

# The Digital Divide: How Does it Divide Hoosiers?



## Indiana Family Impact Seminars

*A project of the Indiana Consortium of Family Organizations*

Center for Families, Purdue University

Department of Early Childhood, Youth, and Family Studies, Ball State University

Families First

Health and Human Sciences Extension, Purdue University

Indiana Clinical and Translational Sciences Institute

Indiana Extension Homemakers Association

Marion County Commission On Youth, Inc. (MCCOY Inc.)

National Association of Social Workers – Indiana Chapter

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## Family Impact Seminars

Family Impact Seminars have been well received by federal policymakers in Washington, DC, and Indiana is one of several states to sponsor such seminars for state policymakers. Family Impact Seminars provide state-of-the-art research on current family issues for state legislators and their aides, Governor’s Office staff, state agency representatives, educators, and service providers. One of the best ways to help individuals is by strengthening their families. The Family Impact Seminars speakers analyze the consequences an issue, policy or program may have for families. The seminars provide objective, nonpartisan information on current issues and do not lobby for particular policies. Seminar participants discuss policy options and identify common ground where it exists.

*The Digital Divide: How Does it Divide Hoosiers?* is the twenty-third seminar in a continuing series design to bring a family focus to policy making. The seminar focused on the digital divide in Indiana, including how broadband access varies widely across the state and affects key elements of the state budget including K-12 education and healthcare. The topic was chosen by a bipartisan committee of legislators, representing the very audience the seminars are intended to inform.

### Seminar Speakers

Roberto Gallardo, PhD Director – Purdue Center for Regional Development C&RE Extension Specialist at Purdue University <i>The State of Broadband in Indiana</i>	Nicol Turner Lee, PhD Senior Fellow, Governance Studies Director, Center for Technology Innovation Brookings Institution <i>Digitally Invisible and the New Underclass</i>
Laura Stelitano, PhD Associate Policy Researcher RAND Corporation <i>The Digital Divide and Education</i>	

### Seminar Legislative Advisory Committee

Senator Jean Breaux Representative Dale DeVon Senator Jon Ford Senator Erin Houchin Representative Sheila Klinker	Senator Jean Leising Representative Vanessa Summers Representative Jeff Thompson Senator Shelli Yoder Senator Dennis Kruse
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### The Indiana Seminars are a project of the Indiana Consortium of Family Organizations, which includes

Center for Families, Purdue University Department of Early Childhood, Youth, and Family Studies, Ball State University Families First Health and Human Sciences Extension, Purdue University	Indiana Clinical and Translational Sciences Institute Indiana Extension Homemakers Association Marion County Commission On Youth, Inc. (MCCOY Inc.) National Association of Social Workers – Indiana Chapter
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## Issue Overview

Access to and utilization of high-speed, quality broadband internet services are vital for family and community well-being. Broadband internet can facilitate educational engagement, health care utilization, and vitality of commerce. Despite the benefits of broadband internet, a digital divide persists. Substantial numbers of families and communities still do not have access to nor can afford high-speed broadband internet. Of those with access, some may not have the technologies or skills to successfully use broadband services to meet their personal and business needs.

The ongoing COVID-19 pandemic has widened the digital divide and highlighted “pinch points.” Almost overnight, COVID-19 resulted in wide-scale shifts into virtual spaces. As a result, broadband internet is no longer used solely for entertainment; families rely on internet for virtual learning, telemedicine, working from home, and home businesses.<sup>1</sup> Especially for vulnerable families and communities, this shift online has expanded inequities among Hoosier families.

It is difficult to accurately describe the digital divide in Indiana and nationwide, due in part to variations in measurement. Estimates from the Federal Communications Commission (FCC), which are known to underestimate coverage, indicate that in 2019, more than 260,000 Hoosiers (or approximately 4%) lacked access to basic broadband speeds (25 Mbps download/3 Mbps upload). Data from Microsoft, however, estimate that the proportion of Hoosiers who cannot use broadband at minimum speeds of 25/3 Mbps may be closer to 63% of the state’s population.<sup>2</sup>

**Access to broadband.** Several barriers limit families’ abilities to access and use broadband services. It is particularly expensive for internet service providers to build and maintain broadband infrastructure in rural areas. This results in a rural-urban digital divide, where families living in rural areas are less likely to have access to broadband services.

Even after infrastructure is built, families may face challenges in utilizing high-speed, high-quality broadband. Prices may be too high, or families may not have access to enough devices to fulfill their needs, or may have too many devices that may slow down broadband speeds. These complications can be especially challenging for families with multiple children and adults utilizing internet services simultaneously during the COVID-19 pandemic.

**Access to education.** The transition to virtual learning during the COVID-19 pandemic has divided children with and without access to adequate online technologies at home. In Spring 2020, nearly 16 million students nationwide (30%) did not have access to technologies to successfully engage with virtual learning, and this digital divide is especially large for Black, Latinx, or Native American students, or students living in rural areas.<sup>3</sup> In Indiana in 2018, nearly 330,000 students (29%) lacked access to broadband services or a computer device.<sup>4</sup> Evidence before the COVID-19 pandemic indicated that students without internet access at home have lower grade point averages, take longer to complete homework assignments, and are less likely to attend college.<sup>5</sup>

