tried it, and the results were overwhelmingly positive across all usage levels (see Figure 19). Nine out of ten users reported having favourable attitudes towards reading on their mobile phones when they first tried it. On a scale of 1 to 5, with 5 being the most favourable and 1 the least, the average attitude score was 4.3 (standard deviation: 0.90). In terms of usage level, Habitual Readers were the most enthusiastic (4.6) and Occasional Readers were the least (4.3).

FIGURE 19

Initial reactions to mobile reading



These data suggest that once people try mobile reading, they are likely to enjoy it; therefore offering opportunities for potential users to experiment with mobile reading is a critical first step in any intervention.

GENDER DIFFERENCES IN ATTITUDES

When analysed by gender, the survey data show that women are more enthusiastic about mobile reading and reading in general than men. Prior to reading on their mobile phones, female respondents held more positive attitudes towards reading than men: 65 per cent of women said they 'loved reading' compared with only 45 per cent of men. Women were also slightly more likely to enjoy reading more after starting to read on their mobile phones (69 per cent of women, compared with 65 per cent of men). While female readers are currently a minority of the total users, they hold consistently positive attitudes towards reading.

It is possible that these gender differences can be attributed, at least in part, to specific cultural factors that make mobile reading particularly appealing to women. In countries and communities where female education

is still a contentious subject, reading on mobile phones may be more socially acceptable than reading physical books, since it appears no different from reading text messages, and other people cannot see the titles of the books. While cultural factors are beyond the scope of the current study, experts who contributed to this report believe that mobile reading may be one way that marginalized women are accessing reading material that would otherwise be barred to them, such as romantic novels or educational materials, particularly about sexuality or reproductive health. It is possible that in some contexts, the social acceptability of mobile phones is being used to sidestep the social stigma of female education and give women and girls access to genres of reading materials that might be deemed inappropriate or off-limits by family or community members.

WHAT ARE THE READING HABITS OF MOBILE READERS?

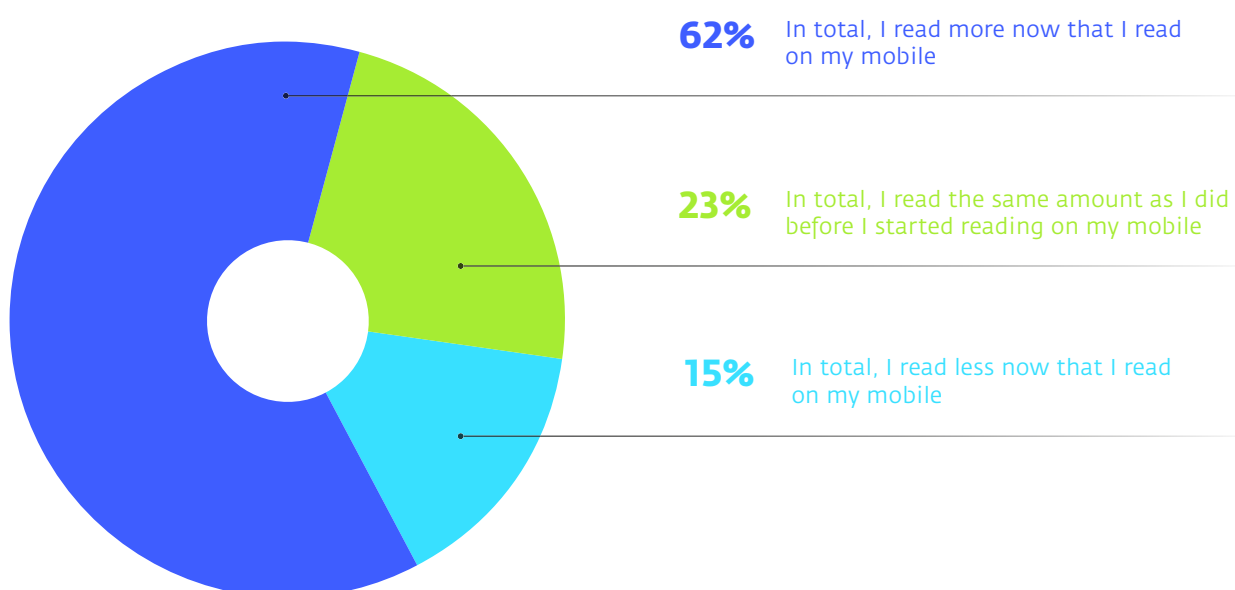
Survey questions aimed at examining mobile readers' reading habits revealed two key trends: 1) mobile readers read more than they did prior to reading on their phones, and 2) mobile readers are reading to children from their phones.

READING MORE

Most mobile readers read more after adopting mobile reading; 62 per cent of survey respondents reported that they are reading more now that they can read on their mobile phones.

FIGURE 20

Change in reading frequency after adopting mobile reading





MEET NANCY

a mobile reader in Abia State, Nigeria. Nancy is 20 years old and loves to read. Nancy's favourite book is *A Heart to Mend* by Nigerian romance author Myne Whitman. Nancy began reading on Worldreader Mobile in May 2013, and that month she spent 10 hours reading. In June, Nancy read on Worldreader Mobile for over 40 hours.

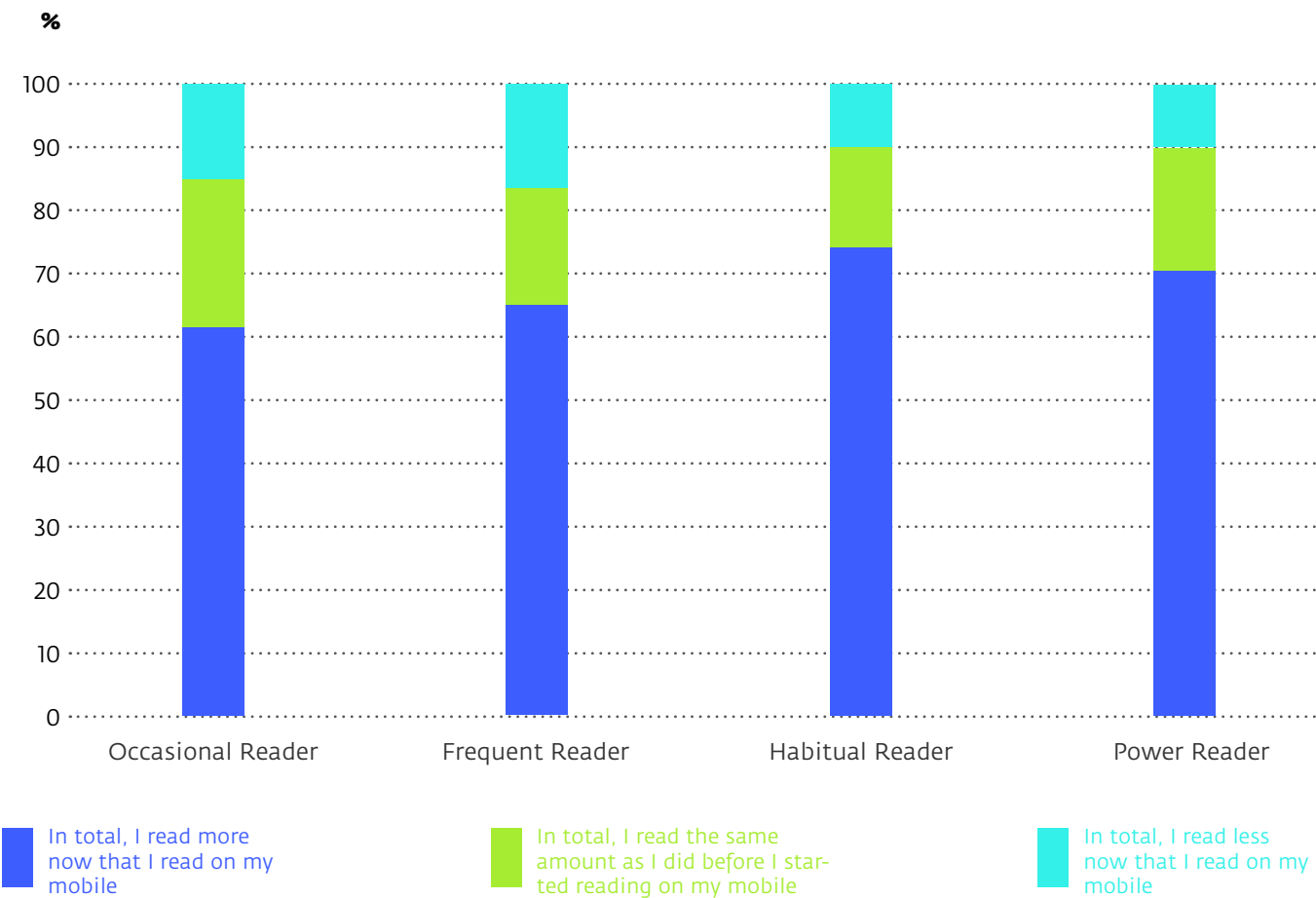
When asked 'Do you think that you read more now that you can read on your mobile?' Nancy replied, '**I do not think that I read more – I know that I read more.**'

Once again, this trend is more pronounced among women than men: 71 per cent of women reported reading more since they took up mobile reading, compared with 60 per cent of men.

Regardless of activity level, users read more, in absolute terms, after beginning to read on a mobile phone. This change is more pronounced for more active readers. The more active the reader, the more likely he or she is to report an increase. Figure 21 shows that over 70 per cent of Habitual and Power Readers are reading more now that they read on their mobile phones.

FIGURE 21

Change in reading frequency after adopting mobile reading by usage level



The tendency of digital reading to increase overall reading is not limited to Worldreader Mobile users. A study conducted by the Pew Research Center in the USA observed that the overall reading consumption of individuals tends to increase following the adoption of digital reading. The Pew report shows that, over the course of 12 months, users reading e-books read 24 books on average, while the average number of books read by non-e-book readers was 15 (Pew Internet, 2012). For champions of literacy this trend is extremely promising, as it suggests that the benefits of mobile reading are exponential and may accelerate literacy development.

READING TO CHILDREN

One of the most significant findings from this study is that a large proportion of mobile readers are reading books and stories to children from their mobile phones. One in three survey respondents said that they read to children from their mobile phones, and a further one-third said they would do so if more child-appropriate reading materials were available. This is consistent with demographic data indicating that almost one-third of mobile readers are either parents or caregivers of young children and one-fifth of mobile readers are teachers.

FIGURE 22

Percentage of mobile readers who read to children from their phones

DO YOU READ BOOKS AND STORIES ALOUD TO YOUNG CHILDREN FROM YOUR MOBILE?

