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Examining Digital Inequities in Ohio's K-12 Virtual Schools:  
Implications for Educational Leaders and Policymakers

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### Abstract

One touted purpose of virtual schools is to expand learning opportunities for students, but in reality, virtual schooling may not be readily available to *all* students. This study analyzes inequitable access to Ohio's virtual schooling by examining disaggregated student enrollment data. Similar to past research, we found racial minorities and students with limited English proficiency were under-represented in Ohio's virtual schools in comparison to traditional schools. However, unlike past studies, we found economically-disadvantaged students and students with disabilities were over-represented in Ohio's virtual schools. The findings are explained through policy and legal lenses, and potential legal issues are discussed.

*Keywords:* virtual schools, digital equity, educational policy, education law

Examining Digital Inequities in Ohio's K-12 Virtual Schools:  
Implications for Educational Leaders and Policymakers

Virtual schools have been enjoying a surge of popularity in the United States (Barbour & Reeves, 2009; Friend & Johnston, 2005; Pape, Adams, & Ribeiro, 2005). Although prior literature has differing definitions of virtual schools, scholars agree that two distinct features of virtual schools include: 1) credit courses that are delivered via Internet *predominantly or exclusively*, and 2) an official body that provides accreditation (Barbour & Reeves, 2009; Clark, 2000). All Ohio's virtual schools examined in this study are defined by Ohio Department of Education (ODE) as schools in which "the enrolled students work *primarily* from their residences...in non-classroom-based learning opportunities provided via an internet or other computer based instructional method that does not rely on regular classroom instruction" (ODE, 2012). Additionally, all the virtual schools in our study were charter schools because in Ohio, virtual schools must be established as charter schools (O.R.C. § 3314).

Across the United States, however, there is tremendous variability in the state laws that govern virtual schools. Accordingly, other researchers have used the term "virtual schools" to include not only virtual charter schools, but also state-sanctioned virtual schools, university or college-based virtual schools, consortium and regionally-based virtual schools, and other alternative virtual schools (Bathon, 2011; Barbour & Reeves, 2009; Clark, 2001). Moreover, virtual schooling is only one form of online education delivery. K-12 online education is comprised not only of stand-alone virtual schools, but also of supplementary online-learning and blended-learning programs (Watson, Murin, Vashaw, Gemin, & Rapp, 2012).

Despite the research that indicates a growing number of students have enrolled in both supplementary and full-time online learning programs, there was limited literature about student

enrollment *specifically* in virtual schools. Queen and Lewis (2011) reported that in 2009–10, over 1.8 million students enrolled in online learning courses provided by 55% of school districts in the study; yet, their study included full-time and supplementary online programs. In 2010–11, the number of K-12 students enrolled in online learning programs increased dramatically to approximately three million (International Association for K-12 Online Learning, 2011). It is predicted that over five million K-12 students will enroll in online learning programs by 2016 (Picciano & Seaman, 2009). According to Barbour and Reeves (2009), the increasing student enrollment in virtual schools parallels the growth of all online learning programs. In fact, student enrollment in virtual schools had the largest growth of all types of K-12 online learning (Watson & Gemin, 2008). A recent study, for example, noted a 16% increase in virtual schools' course enrollment from 2011–12 in 28 states (Watson et al., 2012).

The growing popularity of virtual schools is not without criticism. One touted purpose of virtual schools is to expand online learning opportunities for students across demographic variables (Watson & Gemin, 2008; U.S. Department of Education, Office of Educational Technology, 2012); but, in reality, virtual schooling may not be readily available to underserved students (Lin, 2008; Miron & Urschel, 2012). Previous research suggests that the enrollment data at virtual schools needs to be disaggregated to analyze whether all students have equal access to virtual schooling (Barbour & Reeves, 2009; Barth, 2012; Rose & Blomeyer, 2007). Thus, to examine whether certain subgroups of students are under-represented at virtual schools, we reviewed the student enrollment data of Ohio's virtual schools and compared it to Ohio's traditional schools. We purposely chose Ohio's virtual schools because Ohio is one of the leaders in virtual schooling with one of the largest student enrollments since the inception of virtual schools (Watson et al., 2012). Because this study found discernible differences between student

enrollment at virtual and traditional schools, we conclude that school leaders and policymakers should be cognizant of the potential legal vulnerabilities that arise if student subgroups do not have equal access to virtual schools. We do not claim that our findings show unequal access in Ohio's virtual schools, but it warrants additional analysis in light of the disproportionate enrollment of students based on socio-economic status, disability, race, and language proficiency.

This article first reviews the literature describing inequities in virtual schools and explains why this topic merits further study. Next, we explain the methodology and describe the findings gleaned from student enrollment data of Ohio's virtual schools. The results are followed by a discussion section where we present possible explanations for our unique results, and analyze potential legal vulnerabilities and policy implications. The final section provides strengths and limitations of this study, as well as recommendations for further inquiry.

