Racial and Economic Diversity Trends in Virtual Charter Schools

An Analysis of National Enrollment Data, 2015-16

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Written By

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MICHIGAN VIRTUAL LEARNING® RESEARCH INSTITUTE

About Michigan Virtual Learning Research Institute

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- Research – Expand the K-12 online and blended learning knowledge base through high quality, high impact research;
- Policy – Inform local, state, and national public education policy strategies that reinforce and support online and blended learning opportunities for the K-12 community;
- Innovation – Experiment with new technologies and online learning models to foster expanded learning opportunities for K-12 students; and
- Networks – Develop human and web-based applications and infrastructures for sharing information and implementing K-12 online and blended learning best practices.

Michigan Virtual dedicates a small number of staff members to *MVLRI* projects as well as augments its capacity through a fellows program drawing from state and national experts in K-12 online learning from K-12 schooling, higher education, and private industry. These experts work alongside *Michigan Virtual* staff to provide research, evaluation, and development expertise and support.

Abstract

This study analyzes national and state enrollment data to examine racial and economic diversity in virtual charter schools (VCS). Previous research shows that VCSs enroll higher percentages of white students and lower percentages of economically disadvantaged students compared to national averages. The study presented here combines descriptive data with the Exposure Index strategy used in school segregation and diversity research. The purpose is to analyze the consistency of previous findings across and within states. The findings here reiterate that, in general, more white students attend VCSs, and the virtual charter sector has proportionally more economically advantaged students compared to other types of schools. However, despite enrollment distributions typically showing that VCSs are not diverse, patterns vary across states.

Executive Summary

This research asks two main questions: Are VCSs more or less racially and economically diverse than other schools in their states? Do virtual charter diversity patterns differ across state contexts? If so, how?

The findings suggest that, on average, VCSs have higher percentages of white students than other traditional public and charter schools in their states and are less likely to be identified with Title 1 (low-income) status. Additionally, there is slightly more white isolation in VCSs than in other schools, meaning that white students attend schools with high percentages of white students. However, there are differences across states because diversity patterns are not consistent. In a couple of states, VCSs have more diverse enrollments than the other schools in their state, while in other states they have less. The same is true of Title 1 funding and economic disadvantage. Overall, while there are different patterns across states, enrollment distributions show VCSs are not typically diverse.

Past research conducted in brick and mortar schools suggests that diverse school environments are academically beneficial for white students and students of color (Mickelson & Nkomo, 2012; Wells & Crain, 1994). Research needs to continue to investigate the extent of these benefits in online settings, but it will be impossible to create beneficially diverse environments without diverse student bodies. This means policymakers and virtual school leaders should consider the following:

- Understand the demographics of VCSs in their own state context and determine how and why these enrollment patterns have developed.
- Once an understanding of enrollment patterns is established, determine if the process of enrollment is equitable based on how and why students enrolled in particular programs.
- Continue to understand the academic experience of all students in VCSs, and determine if these experiences are academically beneficial. If experiences are not academically beneficial, develop a strategy to ensure VCSs strive to be open, diverse, and academically successful environments.
- Explore reasons why students enroll in VCSs. If push factors (the motivation for enrolling relates to problems in existing traditional environments) drive processes over pull factors (great online schools), amend circumstances so that students do not feel the only exit strategy is a VCS.

Introduction

VCSs are the online version of charter schools, meaning they enroll students in a full-time online environment while falling under the charter school governance structure. These schools have grown from non-existence in the early 1990s to educating more than 200,000 students across 26 states (Evergreen Education Group, 2014). The support for VCSs from the highest educational official in the United States, Department of Education Secretary DeVos, signals VCSs are poised to enroll a greater share of students nationwide; however, information and research on VCSs is in early stages. Knowledge about VCSs needs to develop as enrollments increase.

Scholarship has begun to focus on the student population of VCSs including issues of equitable enrollments. This is mainly because VCS students have struggled with academic performance yet enrollments continue to increase (e.g., CREDO, 2015). The purpose of this study is to understand how students sort into VCSs within and across the United States. The goal is to examine racial and economic diversity in VCSs to see if they reflect the segregated and non-diverse enrollment patterns in traditional public and brick and mortar charter schools (Frankenberg, Siegel-Hawley, & Wang, 2010; Kotok, Frankenberg, Schafft, Mann, & Fuller, 2017).

It is valuable for researchers, policymakers, and VCS leaders to understand diversity in VCSs for two primary reasons. The first reason is that this knowledge allows for a more complex understanding of VCS enrollment patterns. The second is that since VCSs have fewer geographic boundary restrictions than brick-and-mortar schools, there exists an opportunity for VCSs to draw from more diverse pools of students. This opportunity increases the potential for more diverse enrollment distributions. Understanding diversity patterns amidst these opportunities adds to conversations on diversity and segregation in schools in general, as much of the previous work focuses on the role of geography in shaping enrollment. To consider these topics, this study answers the following questions:

1. Are VCSs more or less racially and economically diverse than other schools in their states?
2. Do virtual charter diversity patterns differ across states? If so, how?

Diversity in Charter and Traditional Public Schools

VCSs operate within a school choice policy framework because students actively choose to enroll in them. This enrollment process is different from traditional public schools that enroll students using localized school district boundaries. While traditional public schools remain segregated with homogenous populations, despite the U.S. Supreme Court eliminating *de jure* segregation (Orfield, Ee, Frankenberg, & Siegel-Hawley, 2016), school choice policies hypothetically can diversify student bodies because they hypothetically eliminate traditional boundaries of exclusion (Orfield & Frankenberg, 2013).

Despite the possibility for greater diversity in charter schools, segregation persists and charter schools often are less diverse than traditional public schools (Frankenberg, Siegel-Hawley, & Wang, 2010), though this may differ depending on location (Ritter, 2017). Intuitively, it seems geography and housing contribute to the lack of diversity in charter schools because charter schools often are located in urban environments with high levels of minority students. However, even when students

have opportunities to diversify charter schools, they tend to enroll in racially homogenous schools (Kotok, Frankenberg, Schafft, Mann, & Fuller, 2017; Stein, 2015).

There are several reasons that describe the behaviors that lead to parents making choices that perpetuate a lack of diversity in charter schools. Parents within school choice environments make choices that reflect a multifaceted array of decisionmaking logics. Causes of non-diverse choices range from differing perceptions of school quality and performance to segregated social networks, alternate expectations of schooling goals, and explicit or implicit racism (Berends & Zottola, 2009; Bell, 2009; Holme, 2002; Marsh, Carr-Chellman, & Sockman, 2009; Billingham & Hunt, 2016).

VCSs have the potential to become more diverse because state policies tend to remove residential and school district boundary limitations (though choices are restricted by state boundaries). Therefore, parents do not have to travel to these schools, and students log into their VCS from a distance. However, choosers still may reflect different reasons for choosing the schools they do, though research has not explored specific patterns.

VCS Enrollments

Enrollments into VCSs have increased during the last decade. As of 2013-14, VCSs enrolled about 200,000 students across 26 states (Evergreen Education Group, 2014). VCSs tend to serve niche populations of students with goals relating to learning remotely from a distance (Ahn, 2011). While the population of VCS students grows, research relating to operations and outcomes of VCSs has been largely critical of the schools. These critiques include a lack of financial oversight and concerns about operations (DeJarnatt, 2013; Hasler Waters, Barbour, & Menchaca, 2014).

Research on performance outcomes shows that VCSs tend to perform lower than traditional schools on several academic achievement measures. These include lower performance on Adequate Yearly Progress scores and graduation rates (Molner et al., 2013). Additionally, student-level studies show lower rates of learning growth overall. For example, the Center for Research on Education Outcomes (CREDO) shows that growth on achievement tests in VCSs has been lower compared to traditional public school students; this finding is consistent across state contexts (CREDO, 2015). Research on VCSs in specific states mirrors these findings (Ahn & McEachin, 2017).