**Access to health care.** The COVID-19 pandemic has led to widespread adoption of telehealth practices. This shift has allowed for medical appointments to continue despite social distancing and stay-at-home orders. Providers have reported substantial increases in the number of patients utilizing telemedicine services since March 2020. Prior to the pandemic, telemedicine utilization was expensive as many insurance

companies did not have the same reimbursement plan for virtual visits.<sup>6</sup> During the pandemic, waivers, especially for Medicare patients, made telemedicine financially lucrative for medical providers.<sup>6</sup>

Access to telemedicine services may reduce health care disparities, especially for families living in rural areas who may not be near hospitals or doctor's offices. However, the digital divide may increase disparities for others. For example, families caring for elderly parents, families with children or adults with disabilities, and non-English speaking families may face unique challenges in accessing telehealth services.<sup>7-9</sup>

**Looking ahead.** Lack of access to high-speed internet creates challenges for Hoosier families to receive the education, healthcare, and economic opportunities they need. The ongoing COVID-19 pandemic has highlighted gaps in families' internet access and utilization. Implementing solutions to close the digital divide could improve the health and vitality of Indiana families in an increasingly digital world. Broadband infrastructure is only the first step: policies may need to address issues related to affordability of services, internet literacy, and digital inclusion.

Despite challenging circumstances in response to the COVID-19 pandemic, several creative solutions have been developed that highlight interesting future avenues for families, communities, and policymakers in the years to come. The 2020 Indiana Family Impact Seminar, offered by the Indiana Consortium of Family Organizations (COFO), investigated the several ways that the digital divide played out in the context of COVID-19 and discussed research about the transition to online spheres to propel Indiana into the future.

## Considerations for Legislators

### Infrastructure

- > Barriers for broadband deployment in rural communities include high economic costs for internet service providers in a) building infrastructure and b) navigating complex geographical features (e.g., hills) that may interrupt service.<sup>10</sup>
- > Low adoption rates of internet service packages in rural areas may decrease financial incentives for internet service providers to deploy services to rural areas.<sup>11</sup>
- > Some maps of broadband coverage may *overestimate* the number of families who have access to broadband services. Additionally, individuals' access may be overestimated when examining access statistics at the level of census tracts, which may conceal variability and differences at the local level.<sup>2</sup>

### Utilization

- > Even if infrastructure is in place, services may not be utilized by families, for a variety of reasons:
  - > Family income may make it challenging for families to afford internet services. Of families making less than \$25,000 per year, roughly 45% do not have access to internet access and 29% do not have a computer.<sup>12</sup>
  - > Families may not have computers or tablets in the home that would allow for full utilization of internet services. In general, mobile users are less likely than computer users to engage in online activities, including accessing search engines, reading online, or completing work-

related activities.<sup>13</sup> Currently, the FCC does not consider cell-phone only usage as an adequate replacement to computers and tablets.<sup>14</sup>

- Older individuals, compared to younger populations, are less likely to utilize broadband services and have lower levels of internet resourcefulness.<sup>7</sup>
- Individuals with disabilities are less likely to utilize broadband and less likely to own multiple technology devices,<sup>15</sup> although there is variability in accessibility between type and extent of disability.<sup>8</sup> For example, those with cognitive impairments report greater challenges in utilizing internet services.<sup>8</sup>
- Advertised speeds and actual speeds may differ within households, and there is variation in speed between internet service providers, geographic location, and time of day (e.g., peak time).<sup>16</sup>
- Speed is also determined by the need for one person doing one thing at one time; families with multiple devices simultaneously being used and multitasking can significantly increase the need for high-speed broadband coverage.<sup>1,17</sup>

## Education

- In a survey of a representative sample of nearly 6,000 teachers during the Spring 2020 semester, only half of the teachers indicated that all (or nearly all) of their students had access to internet, with wide variation amongst school districts and states.<sup>18</sup>
  - Students were less likely to have internet access if they attended schools a) in rural areas, b) with a greater percentage of students of color, and c) with higher poverty rates.<sup>18</sup>
  - Qualitative data from teachers indicated that the digital divide impacted more than just students' learning in class, but also created barriers in engaging with families.
  - Teachers also cited their poor internet connections themselves as other challenges to engaging with students and families.<sup>18</sup>

## Healthcare

- Elderly patients are less likely to utilize telemedicine services, and this may be related to the digital divide, digital literacy, or specific cognitive or physical needs.<sup>19</sup>
- Long-term care facilities may not have the necessary infrastructure to facilitate telehealth appointments and care.<sup>19</sup>
  - Using data from a New York City hospital during the stay-at-home orders (March 19 to April 30, 2020), patients were less likely to utilize telemedicine in zip codes with lower median household income and smaller median family size.<sup>9</sup> After controlling for relevant individual and community-level factors, Black patients were less likely than white patients to utilize telemedicine.<sup>9</sup>

- > Using data from two San Francisco hospitals from before and immediately following the shift to telemedicine (February to April 2020), providers saw a decrease in visits for elderly populations, non-English speakers, and those with Medicare or Medicaid insurance.<sup>21</sup>

## Workforce

- > A recent report by the U.S. Chamber of Commerce Technology Engagement Center in partnership with Amazon estimates that increasing broadband services and accessibility in rural Indiana could result in the creation of 16,000 jobs and an increased GDP of \$2 billion.<sup>22</sup>