### **Literature Review**

Notwithstanding the claimed benefits of virtual schools, the extant literature does not always paint a positive picture of virtual schools. A growing body of literature has unveiled a full list of benefits of virtual schooling for both students and schools, such as flexibility of schedules and geographical location (Cavanaugh, 2001), individualized instruction (Zucker, 2005), and expanded educational choice (Clark & Berge, 2005). Nonetheless, virtual schools have been criticized for not providing equal access for all students, a critique which fits within the larger category that has been labeled "digital inequity" (Anthony & Padmanabhan, 2010; Gorski, 2009).

### **Defining Digital Inequity**

Digital equity is not simply defined as ensuring all students have physical access to educational technology, such as the availability of computers and the Internet. Rather, digital equity includes access to all technology-related learning opportunities such as receiving effective instruction online (Crawford, 2005; Gorski, 2009; Rose & Blomeyer, 2007; Solomon, Allen, & Resta, 2003). The lack of physical access appears to be improving (Gorski, 2009). In fact, the gap between the computer and Internet access of economically-disadvantaged students and those from affluent families has narrowed in the past decade. For example, the ratio of students to instructional computers with Internet access diminished from 6.6 in 2000 to 3.1 in 2008 (National Center for Education Statistics, 2011). Likewise, 98% of instructional computers in public schools were connected with the Internet in 2008, whereas only 77% of the computers were connected in 2000 (National Center for Education Statistics, 2011).

Simply placing instructional technology in the classroom, however, does not necessarily yield rewarding learning opportunities. When the student-to-computer ratio remains the same, a decisive indicator of student achievement is the *effective* use of technology in instruction (Warschauer, Knobel, & Stone, 2004). Thus, the concerns surrounding digital inequity in virtual schools have evolved beyond a lack of access to computers. In particular, researchers have focused on whether certain student subgroups face obstacles to accessing virtual schooling (Lin, 2008; Rose & Blomeyer, 2007; Miron & Urschel, 2012).

### **Inequities in Access**

The existing studies on enrollment in virtual schools have consistently found that the student population at virtual schools differs from the population at traditional public schools. Haughey and Muirhead (1999) claimed that online learning, in general, enrolled highly motivated, self-directed, self-disciplined, and independent learners. However, other research

strongly refuted this claim (Barbour & Siko, 2012; Rose & Blomeyer, 2007). Virtual schools, as suggested by Klein (2006), serve a higher percentage of at-risk students. These at-risk students share such characteristics as low socio-economic status, coming from single-parent families, having changed schools two or more times, and earning low grades in traditional schools (Barbour & Siko, 2012).

Some studies declared that virtual schools enroll fewer economically-disadvantaged students (Miron & Urschel, 2012), students with disabilities (Miron and Urschel, 2012; Muller & Ahearn, 2004), racial minority students (Lin, 2008; Miron and Urschel, 2012), and limited English proficient (LEP) students (Lin, 2008; Miron and Urschel, 2012) than traditional public schools. Since these student subgroups are the focus of our study, the following sections describe the relevant research surrounding digital inequities for each identified student subgroup.

#### **Economically-disadvantaged students.**

One of the innate barriers economically-disadvantaged students face is the access to computers and the Internet (U.S. Department of Commerce, 2011). Rose and Blomeyer (2007) argued that virtual learning programs offered by virtual schools are not truly accessible if students participate only in virtual learning through their own computers, requiring high-speed Internet at home. Consequently, in order to ensure digital equity, virtual schools may be obligated to make online learning programs equally available to students regardless of the technology resources they have at home. Lin (2008) argued that economically-disadvantaged students have inequitable access to virtual schooling. In Washington's virtual schools, "37% of students statewide were classified as economically-disadvantaged," whereas, at the three biggest virtual schools, "only 9%–26% of the students were economically-disadvantaged" (Lin, 2008, p. 185). Lin (2008) did not provide additional data or analysis, but he concluded that the virtual



schools' student populations were not representative of the state's demographics and suggested that discrimination was the cause.

A similar digital inequity may exist outside of the state of Washington. K12 Inc., a for-profit education management organization, is a dominant player in operating both public virtual schools and online private schools (K 12 Inc., n.d.). During the 2010–11, K12 Inc. enrolled 82,670 students in 29 states and Washington, D.C. (Watson, Murin, Vashaw, Gemin, & Rapp, 2011). Miron and Urshel (2012) contended that a lower proportion of economically-disadvantaged students were enrolled at K12 Inc.-operated virtual schools than traditional schools. Specifically, 39.9% of students at K12 Inc.-operated virtual schools qualified for free or reduced-price lunch, which was 7.3% lower than the same-state comparison group (Miron & Urschel, 2012). Some scholars, however, do not agree that *less* economically-disadvantaged students are enrolled at virtual schools, and posit that *more* at-risk students might enroll into virtual schools (Barbour, 2009; Barbour & Siko, 2012; Rapp, Eckes & Plucker, 2006).

