

Nevada's Digital Divide

Introduction

In order to continue educating Nevada's approximately 500,000 students amid the current COVID-19 pandemic, Nevada's K-12 public schools have shifted to virtual education. However, a recent statement made by Clark County School District (CCSD) Superintendent Jesus Jara, Ed.D., [noted that approximately 27 percent of CCSD 2019-2020 student enrollment](#), or 120,000 students, would be unable to access virtual instruction once schools temporarily closed because they lack access to a computer and/or the Internet. Similarly, [Washoe County School District](#) noted that many of their students would not be able to retrieve their assignments electronically during the school closures. Unfortunately, many of the off-site locations where students are often able to access a computer and/or the Internet are unavailable: libraries have temporarily closed, and it has been strongly encouraged not to visit a friend's or relative's home so as to prevent the spread of COVID-19.

Many national and local education leaders have expressed concern that the "digital divide" could further widen achievement gaps as only students with a computer and Internet access would be able to receive instruction. To address this concern, many districts across the state are using printed learning packets that include worksheets that students must complete, but this is no substitute for direct teacher interaction, which currently is only available virtually.

To better understand how significant the digital divide is for Nevada's K-12 students, the Guinn Center analyzed data from the 2014-2018 American Community Survey (ACS) 5-year Public Use Microdata Sample (PUMS).¹ This data provides useful information about the digital divide, and the geographic areas where the digital divide is more prevalent. However, there are a few important caveats related to this PUMS data.

- The granularity of data is such that it is only possible to see trends in geographic areas, not differences across neighborhoods. For example, while detailed data is available for Clark County and Washoe County, nearly all other Nevada counties are grouped together for the analysis.
 - This analysis aggregates and presents the data in four ways: (1) statewide average, (2) Clark County, (3) Washoe County, and (4) the remaining 15 counties, excluding Clark and Washoe Counties.
- The unit of analysis is the "occupied household," which means that a household could have more than one child and the data does not indicate whether each child in the household has access to his or her own computer.

¹ Though not as recent as the 1-year ACS data, the 5-year estimates have greater statistical reliability (i.e., smaller margins of error). This is particularly important given the small numbers of households in some of the subgroups considered. Additionally, it was necessary to use PUMS data instead of pre-tabulated census data, which allows for more granular geographic analysis, because we were specifically interested in rates of computer and Internet access for school-age children. These data were not available pre-tabulated.

Even with these limitations, the PUMS data provides two extremely useful pieces of information related to the digital divide: the approximate number of households that have access to a computer, tablet, and/or smartphone, and the number of households that have Internet access. This distinction is important because a student might have access to a computer or another device, but if they have no way to access the Internet, virtual instruction remains impossible.

Ultimately, the data suggests find that there are two digital divides in Nevada. The first is related to a student’s access to a computer. The second is related to the student’s ability to connect to the Internet. Not surprisingly, the data reveals that many households that do not have access to a laptop/desktop computer are also likely to lack access to the Internet.

Device Access

There are approximately 1,075,930 occupied households in Nevada. Of that number, approximately 258,267 – 24.0 percent – have children between the ages of 6 to 17. Clark County and Washoe County mirror the statewide average, with approximately 24.7 and 23.1 percent, respectively. Only 21.4 percent of households in counties outside of Clark and Washoe include children ages 6 to 17.

Table 1 displays the percentage of households with children ages 6 to 17 that do not have access to a laptop/desktop computer, households that only have a smartphone as their sole computing device, and households with children that have no computing device at all. As Table 1 shows, approximately 16.1 percent of Nevada’s households with children ages 6 to 17 do not have access to a laptop/desktop computer. And 3.6 percent of Nevada’s households with children ages 6 to 17 do not have any sort of computing device. In Clark County, there are 32,351 households with children ages 6 to 17 that do not have access to a laptop/desktop computer. If we assume each Clark County household has 2 children, then approximately 64,702 children would not have access to a computer, which is significantly lower than [CCSD’s digital gap estimate of 120,000 students](#). Regardless of the variation, Table 1 reveals many students across the Silver State have computer access needs.