## Current Indiana Initiatives

- > **Next Level Connections Broadband Program (Indiana's Broadband Initiative).** On September 3, 2020, Gov. Holcomb announced the recipients of the \$51 million investment in broadband infrastructure that will provide access to 10,590 homes/commercial locations in 32 Indiana counties. Additionally, internet service providers matched \$53 million, resulting in \$104 million in broadband investments for these counties.<sup>23</sup>
- > **Rural Road to Recovery (Indiana's Broadband Initiative).** In July 2020, Lt. Gov. Crouch announced the Rural Road to Recovery initiative as part of the Indiana Broadband Initiative. In partnership with Purdue University's Center for Regional Development, Ball State University's Indiana Communities Institute, and several Indiana agencies, this initiative aims to identify and ameliorate the effects of COVID-19 on rural businesses and communities. Currently ongoing, this initiative requires community partners to work together to identify issues and create integrated solutions to meet the needs of rural Indiana communities, especially with regard to the COVID-19 response strategies.<sup>24</sup>

## Additional Resources

**Pew State Broadband Policy Explorer.** A repository of each state's policies and initiatives for improving access to broadband. Policies can be sorted by state, year, and categories, including broadband programs, funding, and infrastructure access. <https://www.pewtrusts.org/en/research-and-analysis/data-visualizations/2019/state-broadband-policy-explorer>

**Federal Communication Commission's (FCC) Measuring Broadband America.** Reports and methodologies of FCC's nationwide examination of consumer broadband access and usage. <https://www.fcc.gov/general/measuring-broadband-america>

**BroadbandNow.** Aggregates and analyzes private and public data (e.g., FCC, Census) to create comprehensive reports for consumer broadband access and usage. This site also updates a Nationwide Broadband Map and generates research on the social, political, and economic implications of broadband coverage. <https://broadbandnow.com/>

**Indiana Broadband Map.** Last updated in June 2019, uses FCC Form 477 data to display broadband coverage and availability in Indiana. When searching by address, results are presented at the level of the Census block (rather than the individual address) so coverage may vary. <https://www.indianabroadbandmap.com/>

**Purdue Center for Regional Development (PCRD)'s publications and resources.** The PCRD creates and curates programs, resources, and tools to facilitate understanding of digital inclusion in Indiana.

<https://pcrd.purdue.edu/>

**Rural Indiana Stats.** The PCRD presents a Digital Divide Index that accounts for both infrastructure/adoption and socioeconomic characteristics of counties, with higher scores indicating a larger digital divide. This website includes downloadable reports and maps for each county.

<https://pcrd.purdue.edu/ruralindianastats/broadband/ddi.php?variable=ddi-overview&county=Adams>

**Common Sense Interactive Map.** Interactive map corresponding with Chandra et al. (2020) report, Closing the K–12 Digital Divide in the Age of Distance Learning. Utilizes 2018 U.S. Census Bureau American Community Survey and National Center for Education Statistics to estimate student access within each state: <https://www.common sense media.org/digital-divide-stories#/state>



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## Appendix: Seminar Presentations

### The State of Broadband in Indiana

Roberto Gallardo, PhD

Director – Purdue Center for Regional Development C&RE Extension Specialist at Purdue University



## PCRD: Who are we?

Born: 2005


Mission: pioneering new ideas and strategies that contribute to regional collaboration, innovation, and prosperity.

Goals:



## Focus Areas




 [pcrd.purdue.edu](http://pcrd.purdue.edu)



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## Defining Broadband

- Internet access that is always on and faster than dial-up
- Different technologies, different speeds
- Download: 25 Mbps
- Upload: 3 Mbps
- 25/3 for short



## Broadband Key Terms

- Bits: 1s & 0s; basic unit of information
  - Kilobit (Kbps): 1,000 bits per second
  - Megabit (Mbps): 1,000,000 bits per second
  - Gigabit: (Gbps): 1,000,000,000 bits per second
- Download: speed measured in bits that your computer receives data
- Upload: speed measured in bits that your computer sends data
- Symmetric: comparable upload/download speeds



## Asymmetrical speeds ...

... is like using a dirt-road heading one way  
and coming back using a multi-lane highway



Dirt road



Multi-lane highway



## Broadband Technologies

- Digital Subscriber Line (DSL; xDSL; )
- Cable Modem (HFC: hybrid fiber-coaxial)
- Fiber-optic
- Fixed Wireless
- Satellite; Low earth orbit (LEO)
- Broadband over Power Line (BPL)
  
- Fixed Versus Mobile



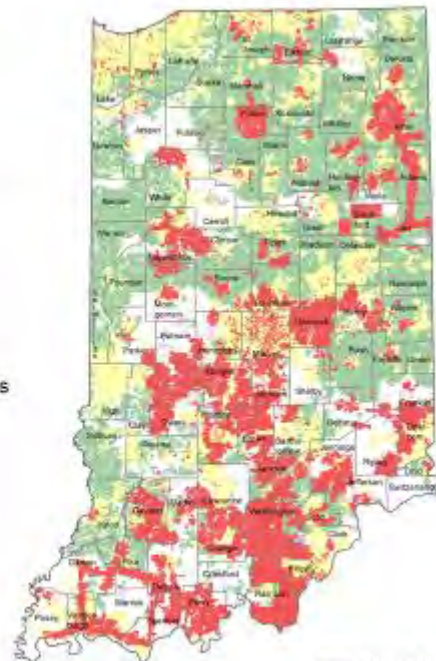
## Infrastructure Barriers

- Lack of leadership
- Lack of expertise
- Lack of density/ROI inexistant
- Right-of-ways
- Easements
- Topography



## 2019 Indiana Broadband: 25/3 Footprint

- Fiber
- Cable
- Fixed Wireless
- DSL



Note: Data are mapped on a census block level.  
Source: FCC Form 477, December 2019 v1