The growth of VCSs alongside knowledge of low-performance has led to research on enrollment, including patterns of virtual charter and other K-12 virtual schools both nationally and at single-state locations (e.g., Molnar et al., 2017; Barbour, Miron, & Huerta, 2017). This research shows, on average, students in K-12 virtual non-charter and VCSs are more likely to be white compared to national demographics and less likely to be eligible for free and reduced price lunch, although findings differ across state contexts (Ahn, & McEachin, 2017; Mann, Kotok, Frankenerg, Fuller, & Schafft, 2016). The discrepancies in these findings have prompted two arguments. The first argues that VCSs recruit and marginalize low-income and minority students (Rooks, 2017, Ch. 5), while the second argues VCSs educate more white and higher income students than traditional schools (Miron & Gulosino, 2016).

This study continues to explore enrollment patterns because research on traditional school environments shows segregated minority schools are academically harmful to students (e.g., Linn &

Welner, 2007). Diverse schools provide academic and social benefit to both white students and students of color (Mickelson & Nkomo, 2012; Wells & Crain, 1994). While scholars and policymakers have yet to have a robust conversation about diversity and its benefits in online spaces and schools, the research presented here begins this conversation by examining the extent of diverse enrollments in one form of K-12 online schooling.

While student-to-student interactions in virtual settings are less frequent in full-time online schools than traditional schools, there are still social interactions that occur in discussion forums, group projects, and other assessment activities (e.g., DiPietro, 2010). Since VCSs enroll students from a wide span of geographic locations, they have the potential to serve a more diverse set of students than geographically bound public, private, and charter schools. If this opportunity for diversity reflects enrollment patterns, there is potential to expand the scope of diverse student interactions, albeit in a virtual space. Though before online school leaders can develop strategies to enhance diverse interactions in these spaces, the schools need to achieve diverse populations.

Methods

The data for this study come from the National Center for Education Statistics' Common Core of Data (CCD) and reflect enrollments from the 2015-16 school year as counted by the federal government. The dataset includes an option to identify if a given school is virtual or not virtual and whether or not a school is governed under a charter. Using this dataset, the researcher identified those schools as both charter and virtual, which yielded a result of 220 schools, all of which had racial demographic categories, but only 176 (80%) of which reported free and reduced lunch (FRL) eligibility and 201 (91.36%) reported Title 1 status. The VCSs in the dataset operate across 20 states. This sample is less than the number of actual states with VCSs (26) because states without appropriate data in the NCES dataset for 2015-16 were excluded.

As a point of comparison, the researcher used the same CCD data to create a dataset of all other traditional public and charter schools in the 20 states. The same research strategies in the VCSs database were used with these schools in order to identify if VCS patterns reflected patterns in other schools. The traditional public and charter school dataset included 46,678 schools. All schools reported racial demographics, while 45,438 (97.33%) reported FRL and 46,007 (98.99%) reported Title 1 status. Again, missing data were excluded from the comparison and analysis.

Using these data, the researcher examined the extent to which VCSs reflected the demographics of each state along the lines of racial demographics and Title 1 status. The racial demographics used were white, black, and Hispanic because they represent the largest demographic groups nationwide (Orfield, Ee, Frankenberg, & Siegel-Hawley, 2016). The first step in comparing the virtual charter sector to student demographics in the other schools was to explore descriptively how VCS enrollments aligned with the traditional public and charter schools. Then, two indices used in segregation and diversity studies were used to understand the extent to which the average student experience in VCS compared to the average student experience in the other schools. The indices used were the Isolation and Interaction Indices (together the Exposure Index, Iceland & Weinberg, 2002).

Descriptive Comparisons

The descriptive demographic comparisons of this study include three main components. The first is an overview of the total and proportional enrollment of K-12 VCSs in each state. For this enrollment overview, the researcher identified and mapped, using ArcGIS software, the number of students enrolled in VCSs. Then, the researcher divided the number of K-12 virtual charter students by the number of total K-12 traditional public and charter school students in each state to determine the percentage of statewide students who enrolled in VCS in the 2015-16 school year. The second descriptive component was used to determine the number of white, black, and Hispanic students in VCSs and compare them to the demographics of other public and charter schools. This comparison was conducted at the national and state levels. The third descriptive component was to determine the number of VCSs reporting Title 1 status and compare them to the number of other schools reporting Title 1 status, again nationally and state-by-state.

The justification for using Title 1 rests on data constraints. One noteworthy and limiting feature of the federal data used here is that there are unreliable measures of determining student economic status within schools. One commonly used measure is FRL; but since VCSs tend not to be place-based, there seems little incentive for families to fill out FRL forms and provide them to virtual school administrators. Thus, there was wide-variation of FRL status across the dataset, making this indicator not reliable for use in this study. Title 1 status relies on the U.S. Census definition of low-income to determine if schools receive this designation. If more than 40% of a school is low-income according to census definitions, then the school receives a Title 1 designation.

Ideally, the study would include student-level economic diversity alongside racial diversity, but the unreliability of FRL data did not allow for this type of investigation. Thus, the reason for using Title 1 status in this comparison is that other measures of economic status were simply unreliable in the data reporting[1]. This means that due to the issues with FRL and possible advantages of using Title 1 status instead, this study examines the student-level racial diversity metrics and school-level differences in Title 1 funding status. Therefore, economic differences are reported in descriptive sections, but not included in the Exposure Index described below because the indices rely on student-level percentages.

Exposure Index: Isolation and Interaction

The Exposure Index is a combination of the Isolation and Interaction Indices (Massey & Denton, 1988, p. 287-288). This index helps to understand the extent to which students are in schools with other students of the same race or different race. Higher isolation means students are less likely to have interactions with students of different races. Higher interaction means students are more likely to have diverse interactions. Isolation and interaction may reflect other demographic trends such as state population. For example, students in overwhelmingly majority white states may more likely be in white isolated schools because their schools could match the demographics of their state. Therefore, these indices were considered at both the national and state levels. If they differ from the

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[1] In an effort to ensure robustness, the researcher also investigated FRL questions for sake of comparison, and the patterns were consistent with findings in the Title 1 portion of the study.

statewide population, it indicates schools within a state have inconsistent VCS demographic distributions that do not reflect state composition.

Isolation is interpreted as the percent of the same demographic group encountered by the average student of that demographic group. Interaction is interpreted as the percent of a different demographic group encountered by the average student of another demographic group. For example, a black Isolation Index of 0.99 would mean that the average black student goes to school with 99% black students. A black-white Interaction Index of 0.67 would mean that the average black student goes to school with 67% white students. These indices were created for both the dataset of VCS and the dataset of other schools. This allowed for a comparison of trends.

The following Isolation Index equation was used for the aggregate set of states and within individual states to determine the extent of racial isolation for each racial demographic:

$$Isolation = \sum_{i=1}^{n} \left(\frac{x_i}{X_T}\right)\left(\frac{x_i}{t_i}\right)$$

Where *n* is the number of schools; x_i is the population of a given demographic (e.g., white) in a school in school *i*; t_i is the total population in school *i*; and X_T is the total population of a demographic (e.g., white) of the larger sector/grouping of schools (either all schools in the state or all in the nation for this study).

The following Interaction Index equation was used for the aggregate set of states and within individual states to determine the extent of racial interaction for each demographic:

$$Interaction = \sum_{i=1}^{n} \left(\frac{x_i}{X_T}\right)\left(\frac{y_i}{t_i}\right)$$

Where *n* is the number of schools; x_i is the population of a given demographic in school *i*; t_i is the total population in school *i*; y_i is the comparison demographic group in school *i* (e.g. black or Hispanic if x_i is white); and X_T is the total population of a demographic (e.g. white) of the larger sector/grouping of schools (either all schools in the state or all in the nation for this study).