Table 1 – Device Availability in Nevada

	Occupied households with children ages 6-17				Occupied households with children ages 6-17 that do not have a laptop/desktop computer			
	Statewide	Clark County	Washoe County	Nevada - Less Clark & Washoe Co	Statewide	Clark County	Washoe County	Nevada - Less Clark & Washoe Co
Number	258,267	189,473	40,943	27,851	41,692	32,351	5,029	4,312
Percentage	24.0%	24.7%	23.1%	21.4%	16.1%	17.1%	12.3%	15.5%

	Occupied households with children ages 6-17 that have a smartphone as their sole computing device				Occupied households with children ages 6-17 that do not have a computing device (smartphone/tablet/laptop/desktop)			
	Statewide	Clark County	Washoe County	Nevada - Less Clark & Washoe Co	Statewide	Clark County	Washoe County	Nevada - Less Clark & Washoe Co
Number	14,829	11,648	1,832	1,349	9,264	7,406	861	997
Percentage	5.7%	6.2%	4.5%	4.8%	3.6%	3.9%	2.1%	3.6%

Source: American Community Survey, 2014-2018

The data suggests that while a laptop/desktop computer would be beneficial for students to interact virtually with their classmates and teachers, ensuring classroom activities are optimized for a smartphone could help address the digital divide. However, even with greater access to smartphones, there is no guarantee that the student would be able to access the device for her schoolwork: the adults in the household might need access to their phones for work, or [existing data plans may not support the online classroom demands](#), among other reasons.

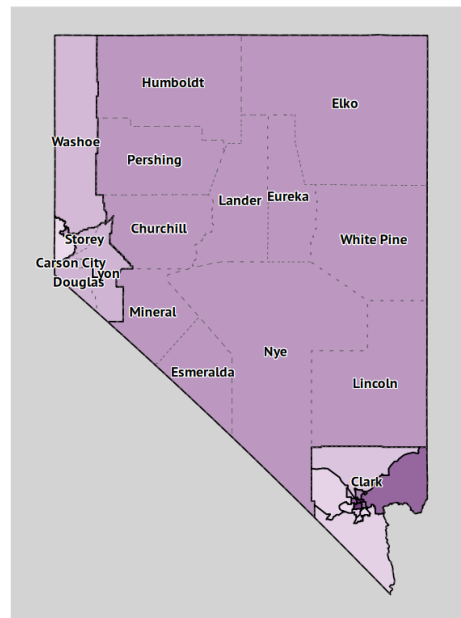
As Table 1 suggests, device availability is not distributed equally across Nevada. To further explore this finding, Figures 1-3 display the percentage of households with children ages 6 to 17 that do not have a laptop/desktop computer. Figure 1 displays data for the State of Nevada, and Figures 2 and 3 present the Las Vegas and Reno metropolitan areas.

As shown in Figure 1, approximately 15 percent of Nevada’s households outside of Clark and Washoe Counties with children ages 6 to 17 do not have access to a desktop/laptop computer. However, there may be more variation within and across these counties than the figure suggests, but limitations in the PUMS data (e.g., nearly all of rural Nevada is represented in a single reporting segment) preclude such an assessment.

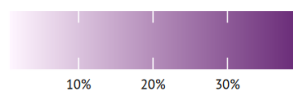
Figure 1 – Proportion of Households in Nevada without Laptop/Desktop Computers

Proportion of Households in Nevada without Laptop/Desktop Computers

Households with Children Ages 6-17



Proportion of Households without Computers



Source: American Community Survey, 2014-2018

Figure 2 displays the percentage of households in the Las Vegas metropolitan area with children ages 6 to 17 without access to a desktop/laptop computer. While Table 1 noted that 17.1 percent of households in Clark County with children in that age cohort do not have access to a laptop/desktop computer, Figure 2 reveals that computer access varies by location in Las Vegas. Device availability in North Las Vegas, as well as in central and West Las Vegas, is more limited than in Henderson or Summerlin (which are generally considered to be more affluent). However, it is important to note there are households across the entire valley that have technological device needs.

Figure 3 displays the percentage of households in the Reno metro area with children ages 6 to 17 that do not have access to a laptop/desktop computer. The figure suggests the need is greatest in downtown and southern Reno. But, again, there are device access needs in the entire Reno metropolitan area.

Figure 2 – Proportion of Households in the Las Vegas Metro Area without Laptop/Desktop Computers