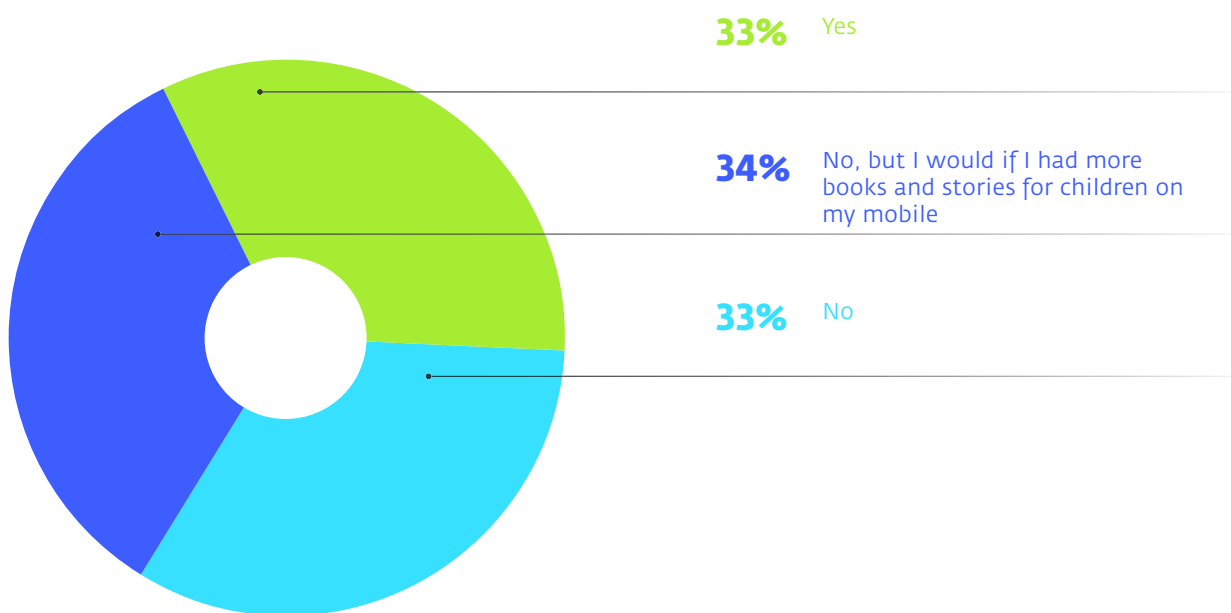
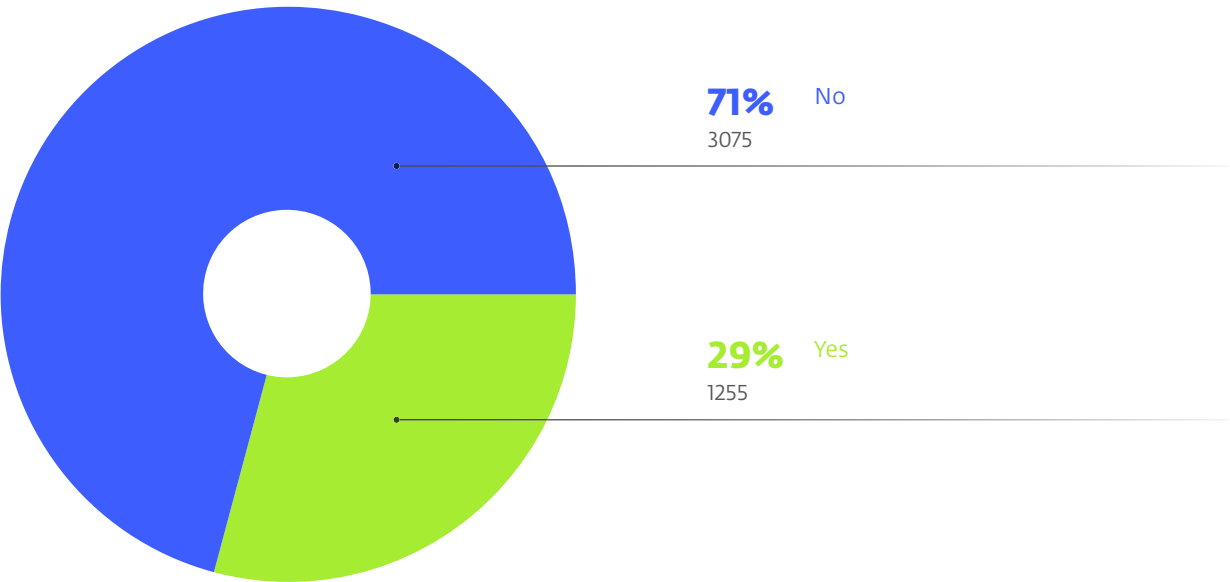


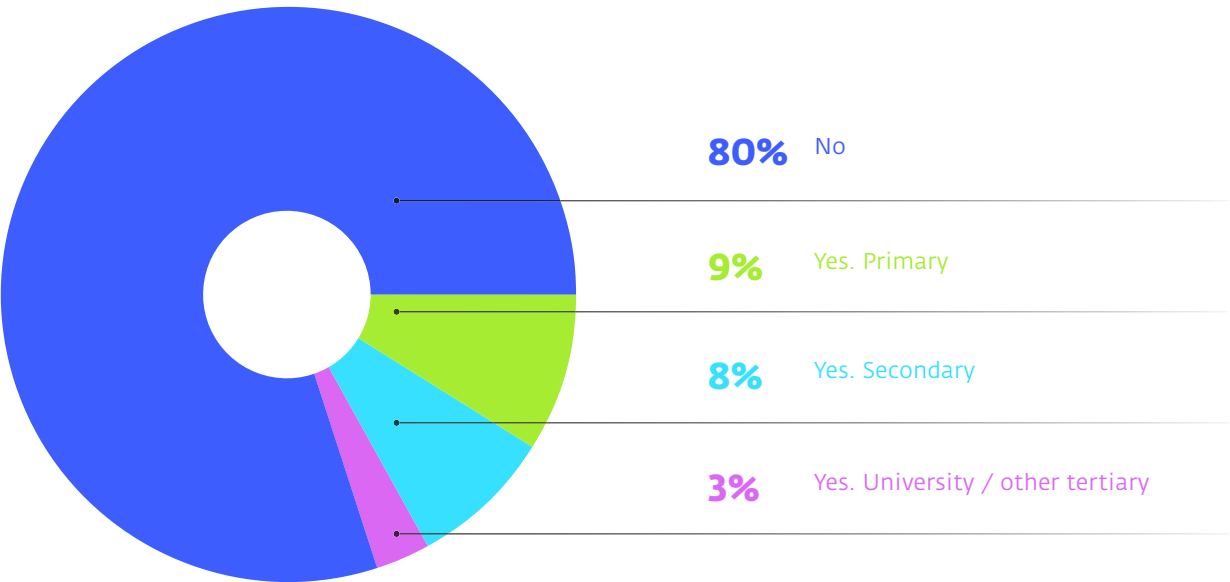
FIGURE 23

Percentage of respondents who are caregivers or teachers

ARE YOU A PARENT OR CAREGIVER OF CHILDREN UNDER THE AGE OF 13?



ARE YOU A TEACHER?



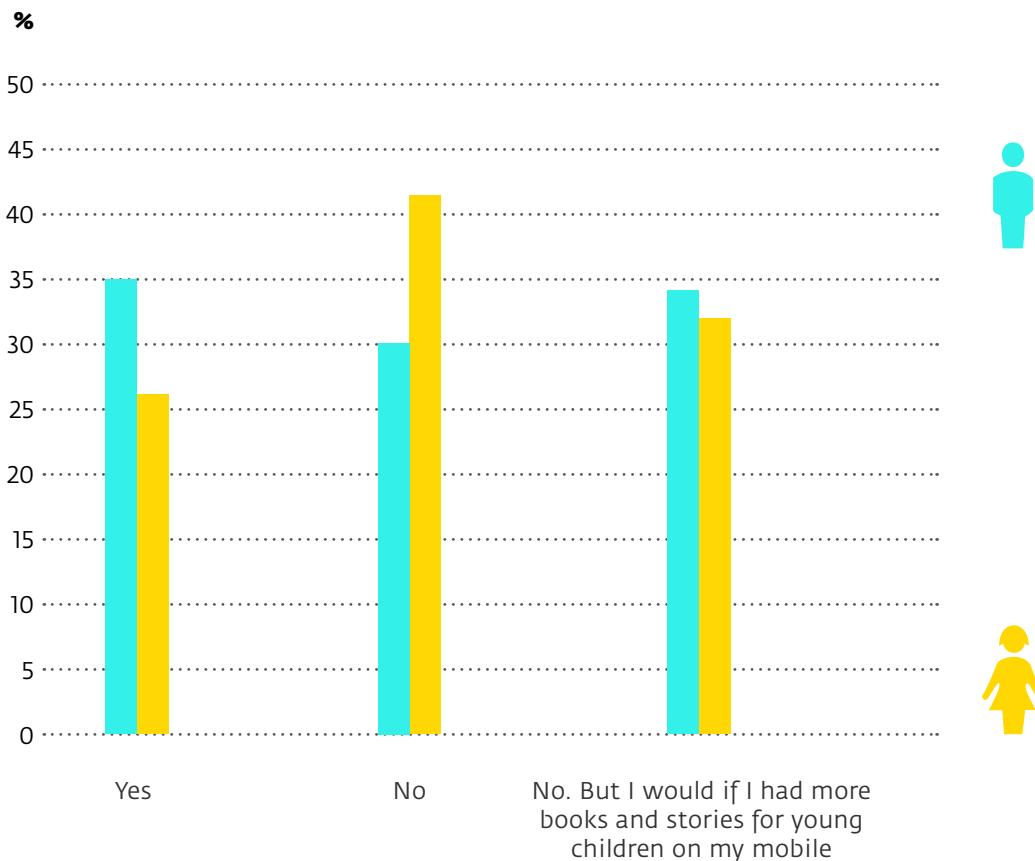
Another surprising finding was that among the 1255 parents or caregivers, a higher proportion of men read to children from their mobile phones than women. A slightly higher proportion of men also reported that they would read to children if

they had access to more children's books. Figure 24 shows the proportion of parents and primary caregivers according to whether they read aloud to their children, disaggregated by gender.

FIGURE 24

Parents or caregivers who read to children from mobile phones, by gender

DO YOU READ BOOKS AND STORIES ALOUD TO YOUNG CHILDREN FROM YOUR MOBILE?

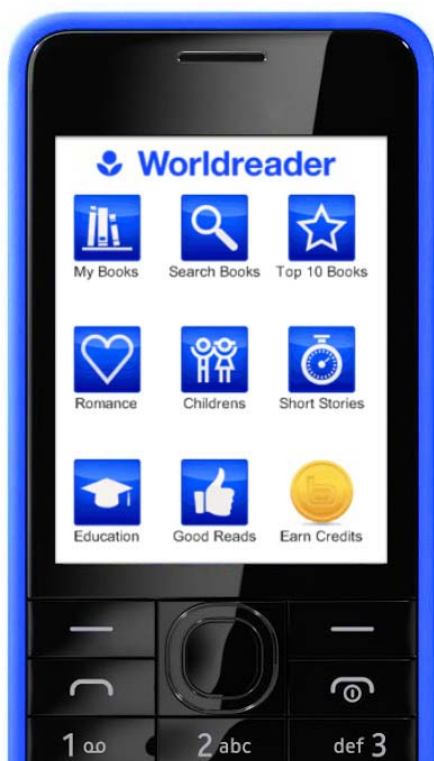


From a gender perspective, this unexpected finding is particularly interesting as it deviates from traditional notions of gender roles. In the countries studied, women are typically responsible for educating and raising children, and thus one would expect more women to be reading to their children from mobile phones. It may be that because men are more likely to own mobile phones in these countries, they are acting as technology intermediaries in their families and thereby taking a more active role in the education of their children.

Regardless of the gender implications, the findings clearly indicate that mobile reading is opening up a new pathway to literacy for children. Although young children in the countries surveyed are unlikely to own or

FIGURE 25

Worldreader Mobile first menu page

**FIGURE 26**

Worldreader Mobile second menu page



have access to mobile phones, mobile reading can still impact them positively through their teachers, parents and caregivers. This suggests an opportunity to leverage mobile reading for early childhood literacy and education. If 1 in 3 mobile readers already uses his or her mobile phone to read to children and an additional 1 in 3 would do so if more content was available, increasing the number of mobile readers and the amount of child-appropriate content could help boost literacy rates in developing countries.

WHAT DO PEOPLE WANT TO READ ON THEIR MOBILE PHONES?

Study data indicating what people want to read on their mobile phones were drawn primarily from Worldreader Mobile usage monitoring for all active users from April to June 2013. Findings suggest that current Worldreader Mobile readers favour genres related to romance, education and religion, and that many mobile readers are interested in content published in local languages or, to a lesser extent, by local authors. A smaller proportion of mobile readers are seeking content that is appropriate to their reading level.

GENRE

Worldwide, mobile readers are interested in a wide variety of reading materials. Universal usage data indicate that readers are actively searching for and reading romance novels, textbooks, short stories, global bestsellers, health information, career advice, religious materials and more. However, mobile readers across all target countries show a particularly strong interest in romantic fiction, religious content and educational material. Among the landing page icons on Worldreader Mobile, the 'Romance' icon was the most popular during the 3-month research period, receiving 17 per cent of all 730,787 clicks. Search-term data collected during the research period confirm this high level of interest, as words and

phrases relating to romance (e.g. 'sex', 'love', 'Romeo and Juliet') were among the most popular search terms. Furthermore, nineteen of the top forty books read during the study period were romance novels. (See Figure 28 for the top twenty search terms and Figure 29 for the top ten books.)