2019 Indiana  
Broadband:  
No access to 25/3

Housing Units:  
111,690 (3.8%)

Population:  
261,343 (3.8%)

**Housing Units**  
Less than 10  
10 - 49  
50 or more  
Access to  
25/3 Mbps



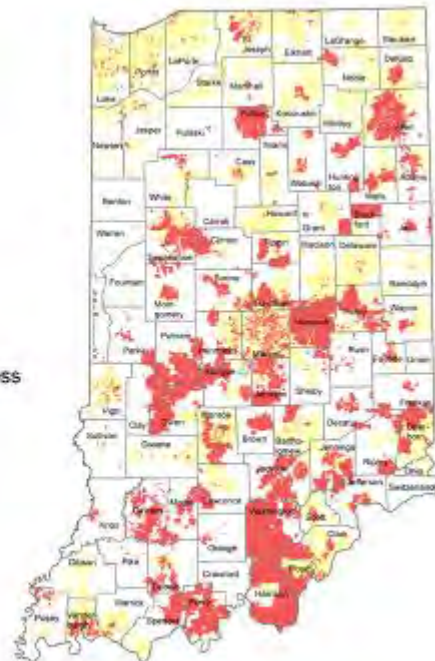
Note: Data are mapped on a census block level.  
housing units estimates are from 2015. Source: FCC Form 477 December 2019 v1



2019 Indiana  
Broadband:

100/20 Footprint

Fiber  
Cable  
Fixed Wireless  
DSL



Note: Data are mapped on a census block level.  
Source: FCC Form 477 June 2019 v1



2019 Indiana  
Broadband:  
No access to 100/20

Housing Units:  
379,060 (12.9%)

Population:  
907,378 (13.4%)



\*Note: Data are mapped on a census block level. Missing data estimates are from 2010. Source: FCC Form 477 June 2019 v7

Indiana Broadband:  
2014-2019 Trends

% Housing Units  
with no access to  
25/3

Percent Housing Units with No Access to 25/3  
Indiana Counties: 2014-2019



Source: FCC, Purdue Center for Regional Development

# Indiana Broadband: 2014-2019 Trends

## % Housing Units with no access to 100/20

Percent Housing Units with No Access to 100/20  
Indiana Counties: 2014-2019



Source: PDC, Purdue Center for Regional Development

### 2018 DIGITAL DIVIDE PROFILE

52.25  
Digital Divide Index Score

#### Indiana

The digital divide index score (DDI) ranges between 0 and 100, where a lower score indicates a lower divide. The infrastructure adoption score and the socioeconomic score and indicator below contribute to the overall DDI.

49.95  
Infrastructure/Adoption Score

#### Infrastructure/Adoption Score

This score is based on data from the socioeconomic score efforts aimed to make progress in the available infrastructure.



15.8%

of people without access to fixed broadband at least 200 Mbps down and 10 Mbps up



24

median maximum advertised download speed in Mbps



18.2%

of households with an internet access (not subscribing)



2

median maximum advertised upload speed in Mbps



12.8%

of households without a computing device

50.28  
Socioeconomic Score

#### Socioeconomic Score

This score is based on data from the socioeconomic score efforts aimed to make progress in the available infrastructure and digital divide score.



15.0%

population aged 65 and older



14.1%

of individuals in poverty



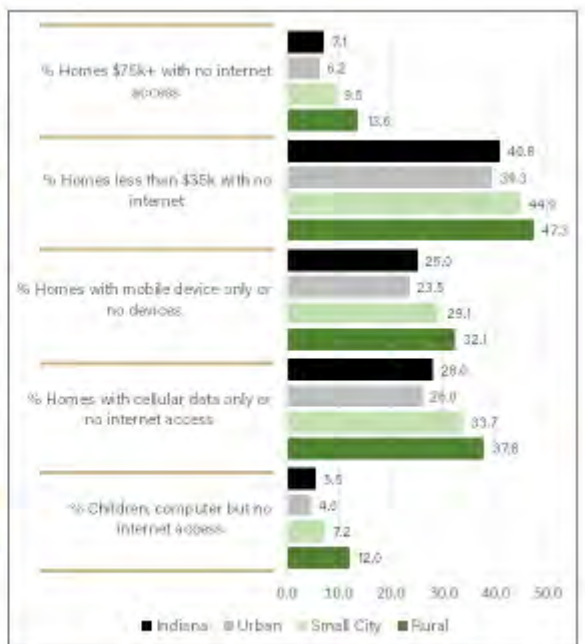
11.4%

ages 17 and older with less than a high school degree



13.8%

percentage of total resident population with a disability



[pcrd.purdue.edu/ddi](http://pcrd.purdue.edu/ddi)





## COVID-19 Mitigation Vulnerability

- Inadequate connectivity
- Higher share of industries/occupations that are not remote work friendly



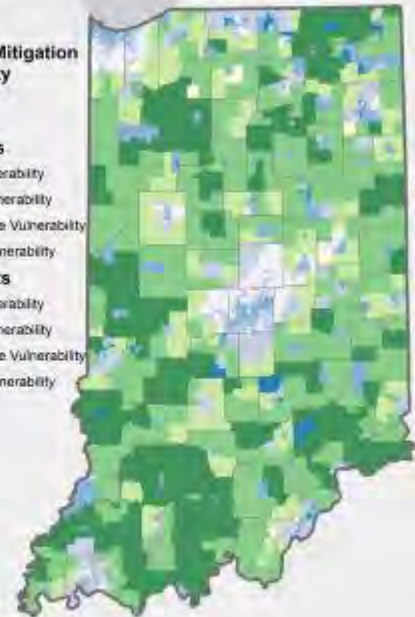
### COVID-19 Mitigation Vulnerability

#### Rural Tracts

- No Vulnerability
- Low Vulnerability
- Moderate Vulnerability
- High Vulnerability