### **Students with disabilities.**

Some scholars have found proportionately fewer students with disabilities are enrolled in virtual schools than traditional schools (Muller & Ahearn, 2004; Miron & Urschel, 2012). Miron and Urschel (2012) reviewed the enrollment in virtual schools operated by K12 Inc. and again identified a disproportionately lower number of students with disabilities; specifically, 9.4% students with disabilities were enrolled at K12 Inc.-operated virtual schools in comparison to 13.1%, the national figure for the percentage of students with disabilities.

In addition to findings of disproportionate enrollment, it is unknown how well virtual schools make accommodations to meet the online learning needs of students with disabilities (U.S. Department of Education, Office of Educational Technology, 2012). Virtual schools have

faced challenges in the implementation of Individuals with Disabilities Education Act (IDEA), including issues with identification and evaluation, Individualized Education Programs (IEP) meetings, individualized supports, access to the general curriculum and modification, and accountability and testing (Muller & Ahearn, 2004). Similar concerns exist about online course accommodations for students with disabilities. For instance, students with disabilities who need accommodations that include face-to-face instruction may not receive a “free appropriate public education” as mandated by IDEA if they are enrolled at a virtual school that provides no face-to-face instruction (Rose & Blomeyer, 2007). Moreover, students with disabilities might require courses designed to suit their unique needs (Schoonover & Feist, 2007; Rose & Blomeyer, 2007). For example, a student with a physical disability may need a special screen reader that the curriculum provided by the virtual school may not provide. Rose and Blomeyer (2007) suggested that virtual educators should remedy these types of issues and include text with all audio and video in their courses. In sum, it is not only the actual enrollment of students with disabilities, but also, the design of virtual courses that determines whether students with disabilities truly have access.

#### **Racial and ethnic minority students.**

Researchers have also identified disparities in the enrollment of racial minority students in comparison to white students. The ripple effect of the variance in computer and Internet access among ethnicity (U.S. Department of Commerce, 2011), might extend to students' inequitable access to virtual schools. Miron and Urschel (2012) reported substantially more white students and fewer Hispanic students in K12 Inc.-operated virtual schools compared to the same-state comparison group, but the percentage of African American student enrollment in K12 Inc.-operated virtual schools was approximately the same with traditional public schools. In addition

to inequitable access to computer and Internet associated with ethnicity, Lin (2008) claimed that virtual schools in the state of Washington were discriminating against racial minority students due to discriminatory recruiting, admission, and programming policies.

### **Students with limited English proficiency.**

Lin (2008) also argued that virtual schools in Washington discriminated against limited English proficiency (LEP) students. He reported that LEP students comprised 7.5% of the statewide student population; whereas, the three largest virtual schools in Washington enrolled no LEP students. Lin (2008), thus, recommended customized recruitment toward LEP students, namely, distributing outreach information in the formats that LEP students and their parents can understand. In addition, Miron and Urschel (2012) reported that K12 Inc.-operated virtual schools' enrollment data shows a substantial under-presentation of LEP students; specifically, its virtual schools are comprised of 0.3% LEP students in comparison to 13.7% LEP students in the same-state group and 9.6% in the nation.

Overall, information about how many LEP students are enrolled in virtual schools is extremely limited. For example, as of this writing, the authors could not find the data regarding LEP students on the websites of Florida Virtual School—nationally recognized as the largest virtual school in the United States, or Florida Department of Education. It is unclear whether the data is simply not collected or just not reported. In either case, the lack of easily accessible information about LEP students provides justification for additional research to be conducted.

### **Significance of Study**

Past research claims that digital inequities exist in virtual schooling. Yet, the literature is limited and the findings are inconsistent. Currently, educational leaders and policymakers are faced with the exponential growth of virtual education (Watson et al., 2012). Meanwhile, virtual

schools remain noticeably unregulated (Brady, Umpstead & Eckes, 2010). To increase needed research about virtual schools, the current study seeks to raise awareness of the disparities that exist between the students who are enrolled at virtual schools in comparison to those at traditional schools.

Furthermore, educational leaders and policymakers can prevent legal vulnerabilities at virtual schools by understanding how the law applies to digital inequities. Our study's legal analysis offers education administrators and policymakers information about legal claims students could make if digital inequalities exist. When educational leaders and policymakers are uninformed about potential legal implications their actions can have, they may unintentionally support practices and policies that may have a discriminatory impact.

Our study focuses on economically-disadvantaged students, students with disabilities, racial minority students, and LEP students because these four subgroups have unique entitlements or protections under the law. Historically, they have suffered past discrimination and performed more poorly than their peers (Perry, Steele, & Hilliard, 2004; Price, 2010). As a result, these special student populations receive heightened attention and schools are held more accountable for their achievement (U.S. Department of Education, 2004). While these subgroups of students have legal entitlements or protections under both federal and state law, only federal legal issues are discussed here because state law varies across the country. However, it is worth mentioning that Brady et al. (2010) found several cases where students and parents had filed lawsuits involving funding issues against virtual charter schools pursuant to state law.