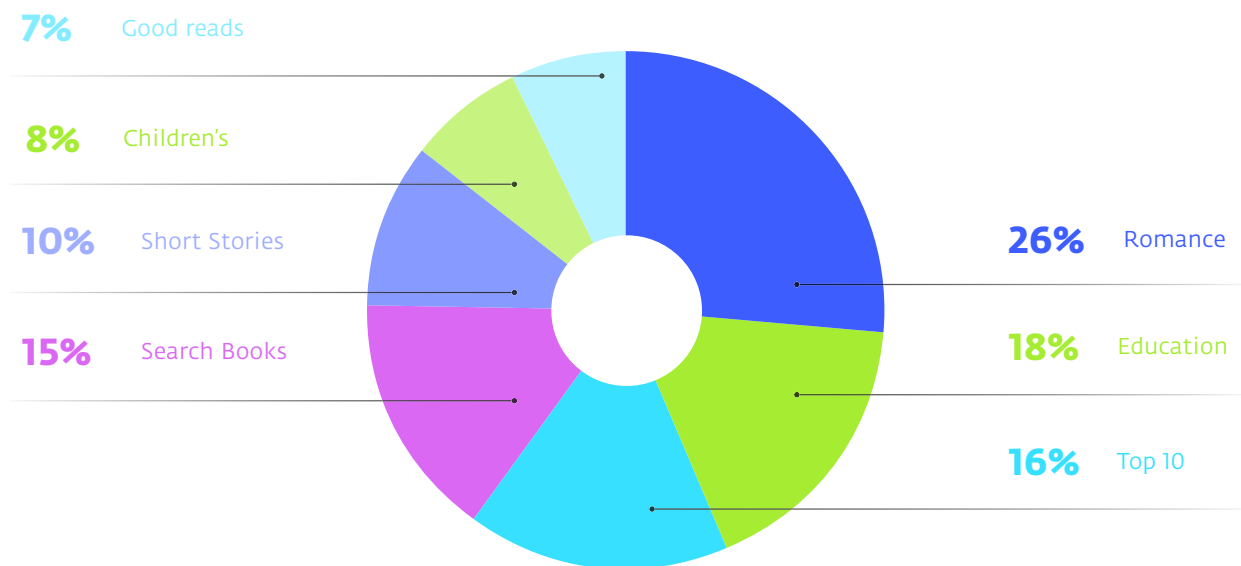
After romance, educational and religious materials drew nearly equal amounts of interest, as demonstrated by an analysis of menu clicks, search terms and top books. The 'Education' and 'Religion' icons received the most

FIGURE 27

Most popular categories according to number of clicks per menu item

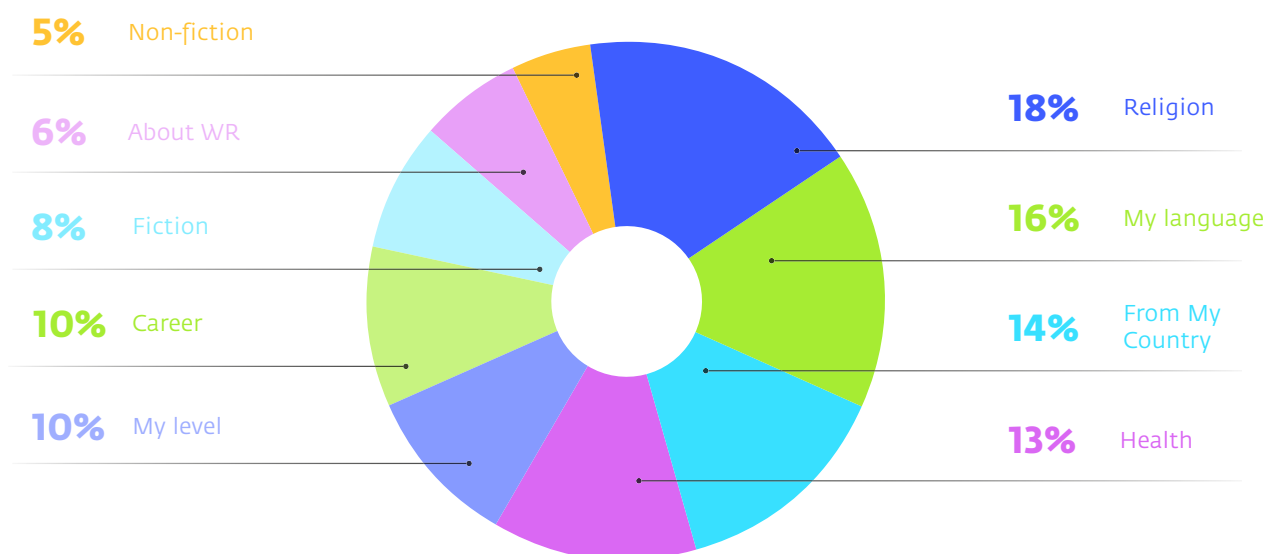
MENU PAGE 1 ICONS

Proportion of 476,095 clicks on page 1 icons during April-June 2013.



MENU PAGE 2 ICONS

Proportion of 254,692 clicks on page 2 icons during April-June 2013.



clicks after 'Romance', and nine of the twenty top search terms between April and June 2013 were related to education (see Figure 28). Educational materials – including textbooks such as *Cell Biology* and *Algebra 1*, and early phonics readers like *Fat Cat and Rat* – were among the top books during the research period. Among religious materials, the Bible and the Quran consistently rank in the top ten search terms and the top read books for all Worldreader Mobile users.

FIGURE 28

Top 20 search terms entered by all Worldreader Mobile users

	Term	Count
1	Sex	11025
2	Bible	4124
3	Biology	2621
4	Things fall apart	2610
5	Love	2408
6	Dictionary	2359
7	Physics	2253
8	Chemistry	2239
9	Quran	1925
10	Facebook	1616
11	English	1615
12	Harry Potter	1432
13	Romeo and Juliet	1239
14	Kamasutra	897
15	Economics	835
16	Animal Farm	829
17	History	804
18	Science	789
19	Geography	719
20	Twilight	524

Search terms entered from April to June 2013

FIGURE 29**Top 10 books read by Worldreader Mobile users**

	Title	Genre	Users in 3 months
1	Can Love Happen Twice? (Excerpt)	Romance	42577
2	The Price of Royal Duty (Mills & Boon M&B) (The Santana Crown - Book 1)	Romance	18364
3	The Bible, Old and New Testaments, King James Edition	Religion	15084
4	The Girl with the Magic Hands	Short stories / Other fiction / From my country (Nigeria)	14844
5	The Adventures of Prince Camaralzaman and Princess Badoura	Romance	14442
6	Abandoned	Romance	13998
7	The Koran (Al-Qur'an)	Religion	11505
8	It's a Love Story	Romance	11493
9	Kwame Nkrumah: The Great African	Non-fiction	11036
10	And She Cried Some More	Short stories	10821

Books read from April to June 2013

GENDER DIFFERENCES IN GENRE PREFERENCES

Although the study did not specifically track genre preferences by gender, the overall usage monitoring data most likely reflects the reading preferences of females because they are far more active readers than males. The strong preference for romantic fiction supports this assumption. Market research conducted in the USA indicates that 91 per cent of romance book buyers are female, and it is reasonable to assume this ratio holds true in other countries as well (RWA, n.d.). Several studies have also shown that women are more likely to read fiction than men. According a 2010 Harris poll, among US women ages 18 and older who have read at least one book in the past



MEET MICHAEL

a 20-year-old student and mobile reader in Ghana. After his telephone interview, Michael reported by email,

'I have read many books and novels using my mobile phone. Books by Mark Twain like *The Adventures of Tom Sawyer* and *Huck Finn*. Also, books on health and education including history books like *Kwame Nkrumah: The Great African*. Maths, physics, chemistry and biology are all in Worldreader. Mobile reading has helped me improve my reading skills.'

year, 84 per cent said they had read a fiction book (Harris Interactive, 2010). By contrast, 73 per cent of male readers in the same demographic said they had read a fiction book. These percentages mirror separate findings from the Pew Research Center showing that 84 per cent of women say they read for pleasure, compared with 75 per cent of men (Pew Internet, 2012).

By contrast, men are more likely than women to say they read for school or work (58 per cent of men, versus 53 per cent of women), which probably means they are reading non-fiction titles (Pew Internet, 2012). Indeed, the Harris poll indicates that men are more interested than women in certain types of non-fiction. For instance, 40 per cent of male readers but only 23 per cent of female readers said they had read a history book in the past year. Men also tended to prefer non-fiction books related to politics (25 per cent of men compared with 10 per cent of women), current affairs (20 per cent versus 9 per cent) and business (16 per cent versus 12 per cent). 'Religion and spirituality' was one of the few non-fiction genres preferred by women over men, which may also help explain the popularity of this genre among Worldreader Mobile users.

Gender differences in genre preferences dovetail with some of the findings in other parts of this report. In particular, it may be that women are the most active mobile readers because they are able to access the genres they prefer on the Worldreader Mobile application. Similarly, male readers may be less active because fewer non-fiction books are available on the app. Indeed, male survey respondents were more likely than females to cite limited content as a barrier to mobile reading (see the next section for a full discussion of perceived barriers). Expanding the amount of non-fiction titles available through the app would presumably increase readership and engagement among men.

LANGUAGE AND COUNTRY

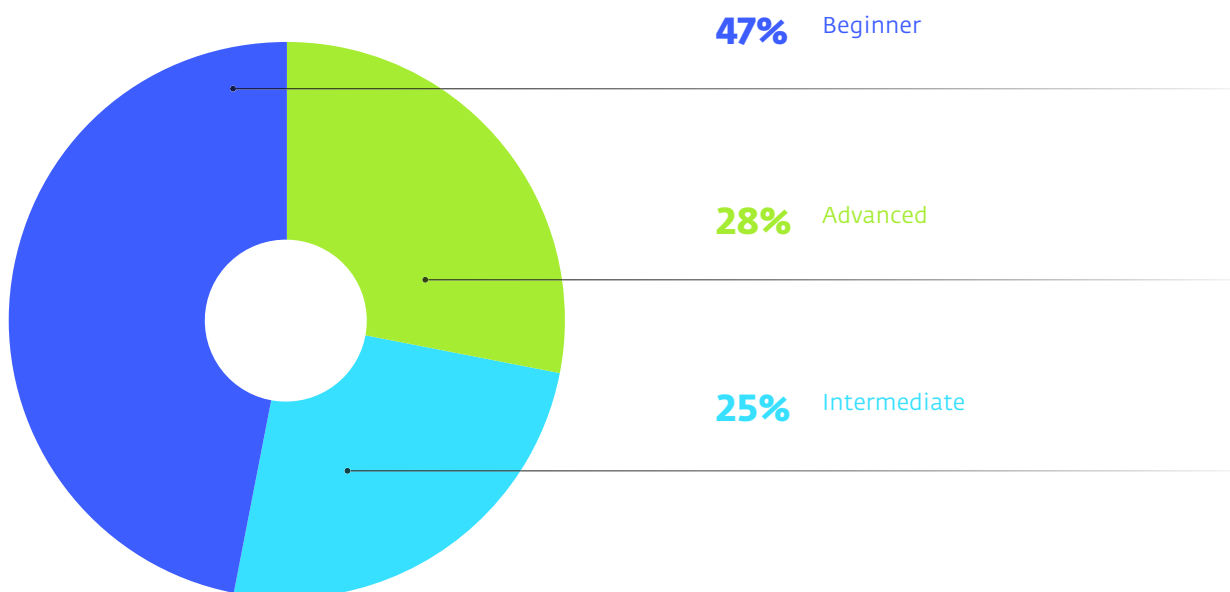
While mobile readers across the surveyed countries demonstrate a desire for English-language reading material, there is also evidence to suggest a strong interest in local language content. The 'My Language' icon ranked second in terms of clicks on the second menu page, closely following 'Religion'. In third place with 14 per cent of second-menu-page clicks was 'My Country', indicating there is also some interest in content written by local authors.

READING LEVEL

Ten per cent of the clicks on the second menu page were on the 'My Level' icon. Of those seeking books 'at their level', almost half were looking for 'Beginner' level books. These users may be looking for content to read to young children, or they may want to use mobile reading to build their own reading skills. Either way, people seem to be actively searching for literacy supports via their mobile phones. This finding points to a need for more content at beginner reading levels, not only for children but also for teenagers and adults, and perhaps a potential opportunity to deliver English as a Foreign Language (EFL) learning materials over mobile phones.