#### Urban Tracts

- No Vulnerability
- Low Vulnerability
- Moderate Vulnerability
- High Vulnerability

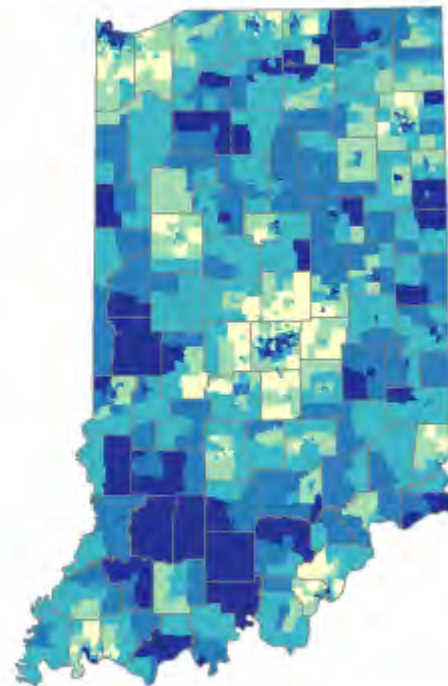


For more information please visit our blog post: <https://purd.purdue.edu/blog/remote-work-and-the-coronavirus.php>  
Source: FCC Form 477, December 2019 v1, PCRD

## 2018 Digital Divide Index

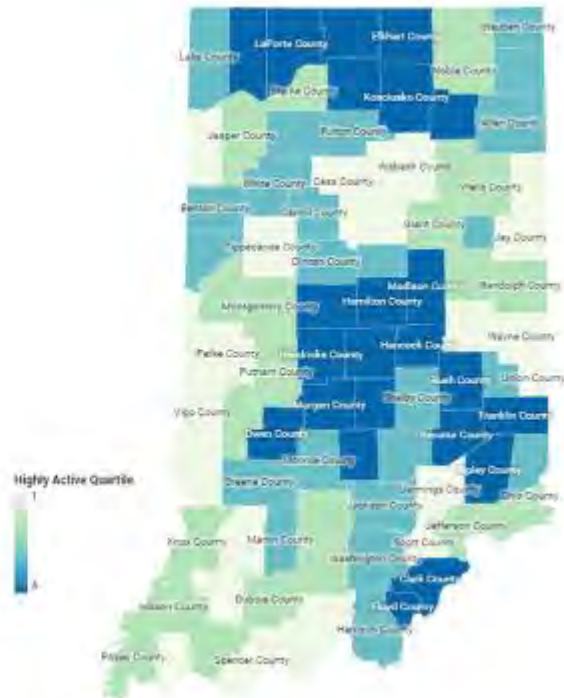
- Ranges from 0 to 100
- Darker color, higher divide
- Socioeconomic score
- Infrastructure/adoption score

[www.ruralindianastats.com](http://www.ruralindianastats.com)



## Websites per 100 Residents

- A domain name (website) actively being used
- Highly active: well built-out websites, links (networked), activity level



Source: ECRD

## What is Digital Inclusion?

Refers to the **adoption** of broadband technologies and its **meaningful** use for social and economic **benefits**.

Source: [communitydevelopmentinvestments.com/magazine/60winter2018/](https://communitydevelopmentinvestments.com/magazine/60winter2018/)



First-level divide: access yes/no

Second-level divide: differences in internet use

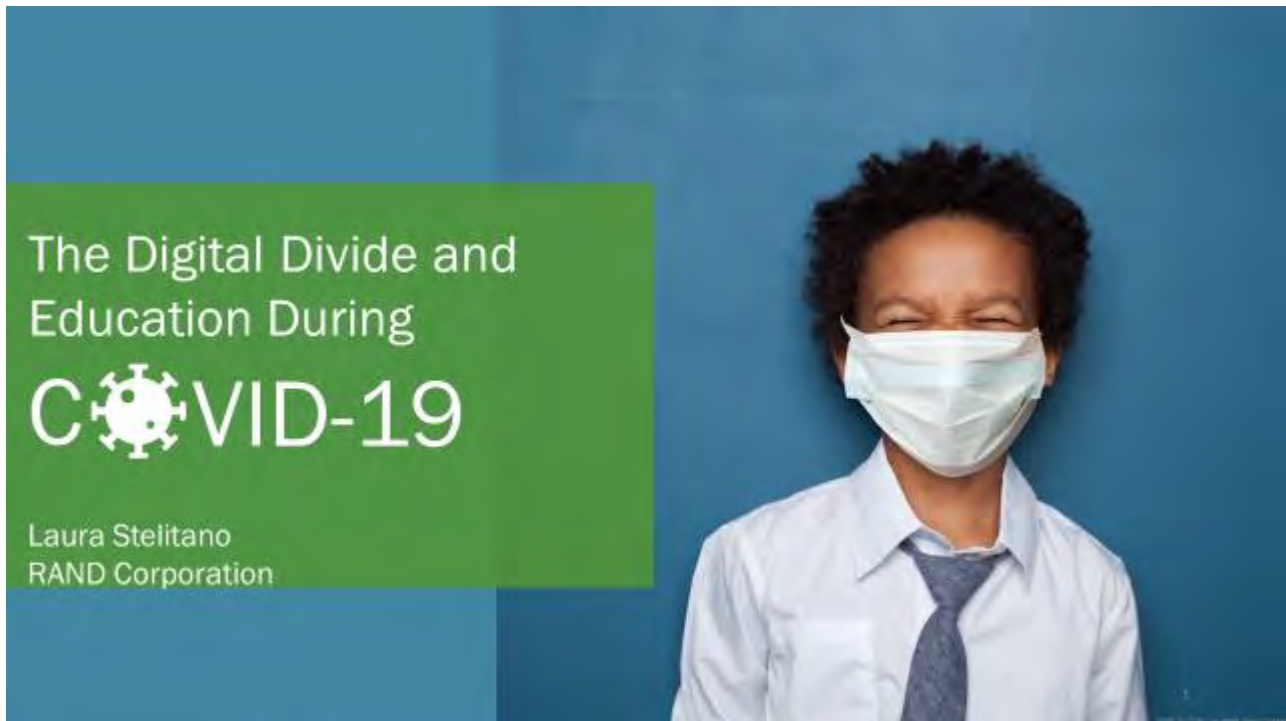
Third-level divide: economic, cultural, social, & personal outcomes





