

# Addressing the Digital Divide

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Teach The World Foundation Resource Center

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# Introduction

My name is Andrew Pinto, and I am a high school Senior in Bethesda, Maryland. I was fortunate to have the opportunity to volunteer for the Teach The World Foundation this summer, helping to add content to the foundation's resource center.

The topic I explored – the Digital Divide – is very relevant right now and personal to me, as I am one of the millions of students who had to quickly transition to online learning in 2020. I am lucky that I did not have to worry about internet access to complete my schoolwork, but it made me contemplate what it must be like for many students in my area who do not have connectivity at home. I found several resources that I have included in this document, and I also provided my own opinion after researching this topic closely over the summer. I hope you find it helpful and that it gives you a good place to start as you explore this important issue.



Summary: the Digital Divide is a significant barrier to literacy and education, and current efforts to solve it are not adequate.

- The Digital Divide, or the gap between those who do and do not have access to internet and digital devices, is real and concerning. The United Nations estimates that 40-50% of the world's population has no access to the internet, and even in developed countries those with the lowest incomes or education levels have difficulty finding affordable internet access.
- The Teach the World Foundation's mission is to increase literacy rates in the world. Increasing literacy is the key to improving standards of living, but the digital divide takes away the opportunity to use the power of digital technology to help.
- Attention on the digital divide has exploded recently due to the COVID-19 pandemic that has forced students to learn from home. Many organizations are researching the issue, but it is clear there is no coordinated strategy between local groups, private businesses and governments to solve the problem.
- There are some promising ideas being explored, such as Wifi balloons from Google's Project Loon or satellite internet from SpaceX, but approaches are limited and disorganized.
- Basic internet access should be considered a fundamental right and a public service that benefits society. We can raise the standard of living for billions by unlocking education through digital technology if we can provide internet access.
- Governments are going to need to take the lead to make this happen. Today the economics don't work for telecom or digital companies to expand broadband to remote areas. With government leadership and assistance it may be possible. A good example is the expansion of electricity to rural areas in the US in the early 20<sup>th</sup> century, which only happened through subsidies from the federal government in partnership with utilities and local cooperatives.
- Many innovative solutions have emerged from the pandemic, including Wifi buses in local neighborhoods. Also, given the penetration of mobile phones, future educational content should prioritize solutions that leverage smartphones.
- With dedicated focus and strong partnership, I believe the digital divide can be solved.

# Digital is about to explode in Education.

Experts who watch the education industry closely predict that it will be the next sector to be transformed by digital technology. These predictions have intensified with the impact of COVID-19.

**Dawn of the Age of Digital Learning  
An Acceleration of Trends That Have Been Building for  
Years**

By Michael Moe and Vignesh Rajendran

<https://medium.com/gsv-ventures/dawn-of-the-age-of-digital-learning-4c4e38784226>

**Teach the World Foundation Offers a Lesson in Digital  
Learning**

By Peter High

<https://theblog.adobe.com/teach-the-world-foundation-offers-a-lesson-in-digital-learning/>

# However, one of the biggest barriers is the “digital divide” of internet access.

The Pew Research Center has several excellent articles and statistics about the Digital Divide. Here are a few of the most relevant.

## **8 charts on internet use around the world as countries grapple with COVID-19**

By Shannon Schumacher and Nicholas Kent

*Article that clearly shows the digital divide through research. Younger people, those with higher incomes and those in wealthier countries are more likely to be digital technology users.*

<https://www.pewresearch.org/fact-tank/2020/04/02/8-charts-on-internet-use-around-the-world-as-countries-grapple-with-covid-19/>

## **Mobile Divides in Emerging Economies**

By Laura Silver, Emily A. Vogels, Mara Mordecai, Jeremiah Cha, Raea Rasmussen and Lee Rainie

*Summarizes the gaps in mobile phone access in developing countries. While usage has grown, some countries still have 30% of people without mobile internet access.*

<https://www.pewresearch.org/internet/2019/11/20/mobile-divides-in-emerging-economies/>

## **Digital divide persists even as lower-income Americans make gains in tech adoption**

By Monica Anderson and Madhumitha Kumar

*Research on digital divide in the US by income level. Only 71% of people with income below \$30k have smartphone access compared to 97% for incomes over \$100k.*

<https://www.pewresearch.org/fact-tank/2019/05/07/digital-divide-persists-even-as-lower-income-americans-make-gains-in-tech-adoption/>

# However, one of the biggest barriers is the “digital divide” of internet access.

There are a variety of other sites with helpful statistics, but there does not seem to be one comprehensive resource center on the topic.