When presented alongside each other, the Isolation and Interaction Indices form the Exposure Index, which essentially means presenting the indices together to show the average demographics that a student of a given race experiences. So, for example, the presentation would include the following for a white student: White isolation, Black Interaction, Hispanic Interaction. The numbers hypothetically could be 0.80, 0.15, 0.05. This would mean the average white student is in school with 80% white students, 15% black students, and 5% Hispanic students.

One way to interpret the meaning of these numbers in relationship to diversity is to consider a benchmark for a critical mass of students needed to be in a school in order to classify the school as diverse (Jacobsen, Frankenberg, Winchell Lenhoff, 2012). The critical mass number identified in this previous work is 10% of multiple demographic groups attending a school for the school to be considered diverse (pg. 825). So, for example, in this study, a diverse environment may at a

minimum include 80% white students, 10% black students, and 10% Hispanic students. It is critical to note that these thresholds are open for interpretation. For example, one could argue a diverse environment should reflect a 70, 15, 15 breakdown, or perhaps a 75-25. The 10% threshold is a useful guiding reference, and the numbers here are presented in full so the audience can make their own deductions about the levels of diversity in these schools and if they are appropriate.

Beyond these interpretations, since VCSs are statewide programs, it is essential to consider the statewide demographics in understanding a given Exposure Index for a state. For example, a state with 90% white students may have white students experiencing 90% isolation in their VCS sector. This form of 90% isolation would have different meaning than a state with 60% white students overall with a white isolation of 90% in VCSs. In the first case, the VCS reflects a greater level of white isolation because the state has mostly white students. In the second case, the high white isolation means white students are clustering in VCSs beyond what one would expect solely based on state averages.

For the next analysis in this report, since white students are by far the largest demographic group in these datasets, the white Isolation Index for virtual charter students is compared to the white Isolation Index for students in other public and charter schools in the state. This is presented on a bar graph to show how the Index differs within each state. It allows us to understand the difference between VCS racial diversity and racial diversity in other schools in each state.

Then, the report plots each state on a graph that shows both Title 1 differences and white Isolation Index differences. The purpose of this plot is to examine how consistent (or not) VCS sectors are in representing the patterns of other schools in their state. This allows for a general classification for each state in terms of how racially diverse and economically advantaged VCSs are compared to the other schools in its state.

Five State Comparisons

The final portion of this report shows five states with different enrollment diversity and economic advantage trends and delves into their numbers to explain each. The purpose of this exercise is to provide the audience a deeper understanding of how to think about the data presented here. The five states were selected because they span the range of findings as depicted in the White Isolation/Title 1 plots on the bar graph.

Findings

Virtual Charter Enrollment: National Overview

Figure 1: Virtual Charter Enrollment by State, Total and Percent of Statewide Students, 2015-16

Total Virtual Charter Students

- 0 or not reported in dataset
- 1 - 4,999
- 5,000 - 9,999
- 10,000 - 14,999
- 15,000+

Percent of All Students in Virtual Charters

- 0 or not reported in dataset
- 0.01% - 0.05%
- 0.51% - 1.00%
- 1.01% - 1.50%
- 1.51+%
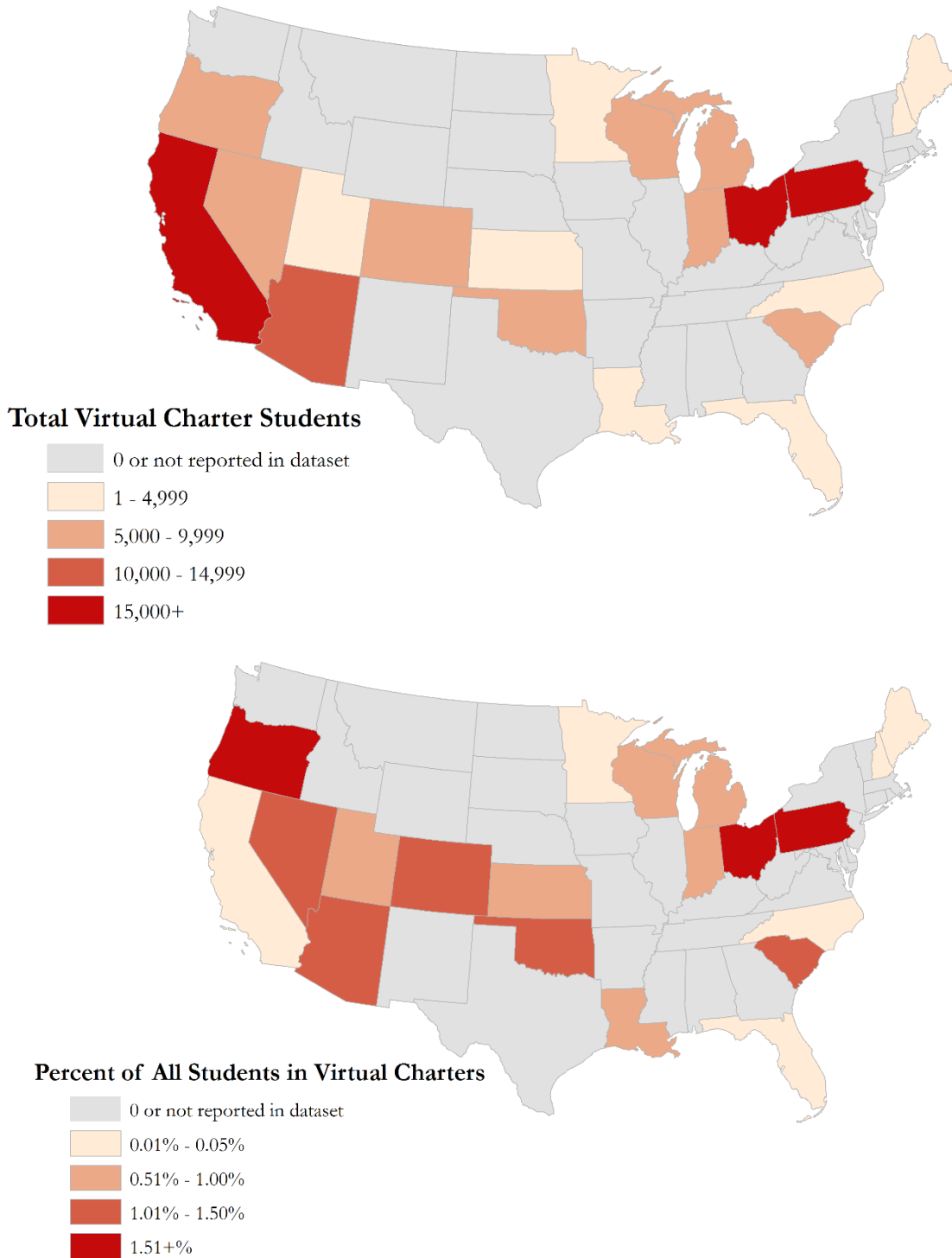
Note: The top map shades total enrollment. The bottom map shades the percent of statewide traditional public and charter school student population enrolled in VCS.

Enrollment in VCSs is not evenly distributed across the United States. As shown in Figure 1, there are a few states, namely Pennsylvania and Ohio, with both the largest total number of students and the highest percent of statewide student population enrolled in VCSs. California also has high levels of enrollment (the third highest), but this is due to the state having a high level of student enrollment overall.

Figure 1 also shows that the majority of states with VCSs (13) had less than 1% of their total student population enrolled in VCSs, while only three – Pennsylvania, Ohio, and Oregon – had more than 1.5% of their student population enrolled in VCSs. Regarding total size, eight states had less than 5,000 total students, eight states had between 5,001 and 10,000 students, and four states had more than 10,000. These four are Pennsylvania, Ohio, California, and Arizona.