## The Digital Divide and Education

Laura Stelitano, PhD  
Associate Policy Researcher  
RAND Corporation





When school is virtual, the internet connects students to more than just instruction.



Relationships with peers

Relationships with teachers

School updates and communication

Special education services and supports

Social and emotional learning

What does the digital divide look like for students during COVID-19 school closures, and how might students be impacted?



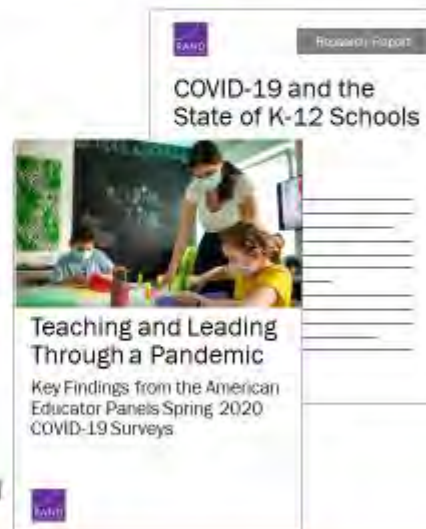
## What are the RAND American Educator Panels?

The American Teacher Panel and American School Leader Panel consist of teachers and school leaders across the United States who have agreed to respond to periodic surveys on education issues of national import.

American Educator Panels



Panels provide a **rapid understanding** of COVID-19 effects





## A large number of teachers nationally participated in two surveys about instruction during COVID-19

American Instructional Resources Survey

May-June 2020



6,000 respondents

COVID-19 and the State of K-12 Schools Survey

April-May 2020



1,000 respondents

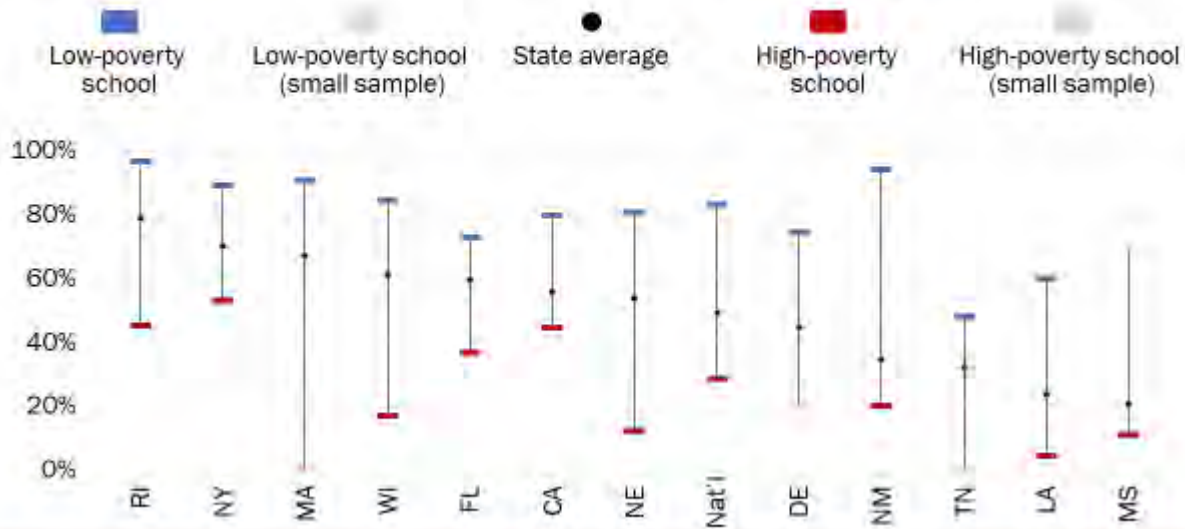
## Students in poor and high percentage-minority schools lacked internet at home

% of Teachers Estimating That All or Nearly All Students Had Internet



Source: Stallings, Dean, Wang, D'Amico, Espartero & Harty (December 2020)