Under federal law, students potentially could file lawsuits based on both constitutional and statutory grounds. Pursuant to the U.S. Constitution, litigants could argue that their Fourteenth Amendment rights to equal protection are violated if they are not granted equal

access to virtual schools. Although the Equal Protection Clause of the Fourteenth Amendment states that the government cannot deny its citizens “equal protection of the laws,” this principle is applied differently to different subgroups of students. Since *Brown v. Board of Education* (1954) established that it was unconstitutional to treat students differently based on race, courts have analyzed numerous cases where schools have treated students differently based on traits such as ability, language, gender, and religion (Thomas, Cambron-McCabe, & McCarthy, 2009).

Federal courts have analyzed student equal protection cases using three different levels of scrutiny. The highest level of scrutiny is termed “strict scrutiny,” followed by “intermediate scrutiny,” and the lowest level of scrutiny is “rational basis review.” The courts apply a rational basis review to many situations when students are treated differently. Under this level of scrutiny, the school needs a basis that is “rationally related to furthering a legitimate state interest,” meaning a fairly good reason to treat students differently (*Massachusetts Bd. of Ret. v. Murgia*, 1976, p. 312). Rational basis review is applied to situations where students are treated differently for a variety of reasons, including ability level or age. Typically, when courts apply rational basis, the school’s action is not found to violate the Fourteenth Amendment. Thus, rational basis is a very low threshold and schools often pass a rational basis review.

When students are treated differently based on sex, the courts examine the next highest level of review called intermediate scrutiny. Under this middle level of scrutiny, a school’s action must be “substantially related to an important governmental objective” (*Clark v. Jeter*, 1988, p. 461). If there is another, less restrictive way to reach the same goal, then the action will be seen as violating the Fourteenth Amendment. Intermediate scrutiny is unlike rational basis because the school must prove that it is not being discriminatory.

The most difficult level of scrutiny to pass is strict scrutiny. When courts apply strict scrutiny to situations where students are treated differently, it means that the school must have an extraordinary reason called a “compelling government interest” that is “narrowly tailored” to the compelling government interest (*Grutter v. Bollinger*, 2003, p. 326). Courts apply strict scrutiny to only a few groups of individuals based on race, national origin, religion, and alienage (*City of Cleburne, Tex. v. Cleburne Living Ctr.*, 1985, p. 440). Strict scrutiny differs from rational basis and intermediate scrutiny because there is an assumption that discrimination is occurring because it involves groups that have a history of receiving unconstitutional treatment.

Put simply, when strict scrutiny, intermediate scrutiny, and rational basis are applied to the student populations in our study, students with disabilities, LEP students, and economically-disadvantaged students do not have the same equal protection rights as racial minority students. For example, to treat students differently based on race, a school must have an *extremely* good reason to treat them differently and that reason must be the best way to accomplish that goal. However, to treat students differently based on ability, language proficiency, and socio-economic status, a school only needs a good reason that is “rationally related” to a “legitimate” government interest (Thomas et al., 2009, p. 144). Under the Fourteenth Amendment, it is permissible for schools to treat students differently. However, if a school’s differential treatment is challenged as being discriminatory, courts will analyze which subgroup the students belong to, as well as the school’s reason for treating the students differently.

In addition to federal constitutional law, federal statutory law governs unequal access to virtual schooling. The relevant federal laws include Title VI of the Civil Rights Act of 1964 (Title VI), the Equal Educational Opportunities Act of 1974 (EEOA), IDEA, Section 504 of the Rehabilitation Act of 1973 (Section 504), the Americans with Disabilities Act (ADA), and the

No Child Left Behind Act (NCLB). For example, racial minority students who believe they did not have equal access to virtual education could bring a claim under Title VI, which prohibits public schools from discriminating based on race, color, or national origin. Similarly, LEP students could bring a Title VI claim if their language was tied to their national origin.

Additionally, the EEOA mandates that school districts are to provide appropriate programs for LEP students. Further, students with disabilities could claim legal violations of IDEA, Section 504, and the ADA (Thomas et al., 2009).

Unlike the other student subgroups, economically-disadvantaged students are unable to use a federal statute that specifically prohibits discrimination based on socio-economic status; however, they can allege equal protection violations under 42 U.S.C. § 1983, which provides that any person who acts under state law to deprive another individual of rights secured by the federal Constitution or laws is subject to personal liability (Thomas et al., 2009, p. 426). Thus, even without a specific federal statute that specifically protects economically-disadvantaged students, many students have successfully alleged discrimination by suing school districts for violating their constitutional rights. For example, in *Lau v. Nichols* (1974), the U.S. Supreme Court held that it was unconstitutional under the Fourteenth Amendment for a school to fail to provide English language instruction to Chinese American students. By citing *Lau*, litigants who believe they have been discriminated against based on their LEP can argue that language-based discrimination is a proxy for illegal national origin discrimination.

Additionally, although NCLB does not create a private cause of action for these students, racial minority students, students with disabilities, economically-disadvantaged students, and LEP students are specifically identified by NCLB. Under this federal statute, states must disaggregate their standardized test data for these four student populations. On an annual basis,

states also must report to the public how well these student groups are performing academically. While NCLB does not necessary provide these students with a legal protection or entitlement, it has placed heightened attention onto schools to ensure these students' educational needs are being addressed. In sum, our study is significant because it conducts an examination of virtual school enrollment data to highlight the gap in the current research to expose potential legal vulnerabilities.