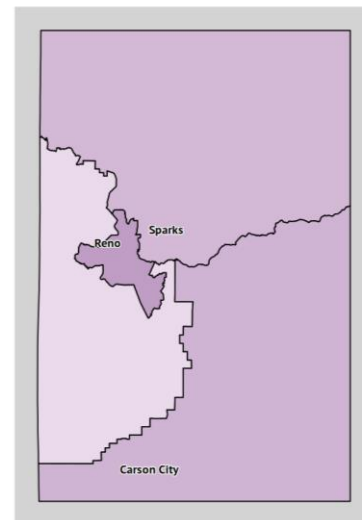
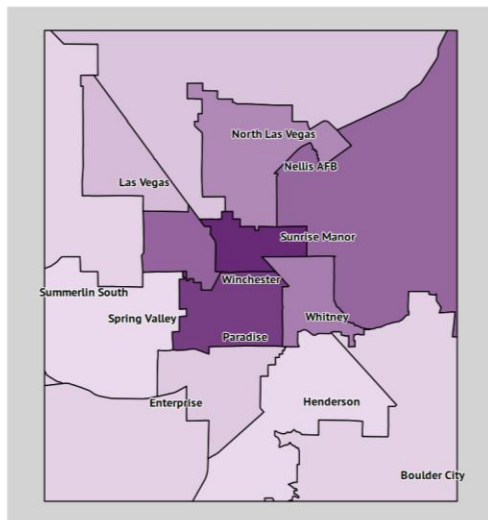
Figure 3 – Proportion of Households in the Reno/Carson City Area without Laptop/Desktop Computer

Proportion of Households in the Las Vegas Metro Area without Laptop/Desktop Computers

Proportion of Households in the Reno/Carson City Area without Laptop/Desktop Computers

Households with Children Ages 6-17

Households with Children Ages 6-17



Source: American Community Survey, 2014-2018

Source: American Community Survey, 2014-2018

Ultimately, device availability data from Table 1 suggests that many students in Nevada have access to a computing device; however, that device may only be a smartphone. Additionally, as Figures 1-3 indicate, the percentage of households with computing device needs is not uniformly spread across the Silver State.

Additionally, it is worth reiterating **this data is aggregated at the household level, not at the individual student level. This means the data does not capture whether there is more than one child ages 6-17 in each house and whether said child has access to his or her own device.**

Access to the Internet

While access to a computer, tablet, or smartphone is important, for virtual educational instruction to be effective, students must also have an Internet connection to be able to participate in virtual classrooms. This section specifically examines this second aspect of the digital divide—Internet access.

Table 2 displays the percentage of occupied households with children ages 6 to 17 that do not have Internet access. Statewide, approximately 10 percent of households with school-aged children lack accessibility. **This suggests that recent efforts to distribute computers to students, without also addressing access to the Internet, could still leave approximately 26,000 Nevada households with school-aged children without a virtual means to connect with their teachers, interact with their peers, or receive instruction.**

Table 2 – Internet Access

	Occupied households with children ages 6-17 that lack internet access				Occupied households with children ages 6-17 with a computing device (smartphone/tablet/ laptop/desktop) & no internet access.			
	Statewide	Clark County	Washoe County	Nevada - Less Clark & Washoe Co	Statewide	Clark County	Washoe County	Nevada - Less Clark & Washoe Co
Number	25,916	21,072	2,799	2,045	17,946	14,622	2,096	1,288
Percentage	10.0%	11.1%	6.8%	7.3%	7.0%	7.7%	5.1%	4.6%

Source: American Community Survey, 2014-2018

Data in Table 2 highlights the importance of addressing gaps in Internet access. Approximately 7.0 percent (or 17,946) of statewide households with children ages 6 to 17 have access to a computing device, but do not have access to the Internet. As such, Internet hotspots could help these households connect to virtual classrooms. However, it is not likely that school districts would be able to provide these services; instead, it will likely require public/private partnerships to ensure students have the suitable capability to access the internet. As will be discussed in the conclusion, the Clark and Washoe County School Districts already have partnerships in place with Cox Communications and AT&T, respectively.

To provide greater detail, Figures 4-6 display the differences in Internet access across the state, as well as in the Las Vegas and Reno metropolitan areas. These figures suggest, like the availability of computing devices, Internet access varies across the Silver State.