Sector Comparisons on Race
VCSs Have Higher Percentages of White Students
In terms of national trends, in general the VCS sector has a higher percentage of white students compared to other traditional public and charter schools (66.02% compared to 49.11% as shown in Figure 2). The VCSs have 11.20% black students, while 13.61% of the students in other schools are black. The VCSs have 13.91% Hispanic students, while 26.93% of the students in other schools are Hispanic. These findings, which examine only the states with virtual charter students, reinforce findings that have compared the virtual charter sector to all students nationally (Molnar et al., 2017). These findings again suggest that VCSs enroll higher percentages of white students than other schools.

However, while there are higher percentages of white students in VCSs overall, there are differences by state. As shown in Figure 2, 19 of the 20 states had higher percentages of white students in VCSs, but the size of the difference varied across states. For example, states like Pennsylvania and Michigan had demographics in VCSs that nearly aligned with the demographics in other schools, while states like Arizona and South Carolina had substantially higher percentages of white students.

Sector Comparisons on Title 1 Schools
Fewer Title 1 Schools
In general, as shown in Figure 3, there are lower percentages of VCSs receiving Title 1 funding than other traditional public and charter schools. However, as seen with the racial demographics, there is variation across states. There are seven states with substantially higher percentages of VCSs receiving Title 1 funding than other schools in the state. These include the two largest VCS sectors: Ohio and Pennsylvania. This suggest that while previous studies have shown that nationally VCSs tend to be more economically advantaged, this finding is not consistent from state to state.

Figure 2: VCS Percent White Students Compared to all Other Schools, 2015-16

■ Percent White Students in Virtual Charters
■ Percent White Students in All Other Public and Charter Schools
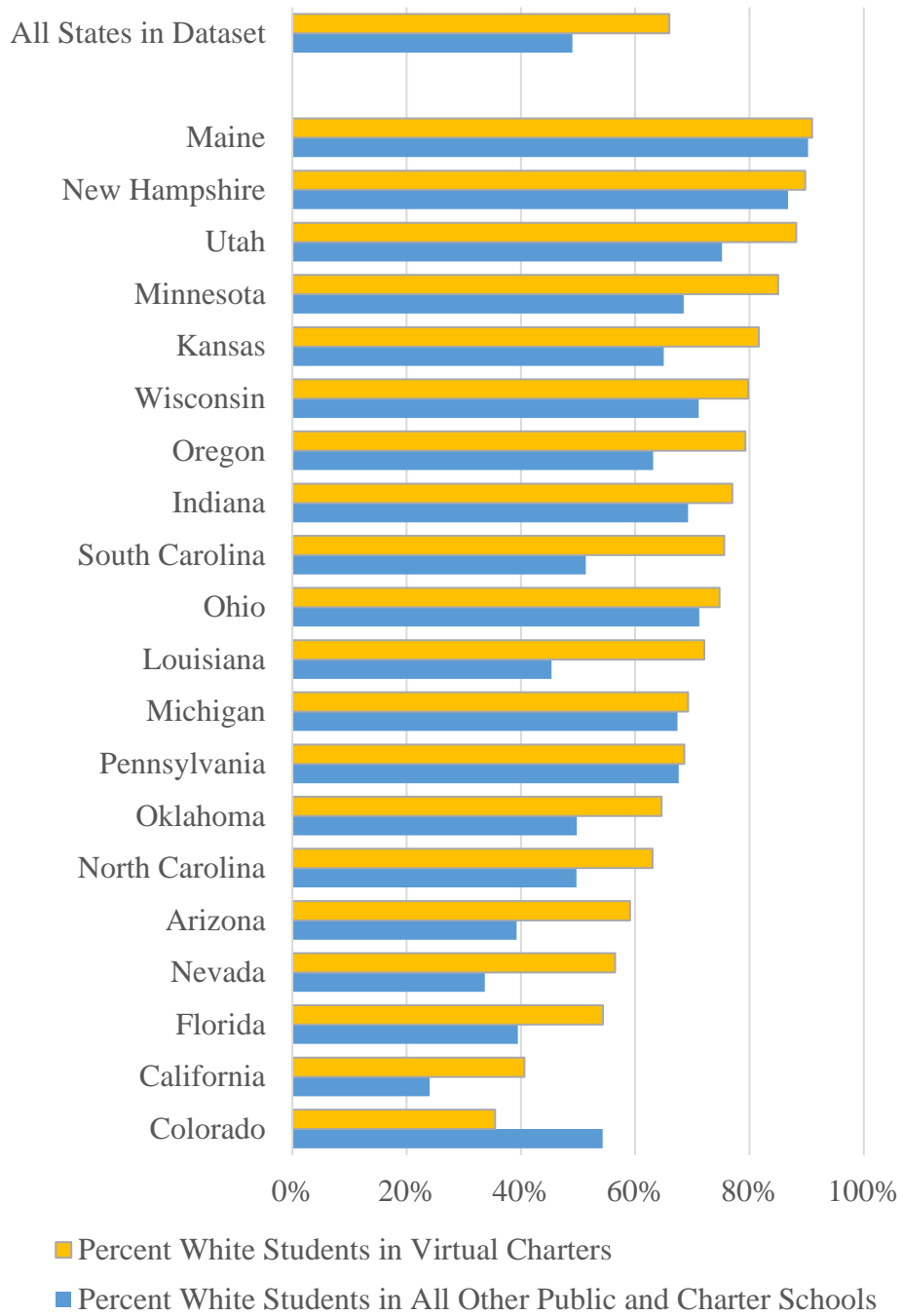
Figure 3: Virtual Title 1 Compared to all Other Schools, 2015-16