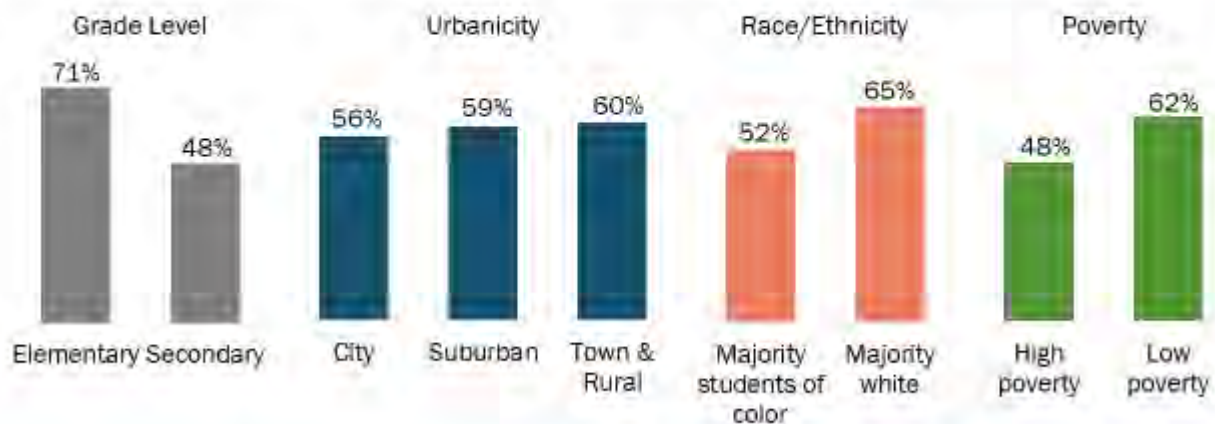
## Home internet access varied widely by state



Source: Stallano, Dean, Woo, Roberts, Kaufman & Henry (September 2020)

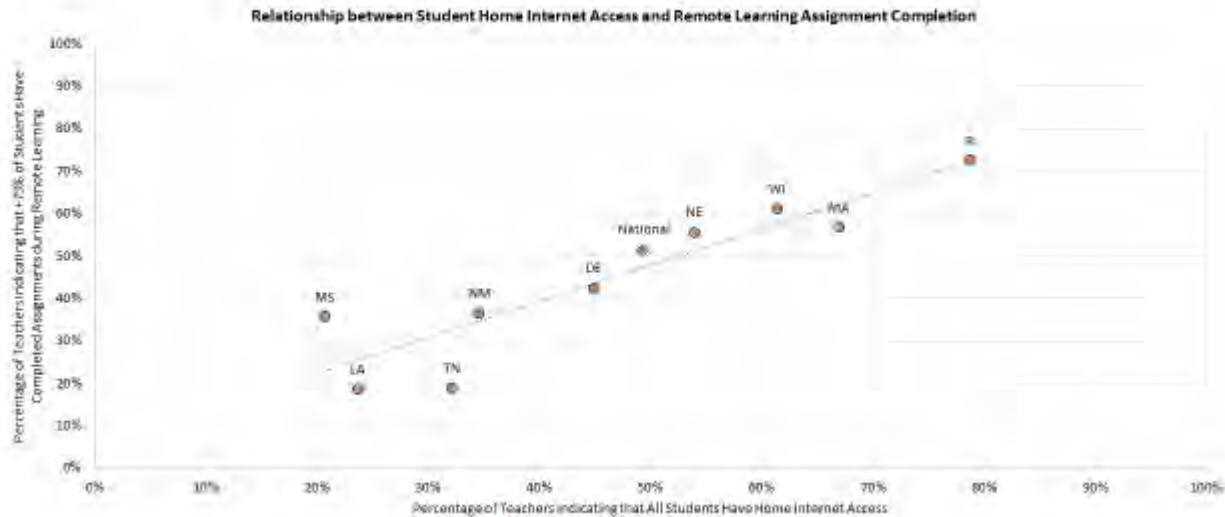
## Teachers couldn't contact all their students

% of Teachers Who Could Contact All or Nearly All Their Students



Source: Hamilton, Kautman, and Dillenberg (June 2020)

## Better internet access meant more assignment completion



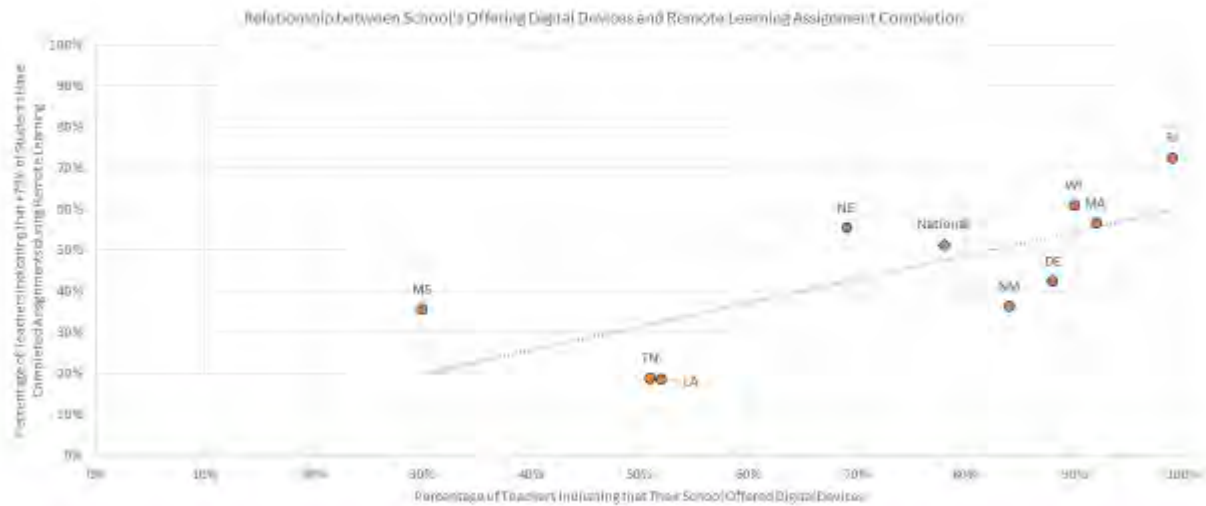
Source: Doan et al. (September 2020)

