RESEARCH INSIGHTS

Do Children Benefit from Internet Access?

- **Providing internet access increased computer and internet proficiency among students in Peru.**
- **There were no significant effects of internet access on math and reading achievement, cognitive skills, or self-esteem.**
- **These findings suggest that providing internet access alone has only limited impacts on educational gaps in developing countries. There is a need for complementary interventions such as providing specialized software and guiding its use.**

CONTEXT

In Latin America and the Caribbean, there exists an important digital divide which can have important implications for children's educational development. In particular, many children in the region lack access to the internet at home, which could potentially impact their academic and cognitive growth. The potential implications of lack of digital resources on children's development took center stage during the school closures induced by the COVID-19 pandemic.

Key Concept

EXPERIMENTAL EVALUATION

A research methodology that involves randomized participants to different groups to test the effects of a specific variable or intervention in a controlled setting.

PROJECT

In an experimental evaluation, we first provided access to laptops for home use to a random sample of 540 children enrolled in grades 3 to 5 in low-achieving public primary schools in Lima, Peru. Then, among children who received these laptops, we randomly selected about 350 children to receive free high-speed internet access. Their laptops included applications selected by the Ministry of Education of Peru, and we offered training and manuals on how to use them. We also offered tutorials and manuals in which we showed them how to take advantage of freely available educational websites and other online resources.

RESULTS

Children who received internet access showed a marked improvement in their computer and internet skills compared to children who did not receive laptops. Compared to children who received laptops, those who also received internet access showed some improvement in internet skills. These results suggest that the provision of home laptops and internet can effectively enhance digital fluency, an important skill in the modern world.

The impact of internet access on other key educational outcomes was less clear. The study found no significant improvements in academic achievements, specifically in mathematics and reading skills, among children who received internet access. This was an important finding, as one of the primary motivations of promoting increased internet access among students is to facilitate access to high-quality educational content and, consequently, academic performance. Moreover, the study did not find any measurable improvement in cognitive skills measured using the Raven's test, self-esteem, teacher perceptions, or school grades due to internet access. These findings suggest that, while internet access can improve digital literacy, it does not automatically translate into broader educational or psychological benefits.

We also analyzed student surveys, time diaries, and computer logs to examine how children used the provided laptops and internet and their engagement levels. This analysis showed that the use of the laptops decreased markedly with time, suggesting the presence of novelty effects (see Figure 1). This reduction of use over time was documented both when laptops were provided and when internet was provided. Moreover, internet use was concentrated in websites related to entertainment and communication, while the use in those related to information and learning was limited.

POLICY IMPLICATIONS

The study's findings have significant implications for policymaking in the area of education and technology. To start with, the improvement in digital literacy due to the provision of laptops and internet underscores the importance of ensuring access to these resources at school or home to help promote the development of digital skills. Still, it is important to recognize that providing internet access alone is insufficient to achieve broader educational goals. There is a clear need for integrated approaches that combine technology access with quality educational content, teacher training, and parental involvement. Public policies in this area should focus on developing comprehensive digital programs that not only provide access to technology but also ensure that this increased access is taken advantage of in an effective way to ensure improvements in academic achievement.

Furthermore, the findings highlight the need to assess how the internet is used in educational settings. Merely having access to the internet does not guarantee that students will use it in ways that support their learning. Therefore, educational policies should incorporate guidelines and training for teachers and parents to guide children's internet use towards educational purposes.