### **Methodology**

To answer our research question whether certain student subgroups are disproportionately enrolled in virtual schools, we chose to investigate Ohio's virtual schools. Ohio is one of the leaders in virtual schooling since the inception of virtual schools. In fact, Ohio virtual schools consistently have one of the largest student enrollments nationwide (Watson et al. 2011). Furthermore, because all of Ohio's virtual schools are public, the enrollment data is readily accessible. We collected student enrollment data from all 3,625 public schools in Ohio, including 27 virtual schools and 3,598 traditional schools. Among all 27 virtual schools, there were seven statewide virtual schools enrolling all Ohio students, regardless of school districts. This section describes the data source and procedures used in data collection and analysis.

The data regarding student enrollment in 2010–11 school year were retrieved from the ODE website (<http://ilrc.ode.state.oh.us/Downloads.asp>). First, we collected all of Ohio's public schools' student enrollment data from the "Disaggregated School Data" category on the ODE's "Download Data" page (<http://ilrc.ode.state.oh.us/Downloads.asp>). We then collected enrollment data categorized by ethnicity (Black, non-Hispanic; American Indian or Alaska native; Asian or Pacific Islander; Hispanic; Multi-racial, and White, non-Hispanic), economic disadvantage, LEP, and disability. All retrieved data were then categorized into two groups—virtual schools and



traditional schools—in order to gain a comprehensive view of the differences in student enrollment. Descriptive statistics were used to analyze and present the data. Mean and standard deviation of student enrollment in virtual schools and traditional schools were calculated, respectively. The ranges in enrollment were also generated for each group of schools.

To better analyze the results, we also collected data from the website of each virtual school in our data set. Specifically, we collected information about each school's mission, delivery format, recruitment efforts, offering of peripherals (e.g., internet access), and enrollment policies. The "School Report Card" of each virtual school was also reviewed from the ODE website. These documents allowed us to track whether the virtual school met Adequate Yearly Progress (AYP) in 2010–11.

### **Results**

During 2010–11, 27 out of 3,625 Ohio's public schools were virtual schools, serving 33,069 students. Table 1 illustrates the demographic information related to student enrollment of all public schools in Ohio. The average student enrollment in Ohio's virtual schools ( $M = 1244.78$ ) was approximately three times larger than the average student enrollment in traditional schools ( $M = 476.07$ ). In addition, the number of students enrolled in virtual schools ( $SD = 2623.16$ ) varied much more than the number of students enrolled in traditional schools ( $SD = 351.69$ ). For example, the number of students enrolled in Ohio's virtual schools ranged widely from 20 students at Kent Digital Academy to 10,454 at Electronic Classroom of Tomorrow (ECOT).

[insert Table 1 here]

Further, the data revealed noticeable differences in the student enrollment data based on socio-economic status, disability, race, and LEP during the 2010–11 academic year. Overall,

virtual schools enrolled a much higher percentage of economically-disadvantaged students and a slightly higher percentage of students with disabilities in comparison to traditional schools; whereas, there was a disproportionately lower percentage of racial minority students and no LEP students enrolled at virtual schools.

[insert Table 2 here]

Table 2 compares the demographic makeup of the population of students served in Ohio's public schools in the 2010–11 school year. To begin with the racial differences, over 4% more White/Non-Hispanic students were admitted to Ohio virtual schools (78.2%) than traditional schools (73.9%). The percentage of Black/Non-Hispanic students, multi-racial students, Asian/Pacific Islander students, and Hispanic students enrolled in virtual schools was consistently lower than those in traditional schools. The data in Table 2 also reveals that no LEP students were enrolled in virtual schools, whereas 2.0% LEP students were enrolled in traditional schools.

On the other hand, slightly more students with disabilities and considerably more economically-disadvantaged students were enrolled in virtual schools. Specifically, a majority (65%) of students enrolled in Ohio virtual schools were categorized as economically-disadvantaged students, while only 44.7% of the students in traditional schools were classified as economically-disadvantaged. Virtual schools also enrolled 1.8% more students with disabilities (16.6%) in comparison with traditional public schools (14.8%); however, the difference was slight. In summary, the data comparing Ohio's virtual schools to its traditional schools depicted marked differences between Ohio's virtual schools and traditional schools in student enrollment during 2010–11.

## Discussion

Interestingly, our findings both contradict and support past research. The most surprising inconsistency we found is that almost *20% more* economically-disadvantaged students were enrolled at Ohio's virtual schools contradicting Miron and Urschel's (2012) conclusion that *fewer* low-income students attended virtual schools. In addition, we identified *more* students with disabilities enrolled at Ohio's virtual schools. Yet, some of our findings align with other researchers' conclusions. Namely, Lin (2008) and Miron and Urschel (2012), who found disproportionately less racial-minority and LEP students enrolled at virtual schools. Our research confirmed these findings to be true in Ohio in 2010–11. In the remainder of this discussion section, we provide a few possible explanations for our study's unique results.