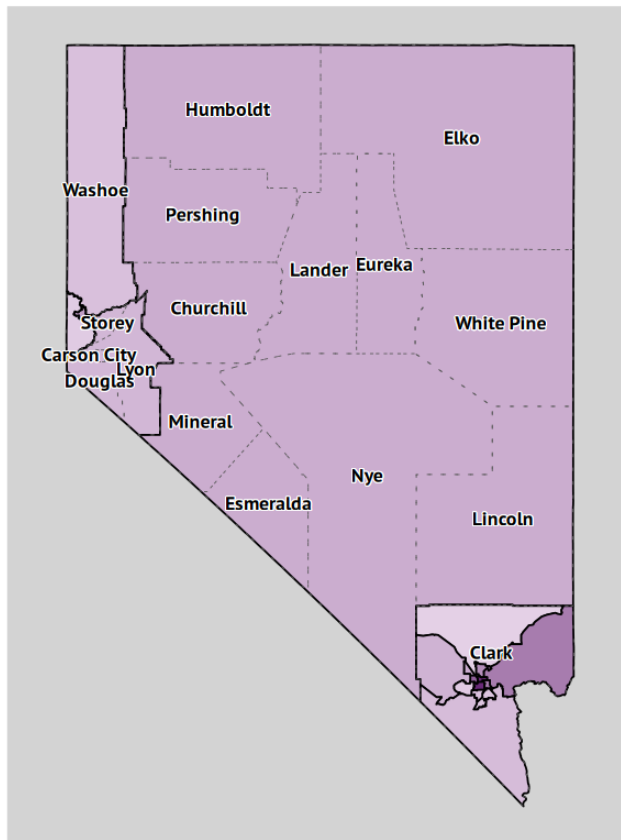
Figure 4 displays the percentage of Nevada households with school-aged children that do not have Internet access. Like Figure 1, the PUMS data does not disaggregate within each of Nevada’s rural counties so it is impossible to capture variation within each county. Further research is needed to gauge the actual availability of both computing devices and Internet capabilities in rural Nevada.

Additionally, it would be helpful to identify the type of Internet access (e.g. dial-up, satellite, or broadband) available in each county. Here we note that nationally, [it is estimated approximately 25 percent of the population](#), with a significant portion of those in rural areas, does not have broadband Internet access, which would be necessary to take part in virtual meetings or watch videos.

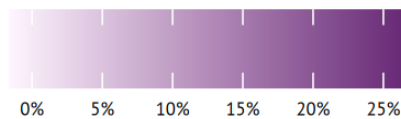
Figure 4 – Proportion of Households in Nevada without Internet Access

Proportion of Households in Nevada without Internet Access

Households with Children Ages 6-17



Proportion of Households without Internet Access



Source: American Community Survey, 2014-2018

Figure 5 presents the percentage of households in the Las Vegas metropolitan area that do not have access to the Internet. As Table 2 indicated, 11.1 percent of Clark County’s households with school-aged children do not have Internet access. Figure 5 displays this across the region. Combining the patterns of Figure 5 and Figure 2 (Laptop/Desktop computer availability), we observe that similar areas in North Las Vegas and central and West Las Vegas have higher percentages of households that are unable to connect to the Internet and do not have device capability. It is likely students living in these geographic areas are experiencing a double digital divide – the lack of a computing device and an Internet connection. Statewide data supports this conclusion: **44.4 percent of households in Nevada with children ages 6 to 17 that lack a laptop/desktop computer also lack Internet access and 71.4 percent of households in Nevada with children ages 6-17 that lack Internet access also lack a laptop/desktop computer.**

Figure 6 displays the percentage of households with school-aged children in the Reno metropolitan area. In Washoe County, approximately 6.8 percent of households with children ages 6 to 17 do not have access to the Internet. Figure 6 reveals that access is more limited in downtown and southern Reno (a pattern that bears resemblance to Figure 3 that displayed computing device availability).

Figure 5 – Proportion of Households in the Las Vegas Metro Area without Internet Access

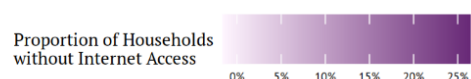
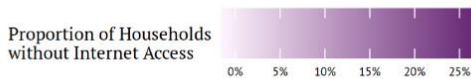
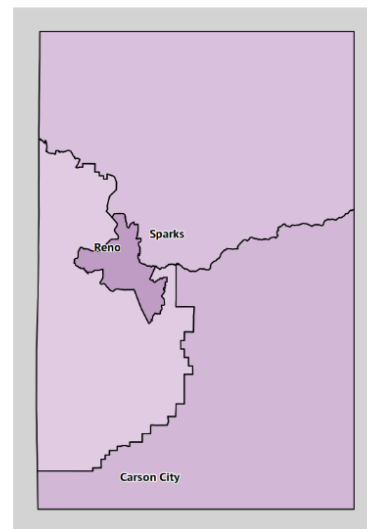
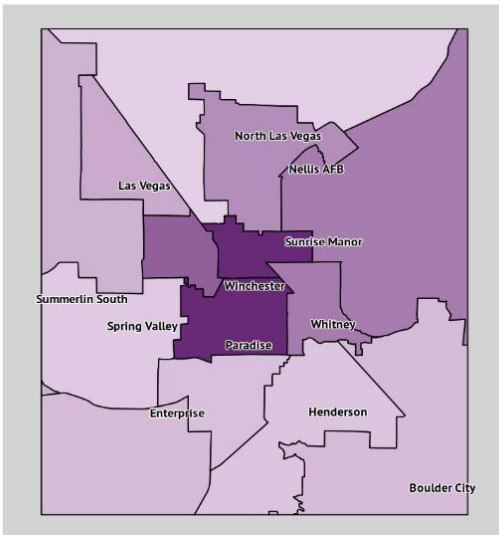
Figure 6 – Proportion of Households in the Reno/Carson City Metro Area without Internet Access