FIGURE 30

Clicks on level options under the 'My level' main menu icon



Clicks made April to June 2013

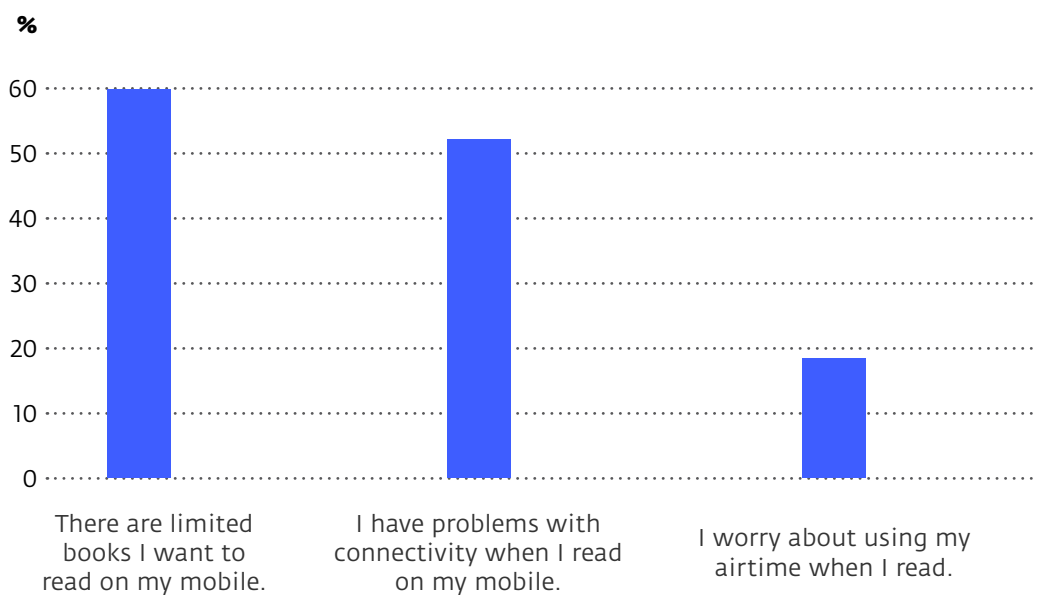
WHAT ARE THE BARRIERS TO MOBILE READING?

The survey asked respondents about the following potential barriers to mobile reading: lack of content, problems with connectivity and cost of airtime. Figure 31 shows how people perceived each of these barriers to mobile reading. The vertical axis represents the percentage of users who agreed or strongly agreed that they had experienced these barriers. Interestingly, the largest obstacle to mobile reading is not cost but content, followed closely by connectivity issues.

FIGURE 31

Perceived barriers to mobile reading

PERCENTAGE OF USERS WHO AGREED OR STRONGLY AGREED (THAT THIS WAS A BARRIER TO MOBILE READING)

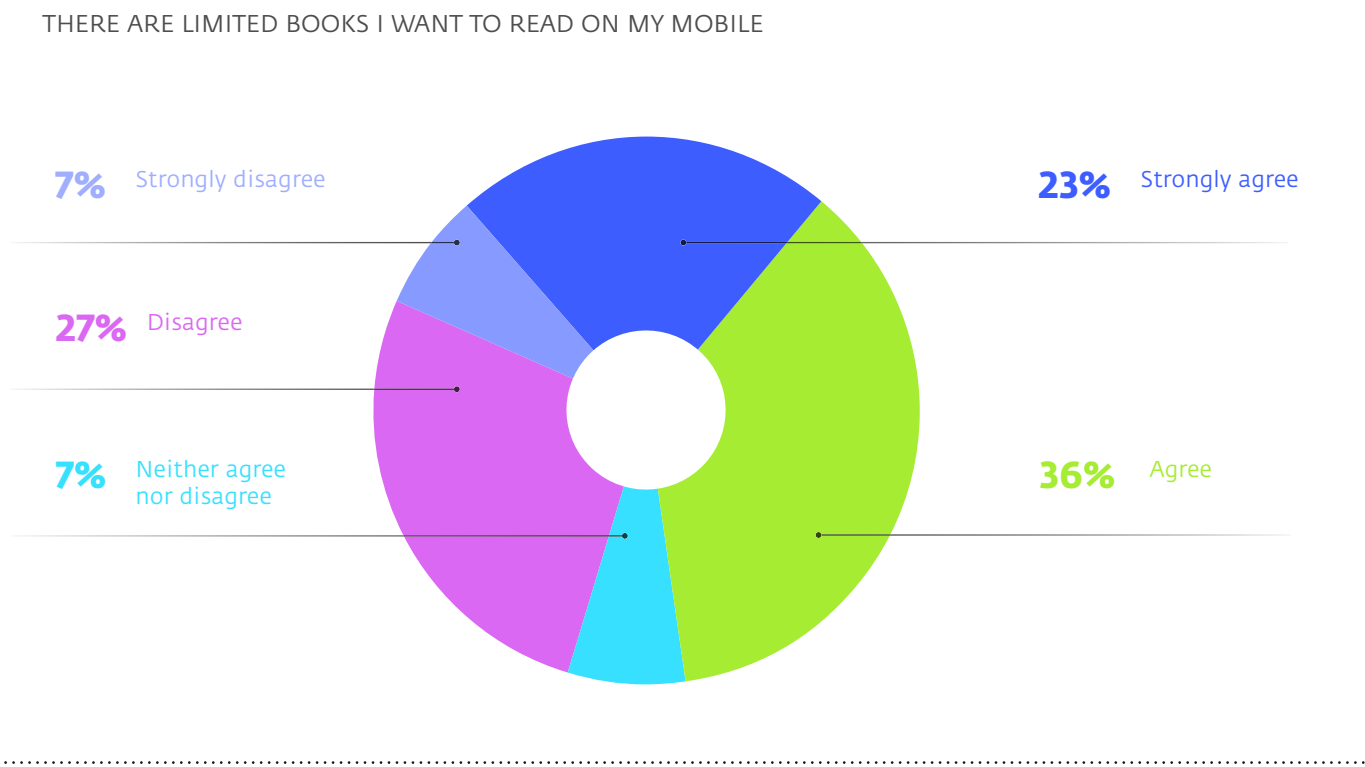


LIMITED CONTENT

Content is the biggest concern among mobile users, with close to 60 per cent of the respondents agreeing that there are limited books they want to read on their mobile devices.

FIGURE 32

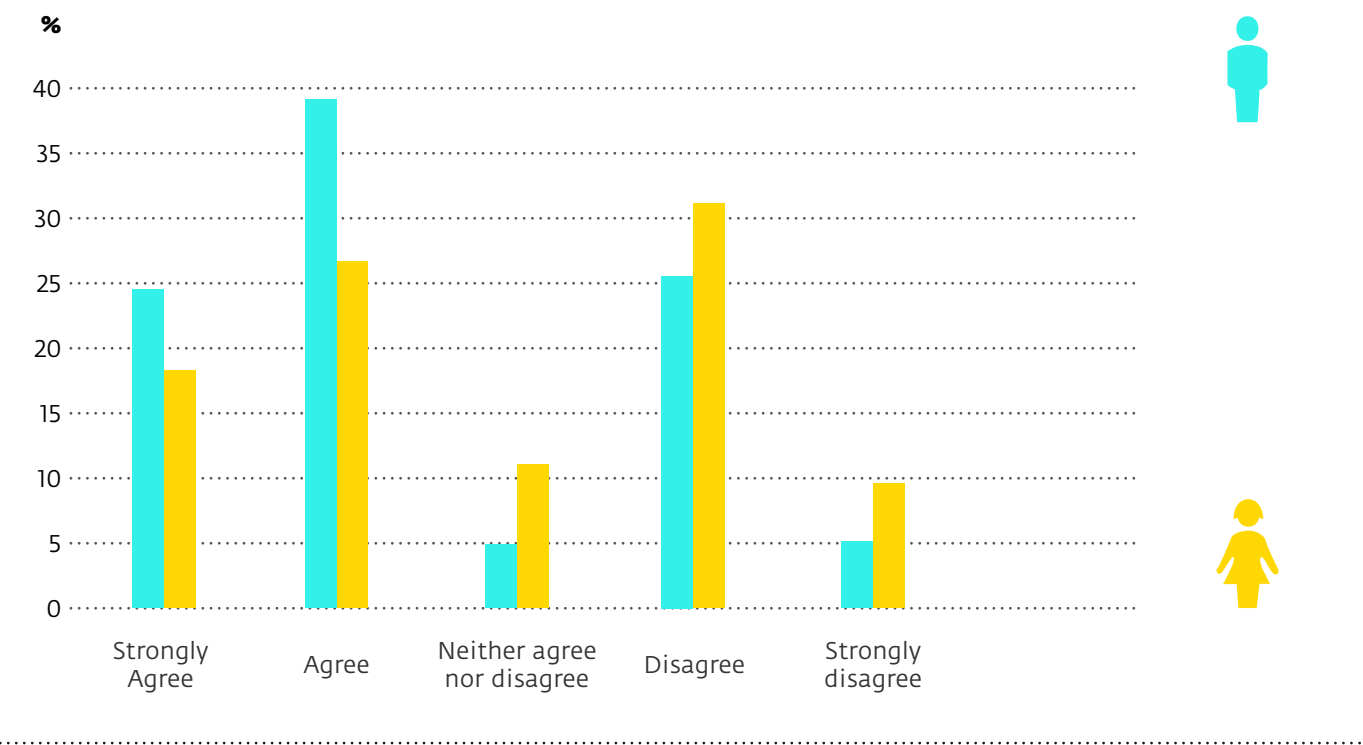
Mobile readers who feel content is limited



Gender analysis revealed that lack of content is a bigger barrier for men than for women: 64 per cent of men either agreed or strongly agreed with the statement that there is limited content they want to read on their mobile phones, compared with 46 per cent of women. Approximately 42 per cent of female users disagreed with the statement, compared with 31 per cent of male users. As discussed in the previous section, women tend to prefer fiction while men are generally more interested in non-fiction, and Worldreader Mobile currently has very limited non-fiction content. The fact that women are more likely to find books they want to read may be one important reason why women are more engaged mobile readers in terms of time spent reading and pages read.

FIGURE 33

Mobile readers who feel content is limited, by gender



MEET ABDULHAMEED

a teacher and mobile reader in Nigeria. Abdulhameed said he would read more if he had more science-related content on his mobile phone.

'Reading means a lot to me because, when I read, I increase my experience, knowledge and scope of learning. I also read to be able to carry out my work more effectively. I need to read very widely to be able to talk about problems in the classroom.'

Analysis by age revealed that younger mobile readers (those below the age of 19) are significantly more likely to cite limited mobile reading content as a barrier to reading. Out of the 1146 respondents aged 19 or younger, 64 per cent (or 2 in 3 people) agreed or strongly agreed with the statement 'There is limited content I want to read on my mobile.' Among older respondents, only around half of the mobile readers agreed with this statement. This is not particularly surprising given that there is very little 'young adult' content available on Worldreader Mobile. Adding more content targeted at adolescents is likely to increase mobile reading among these demographic groups.

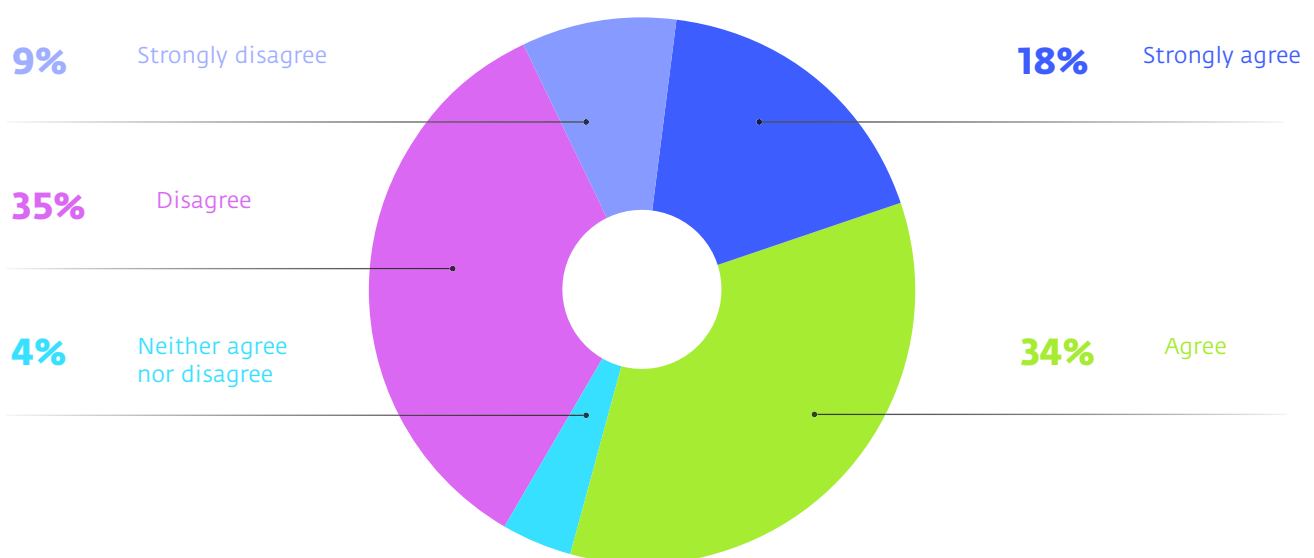
CONNECTIVITY ISSUES

The second-largest concern among mobile users is connectivity. About 53 per cent of the respondents indicated that they experience connectivity problems when they read on their mobile devices. Because Worldreader Mobile is a cloud-based application that requires constant connectivity to read, this finding is not especially surprising. There were no notable differences across gender; lack of connectivity seems to be a significant barrier for both men and women.