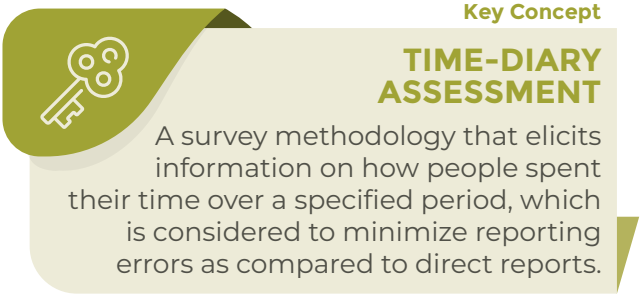
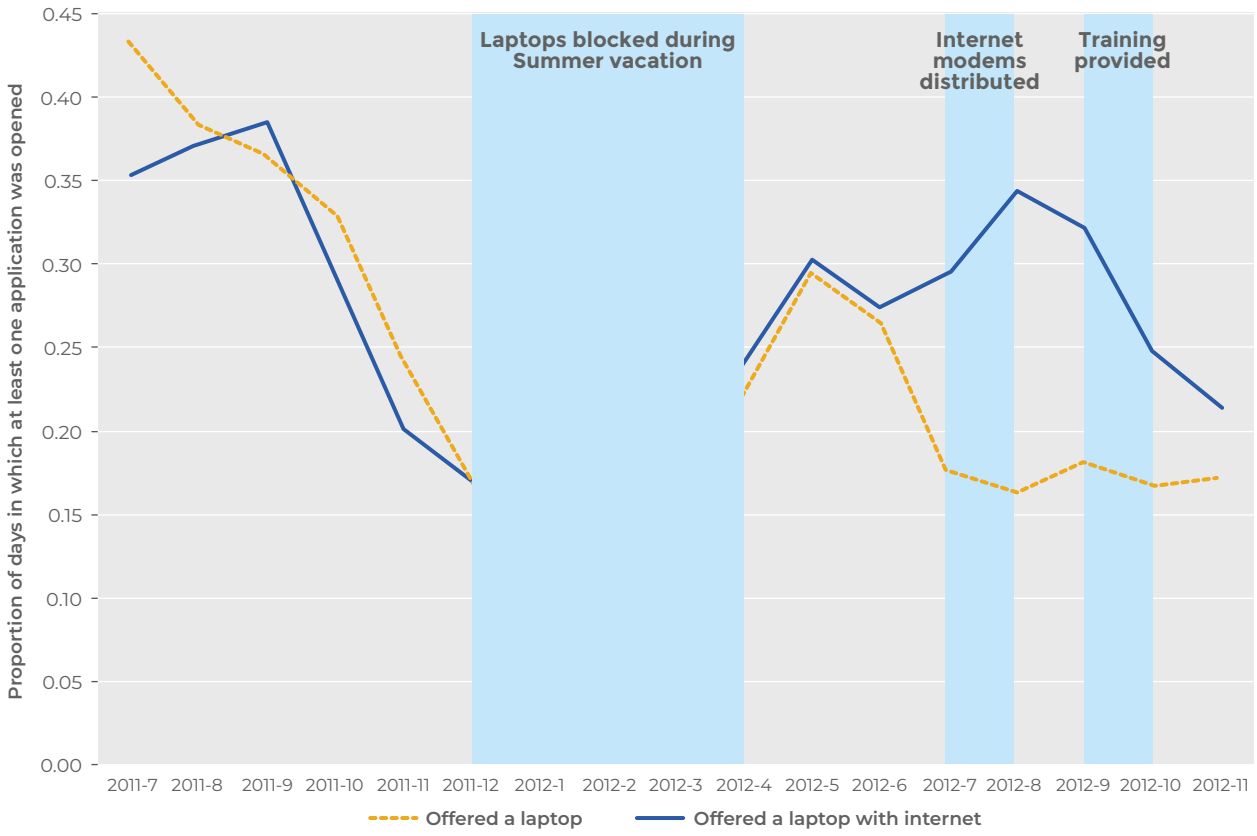


Figure 1. Evolution of Laptop Use by Treatment Status



Key Concept

RAVEN'S TEST

A widely used standardized assessment tool designed to measure abstract reasoning and problem-solving skills, often used to proxy for an individual's general cognitive abilities or "fluid intelligence."

FULL STUDY

Malamud, Ofer, Santiago Cueto, Julian Cristia, and Diether W. Beuermann. 2019. "Do Children Benefit from Internet Access? Experimental Evidence from Peru." *Journal of Development Economics* 138 (May): 41–56.

This study has also been published as an IDB Working Paper.

DEPARTMENT OF RESEARCH AND CHIEF ECONOMIST

The Department of Research and Chief Economist generates new ideas to enrich the knowledge base that supports the policy agenda of the Inter-American Development Bank (IDB) and its member countries for achieving sustainable and equitable development in the region. To maximize the impact of its research, the Research Department carries out activities that serve as inputs to other IDB departments, governments, the academic community and public opinion in the region.

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