Proportion of Households in the Las Vegas Metro Area without Internet Access

Proportion of Households in the Reno/Carson City Area without Internet Access

Households with Children Ages 6-17

Households with Children Ages 6-17



Source: American Community Survey, 2014-2018

Source: American Community Survey, 2014-2018

Bridging the Digital Divide

The preceding analysis suggests that there is not just one digital divide, but two. There is a relationship between households with school-aged children that do not have a laptop/desktop computer and those that also lack access to an Internet connection. This suggests that **while recent efforts to provide computing devices to students are important and critical, state and local education leaders and public officials must also ensure students are able to connect to the Internet to fully engage in virtual learning opportunities.** If this digital divide is not addressed, there is a real possibility that student achievement will decrease for students not able to access their lessons and/or teachers virtually, leading to a possible widening of achievement gaps.

Nevada is not alone. Other cities are also exploring ways to address and expand Internet access. In [Philadelphia](#), Internet providers have created programs to provide discounted Internet packages for households with at least one student that qualifies for free-and-reduced-price lunch. Additionally, the city has partnered with a telecom company to provide 100 Internet hotspots around town (which can also serve as digital advertisements and will net the city a minimum of \$450,000 per year). This last initiative, while beneficial for many in Philadelphia, is not likely a viable solution for students as hotspot areas would be limited.

More locally, the Clark County School District and Cox Communications began a partnership in 2012 to [provide reduced-price internet services for low-income families](#). This plan has just been [expanded to include two free months of internet service and a reduced monthly fee after that period](#). The [Washoe County School District has a similar program in place with AT&T](#), offering low-income families reduced-price internet options to ensure more students have access to the internet.

Additionally, recently approved federal assistance could help Nevada's school districts address the digital divide. The Coronavirus Aid, Relief and Economic Security (CARES) Act provides \$13.5 billion to states under the Elementary and Secondary School Emergency Relief Fund. Of the amount Nevada will receive ([estimated to be approximately \\$108 million](#)), 90 percent is required to be disbursed to the school districts. [Among the many allowable uses of this funding are expenditures related to on-line learning and purchasing educational technology](#). This funding is still awaiting disbursement.

Still, the most immediate relief for some, but not all, students would be to ensure that all virtual lessons can be completed on a smartphone. While not all households with school-aged children an electronic device, the percentage of households that do not have some sort of electronic device (e.g., smartphone, tablet, etc.) is significantly lower than the percentage of households that do not have a laptop/desktop computer, 3.6 percent compared to 16.1 percent, respectively. As this may only be a band-aid to address the digital divide, state and local leaders must continue to explore more permanent solutions.

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Appendix: Complete ACS Data

Variable	Nevada		Clark County		Washoe County		Nevada Excluding Clark and Washoe Counties	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Number of Occupied Households	1,075,930	-	767,954	-	177,632	-	130,344	-
Occupied Households with Children ages 6-17	258,267	24.0%	189,473	24.7%	40,943	23.1%	27,851	21.4%
Occupied Households with Children ages 6-17 without Internet Access	25,916	10.0%	21,072	11.1%	2,799	6.8%	2,045	7.3%
Occupied Households with Children ages 6-17 without a laptop/desktop computer	41,692	16.1%	32,351	17.1%	5,029	12.3%	4,312	15.5%
Occupied Households with Children ages 6-17 with smartphone as sole computing device	14,829	5.7%	11,648	6.2%	1,832	4.5%	1,349	4.8%
Occupied Households with Children ages 6-17 with no computing device (smartphone/tablet/laptop/desktop)	9,264	3.6%	7,406	3.9%	861	2.1%	997	3.6%
Occupied Households in Nevada with Children ages 6-17 with a computing device (smartphone/tablet/laptop/desktop) without Internet access	17,946	7.0%	14,622	7.7%	2,096	5.1%	1,228	4.6%

Data source: 2014-2018 American Community Survey (ACS) 5-year Public Use Microdata Sample (PUMS). Though not as recent as the 1-year ACS data, the 5-year estimates have greater statistical reliability (smaller margins of error). This is particularly important given the small numbers of households in some of the subgroups considered.