FIGURE 34

Mobile readers who have connectivity problems while reading

I HAVE PROBLEMS WITH CONNECTIVITY WHEN I READ ON MY MOBILE



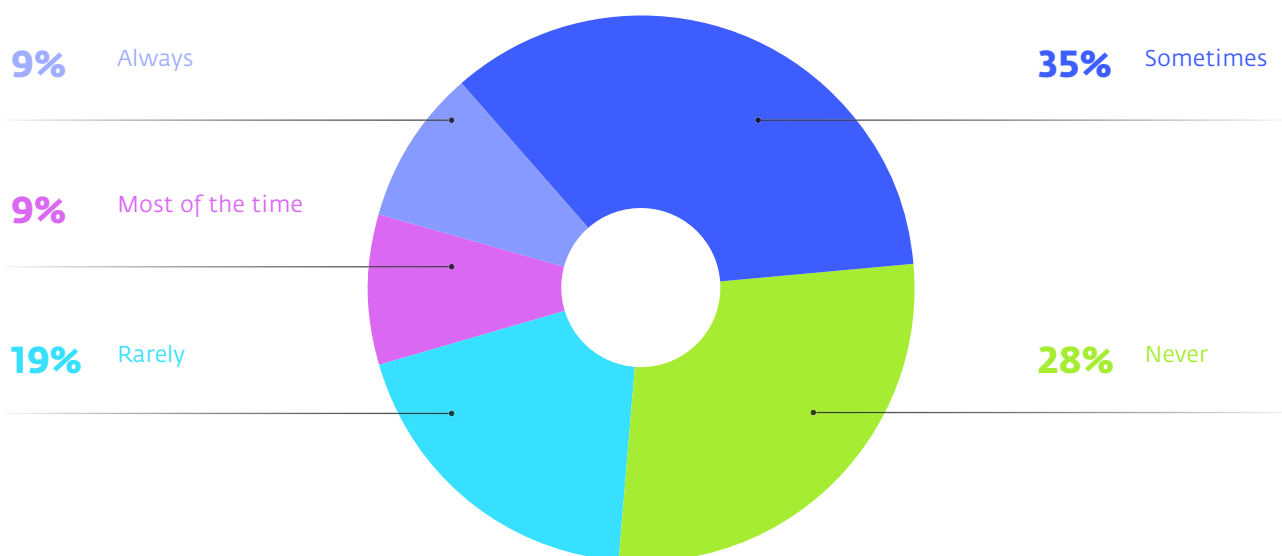
AIRTIME COSTS

Unexpectedly, the cost of airtime was the barrier of least concern for respondents. Only 18 per cent of respondents claimed to worry about using their airtime 'always' or 'most of the time' when reading, whereas 35 per cent said they 'sometimes' worried about airtime. Almost half of the respondents (47 per cent) claimed they 'never' or 'rarely' worried about airtime while reading on their mobile phones. This is most likely due to the fact that Worldreader Mobile runs on the biNu mobile platform and the data are extremely compressed, such that users can read for negligible data costs. While it is difficult to calculate the exact cost of reading a book on Worldreader Mobile, as mobile data costs vary across regions, countries, carriers and subscription plans (i.e. prepaid or postpaid), some rough estimates can nevertheless be made. According to the most recent data from the International Telecommunication Union (ITU), the average cost of 500 MB of mobile broadband data in developing countries ranges from around \$19 to \$25 US dollars, for postpaid and prepaid plans respectively (ITU, 2013). The longest books (without pictures) on Worldreader Mobile require around 500 KB of data – or 0.5 MB – to read from beginning to end, meaning that the average cost of reading a long book on Worldreader Mobile is about 2 or 3 cents. The affordability of mobile reading is especially striking when compared with the cost of paper books in some of the countries studied. In Zimbabwe, for example, airtime costs are higher than average: 500 MB of

FIGURE 35

Mobile readers who worry about airtime

I WORRY ABOUT USING MY AIRTIME WHEN I READ

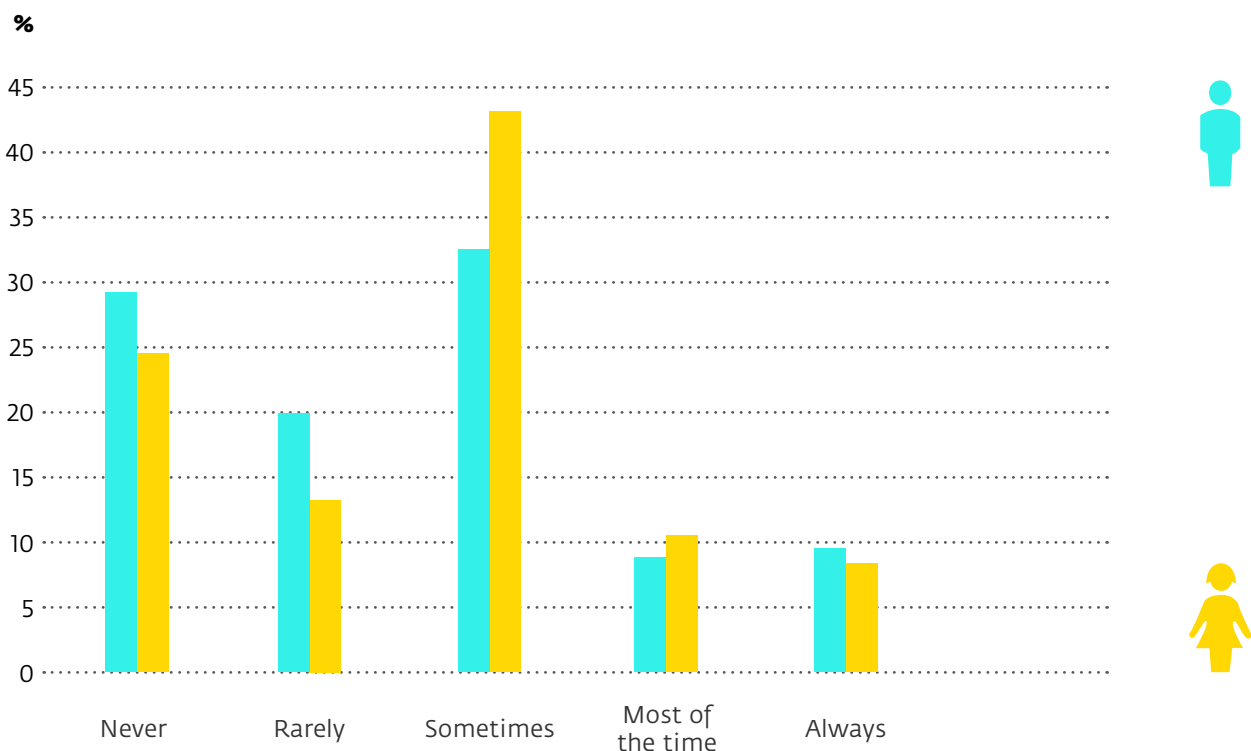


mobile broadband data cost US\$54, meaning the cost of reading a book on Worldreader Mobile is between 5 and 6 cents. By comparison, a paperback bestseller in this country costs around \$12 (D. Zacarias, personal communication, August 2013). Local children's books cost between \$1 and \$15, and international children's books range from \$6 to \$25 for the most heavily illustrated copies. In Nigeria, the cost of reading a Worldreader Mobile book is lower than average: between 1 and 2 cents, based on a mobile broadband rate of \$13 per 500 MB of data. By contrast, a basic reader for children costs between \$1 and \$5, and bestselling novels can range from \$6 to \$44. Clearly mobile reading offers a significantly cheaper and more sustainable pathway to books in developing countries, and survey respondents' relative lack of concern about airtime costs reflects this finding.

When the survey data are analysed by gender, women appear to be slightly more concerned about using airtime than men. For example, women were significantly more likely than men to say that they 'sometimes' worried about using their airtime while reading (see Figure 36). This finding might indicate that women are more cost-conscious than men and/or have less access to disposable income to buy airtime. It could also be that women are more concerned about airtime costs because they read more and hence use more data. Further studies may be able to separate these factors by exploring cost-related concerns in contexts where male and female reading habits are roughly equivalent.

FIGURE 36

Mobile readers who worry about airtime, by gender

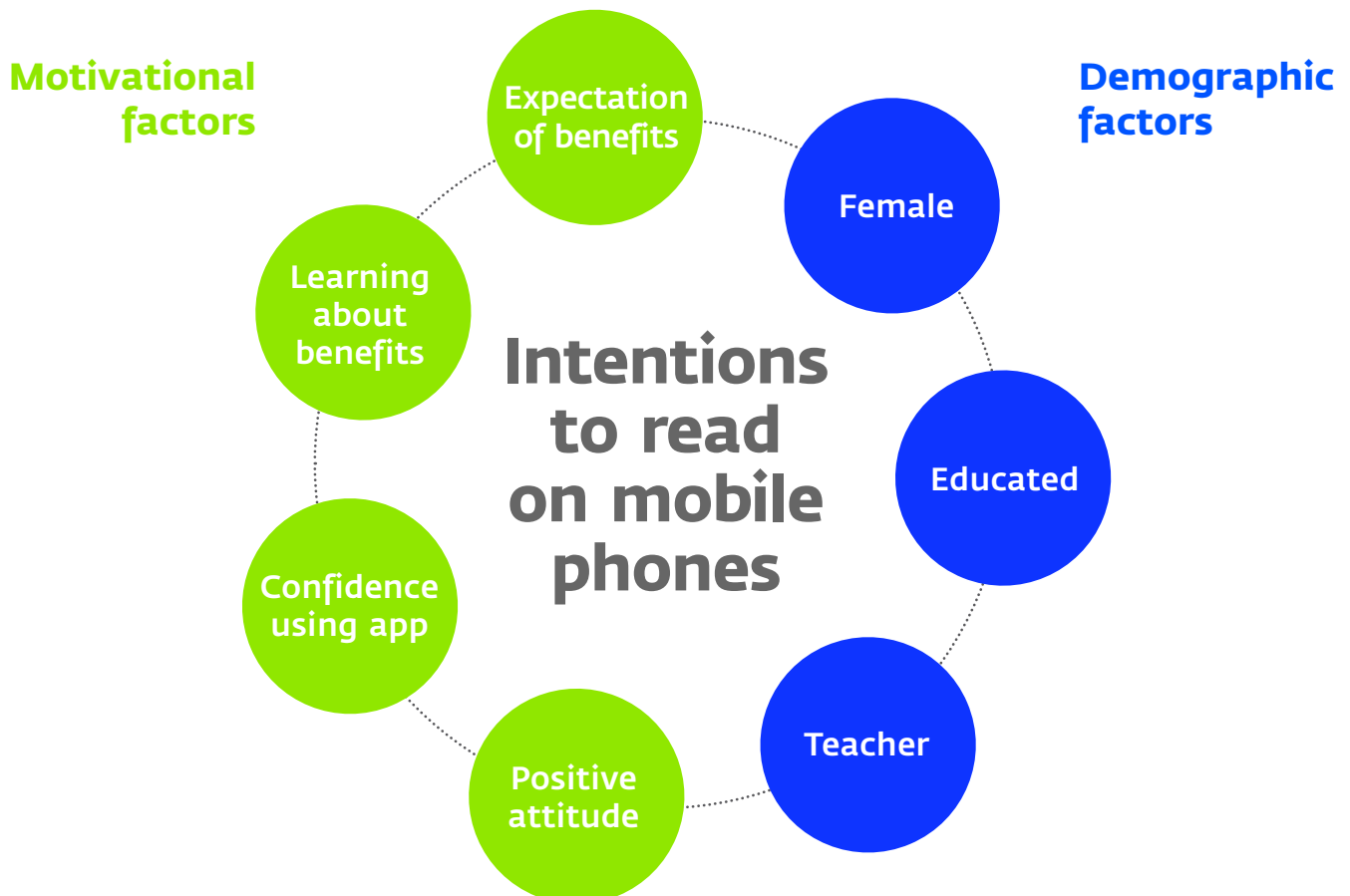


WHAT PREDICTS INTENTIONS TO READ ON MOBILE PHONES?