■ Percent of Virtual Charters Receiving Title 1

■ Percent of All Other Public and Charter Schools Receiving Title 1
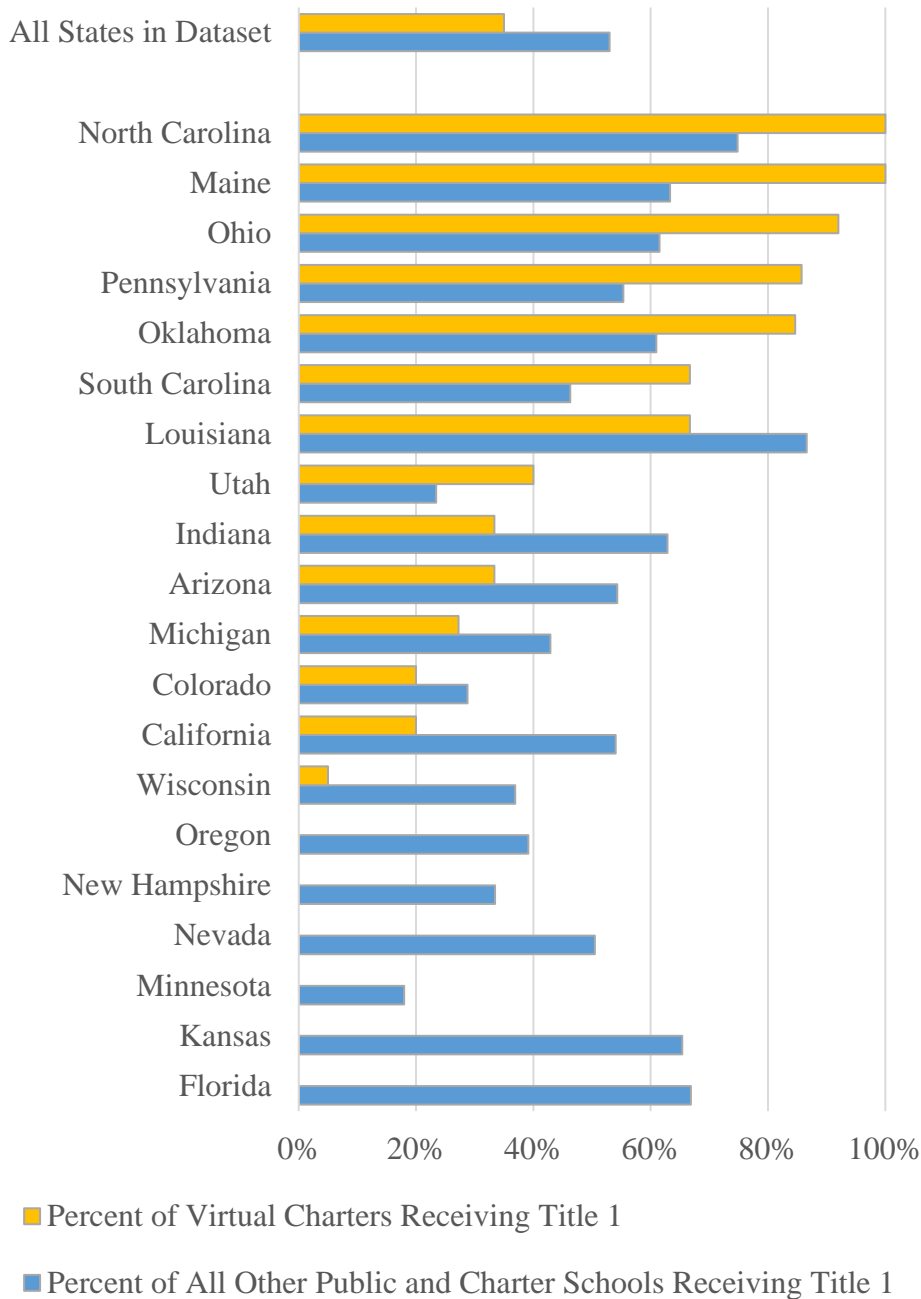
Note: As shown, six states did not have any VCS reporting as Title 1 eligible. It is unclear if this is due to the schools being economically advantaged or if they did not meet Title 1 eligibility requirements.

The National Virtual Charter Exposure Index

The virtual charter Exposure Index as shown in the "All States" row in Table 1 suggests that students of all demographics are likely to enroll in schools that are majority white, though Hispanic students are more likely to encounter higher levels of Hispanic students in their schools than white and black students are to experience Hispanic students. The average white student is in a VCS that is 70%

white, 11% black, and 10% Hispanic. The average black student is in a VCS that is 64% white, 16% black, and 12% Hispanic. The average Hispanic student is in a VCS that is 49% white, 10% black, and 31% Hispanic. Due to these differences in the indices, it suggests that there are high numbers of mostly white students in the schools, but racial isolation through majority-minority schools are far less likely to be the schooling experience in VCS.

Again, as shown in the descriptive findings section, the Exposure Index differs by state. As Table 1 shows, in some states, such as Utah, nearly all students are in schools that are overwhelmingly white. Meanwhile, in states such as Arizona, for example, the average student is in a VCS that is around 55-60% white and 25-30% Hispanic. The Exposure Index varies based on state, and generalizations at the national level tend not to be reflect all state-level patterns. State contexts are critical in understanding VCS enrollment differences. Nationally, white, black, and Hispanic students encounter schools that are racially diverse, but just barely, according to the threshold. However, this finding does not hold from state to state. Only in Florida and Nevada are white students on average in racially diverse schools. Only in California, Florida, and Nevada are black students in racially diverse schools. And only in Pennsylvania, North Carolina, Nevada, Florida, and California are Hispanic students in racially diverse schools.

Using a critical mass diversity threshold of 10% (Jacobsen et al., 2012), VCSs barely hit this threshold nationally when considering the enrollment demographics for the average white student (70% white, 11% black, and 10% Hispanic), but there tends to be a critical mass in school demographics in schools in the average black and average Hispanic students are enrolled. Again, there is heterogeneity across states. The average white student does not experience a critical mass of black students in 12 of the 20 states, nor does the average white student experience a critical mass of Hispanic students in 14 of the 20 states. Likewise, the average black student is underrepresented (<10% with fellow black students) in 9 of the 20 states, and Hispanic students are underrepresented (<10% with fellow Hispanic students) in 11 of 20 states. These differences are explained further in the five-state description discussed later in this report.

Table 1: Virtual Charter Exposure Index: Average Student Demographic Exposure Levels by State, 2015-16

	Average White Student			Average Black Student			Average Hispanic Student		
	White	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic
Location									
All States	*0.70*	*0.11*	*0.10*	*0.64*	*0.16*	*0.12*	*0.49*	*0.10*	*0.31*
AZ	0.61	0.05	0.24	0.58	0.06	0.27	0.55	0.05	0.31
CA	0.44	0.09	0.31	*0.37*	*0.12*	*0.35*	*0.38*	*0.10*	*0.37*
CO	0.49	0.04	0.42	0.28	0.06	0.62	0.27	0.06	0.63
FL	*0.60*	*0.17*	*0.16*	*0.53*	*0.23*	*0.15*	*0.44*	*0.13*	*0.35*
IN	0.77	0.09	0.07	0.75	0.11	0.08	0.76	0.10	0.08
KS	0.82	0.04	0.07	0.82	0.05	0.06	0.82	0.04	0.08
LA	0.72	0.19	0.04	0.72	0.20	0.04	0.72	0.18	0.04
ME	0.91	0.02	0.02	0.91	0.03	0.01	0.91	0.01	0.02
MI	0.70	0.17	0.07	0.69	0.18	0.07	0.69	0.16	0.07
MN	0.86	0.04	0.04	0.84	0.04	0.05	0.80	0.04	0.07
NV	*0.57*	*0.12*	*0.20*	*0.57*	*0.12*	*0.20*	*0.55*	*0.11*	*0.21*
NH	0.91	0.01	0.04	0.90	0.01	0.04	0.90	0.01	0.04
NC	0.64	0.17	0.09	0.64	0.17	0.09	*0.62*	*0.16*	*0.10*
OH	0.75	0.12	0.04	0.73	0.15	0.05	0.73	0.13	0.05
OK	0.65	0.08	0.09	0.65	0.08	0.09	0.65	0.08	0.09
OR	0.80	0.02	0.10	0.80	0.02	0.10	0.79	0.02	0.10
PA	0.71	0.16	0.07	0.65	0.21	0.09	*0.59*	*0.18*	*0.18*
SC	0.76	0.15	0.04	0.75	0.17	0.04	0.76	0.14	0.05
UT	0.89	0.01	0.05	0.87	0.01	0.06	0.85	0.01	0.08

The next strategy to understand how these indices compare to statewide averages is to explore the experience of a particular demographic of student in VCSs and compare it to the experience of that same demographic of student in other schools. Figure 4 focuses on the differences in white isolation (the average percent of white students that the average white student experiences in a VCS)[2]. The reason for using the white isolation portion of the Exposure Index is that VCSs, as shown, tend to be majority white.

Figure 4 shows that nationally, the average white student in a VCS encounters about the same percent of white students in other schools. However, in 13 states (65%) white students in VCSs attend schools on average with more white students than other schools, whereas in seven states (35%) the isolation is less. This is not surprising given the higher percentage of white students in VCSs in general.

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[2] The Appendices provide the full Exposure Index for each state and differences between school types.