### **Over-Representation of Economically-Disadvantaged Students and Students with Disabilities**

Ohio's unique state law may help explain why we found more economically-disadvantaged students and students with disabilities. Since 2007, an Ohio state law has required that all "internet- or computer-based community school[s]" must supply their students with a computer (O.R.C. §3314.22(A)(1)). In addition to providing computers, many of the virtual schools in our study also paid for the student's Internet connection (e.g., Akron Digital Academy, ECOT, Ohio Connections Academy Inc.) and a few also provided printers, scanners, or other "peripherals" (e.g., Goal Digital Academy, Lancaster Digital Academy). It seems that Rose and Blomeyer's (2007) concern about digital inequities based on physical access to technology appears to be mediated by Ohio law. In fact, families who are economically disadvantaged may be particularly attracted to the fact that the virtual school will provide their child, and, in actuality, their entire family, with a computer and Internet access. In other words,

gaining a computer with paid internet access may alone be an appealing enough reason for economically-disadvantaged students to transfer into virtual schools.

Perhaps another reason why a disproportionately higher number of economically-disadvantaged students may attend Ohio's virtual schools may be linked to the programs available. Namely, a few of virtual schools in our study were designed to serve "at-risk" students. Sometimes, "at-risk" students are those who are economically disadvantaged (Chen & Kaufman, 1997). For example, an annual report from Lorain Digital Academy clearly stated that the school was "designed to serve an 'at-risk' student population" (Lorain Digital Academy, 2012, p. 2).

Virtual schools position themselves as viable alternatives to traditional schools, offering struggling students a different form of learning when they are academically behind their peers in traditional schools. Underserved students in traditional schools, thereby, tend to enroll in virtual schools. For example, 47% of parents who participated in Klein's (2006) study of California Virtual Academies reported negative experiences in traditional public schools. ECOT—the largest K-12 virtual school in Ohio—serves as another example. The ECOT website explicitly indicates that ECOT provides schooling to "students who don't fit into the traditional classroom setting" (ECOT, n.d.). The website lists eight subgroups of students who might be a good fit for ECOT. Six out of these eight subgroups may involve economically-disadvantaged students and students with disabilities, including: "students with jobs, students with medical issues, pregnant and parenting students, bullied students, students wanting to eliminate the distractions of the traditional classrooms, and students needing to change schools mid-year" (ECOT, n.d.). Another example is Findlay Digital Academy, which advertises serving "students who need additional

credits for graduation, students with discipline or social issues in the traditional classroom” and “students who want to re-enter the diploma pathway” (Findlay Digital Academy, n.d.).

Similar to the economically-disadvantaged students, Ohio law addresses the needs of students with disabilities who attend virtual schools. Since 2005, Ohio’s state law has required “[e]ach internet- or computer-based community school” to “submit to the school’s sponsor a plan for providing special education and related services to disabled students enrolled in the school” (O.R.C. §3314.28(A)). The law also mandates that virtual schools certify to the state department of education that the plan is satisfactory, monitored, and implemented (O.R.C. §3314.28(B)). Many of the virtual schools in our study described how they would attend to the special needs of students with disabilities (e.g., Akron Digital Academy, Ohio Virtual Academy, Ohio Connections Academy).

Because our study found a higher proportion of economically-disadvantaged students and students with disabilities enrolled at virtual schools than at traditional schools, one could argue that Ohio’s virtual schools are leveling the playing field for some marginalized students. A claim such as this would defy a popular assumption that virtual schools serve gifted students primarily. Nonetheless, the increased access to virtual schools does not necessarily yield the gains in student achievement. To the contrary, the sheer percentage of economically-disadvantaged students and students with disabilities enrolled at Ohio’s virtual schools might mean that virtual schools face greater challenges in raising student achievement. In this study, according to school report cards retrieved from the ODE website, only five out of the 27 Ohio virtual schools met Adequately Yearly Progress (AYP) in 2010–11.

Our results show that the majority of the virtual schools did not meet AYP appears to be consistent with other studies. Miron and Urschel (2012), for example, reported a disturbing gap

in school performance between K12 Inc.-operated virtual schools and traditional schools: only 27.7% of virtual schools operated by K12 Inc. met AYP in 2010–11, compared to approximately 52% of public schools. It is worth noting that Miron and Urshel's (2012) finding of dismal virtual school performance was from their sample where student enrollment was merely 39.9% economically-disadvantaged students and 9.4% students with disabilities. In stark contrast, our study identified 65.0% of the students enrolled at Ohio's virtual schools were economically-disadvantaged and 16.6% were students with disabilities. This disproportionate representation of marginalized students might negatively influence student achievement at Ohio's virtual schools.