The study also aimed to discover what predicts people's intentions to read and keep reading on their mobile phones. Previous scholarly research in technology adoption has shown a high correlation between stated intentions and actual behaviour (e.g. Armitage and Conner, 2001; Hessing et al., 1988), meaning that mobile readers are very likely to act in accordance with their stated intentions. When respondents were asked about their intentions to engage in mobile reading in the future, 90 per cent said they intended to spend more time reading on their mobile phones in the next year. A slightly smaller number of respondents (88 per cent) said they planned to read on their mobile phones for pleasure or for work, and 85 per cent intended to engage in mobile reading for a class. These findings were analysed along with other data about demographics, reading habits, attitudes towards reading and reading preferences, to reveal which demographic and motivational factors are most influential in determining how people engage with mobile reading (see Figure 37).

FIGURE 37

Factors influencing intentions to read on mobile phones



Gender Differences in Intentions to Read

Females in the survey were generally more enthusiastic about mobile reading in the future than their male counterparts. They were more likely to express intentions to: spend more time reading on their mobile phones, read on their mobile phones to help them in a class, read on their mobile phones for pleasure, and read on their mobile phones to help them in their jobs. Women were also more likely than men to have shown or told other people how to use their mobile phones to access books and stories.

There were also interesting gender differences in confidence using the Worldreader Mobile app. Female respondents expressed more confidence than men using the functions of Worldreader Mobile, and they felt more confident in their ability to find the books they want. On the other hand, males felt more confident that they could solve problems they might encounter while using the Worldreader Mobile app.

The data indicate that certain demographic groups are more likely than others to read on their mobile phones: specifically, being female, highly educated and a teacher all correlate with higher intentions to adopt mobile reading. The demographic profiles of these groups have been discussed earlier in the report. Analysis did not show that younger people have higher intentions to read on their mobile phones than older people.

The study also explored specific motivational factors that contribute to people's intentions to read. Among these, expecting to benefit from mobile reading was the strongest predictor of intention to read. When asked about their expectations, 95 per cent of respondents said they believed mobile reading would help them learn, and 92 per cent believed mobile reading would help them improve their lives.

The next-strongest predictor of intentions to read was being encouraged by peers to try mobile reading. When asked about their previous experiences learning about mobile reading from others, over 80 per cent of respondents stated that they had heard good things about mobile reading from the media or from friends. Nearly 90 per cent said that they had seen others benefit from mobile reading, and over 90 per cent said they had shown or told other people how to use their mobile phones to access books and stories. Confidence using the Worldreader Mobile app and a favourable attitude towards mobile reading also predict higher intentions to read, albeit not as strongly as the other factors. When asked about their level of comfort with mobile reading technology, around 90 per cent of respondents said they felt confident using the app and finding the books they wanted to read. Nearly 70 per cent of respondents said they felt confident they could solve potential problems related to the Worldreader Mobile app if they should arise.

Interestingly, analysis found that the perception of barriers to mobile reading did not lower respondents' intentions to read on mobile



MEET ABUBAKAR

a mobile reader in Nigeria who claims that mobile reading has helped him in his work and changed his life for the better.

'Since I started reading on my mobile, I have improved the way I work. Comparing the way I lived before and the way I am living now, I can actually see a difference.'

phones. This suggests that motivational factors (such as expected benefits and learning opportunities) can overcome potential barriers that might otherwise prevent people from engaging in mobile reading.

Evidence from the qualitative interviews with frequent mobile readers corroborates the finding that anticipated and perceived benefits play a key role in encouraging mobile reading. In the telephone interviews, nearly all subjects said they had noticed a positive change not only in their reading habits but also in their lifestyles since they started reading on their mobile phones. Kibrom from Ethiopia said of mobile reading: 'There are so many things I can get from it. It helped me with so many things, starting from my confidence and knowledge.' David from Nigeria reported: 'It has helped me so much because it made me fall in love with reading. It has helped me a lot and makes me find time to read.' The overwhelming impression from the telephone interviews was that respondents felt their lives had improved because of mobile reading.

Mobile Reading Survey: Key Findings

1. Mobile reading opens up new pathways to literacy for marginalized groups, particularly women and girls, and others who may not have access to paper books.

2. People use mobile devices to read to children, thereby supporting literacy acquisition and other forms of learning.

3. People seem to enjoy reading more and read more often when they use mobile devices to access text.

4. People read on mobile devices for identifiable reasons that can be promoted to encourage mobile reading.

5. Most mobile readers are young, yet people of various ages are capable of using mobile technology to access long-form reading material. More can be done to encourage older people to use technology as a portal to text.

6. Current mobile readers tend to have completed more schooling than is typical.

7. There appears to be a demand for mobile reading platforms with text in local languages, level-appropriate text and text written by local authors.



RECOMMENDATIONS AND POLICY IMPLICATIONS

The study findings described in this report illuminate strategies to better leverage mobile reading to address the global literacy crisis and provide improved portals to learning for people who are presently underserved. The first section presents the recommended demographic groups mobile reading initiatives should target in the future, while the second section articulates the key strategies for expanding the footprint of mobile reading, both in general and in terms of individual target groups. Although this research was conducted within the Worldreader Mobile environment, the recommendations and policy implications outlined in these sections are applicable to all mobile reading initiatives.

TARGET GROUPS

The study identified several demographic groups who would likely benefit from increased engagement with mobile reading, namely women and girls, children, older people, beginning readers, and men and boys.



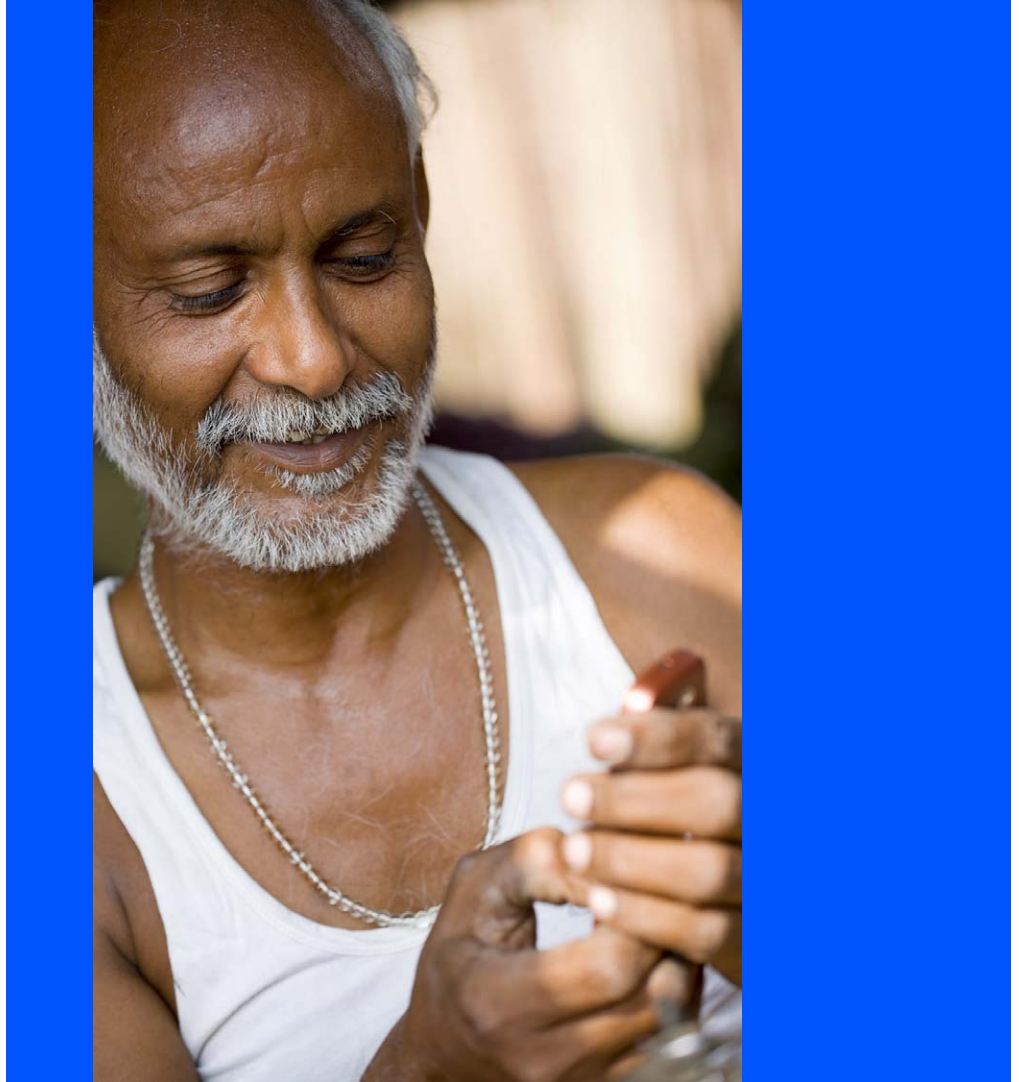
WOMEN AND GIRLS

The study found that women and girls, while outnumbered by men in terms of actual users, are significantly more engaged by mobile reading. Data indicate that female mobile readers consume more books and read more often and for longer periods of time than their male counterparts. The women surveyed also held more positive attitudes about mobile reading and reading in general than men. Simply put, once women are exposed to mobile reading, they tend to do it a lot. This is good news for literacy development. Of the 774 million adults in the world who cannot read or write, 64 per cent of them are women – a ratio which has persisted in recent years in spite of the fact that the global illiterate population is shrinking (UIS, 2012a, 2013a). Both the MDGs and the EFA goals prioritize gender equality in education, and promoting reading among women and girls is crucial to achieving this objective. Mobile phones – by providing a convenient and affordable gateway to vast libraries of text – hold promise for improving female literacy, particularly in areas where paper books are inaccessible to women due to cost, scarcity or social stigma against female education. The challenge, then, is to introduce more women to mobile reading and encourage widespread adoption of mobile phones as a reading platform for both genders.



CHILDREN

Survey data also show that a significant portion of mobile readers use their mobile phones to read aloud to children. This is one of this study's most surprising and noteworthy findings, indicating a largely untapped opportunity to support the literacy development of children through mobile technology. Few mobile reading initiatives currently target children in developing countries, though UNESCO's report on mobile reading initiatives, *Reading without Books*, describes some notable exceptions (Kraut and West, 2014). The MobiLiteracy Uganda (MLit-U) programme, for example, aims to improve early literacy development in Uganda by providing parents and caregivers with daily reading activities to use at home with their children. The activities are sent to parents' mobile phones via an audio short message service (SMS), so that adults who are illiterate can still help their children learn to read, and most likely gain some literacy skills themselves by extension. Most child-targeted initiatives employ mobile applications that children use directly, often in the context of a classroom or after-school programme, yet these initiatives are limited in their reach, as children, particularly in developing countries, tend not to have immediate or individual access to mobile phones. MLit-U is unique in that it targets adults, using the mobile phones most parents already own to encourage and empower them to actively participate in their children's education. Parents and teachers using Worldreader Mobile to read aloud to children are playing a similarly active role in helping children develop literacy skills, despite the fact that the app has limited content for children and was not originally intended for this use. It stands to reason that if more child-appropriate content was available and more adults knew how to access it, mobile reading could have a tremendous impact on early childhood education around the world.