Figure 4. White Isolation in VCSs compared to Other School Student Enrollment by State, 2015-16

■ White Isolation Virtual Charter Schools

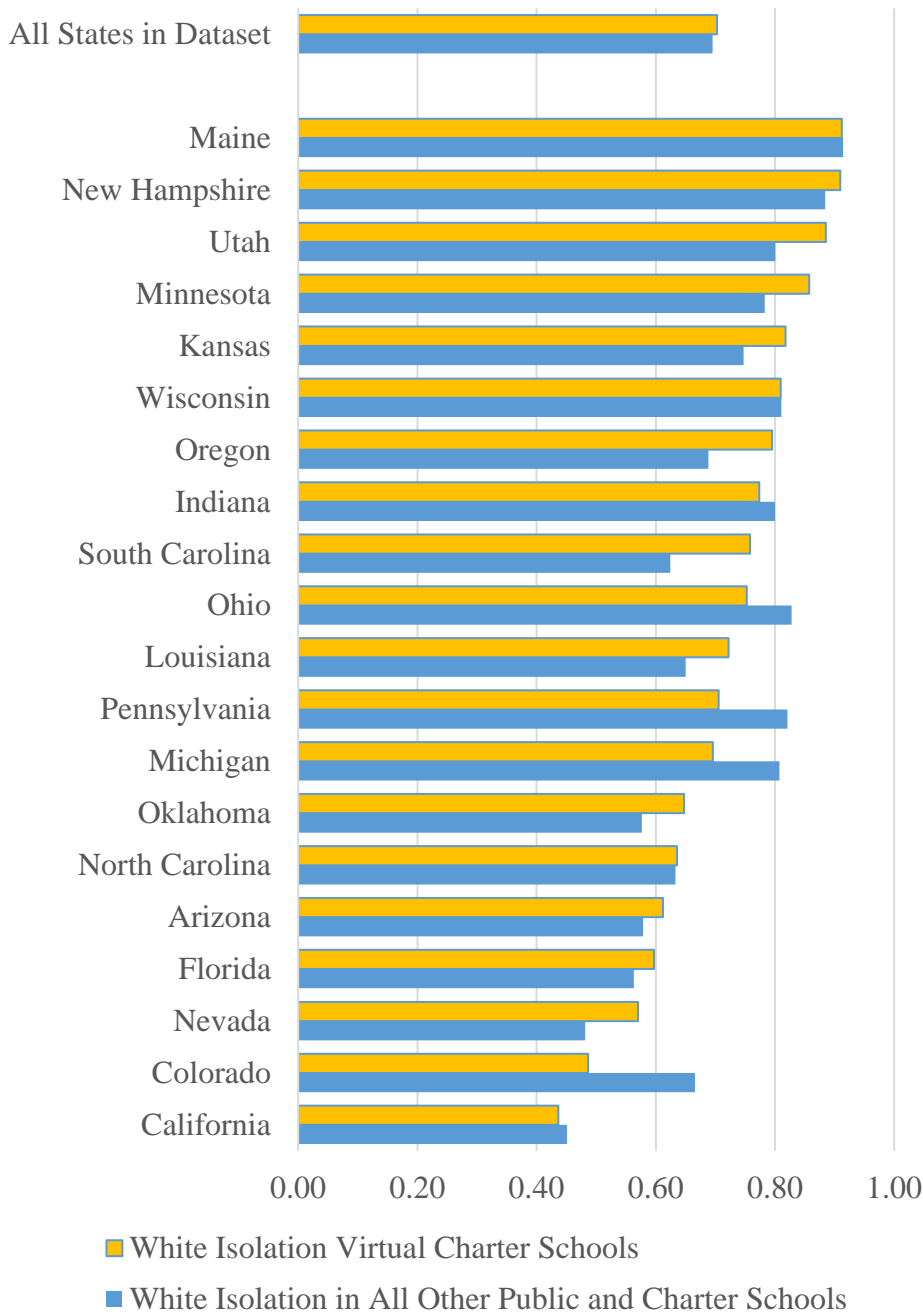■ White Isolation in All Other Public and Charter Schools

Figure 5 depicts a graph with where each VCS sector falls relative to other public and traditional schools in its state in terms of Title 1 and the white Isolation Index. The x-axis is the percentage point difference in white isolation. For example, a white virtual charter student in South Carolina on average goes to school with 13 percentage points more white students than in the other schools in the state. The y-axis shows difference in Title 1 status. For example, Maine has 40 percentage points more virtual charter Title 1 schools than other schools in the state. Figure 5 reveals that there is wide variation in patterns across the United States in these classifications. In addition to wide variation,

Figure 5 shows that the average state falls within the "more white isolation/less Title 1" quadrant of the graph and many states follow this pattern; however, two notable exceptions are the two largest VCS states of Pennsylvania and Ohio. These states fall within the "less white isolation/more Title 1" quadrant. More details on patterns in Figure 5 are explained in the five state summaries section.

Figure 5. State VCS Title 1 Status and White Isolation Compared to Other Public and Charter Schools by State, 2015-16
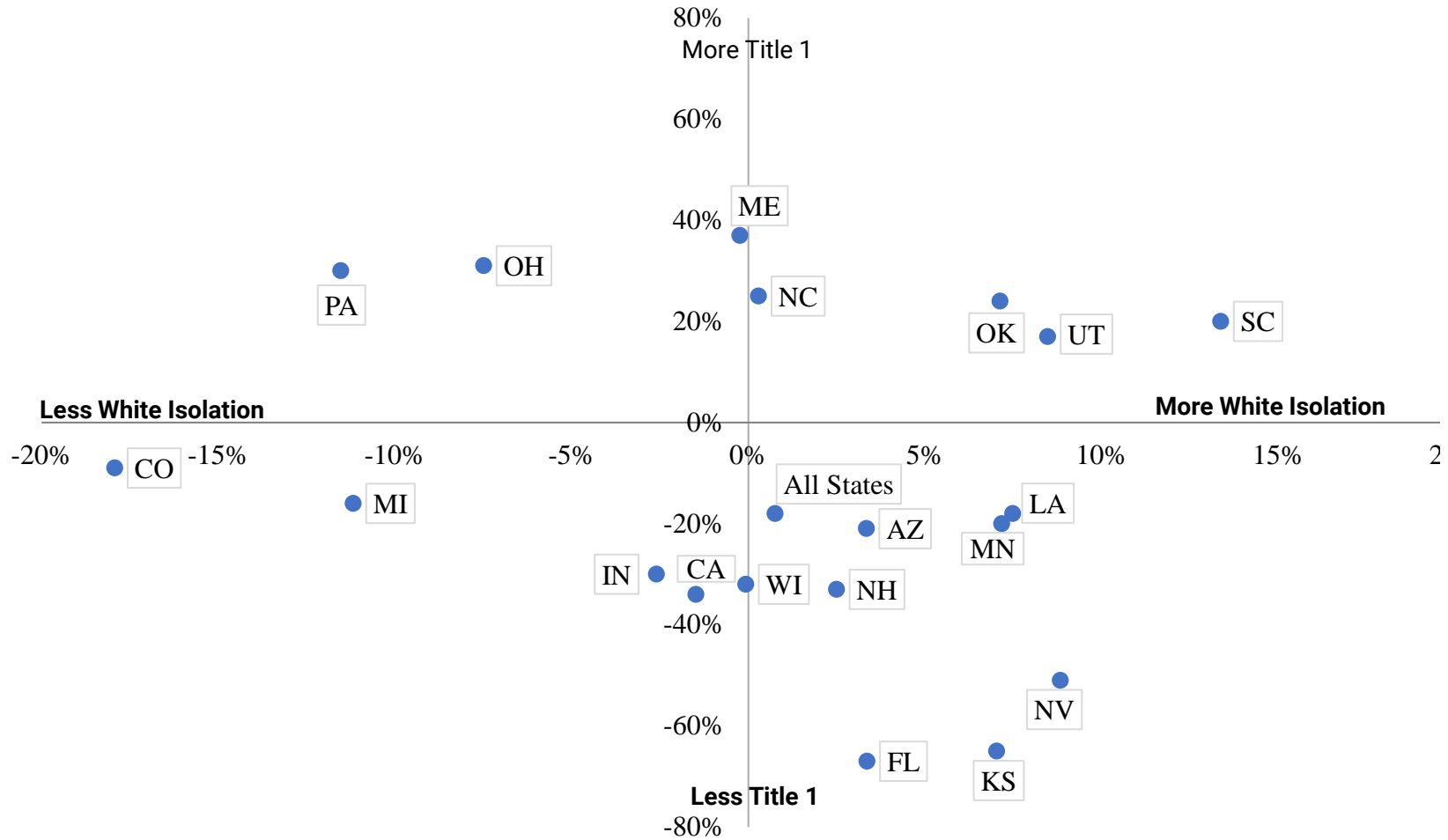
Note: Each point represents where a VCS sector compares to other public and charter schools in its state. For example, South Carolina has close to 20 percentage points higher Title 1 schools, and the average white student goes to school with 13 percentage points more white students.

