Can mobile phones improve learning? Evidence from a field experiment in Niger

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Sector(s): Education

Location: Niger

Sample: 5,600 adult learners in 113 villages

Target group: Students

Outcome of interest: Student learning

Intervention type: Digital and mobile Training

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Data: Can Mobile Phones Improve Learning?

Partner organization(s): Catholic Relief Services (CRS)

More than 775 million adults worldwide were unable to read and write in any language as of 2010, but the rapid growth in access to mobile phones may facilitate the acquisition of literacy and numeracy skills. In partnership with Catholic Relief Services, researchers conducted an evaluation in Niger to determine if training adults to use mobile phones could improve their learning outcomes when added to a standard adult education program. The mobile phone program increased student writing and math test scores relative to the standard curriculum, likely through strengthening student interest and imparting knowledge that could be easily practiced outside the classroom.

Policy issue

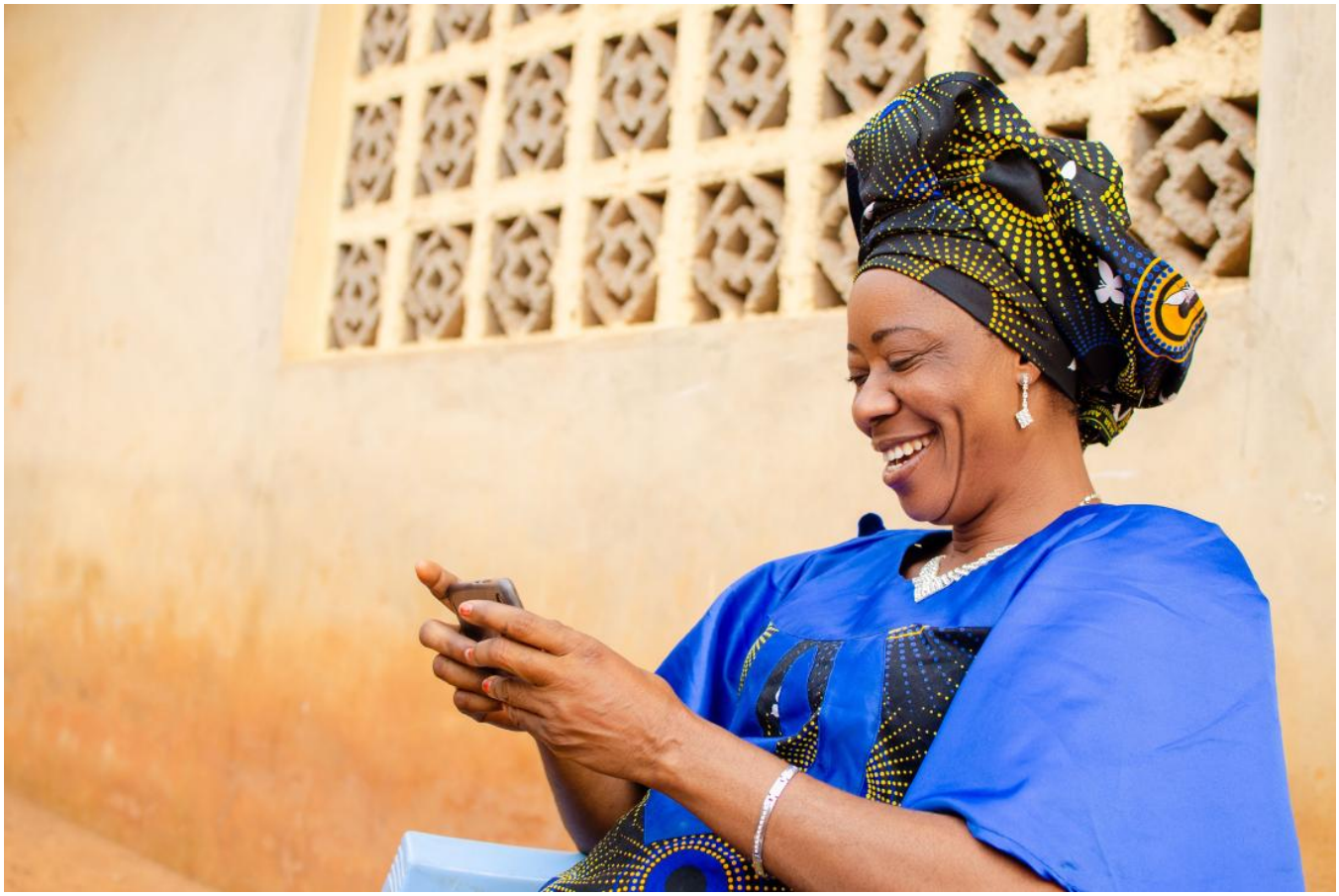
Despite decades of investment in education programs, in 2010 over 775 million adults worldwide were unable to read and write in any language. Standard adult education programs, which are often characterized by low enrollment, high dropout rates, and rapid skills depreciation, may not be effective due to curricula that is not relevant to daily life or because of limited opportunities to practice skills. Rapid growth in mobile phone coverage may provide a new way of helping adults acquire literacy and numeracy skills. By teaching students how to use mobile phones, adult learners may be able to practice these skills outside of class by text messaging, making phone calls, and using mobile money, all of which require basic fluency with numbers, symbols, and letters. Can incorporating mobile phones into an adult education program improve skill acquisition of adult learners?