OLDER PEOPLE

Older people constitute another demographic group that would benefit from more exposure to mobile reading. People over the age of 35 are severely under-represented in the data for this study, comprising less than 10 per cent of the total survey respondents across countries. While age-disaggregated statistics on mobile phone ownership in developing countries are not available, studies conducted in the USA show that mobile phone ownership declines only slightly among people aged 35 to 54, compared with people aged 18 to 34 (Rainie, 2013). Ownership rates drop more sharply after age 55; still, roughly three-quarters of people aged 65 and older own mobile phones in the USA. While these figures cannot necessarily be extrapolated to other countries and regions, they imply that people over the age of 35 may be nearly as likely as younger people to own a mobile phone. Yet evidence suggests these people are not using their mobile phones to access reading materials. This may be because older people tend to use their mobile phones in more traditional ways, to make phone calls and send text messages rather than access the internet, or because they are not aware of the availability of apps, particularly for feature phones. Whatever the cause, the age gap in mobile reading represents a missed opportunity. There is no reason older people cannot enjoy and benefit from mobile reading just as much as

Given that global illiteracy rates are higher for adults than for youth, encouraging older people to read on their mobile phones has the potential to combat illiteracy and increase learning opportunities for out-of-school adults.

younger people. Indeed, recent data on electronic reading habits in the USA show that adults aged 30 to 49 were just as likely to have read an e-book in the last 12 months as those aged 18 to 29 (34 per cent of book readers in both age groups) (Pew Internet, 2012). People in that same age group (30–49) were also more likely to own an e-reading device (such as a Kindle or Nook) than people in the 18–29 age group, suggesting that older people may be enthusiastic about reading on mobile devices once they discover it. Given that global illiteracy rates are higher for adults than for youth, encouraging older people to read on their mobile phones has the potential to combat illiteracy and increase learning opportunities for out-of-school adults (UIS, 2013a). Clearly more can and should be done to ensure older people know how to access text on their mobile phones and take advantage of the many benefits mobile reading affords.

BEGINNING READERS

Beginning readers are under-represented in the current survey: most Worldreader Mobile users are more educated than the general population in their respective countries and hence more likely to be reading at a higher level of comprehension – reading to learn, rather than learning to read. This is unsurprising given that the application was not designed to teach people to read, and very little content is suitable for beginning readers. Yet there are strong reasons to believe mobile reading can benefit neo-literate and semi-literate adults and adolescents – those who have had some form of literacy training through school or non-formal education, but whose literacy is fragile and can easily deteriorate in the absence of appropriate reading content. Several successful mobile reading interventions in developing countries – including Afghanistan, Niger, Pakistan and Senegal – have shown that adding a mobile phone component to traditional, face-to-face literacy courses significantly improves

Several successful mobile reading interventions in developing countries – including Afghanistan, Niger, Pakistan and Senegal – have shown that adding a mobile phone component to traditional, face-to-face literacy courses significantly improves literacy retention.

literacy retention (Kraut and West, 2014). These projects have demonstrated that text-messaging is a literacy activity in and of itself, and participants who learn to use SMS are more likely to practice reading and writing on a regular basis, thus reinforcing their newly acquired literacy skills. Accessing long-form text on mobile phones is the next logical step for neo-literate people to extend their reading practice. Indeed, the current study results indicate that users are actively searching for beginner-level content on mobile reading applications. Half of the clicks on Worldreader Mobile's 'My Level' icon during the research period were from users searching for beginner-level books and stories, and while some of these users may have been looking for material to read to children, others were likely searching for themselves. The latter category most likely includes neo-literate or semi-literate adults hoping to improve their reading skills, as well as adults who are already literate in their local language but want to learn to read in English – to improve their economic prospects or simply take advantage of the vast quantities of English-language text accessible through the internet. If more mobile content were available for beginning readers and dedicated portals were established to help neo-literate adults locate level-appropriate reading materials through their mobile phones, mobile reading could play a major role in mitigating illiteracy worldwide, by getting books into the hands of the people who need them most.



MEN AND BOYS

Survey data show that male mobile readers outnumber females by an average of 3 to 1, yet men are far less actively engaged in mobile reading, reading less often and for shorter periods of time. This finding is concerning, particularly in light of recent data indicating a global decline in boys' reading performance. Girls outperformed boys in reading in every one of the 65 countries that participated in the 2012 Programme for International Student Assessment (PISA) – an international exam administered every 3 years to 15-year-old students around the world – and in 11 PISA countries the gender gap in reading has widened in favour of girls since 2000 (OECD, 2014; UNESCO, 2012). These low levels in performance tend to be associated with low levels of engagement with reading and with school in general (OECD, 2013). In developed and developing countries alike, boys' underachievement in reading and disengagement with school is a growing problem that requires policy attention, with the caveat that it should not divert attention away from the continuing challenge of ensuring equal educational access and quality for women and girls (USAID, 2008). Encouraging men and boys to engage more in mobile reading, both through outreach efforts and content diversification, is one step towards addressing this issue and helping to close the gender gap in reading.

There are three broad strategies for extending the benefits of mobile reading to more people:

1) diversify mobile reading content and portals to appeal to specific target groups;

2) increase outreach efforts to create opportunities for potential users to experiment with mobile reading and learn about its benefits;

3) lower cost and technology barriers to mobile reading.

STRATEGIES

In order to better reach the target groups described above, mobile reading advocates should adopt three broad strategies for extending the benefits of mobile reading to more people: 1) diversify mobile reading content and portals to appeal to specific target groups; 2) increase outreach efforts to create opportunities for potential users to experiment with mobile reading and learn about its benefits; and 3) lower cost and technology barriers to mobile reading.

DIVERSIFY CONTENT AND PORTALS

When it comes to reading, content matters. Whether seeking information on a specific topic for school or work, or looking for a new book that sparks their interest, people of all ages and backgrounds are much more likely to read if they find the content they want. They are also more likely to be deterred from reading if they fail to find content that appeals to them. The current study found that limited content is the main barrier to mobile reading among existing Worldreader Mobile users, more so than connectivity issues or concerns about airtime costs. The majority of survey respondents agreed with the statement 'There are limited books I want to read on my mobile' – and these are people who, for the most part, are already enthusiastic about mobile reading. If a wider range of books were available on mobile phones, current readers would be more engaged, reading more and more often, and new readers would be enticed. With an estimated 6.9 billion mobile phone subscriptions worldwide, there are literally billions of potential mobile readers out there; many of them may simply be waiting for the right content (GSMA, 2014).

The 'right' content is not always what is already popular. Mobile reading developers should not just provide more of what readers seem to enjoy; they should also examine what is missing and look to fill those gaps. In terms of genre, evidence

suggests that current Worldreader Mobile content caters to the preferences of female readers, with a heavy tilt towards fiction, and romantic fiction in particular. Studies have shown that men, on the other hand, tend to prefer non-fiction and are more likely to read for work or education than for pleasure (Harris Interactive, 2010; Pew Internet, 2012). This may be why male mobile readers are less active than their female counterparts, in spite

of the fact that there are more men using mobile reading applications. Diversifying mobile reading content to include more non-fiction material, as well as more fiction that might be of interest to male users, is a key strategy for increasing engagement among men and boys.

There is also a need for mobile reading content published in local languages and written by local authors. The study found that many mobile readers are searching for these texts, but they are unlikely to find many offerings at the moment, as the vast majority of mobile reading materials are in English. In addition to the current research, several mobile reading initiatives in Africa have highlighted the growing demand for more local content to engage readers, particularly young people. For example, approximately one-quarter of the youth involved in Yoza Cellphone Stories, a South African mobile reading project, choose mobile books written in isiXhosa, a regional language, in spite of the fact that most of the available content is in English (Kraut and West, 2014). Content published in local languages need not displace English-language content

that readers are already enjoying, particularly because many people may use or wish to use mobile reading to improve their English skills. Yet countless others may be unable to reap the benefits of reading on their mobile phones, simply because there are no reading materials available in their language. Expanding the amount of local-language text accessible through mobile phones could enlarge readership worldwide and help address the global literacy crisis. Similarly, cultivating content written by local authors has the potential to significantly increase engagement in mobile reading, particularly among young people in developing countries. In many cases the problem is not a lack of digitized local books but a lack of local books in general. Azerbaijan, for example, releases, on average, around 550 new books per year; the USA, in contrast, publishes close to 300,000 (Bowker, 2014; Pendse and Goyushov, 2011). Efforts to address this gap require not only curating local

Expanding the amount of local-language text accessible through mobile phones could enlarge readership worldwide and help address the global literacy crisis.



content but also creating it. The FunDza Literacy Trust, based in South Africa, provides a promising example of how to increase locally relevant content, by commissioning African authors to write stories for their mobile site (Kraut and West, 2014). Other strategies for improving local mobile content include: 1) purchasing the rights to such content or convincing publishers to make it available to mobile readers for free or very low prices; 2) digitizing content that is not under copyright or is openly licensed; 3) translating content into local languages; and 4) incentivizing local authors and publishers to produce more content and make it available to mobile readers.

Finally, and perhaps most importantly, mobile reading platforms are sorely lacking in content appropriate for children and beginning readers. The study found that current mobile readers are actively searching for reading materials that are categorized by reading level, and particularly for beginner-level texts. Some of these readers are probably looking for books to read to children: more than one-third of survey respondents said they read to children from their mobile phones, and an additional one-third said they would do so if more children's books were available. Other users are searching for materials to help them develop their own literacy skills. To begin to meet the needs of current mobile readers and attract new ones, mobile reading platforms must vastly increase the amount of content appropriate for children as well as

adults and adolescents who are learning to read. Yet simply putting content on a mobile site is not enough. Dedicated portals should be created where parents and teachers can search for appropriate texts to read to the children in their care. These portals should have menu and navigation options that allow people to easily locate reading material for children of various ages, abilities and interests. Similarly, adults who are learning to read or trying to develop foreign-language literacy should be able to find mobile reading materials appropriate to their reading level. While some of this material could overlap, it should not be assumed that adults who are learning to read will want to consume the same texts as children. Efforts should be made to expand literacy development content for both children and adults and to build user-friendly portals for parents and teachers as well as newly literate adults and language-learners.

INCREASE OUTREACH

The study found that the strongest predictors of mobile reading adoption are 1) opportunities to learn about the benefits of mobile reading and 2) the anticipation of benefiting from mobile reading. This is consistent with the results of other mobile reading projects in developing countries, which have demonstrated that people are more likely to engage in literacy activities on

their mobile phones when they see tangible benefits to doing so. Project ABC in Niger, for example, teaches newly literate people living in rural villages to access up-to-date agricultural market information via SMS, allowing them to get better prices for their crops. This economic benefit motivates people to practice their new literacy skills while at the same time giving them the means to do so (i.e. a mobile phone). As a result, literacy retention rates for project participants were significantly higher than for people who had just completed a traditional literacy course, without the mobile phone component (Kraut and West, 2014). In basic terms, people are more likely to engage in mobile reading if they think they will benefit from it in some way. And indeed, this study and others have shown that there are myriad benefits associated with mobile

reading, from improved self-confidence and self-esteem to better economic opportunities and job prospects, to name a few. The study also shows that people tend to enjoy mobile reading once they try it. Thus a key strategy for promoting mobile reading is to provide people with opportunities to experiment with mobile reading and learn about its benefits.

In basic terms, people are more likely to engage in mobile reading if they think they will benefit from it in some way.

With almost as many mobile subscriptions as people on the planet, mobile phones are nearly ubiquitous, yet their distribution is far from even throughout the population, particularly in developing countries.

This outreach can be accomplished through programmes and trainings that emphasize the benefits of mobile reading, and help potential users adopt a positive mindset towards reading on their mobile phones and overcome possible fears about technology use. People should be able to hear testimonials from other mobile readers, watch demonstrations of how to download and navigate a mobile reading application, and experiment with mobile reading first-hand. Given that adults who own mobile phones generally already know the basics of how to use them, one-day training seminars introducing mobile reading and showing people how to actually access books and stories could be a cost-effective way to significantly increase reading among adults. Specific outreach efforts should also be tailored to the different target groups discussed above. For example, older people may be less comfortable with technology and, as a result, need more hands-on demonstrations and technical assistance in order to begin reading on their mobile phones. Some women may need training in using mobile phones for

purposes other than voice calls, and they might also benefit from community outreach that focuses on normalizing mobile phone use for females. Parents and teachers looking for books to read to children from their mobile phones need not only dedicated portals designed for this purpose but also a means of learning about the portals and how to use them. As an example of this type of outreach, UNESCO has launched pilot projects in several countries that provide classroom teachers pointed instruction in how to use inexpensive mobile devices as portals to both text and pedagogical advice (UNESCO, n.d.). Mobile reading outreach can include any number of strategies, such as advertising, community workshops and more. In order to build on the strength of existing programmes, this outreach can and should be incorporated into education, literacy and ICT initiatives already in place in developing countries.