Five State Summaries

This section details the demographics of VCS and other traditional public and charter schools for five states that represent different patterns in the dataset, as shown in Figure 5. These states are used as examples because each captures a trend seen in other similar states. For the full list of patterns review Figure 5. Additionally, Appendix A provides more detail because it shows the complete list of states' other school Exposure Index (like Table 1, but with the schools that are not virtual charter) and the differences between VCSs and other schools.

The first state is Michigan, which is a mid-size virtual charter sector with more diversity than traditional public and charter schools, and it is more economically advantaged. The second state is Pennsylvania, which is a large sector that is more diverse than other schools, but economically disadvantaged in comparison. The third state is Arizona, which is mid-sized in terms of virtual charter enrollment with less diversity in VCSs than other schools, and virtual charters are more economically advantaged. The fourth state is Utah, which is a small sector that has a much less diverse virtual charter sector compared to other schools, but VCSs are more likely economically disadvantaged. The fifth state is Colorado, which has unique patterns compared to others in the dataset.

Michigan

	Virtual Charter	Other Schools
Total Number of Students	9,050	1,476,105
Percent Title 1 Schools	27%	43%
Percent White Students	69%	67%
Percent Black Students	17%	18%
Percent Hispanic Students	7%	7%
White Student Exposure Index	.70W/.17B/.07H	.81W/.07B/.06H
Black Student Exposure Index	.69W/.18B/.07H	.26W/.62B/.06H
Hispanic Student Exposure Index	.69W/.16B/.07H	.53W/.15B/.25H

Michigan had 9,050 VCS students in 2015-16, which is just over 0.5% of the total traditional public and charter school student population. This percentage and total number of virtual charter students puts it in the mid-range of virtual charter sectors. In terms of diversity, VCSs generally reflect the statewide population of students, and their Exposure Indices show that white students and students of color on average are enrolled in schools that tend to resemble state averages, whereas traditional public and charter schools are less racially diverse. There is a lower percentage of VCSs receiving Title 1 funding for being a low-income school compared to other schools. This suggests Michigan is a mid-size virtual charter sector with more diversity than other schools, and also it is more economically advantaged.

Pennsylvania

	Virtual Charter	Other Schools
Total Number of Students	33,746	1,670,770
Percent Title 1 Schools	86%	55%
Percent White Students	69%	68%
Percent Black Students	17%	15%
Percent Hispanic Students	8%	10%
White Student Exposure Index	.71W/.16B/.07H	.82W/.06B/.06H
Black Student Exposure Index	.65W/.21B/.09H	.27W/.53B/.12H
Hispanic Student Exposure Index	.59W/.18B/.18H	.38W/.17B/.38H

With more than 33,000 students making up nearly 2% of its student population, Pennsylvania had among the largest virtual charter sector in 2015-16. The sector had slightly more white and black students and slightly fewer Hispanic students than those enrolled in other schools, but these differences are both less than 2 percentage points. However, 86% of the VCSs in Pennsylvania received Title 1 funding compared to 55% of the other traditional public and charter schools.

White students in VCSs in Pennsylvania are exposed to more diversity than their counterparts in traditional public and charter schools; however, they do not enroll in schools that completely reflect sector demographics (71% isolation compared to 69% in the sector). Black and Hispanic students in virtual charters are much less isolated than in other schools, as they are in schools with higher percentages of white students. In general, despite this slight deviation, VCSs comprise a large sector in Pennsylvania that are more diverse than other schools and are economically disadvantaged in comparison.

Arizona

	Virtual Charter	Other Schools
Total Number of Students	11,846	1,092,983
Percent Title 1 Schools	33%	54%
Percent White Students	59%	39%
Percent Black Students	5%	5%
Percent Hispanic Students	26%	45%
White Student Exposure Index	.61W/.05B/.24H	.58W/.04B/.29H
Black Student Exposure Index	.58W/.06B/.27H	.31W/.10B/.50H
Hispanic Student Exposure Index	.55W/.05B/.31H	.25W/.06B/.62H

Arizona has a mid-sized virtual cyber sector with 11,846 students or about 1% of its students enrolled in VCS. This sector has fewer Title 1 schools and a much higher percentage of white students enrolled when compared to the traditional public and charter schools. This overall distribution has led to slightly higher isolation for white students and much higher white student interaction for black and Hispanic students.

The demographics of the average student match the overall percentages of students in the sector, which is much different from other schools in Arizona where there is more white and Hispanic interaction. This suggests the VCSs, on average, match the demographics of the sector as a whole; but since the sector has more white students, it is less diverse. This means, taken together, the VCS sector in Arizona is mid-sized with less diversity than other schools and is economically more advantaged.

Utah

	Virtual Charter	Other Schools
Total Number of Students	3,872	644,002
Percent Title 1 Schools	40%	23%
Percent White Students	88%	75%
Percent Black Students	1%	1%
Percent Hispanic Students	5%	17%
White Student Exposure Index	.89W/.01B/.05H	.80W/.01B/.13H
Black Student Exposure Index	.87W/.01B/.06H	.61W/.04B/.26H
Hispanic Student Exposure Index	.85W/.01B/.08H	.59W/.02B/.31H

Utah is one of the states with a small virtual charter sector in terms of total enrollments. There are 3,872 students in VCSs making up about 0.6% of the state's total student population. Forty percent of the VCSs receive Title 1 funding compared to about 23% of other schools receiving Title 1 funding. There is a much greater percentage of white students and many fewer Hispanic students in virtual charters compared to traditional public and charter schools in the state. Likewise, virtual charters in this state have much higher levels of white isolation. Overall, Utah has a much less diverse virtual charter sector compared to other schools, and these schools are more likely economically disadvantaged.

Colorado

	Virtual Charter	Other Schools
Total Number of Students	9,157	889,870
Percent Title 1 Schools	20%	29%
Percent White Students	36%	54%
Percent Black Students	5%	5%
Percent Hispanic Students	55%	33%
White Student Exposure Index	.49W/.04B/.42H	.67W/.03B/.23H
Black Student Exposure Index	.28W/.06B/.62H	.34W/.16B/.40H
Hispanic Student Exposure Index	.27W/.06B/.63H	.37W/.06B/.51H

Colorado has a unique VCS sector. There is a lower percentage of Title 1 schools, and there are much lower percentages of white students and much higher percentages of Hispanic students compared to the other schools in the state. This creates a situation in which the average white student enrolls in an environment with higher interaction with Hispanic students compared to the traditional public and charter schools, with greater white isolation in these environments. The average black and Hispanic student enrolls in environments that are majority Hispanic. When compared to the overall demographics of the sector, both white and Hispanic students are more isolated than expected based on an even distribution of students in the sector.