**Site: Akzente Magazine**

**Infographic: Digitalisation  
The digital divide**

*Helpful infographics on the state of the digital divide globally. For example, less than half the world’s population – 3.2 billion people – uses the internet. In the developed world, 80 per cent of people surf the web, compared with just 30 per cent in developing countries.*

<https://akzente.giz.de/en/artikel/digital-divide>

**Source: International Telecommunication Union (ITU) [UN agency for information & communication technologies]**

**Facts and Figures 2019: Measuring Digital Development**

*Comprehensive study of digital access and behavior in developed and developing countries. For example, 86% use internet in developing countries versus 19% in least-developed countries.*

<https://itu.foleon.com/itu/measuring-digital-development/home/>

**Source: Wikipedia**

**Digital Divide**

*While not a source that can be used sometimes, the Digital Divide page is very comprehensive and has several links to other sources. Be sure to go to the end and see the references.*

[https://en.wikipedia.org/wiki/Digital\\_divide](https://en.wikipedia.org/wiki/Digital_divide)

# The impacts of the digital divide in education are significant.

The internet access issue for students and the impact on their education was a concern before the COVID-19 pandemic hit.

**Source: Associated Press**

**AP: 3 million US students don't have home internet**

**By MICHAEL MELIA, JEFF AMY and LARRY FENN**

*About 16 to 18 percent of students in the US do not have internet access at home, and students with home internet consistently score higher in reading, math and science.*

<https://apnews.com/7f263b8f7d3a43d6be014f860d5e4132>

**Source: EqOpTech**

**The Digital Divide in Education**

**By Terence Lee**

*Comprehensive overview from 2018 of the state of the divide in education in the US. The article also makes the point that digital equity must include not just device and internet access but also computer literacy*

<https://www.eqoptech.org/publications/2018/4/6/the-digital-divide-in-education>

**Source: Digital Divide Council**

**Five Ways the Digital Divide Effects Education**

**By Carmen Steele**

*Useful site dedicated to the digital divide issue. Article is brief but highlights the disparity in productivity and competitive edge in education.*

<http://www.digitaldividecouncil.com/digital-divide-effects-on-education/>

# The impacts of the digital divide in education are significant.

The COVID-19 pandemic has exposed the digital divide issue in education.

**Source: EdSurge**  
**The 3 Biggest Remote Teaching Concerns We Need to Solve Now**

By Torrey Trust (April 2020)

*COVID-19 has forced teachers to rapidly shift to remote teaching, and issues around student data privacy, accessibility, and digital access have been exposed.*

<https://www.edsurge.com/news/2020-04-02-the-3-biggest-remote-teaching-concerns-we-need-to-solve-now>

**Source: Bloomberg**  
**U.S. Schools Trying to Teach Online Highlight a Digital Divide**

By Suzanne Woolley, Nikitha Sattiraju, and Scott Moritz (March 2020)

*Article that captures the issue that many students lack computers or high-speed internet at home, and school districts can't provide the same online education to every student when some can't log on at all. It also summarizes efforts to provide connectivity and devices, but these efforts are not enough.*

<https://www.bloomberg.com/news/articles/2020-03-26/covid-19-school-closures-reveal-disparity-in-access-to-internet>

**Source: The Verge**  
**Online schooling has a tech issue that no apps can fix**

By Natt Garun (April 2020)

*Good article summarizing the impacts on students from lack of connectivity, including the psychological toll.*

<https://www.theverge.com/2020/4/29/21239567/remote-school-distance-learning-digital-internet-tech-gap-devices-access>



# The impacts of the digital divide in education are significant. (continued)

The COVID-19 pandemic has exposed the digital divide issue in education.

**Source: Center on Reinventing Public Education (CPRE)**

**The Digital Divide Among Students During COVID-19: Who Has Access? Who Doesn't?**

By Robin Lake and Alvin Makori

*Excellent summary from June 2020 that mentions different sources of stats and discusses the broken delivery model and the debate about whether internet access is a universal right*

<https://www.cpre.org/thelens/digital-divide-among-students-during-covid-19-who-has-access-who-doesnt>

**Source: Pew Research Center**  
**53% of Americans Say the Internet Has Been Essential During the COVID-19 Outbreak**

*Survey from April 2020 showing the reliance of students on internet access during the pandemic. Forty percent of students either cannot access the internet or must do their homework on a smartphone.*

<https://www.pewresearch.org/internet/2020/04/30/53-of-americans-say-the-internet-has-been-essential-during-the-covid-19-outbreak/>

**Source: NPR**

*NPR has some excellent recent interviews on the digital divide situation in education given the COVID-19 pandemic..One includes an interview with Nicol Turner Lee, a digital divide expert at the Brookings Institute.*

<https://www.npr.org/2020/07/13/890328353/coronavirus-pandemic-spotlights-problems-with-online-learning>

<https://www.npr.org/podcasts/381443519/the-kojo-nnamdi-show>

# The overall approach to solving the digital divide seems to be fragmented.

There has been much study about the digital divide, but little evidence of an organized approach between governments, companies and nonprofits. Many small groups are involved, but nothing seems centralized.