LOWER COST AND TECHNOLOGY BARRIERS

Somewhat surprisingly, the study found that cost and technology issues are not as important as content or outreach in determining whether someone will engage in mobile reading. Yet this is not to say that cost and ease of connectivity are non-issues. First, and most obviously, access to a

mobile phone is a prerequisite for mobile reading. With almost as many mobile subscriptions as people on the planet, mobile phones are nearly ubiquitous, yet their distribution is far from even throughout the population, particularly in developing countries (ITU, 2013). More work must be done to ensure that women and girls, as well as men and boys, have access to data-enabled phones that allow mobile reading. The GSMA has issued a set of policy recommendations to address the mobile phone gender gap, which include reducing the total cost of mobile phone ownership, working to remove cultural barriers to female access to mobile phones and ICTs in general, promoting technical literacy among women, and encouraging the development of value-added mobile services that benefit women in particular (GSMA mWomen, 2011). In 2015 UNESCO has plans to release a report detailing initiatives that leverage mobile phones to advance literacy and education for women and girls specifically.

Second, the technology solutions that enable mobile reading are also crucial to its widespread adoption. Without platforms like biNu, for instance, with its data compression technology, reading on feature phones would be far more difficult and, in some instances, impossible. And while the majority of survey respondents said they felt comfortable using the Worldreader Mobile application, it is likely that they feel this way because the app is well-designed and maintained; an application that constantly crashed or was not user-friendly would probably not earn the same vote of confidence. Policy-makers should promote the continuing development of mobile reading applications and platforms that optimize the user-end experience, through the provision of grants, competitions, research funding, purchases for schools and other incentives.

Third, mobile reading depends on connectivity. While the newest and most expensive models of mobile phones have the storage capacity to house large libraries of text, most feature phones do not. The most common phones have about 30 MB of internal memory (Fripp, 2012). Most mobile books are compressed to around 1.5 MB, meaning that a maximum of 20 books could be stored on this type of phone, provided that no other space was occupied by music, photographs or apps. Even if space were not an issue, permitting users to download entire books is problematic for publishers, due to copyright laws and concerns about piracy. A few mobile reading applications, such as BooksInMyPhone, do allow users to download entire books which can later be read offline, because the majority of the content is out of copyright and hence free (Kraut and West, 2014). Most applications including Worldreader, however, are built to conserve memory space and comply with publisher restrictions by loading one page at a time – thus requiring a constant and reliable data connection. One solution to this problem is to encourage more publishers and authors to freely license their texts to mobile reading sites for educational purposes, hence allowing people to bypass

the connectivity issue. Another solution is to extend the reach of mobile broadband services around the world. Cellular data coverage is by no means universal: mobile broadband penetration currently stands at around 20 per cent in developing countries – and only 11 per cent in Africa – versus 75 per cent in developed countries (ITU, 2013). Indeed, survey respondents cited connectivity issues as their second-most-important concern when reading,

after limited content. Mobile internet in some regions, particularly rural and geographically isolated areas, may be so spotty or slow as to render it unusable. To ensure that all people have equal opportunities to access reading materials through their mobile phones, governments should continue to work with mobile phone operators to improve infrastructure and guarantee reliable mobile broadband connectivity throughout the country.

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Finally, connectivity is a moot point if people cannot afford the data costs associated with mobile reading. Encouragingly, the study found that the airtime costs incurred while reading on mobile phones were not a primary concern for most mobile readers; fewer than 20 per cent of survey respondents said they worried about these charges on a regular basis. Nevertheless, policy-makers should endeavour to make mobile data as affordable as possible to encourage more people to adopt mobile reading. Cost concerns are slightly more common among women than men, possibly because women are more active mobile readers, or perhaps because women in

the countries surveyed have less economic power or access to discretionary funds. Whatever the reason, this finding indicates that high data usage fees may disproportionately affect women and hinder their literacy development. Reducing the cost of mobile data would lower this barrier and encourage more mobile reading among women as well as men. One way to do this is to subsidize mobile internet access for educational purposes. The UNESCO Policy Guidelines on Mobile Learning recommend that governments offer 'm-rate' subsidies – full or partial subsidies for mobile data, similar to the 'e-rate' subsidies that many governments already provide to promote internet access via computers in schools, libraries and households with school-aged children (UNESCO, 2013b). Another strategy is to work directly with mobile operators to lower or eliminate data charges for certain content. An example of this is the Wikipedia Zero initiative, a project by the Wikimedia Foundation to enable free mobile access to Wikipedia in developing countries



(Wikimedia Foundation, 2013). The initiative is based on partnerships with mobile phone operators, who agree to waive access charges to the Wikipedia mobile site in each of the most common languages in their country. As an incentive to the partners, a banner appears at the top of the mobile web page attributing the free access to the partner company that is subsidizing it. The banner also assures users that the access is free and warns them when they leave the page that they are exiting the 'free' environment and normal data charges will resume. The Wikipedia Zero project is currently active in twenty-four developing countries, and the project continues to seek partnerships with mobile providers in an ongoing effort to lower the barriers to accessing educational information via mobile phones (Wikimedia Foundation, 2014). Mobile reading initiatives could pursue a similar strategy to promote free access to mobile platforms that offer books and other reading materials to users in developing countries.

CALL FOR FURTHER RESEARCH

This study is the first of its kind. While some research has investigated the demographics, attitudes, habits and preferences of mobile readers in some OECD countries, no previous study has looked at these factors among readers in developing countries. The data uncovered, while significant, also point to the need for additional research. A longitudinal study, for example, that

tracks mobile readers over multiple years, might further illuminate some of the findings described in this report, and field experiments could be used to test the efficacy of specific interventions. It is also important to note that impact evaluations of mobile reading programmes should not be limited to mobile phone owners or users. The benefits of mobile reading tend to ripple out to family and community members: parents, caregivers and teachers, for instance, use their mobile phones to read to children, and young people who read on their mobile phones may share their books with parents and siblings. In addition to the current study, several mobile reading programmes focused on basic literacy development have shown that the interventions had positive effects not just on the participants but on their families and the community at large (see Kraut and West, 2014). There are strong indications that the benefits of mobile reading are long-lasting and far-reaching, with the potential to improve literacy, increase education opportunities and change people's lives for the better. A revolution in reading is upon us thanks to the massive proliferation of mobile technology, and future research should aim to evaluate, improve and facilitate this revolution as it unfolds.

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APPENDICES

APPENDIX A: SAMPLE SURVEY (ETHIOPIA)

Question	Answer Options
1. What is the primary reason that you read on your mobile?	a) It's convenient; I always have my mobile with me. b) I do not otherwise have access to books and stories. c) I prefer reading on my mobile phone to reading paper books. d) It's more affordable to read on my mobile; the books are free or inexpensive. e) Other
2. What is the second most important reason that you read on your mobile?	a) It's convenient; I always have my mobile with me. b) I do not otherwise have access to books and stories. c) I prefer reading on my mobile phone to reading paper books. d) It's more affordable to read on my mobile; the books are free or inexpensive. e) Other
3. Thinking about how much you read across all mediums – paper books, newspapers, magazines, computers and mobiles – which of the following best describes you?	a) In total, I read more now than I read on my mobile. b) In total, I read the same amount as I did before I started reading on my mobile. c) In total, I read less now than I read on my mobile.
4. Which of the following best describes you?	a) I like reading more now than I can read on my mobile. b) I like reading the same as before now that I can read on my mobile. c) I like reading less now than I can read on my mobile.
5. Before you could read on your mobile, how did you feel about reading?	a) I loved reading. b) I liked reading. c) I disliked reading. d) I hated reading.
6. I plan to spend more time reading on my mobile in the coming year.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
7. I plan to read on my mobile to help me in a class.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
8. I plan to read on my mobile for pleasure.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
9. I plan to read on my mobile to help me in my job/profession.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided

Question	Answer Options
10. Reading on my mobile will help me learn.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
11. Reading on my mobile will help me improve my life.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
12. I have seen others benefit from reading on mobiles.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
13. I have heard good things about reading on mobiles from the media (TV, radio, newspaper, internet, Facebook, Twitter, etc.).	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
14. I have heard good things about reading on mobiles from my friends.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
15. I have shown or told other people how to use their mobile to access books and stories.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
16. I liked reading on my mobile when I first tried it.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
17. I feel confident using the functions of the Worldreader Mobile App.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
18. I feel confident I know how to find the books I want on the Worldreader Mobile App.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
19. If I had problems relating to the Worldreader Mobile App, I know I could work them out.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided

Question	Answer Options
20. There are limited books I want to read on my mobile.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
21. I worry about using my credits/airtime when I read.	a) Never b) Rarely c) Sometimes d) Most of the time e) Always
22. I have problems with connectivity when I read on my mobile.	a) Strongly Agree b) Agree c) Disagree d) Strongly Disagree e) Undecided
23. Are you (please select one):	a) Male b) Female
24. How old are you?	a) under 10 years old b) 10–15 years old c) 16–19 years old d) 20–24 years old e) 25–35 years old f) 36–55 years old g) over 55 years old
25. What is the highest level of education that you have attended?	a) Primary b) Ethiopian General Secondary Education c) Ethiopian Higher Education Entrance Certificate programme d) Post-secondary certificate/diploma programme e) Bachelor's degree programme f) Master's or PhD programme
26. What is the highest level of education that you have completed?	a) Primary b) Ethiopian General Secondary Education c) Ethiopian Higher Education Entrance Certificate programme d) Post-secondary certificate/diploma programme e) Bachelor's degree programme f) Master's or PhD programme
27. Are you a teacher?	a) Yes, I teach at the primary school level. b) Yes, I teach at the secondary school level. c) Yes, I teach at the university/professional school level. d) No, I am not a teacher.
28. Are you a parent or caregiver of children under the age of 13?	a) Yes b) No
29. Do you read books and stories aloud to young children from your mobile?	a) Yes b) No c) No, but I would if I had more books and stories for young children on my mobile.
30. Would you mind if we contacted you to ask you more about your reading habits and what kind of books you like?	a) Yes b) No

APPENDIX B: TELEPHONE INTERVIEW QUESTIONS

1. How did you first learn about the Worldreader application?
2. Besides Worldreader, do you use other applications to read on your mobile device? What are they?
3. Besides reading on your phone, do you also read on other electronic devices? Like a tablet or computer?
4. Do you prefer reading paper books or electronic reading?
5. Where do you read on your mobile? (at home, school or work; on transport; outside?)
6. When do you read on your mobile? (time of the day)
7. What kinds of books do you read on your mobile?
8. Do you do other things while you are reading? (chat, watch TV, listen to radio; or do you just focus on reading?)
9. Do you read for education or for fun? If education, is it for school, self-learning, etc.?
10. Has a mobile device changed your reading habits/preferences? How? (Do you read more? Do you like reading more or less?)
11. Describe the importance of reading to you. (What does reading mean to you/give you?)
12. What made you begin reading on a mobile device?
 - a) Lack of other (paper) reading materials
 - b) Convenience
 - c) Advice from people or media
 - d) Perceived benefits
 - e) A 'newness' factor
13. What might make you read more on your mobile device?
14. What discourages you from reading on a mobile device? (What don't you like about reading on a mobile?)
 - a) Content
 - b) Interface
 - c) Cost
 - d) Connectivity
 - e) Hardware limitations; screen resolution and/or size
15. What might cause you to read less often on a mobile device? (Increase in cost? Reading material elsewhere?)



United Nations
Educational, Scientific and
Cultural Organization

Education Sector

Millions of people do not read for one reason: they do not have access to text. But mobile phones and cellular networks are transforming a scarce resource into an abundant one.

Drawing on the analysis of over 4,000 surveys collected in seven developing countries and corresponding qualitative interviews, this report paints a detailed picture of who reads books and stories on mobile devices and why.

The findings illuminate, for the first time, the habits, beliefs and profiles of mobile readers in developing countries. This information points to strategies to expand mobile reading and, by extension, the educational and socio-economic benefits associated with increased reading.

Mobile technology can advance literacy and learning in underserved communities around the world. This report shows how.



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