O'Donnell and Bloom (2012) reported Ohio's virtual schools are growing rapidly without the evidence that students are receiving an effective education. They identified lower graduation rates and college attendance rates at Ohio's virtual schools than traditional schools. In addition, according to ODE's value-added analysis which is used to measure schools' impact on student achievement from year to year, all seven statewide virtual schools met value-added measures in 2010–11. However, all seven schools failed to meet the value-added measure the following year (O'Donnell & Bloom, 2012). Despite these potential issues, the Ohio legislature passed a 2013 law which lifted the cap on creating new virtual schools (O.R.C. § 3314.013). Further, Ohio paid virtual schools \$209 million in 2010-11(O'Donnell & Bloom, 2012). Some criticized that Ohio virtual schools are big business due to the limited regulations and the numerous for-profit companies involved (O'Donnell & Bloom, 2012). When districts create virtual schools, it is a way for districts to keep state funding that would follow students to charter schools and virtual schools. As such, virtual schools may offer districts a cheaper alternative for students to recover credits (O'Donnell & Bloom, 2012). In light of these criticisms and the over-representation of

economically-disadvantaged students and students with disabilities in Ohio, school leaders and policymakers may face mounting challenges to provide quality virtual schooling.

In sum, Ohio's unique practices may help to explain the increased percentages of economically-disadvantaged students and students with disabilities in Ohio's virtual schools. By contrast, similar Ohio statutes addressing racial minority and LEP students do not exist.

### **Under-Representation of Racial Minority Students and LEP Students**

Our finding that racial minority and LEP students were under-represented validates past research (Lin, 2008; Miron & Urschel, 2012). To date, no empirical study has addressed the reasons why fewer racial minority and LEP students—but more economically-disadvantaged students and students with disabilities—enroll in Ohio's virtual schools compared to traditional schools. We assume the digital inequities among racial and ethnic groups are an extension of the educational inequities found in traditional schools.

Unlike the proactive practices used by virtual schools to recruit economically-disadvantaged students and students with disabilities, virtual schools might not specifically proactively target minority and LEP students. After the U.S. Supreme Court's ruling struck down race-based admissions policies in *Parents Involved in Community Schools v. Seattle School District No. 1*, (2007), virtual schools may be reluctant to recruit based on race, especially considering that recruitment efforts are typically found online in written form. It is possible that LEP students are discouraged from applying to virtual schools because individualized programming is unavailable to them. Unlike the clear legal requirements that ensure that students with disabilities receive a “free appropriate public education” as required IDEA, LEP students do not have legal entitlements that are as extensive as those of students with disabilities. Perhaps, as a result, none of Ohio's virtual schools mentioned LEP students on their websites.

Ohio does, however, have a standard anti-discrimination statute that applies to its virtual schools that states, “there will be no discrimination in the admission of students to the school on the basis of race, creed, color, disability, or sex” (O.R.C. §3314.06(D)(1)). Yet, a part of this law includes some exceptions that could limit Ohio’s virtual schools’ enrollment to:

- 1) create single-gender schools (O.R.C. §3314.06(D)(1)(a)(i) O.R.C.),
- 2) create schools that group students with autism with nondisabled children (O.R.C. §3314.06(D)(1)(b)),
- 3) create schools that serve “at-risk” students (O.R.C. §3314.06(B)(1)), as well as gifted students (O.R.C. §3314.06(B)(2)), or
- 4) give preferential enrollment to students who are a) siblings of a student who was enrolled the year prior (O.R.C. §3314.06(H)) or b) living within the same district of the school (O.R.C. §3314.06(H)).

Therefore, it appears that a slippery slope of exceptions has already been created for Ohio’s virtual schools that encourage the schools to select those students who are allowed to enroll—which some would define as differential treatment or discrimination.

### **Legal and Policy Implications**

Any time a potential to discriminate exists, the potential legal implications must be analyzed. Our findings have confirmed the past research that there are marked differences between the demographics of virtual school students when compared to traditional school students. Although it is unlikely that Ohio’s virtual schools were created with the purpose to discourage—or encourage—certain groups of students from enrolling, if students do not have equal access, public virtual schools could be vulnerable to legal challenges. This study analyzed the possibility of inequitable access by measuring disproportionate enrollment. While this study



only includes information from one state, it is meaningful that there were disparities in the enrollment of each of the four student subgroups measured.

Thus, our findings may indicate that certain students face obstacles accessing virtual education in Ohio. For example, a paucity of LEP students appeared in the 2010–11 Ohio's enrollment data. One reason this population of students may not be enrolling at virtual schools is because they do not believe their specialized learning needs will be addressed or perhaps the marketing materials are written in English. Alternatively, LEP students may have been counseled away from enrolling in virtual schools because administrators have deemed the costs of providing specialized curriculum and educators to be too expensive. The current study does not address why certain student populations are enrolling at greater or lesser frequencies to virtual schools, but the study does uncover that, for at least one year, Ohio's virtual schools had fewer racial minority and LEP students and more students with disabilities and economically-disadvantaged students.