Final Thoughts

In general, VCSs have more white students than students in traditional public and charter schools do. This tends to drive a general lack of diversity in VCSs. The virtual charter sector also has lower percentages of Title 1 schools. However, the most noteworthy finding in this report relates to the extent to which these patterns differ by state. The majority of states have majority white virtual school populations who experience less diversity in VCSs than they do in other schools in the state. However, there are states where students experience more diverse environments than the other schools in their state. Additionally, since there are fewer students of color in the VCSs in general, there tend to be fewer racially isolated minority schools than often seen in the traditional public and charter school sectors.

These findings mean that policymakers and virtual school leaders should not generalize findings and draw contextualized implications from them. Instead, this report shows that stakeholders in each state need to explore patterns within their own states to understand specific enrollment distributions. As shown here, patterns differ in a number of ways. For example, the large VCS sectors in Ohio and Pennsylvania have much different patterns than smaller sectors such as Idaho and Utah. State demographics, sector size, and history of virtual charter schooling in each state context likely drive these differences.

These findings should be considered as a first step in guiding VCS stakeholders toward thinking about what diversity and equity mean in online spaces in their contexts. However, it must be reiterated that enrollment is an important first consideration related to this conversation. The next steps must be to investigate practices within these schools to ensure that programmatic and academic decisions are done in ways that enforce principles of equity and inclusion.

The next steps for policymakers, lawmakers, and VCS operators are to use this report, reflect on its findings, and consider how their specific context can move toward diversity and equity. In some locations, this may mean identifying and closing inequitable VCSs. In other locations, it may mean finding diverse VCSs and creating meaningful and equitable interactions between diverse populations of students. In all locations, the first step will be to understand enrollment patterns and find ways to guide them toward diversity.

A long history of academic research shows that where students attend school and their experience within school locations matter greatly toward their academic and socioeconomic opportunity; diverse schooling environments are beneficial to white students and students of color (Mickelson & Nkomo, 2012; Wells & Crain, 1994). This study begins to raise the conversation and concerns related to diversity in virtual spaces. While VCSs tend not to provide diverse experience for many students, there are examples of states where diverse enrollments exist. Ensuring that these enrollments relate to positive academic benefit should be the next consideration in these areas, while in others the consideration should be to understand why enrollments are not diverse.

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Appendix A

Appendix A1. Exposure Index for Charter and Public Schools (not including VCSs): Average Student Demographic Exposure Levels by State, 2015-2016

Average White Student				Average Black Student				Average Hispanic Student		
	White	Black	Hispanic		White	Black	Hispanic		White	Black	Hispanic
Location				Location				Location			
All States	0.70	0.08	0.14	All States	0.28	0.46	0.19	All States	0.25	0.10	0.56
AZ	0.58	0.04	0.29	AZ	0.31	0.10	0.50	AZ	0.25	0.06	0.62
CA	0.45	0.04	0.34	CA	0.16	0.18	0.51	CA	0.15	0.05	0.69
CO	0.67	0.03	0.23	CO	0.34	0.16	0.40	CO	0.37	0.06	0.51
FL	0.56	0.15	0.22	FL	0.26	0.45	0.24	FL	0.27	0.17	0.51
IN	0.80	0.06	0.08	IN	0.31	0.44	0.17	IN	0.49	0.18	0.25
KS	0.75	0.05	0.13	KS	0.43	0.22	0.24	KS	0.42	0.09	0.40
LA	0.65	0.25	0.05	LA	0.26	0.66	0.05	LA	0.39	0.38	0.17
ME	0.91	0.03	0.02	ME	0.68	0.21	0.04	ME	0.84	0.06	0.04
MI	0.81	0.07	0.06	MI	0.26	0.62	0.06	MI	0.53	0.15	0.25
MN	0.78	0.06	0.07	MN	0.39	0.33	0.12	MN	0.52	0.14	0.21

NV	0.48	0.07	0.30	NV	0.23	0.19	0.44	NV	0.24	0.11	0.53
NH	0.88	0.02	0.04	NH	0.75	0.05	0.11	NH	0.71	0.04	0.15
NC	0.63	0.16	0.13	NC	0.32	0.43	0.17	NC	0.40	0.27	0.26
OH	0.83	0.07	0.04	OH	0.29	0.57	0.06	OH	0.56	0.20	0.16
OK	0.58	0.06	0.12	OK	0.34	0.29	0.19	OK	0.36	0.10	0.36
OR	0.69	0.02	0.18	OR	0.47	0.12	0.25	OR	0.51	0.03	0.36
PA	0.82	0.06	0.06	PA	0.27	0.53	0.12	PA	0.38	0.17	0.38
SC	0.62	0.24	0.08	SC	0.36	0.52	0.08	SC	0.46	0.31	0.17
UT	0.80	0.01	0.13	UT	0.61	0.04	0.26	UT	0.59	0.02	0.31

Note: The "All States" interaction and isolation indices are biased by differences in state demographics creating a need for a state-by-state analysis.

Appendix A2. Difference in the Exposure Index between VCSs and All Other Public and Charter Schools: Average Student Demographic Exposure Levels by State, 2015-2016

	Average White Student				Average Black Student				Average Hispanic Student		
	White	Black	Hispanic		White	Black	Hispanic		White	Black	Hispanic
Location				**Location**				**Location**			
All States	0.01	0.08	0.14	All States	0.37	-0.30	-0.07	All States	0.24	0.00	-0.25
AZ	0.03	0.04	0.29	AZ	0.26	-0.04	-0.23	AZ	0.30	0.00	-0.31
CA	-0.01	0.04	0.34	CA	0.21	-0.05	-0.16	CA	0.23	0.05	-0.32
CO	-0.18	0.03	0.23	CO	-0.06	-0.10	0.22	CO	-0.10	0.00	0.12
FL	0.03	0.15	0.22	FL	0.27	-0.22	-0.09	FL	0.17	-0.04	-0.16
IN	-0.03	0.06	0.08	IN	0.44	-0.33	-0.09	IN	0.27	-0.08	-0.17
KS	0.07	0.05	0.13	KS	0.39	-0.16	-0.18	KS	0.40	-0.05	-0.32
LA	0.07	0.25	0.05	LA	0.46	-0.46	-0.02	LA	0.33	-0.21	-0.13
ME	0.00	0.03	0.02	ME	0.23	-0.19	-0.03	ME	0.07	-0.05	-0.02
MI	-0.11	0.07	0.06	MI	0.43	-0.44	0.00	MI	0.17	0.02	-0.18
MN	0.07	0.06	0.07	MN	0.45	-0.29	-0.07	MN	0.28	-0.10	-0.14
NV	0.09	0.07	0.30	NV	0.34	-0.07	-0.25	NV	0.31	0.00	-0.32
NH	0.03	0.02	0.04	NH	0.15	-0.05	-0.07	NH	0.19	-0.03	-0.11

NC	0.00	0.16	0.13	NC	0.32	-0.26	-0.08	NC	0.22	-0.11	-0.16
OH	-0.07	0.07	0.04	OH	0.44	-0.43	-0.02	OH	0.17	-0.06	-0.10
OK	0.07	0.06	0.12	OK	0.31	-0.21	-0.10	OK	0.28	-0.03	-0.26
OR	0.11	0.02	0.18	OR	0.33	-0.10	-0.15	OR	0.28	-0.01	-0.25
PA	-0.12	0.06	0.06	PA	0.38	-0.32	-0.03	PA	0.21	0.01	-0.20
SC	0.13	0.24	0.08	SC	0.39	-0.35	-0.04	SC	0.29	-0.16	-0.12
UT	0.08	0.01	0.13	UT	0.26	-0.02	-0.20	UT	0.26	-0.01	-0.23

Note: The "All States" interaction and isolation indices are biased by differences in state demographics creating a need for a state-by-state analysis.