## Materials and supports for distance learning were inequitably distributed across states

IMPD State	Percentage of teachers reporting that their schools offered materials and supports for distance learning			Data from commonsensemedia.org*
	Digital Device	Hotspot for Internet Access	Information about how to access free or discounted internet	Students with a high-speed internet connection at home
National	78%	45%	73%	70%
RI	99%	70%	90%	74%
MA	92%	40%	71%	79%
WI	90%	57%	76%	69%
DE	88%	49%	84%	77%
NM	84%	55%	81%	60%
NE	69%	37%	69%	71%
LA	52%	25%	58%	60%
TN	51%	21%	64%	64%
MS	30%	23%	58%	50%

Source: Chandra et al. (2020); Doan et al. (September 2020)

## Providing digital devices was helpful- but not sufficient- for assignment completion



Source: Doan et al. (September 2020)

## Even with internet access, students' learning experiences were likely limited by remote instruction



**88%**

of teachers were **unable to cover** most of the intended curriculum



**20%**

said instruction was **all or mostly review** (less than 1/3 said content was mostly or all new)



**17%**

of teachers provided **no feedback** on students' work

Source: Hamilton, Kautman, and Dilione II (June 2020)



- Students **access to the internet at home is not equitable**, and students in high-poverty, high percentage-minority, and town or rural schools are most impacted.
- Without internet access, students miss out on **more than just instruction**.
- **Access to digital devices** is helpful but insufficient for connecting students to virtual learning.
- **State context and policies** shape access to the internet and technology, but availability of high-speed internet is a bottleneck.
- Teachers delivering virtual instruction likely require **different training, resources, and possibly instructional materials** to better approximate the quality of learning experiences students would be receiving in person.

## Implications

# Questions?

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## Digitally Invisible and the New Underclass

Nicol Turner Lee, PhD

Senior Fellow, Governance Studies

Director, Center for Technology Innovation

Brookings Institution

BROOKINGS | QUALITY. INDEPENDENCE. IMPACT.

## The Digital Divide

Dr. Nicol Turner Lee

Senior Fellow, Governance Studies and Director, Center for Technology Innovation

The Brookings Institution

BROOKINGS



## Garrett County, Maryland

*"I can look at the end of my farm and see the last mile (connectivity) not coming to my small farm. I don't want to get into precision farming yet. I just need to order equipment."* – John Yoder

BROOKINGS

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## Hartford, Connecticut

*"Everybody in my community has a smartphone, but they lack internet in the home causing them to walk to McDonalds to finish their homework" – Janice Fleming, community activist (left)*

*"I'm supporting [Janice] to make sure our state does better than this." – Elin Katz, regulator (right)*

BROOKINGS

3



## Syracuse, New York

*"I don't have the Facebook. I don't trust it and the internet because I've had too many scams and too many things stolen. I do without, period even if it costs me more." - Man to the right of me, public housing resident*



BROOKINGS



## West Phoenix, Arizona



*"Despite having access to some of the latest and greatest technologies, from 3D printer to various applications, my students are still judged by state test scores, which place them at the bottom of the state. I'm trying to move them being survivors to thrivers in today's digital economy."* –  
Principal Michael Woolsey

BROOKINGS



## Marion, Alabama



*"We have a one-to-one computing solution during the school year. But for the three months of the summer, these kids have phones with limited connectivity. What are they to do then?"* – Principal Cathy Trimble



BROOKINGS

6

## What's Next?

- **We need to address the growing and widening digital invisibility of citizens who marginalized by assets, wealth, geography and long-standing list of other systemic inequalities.**
  - » Formation of a coordinated national strategy on digital inclusion and competitiveness, along with a focus on our national values.
- **We need to dismiss conversations around “divides” and focuses on “solutions” for broadband deployment and adoption.**
  - » Support of a hybrid of technologies to support rural connectivity.
  - » Modernization of universal service frameworks and models (e.g., Lifeline)

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## What's Next?

- **We need to address the incongruencies that exist between the transformative power of new technology and the perils of modern-day society.**
  - » What assumptions are we making in conversations around the future of work, artificial intelligence, online activism and online privacy?
  - » What are the digital blind spots or the consequences of digital apartheid (e.g., invasive surveillance, data and innovation deserts, etc.)?
- **We need an ecology that support private, public, academic and community stakeholder collaborations.**
  - » Where is this work happening in the US compared to globally.
  - » What lessons can be learned.
  - » What should be the next great debate in this area? Digital competitiveness.

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"When we give our students insight into the new digital economy, they become inventors and innovators – ready to take on this new life." –  
Teacher, Francis Marion School

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## You can find me at

- @drturnerlee (Twitter)
- [www.dmicolspeaks.com](http://www.dmicolspeaks.com)
- Forthcoming Book:
  - » *Digitally Invisible: How the internet is creating the new underclass (2021)*

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INFIS #23 The Digital Divide: How Does it Divide Hoosiers?