**Source: The New York Times**  
**'We Can Do Better': One Plan to Erase America's Digital Divide**  
**By Shira Ovide**

*Article from April 2020 arguing that the only way to solve the digital divide is to treat internet pipelines as a public good, similar to how we approached electricity.*

<https://www.nytimes.com/2020/04/14/technology/coronavirus-digital-divide.html>

**Source: IEEE Spectrum**  
**3 Ways To Bridge The Digital Divide**  
**By Amy Nordrum**

*Proposal to open up "white" (unused) space in the tv and radio frequency spectrum and adopt "dig once" policies for expanding broadband to rural areas.*

<https://spectrum.ieee.org/tech-talk/computing/networks/3-ways-to-bridge-the-digital-divide>

**Source: Comcast**  
**OUR MISSION; Affordable High-Speed Internet for Low-Income Households**

*Cable companies such as Comcast have their own programs to offer low-cost internet access, but there does not seem to be a unified strategy across the industry.*

<https://www.internetessentials.com/Our-Mission>

# There are some innovative solutions being attempted, but it has been a struggle.

Wifi buses have had some good results, and TV might have some potential, but nothing has been fully successful.

**Source: The Hill**

**How parking a wireless school bus can help all students get back to school**

**By Nicol Turner Lee**

*Many districts are parking empty buses with wifi access in neighborhoods to serve as hot spots.*

<https://thehill.com/opinion/education/490174-how-parking-a-wireless-school-bus-can-help-all-students-get-back-to-school>

**Source: The Washington Post**

**In the world's fifth most-populous country, distance learning is a single television channel**

**By Susannah George**

*Pakistan has tried to turn to its national television network to teach via an educational channel, but it has been a struggle to make it effective.*

[https://www.washingtonpost.com/world/asia\\_pacific/pakistan-coronavirus-education-teleschool/2020/05/18/9ee159a8-8eee-11ea-9322-a29e75effc93\\_story.html](https://www.washingtonpost.com/world/asia_pacific/pakistan-coronavirus-education-teleschool/2020/05/18/9ee159a8-8eee-11ea-9322-a29e75effc93_story.html)

**Source: Make 4 Prosperity**  
**The Digital Divide**

*Make 4 Prosperity is one example of many scattered non-profit organizations attempting to address the digital divide, but there does not appear to be a coordinated strategy.*

<https://www.youtube.com/watch?v=M2rNRevynQk>

<https://makingprosperity.com/>

# Big tech players are pursuing new ways to solve the problem.

The big tech companies see the opportunity to bring internet to millions via satellite, broadband, or Wifi balloons.

**Source: Singularity Hub**  
**Google Loon Is Now Beaming WiFi Down to Earth From Giant Balloons**  
**By Vanessa Bates Ramirez (July 2020)**

*Overview of efforts by Google (called Project Loon) to bring internet via balloons, and SpaceX (called Starlink) via satellite.*

<https://singularityhub.com/2020/07/12/googles-loon-balloons-are-now-beaming-internet-down-to-earth/>

**Official Site for Google Project Loon**

<https://loon.com/>

**Example of Project Loon partnership in Kenya.**  
**Source: The Conversation**  
<https://theconversation.com/kenyas-internet-balloons-could-help-to-bridge-the-digital-divide-142565>

**Official Site for SpaceX Project Starlink**

<https://www.starlink.com/>

**Microsoft Project Airband**

*Microsoft also has an initiative with the mission to “partner with equipment makers, internet and energy access providers, and local entrepreneurs to make affordable broadband access a reality for communities around the world.”*

<https://www.microsoft.com/en-us/corporate-responsibility/airband>

# Big tech players are pursuing new ways to solve the problem.

Facebook was one of the first to launch an effort - Internet.org - but it failed. They now have a new initiative called Facebook Connectivity.

**Source: Wired Magazine**

**What Happened to Facebook's Grand Plan to Wire the World?**

**By Jessi Hempel**

*In 2013, Facebook launched an ambitious coalition called "Internet.org" to bring access to the world, but it failed due to resistance from telecom providers and suspicion of Facebook's motives.*

<https://www.wired.com/story/what-happened-to-facebooks-grand-plan-to-wire-the-world/>

**Source: Facebook Connectivity Homepage**

*Main site with several links to the multiple initiatives under the Facebook Connectivity effort, including free or discounted internet access called Free Basics.*

<https://connectivity.fb.com/>

**Source: Techcrunch**

**Discover is Facebook's new effort to help people access websites for free — but with limits**

**By Manish Singh**

*Good summary of Facebook's Free Basics program and "Discover" app that uses minimal data and bandwidth.*

<https://techcrunch.com/2020/05/06/facebook-discover-connectivity-free-basics-initiative/>

# An interesting example from the past is the implementation of electricity in the 20<sup>th</sup> century.

The following links provide helpful summaries of the approach taken in the United States to expand electricity to rural areas in the 1930s. Electric companies had implemented electricity in most cities and towns because it was profitable, but only 10% of rural areas had access to electricity. A partnership between utilities, local cooperatives organized in rural towns, and the Rural Electrification Administration – formed during the New Deal to provide subsidies and low-interest loans – successfully expanded electricity to 90% of the United States.

<https://americanhistory.si.edu/blog/rural-electrification>

<https://www.instituteforenergyresearch.org/history-electricity/#Rise>

<https://eh.net/encyclopedia/rural-electrification-administration/>

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