Context of the evaluation

Niger is one of the poorest countries in the world. In 2009, at the time of the study, per capita GNI was only US$330 and an estimated 85 percent of the population lived on less than US$2 per day. The majority of adults in Niger are illiterate: 71 percent of the nation's population over the age of 15 were classified as illiterate in 2007, and in regions where this evaluation occurred, 90 percent of adults were unable to recognize letters or numbers in any language. While only 30 percent of households in this study

owned a mobile phone, more than 70 percent had ever placed a call and 86 percent had received a call in the past.

Catholic Relief Services (CRS), an international NGO and the implementing partner for this study, started working in Niger in 1991. Besides supporting literacy attainment, CRS aims to improve food security, provide emergency relief, promote women's livelihoods, and reduce malaria and HIV-related mortality. As of 2014, CRS has served more than 3.5 million individuals directly and an additional 2.6 million individuals indirectly.



A woman excitedly looks at her phone in Africa.

Photo credit: Shutterstock.com

Details of the intervention

In partnership with CRS, researchers conducted an evaluation to determine if training adults to use mobile phones could improve adult literacy outcomes. Within a sample of 113 villages, researchers randomly assigned 55 to a comparison group that followed CRS's standard adult education program and 58 to a treatment group that supplemented the program with an additional component, known by its French acronym, ABC. The ABC program provided students the opportunity to practice their literacy and numeracy skills using a mobile phone inside and outside of class. In each village, up to 25 women and 25 men enrolled in the course, with classes separated by sex.

The standard adult education program provided eight months of literacy and numeracy instruction in the local language of the village over a two-year period. Community members who were selected and trained in the adult education methodology by Niger's Ministry of Non-Formal Education taught the course. Classes were held five days per week for three hours per day between February and June of each year to accommodate the agricultural planting and harvesting season. Because many adult education programs struggle to maintain high attendance, CRS provided food rations to students that attended at least 80

percent of all classes to encourage enrollment and persistence.

Students in treatment villages participated in the ABC program, which followed the same curriculum as those in standard adult education villages but with additional mobile phone-based components. ABC students learned how to use a simple mobile phone, including learning how to turn it on and off, recognizing numbers and letters on the handset, making and receiving calls, and writing and reading texts. A mobile phone was provided to groups of five participants so they could practice outside of class. In total, students in treatment villages spent less than six weeks of in-class practice with mobile phones and did not have additional class time.

To measure the impact of the phone-based curriculum, researchers administered math and writing test scores before the start of the program each January and after its conclusion each June. They additionally collected information on characteristics of participant households as well as teachers.

Results and policy lessons

The ABC program increased student test scores for both writing and math relative to the comparison group, but these gains persisted over time only for math scores. Test scores in June, immediately after the end of the program, were 0.19 and 0.25 standard deviations higher in writing and math, respectively, than in the comparison group. While both writing and math scores dropped after the end of classes, the gains persisted in math for ABC students. Six months later, there was no difference in writing scores between ABC students and comparison students. For math, however, ABC student scores still exceeded comparison students' scores by 0.19 standard deviations.

The ABC program may have led to higher scores by increasing students' effort and interest in learning and by facilitating learning outside of the classroom. As a measure of student interest in education, researchers set up a hotline for anyone to express their support for the adult education program and compared the number of calls. In ABC villages, particularly in those served by more educated teachers, more individuals placed calls, suggesting that the ABC program may have resulted in higher test scores by increasing student interest in education. In addition, the ABC program likely impacted student learning outside of the classroom by affecting mobile phone usage, thereby providing opportunities to practice newly acquired skills. Students in ABC villages used mobile phones more frequently and used phones in more "active" ways, particularly by making calls and writing texts, which require more advanced letter and number recognition than for simply receiving calls.

Overall, the ABC program improved adult learning outcomes relative to a standard curriculum, likely through strengthening student interest and imparting knowledge that could be easily practiced outside the classroom. Incorporating mobile phones into adult education programs may offer an easily scalable means to increase learning gains.