As mentioned previously, our study's four student subgroups have unique legal protections pursuant to the Equal Protection Clause of the Fourteenth Amendment. Additionally, a variety of federal statutes including Title VI, EEOA, IDEA, Section 504, ADA, and NCLB exist to protect marginalized student groups. Considering that many believe virtual and charter schools are ripe for litigation (Martin, 2004; Miller, 2008), it is possible that our study's finding of disproportionate enrollment data could leave virtual schools vulnerable to legal challenges.

If the disparities in enrollment data is the result of government action, courts could decide virtual schools are committing unconstitutional *de jure* segregation. Yet, when schools are segregated based on individual choices, courts may determine it is permissible *de facto* segregation (Decker et al., 2010). Some may argue that the differences our study identified are

based on student/parent choice and not governmental mandates and thus, the resulting disparities are examples of permissible *de facto* not illegal *de jure* segregation. However, without knowing more about the individual enrollment policies and practices of Ohio's virtual schools, it is impossible to determine whether a convincing case could be made alleging *de jure* segregation. Only one case—*Central Dauphin School District v. Founding Coalition of the Infinity Charter School*—has questioned whether a charter school's preference to admit gifted students was permissible (Decker et al., 2010). In *Dauphin*, the Commonwealth Court of Pennsylvania held that the charter school's admission policies were not illegal; however, it was a close four-to-three decision and scholars have argued similar cases could be decided differently (Decker et al., 2010).

Therefore, if a virtual school student were to allege discriminatory access, the facts of the case would greatly influence the student's likelihood of success. The mere allegation that disparate proportions of students enroll in virtual schools may not persuade a court that illegal discrimination has occurred. Yet, as explained, when the student populations look different at virtual schools, it could cause people to scrutinize whether state or federal law has been violated. Therefore, administrators and policymakers should be aware that it is possible that not all students are provided equal access to online education and students could allege discrimination. When school leaders are cognizant of how the law applies, they can take action to avoid criticism and potential lawsuits. For example, they could ensure all student populations are actively recruited or develop curriculum that meets the needs of all students.

### **Strengths, Limitations, and Suggestions for Further Inquiry**

The findings of our study contribute to the research on virtual schools for two main reasons. First, there is a lack of research examining digital inequities in virtual schools across the

U.S., despite the growing attention online education is receiving. The purpose of this study was not to obtain a conclusive answer as to whether digital inequities exist. Instead, we aimed to conduct a preliminary investigation of a state known for its high virtual school enrollment and apply the data gleaned from the study to analyze potential legal and policy issues related to disproportionate student enrollment. Second, our study's unique methods provided an analysis of the quantitative data through a legal lens. By using a legal approach, we provided a richer analysis that specifically focused on preventing legal vulnerabilities and addressing potential policy concerns.

Meanwhile, caution must be exercised when generalizing this study's findings. As our study only examined Ohio's student enrollment for one year, the disparities in student enrollment revealed in this study are not intended to be generalized to other states. In addition, while this study finds evidence that digital inequities might exist in Ohio's virtual schools, the factors contributing to these disparities remain unclear.

These limitations provide new opportunities for further inquiry. Future researchers may want to include enrollment data from other states and across time in order to provide a more accurate picture of disparities in student enrollment across the country. Alternatively, qualitative data may further illuminate whether obstacles to accessing virtual schools exist. In particular, future researchers may examine what specifically is occurring with students with limited English proficiency because our findings were consistent with past research identifying extremely low numbers of LEP students enrolled in virtual schools. Future research could also scrutinize the relationship between student achievement and student enrollment at virtual schools.

### **Conclusion**

This study finds evidence that digital inequities may exist in Ohio's virtual schools. Specifically, we observed over-representation of economically-disadvantaged students and students with disabilities, as well as under-representation of racial minority students and students with limited English proficiency in Ohio's virtual schools as compared to traditional schools. We hope that the preceding discussion and legal implications raise administrators' and policymakers' awareness of potential digital inequities and legal issues. Needless to say, this study is intended to be only an exploratory investigation of digital inequities in virtual schools. The findings of our study highlight the need to advance scholarship and practice addressing digital inequities in virtual schools.

### References

- Americans with Disabilities Act of 1990, 42 U.S.C. Sec. 12101 (1990) (as amended 2008).
- Anthony, J., & Padmanabhan, S. (2010). Digital divide and equity in education: A Rawlsian analysis. *Journal of Information Technology Case & Application Research*, 12(4), 37-62.
- Barbour, M. K., & Reeves, T. C. (2009). The reality of virtual schools: A review of the literature. *Computers & Education*, 52(2), 402-416.
- Barbour, M. K., & Siko, J. P. (2012). Virtual schooling through the eyes of an at-risk student: A case study. *European Journal of Open, Distance and E-learning*, 15(1). Retrieved from <http://www.eurodl.org/?article=462>
- Barth, P. (2012). *Searching for the reality of virtual schools*. Center for Public Education National School Boards Association. Retrieved from <http://www.centerforpubliceducation.org/Main-Menu/Organizing-a-school/Searching-for-the-reality-of-virtual-schools-at-a-glance/Searching-for-the-reality-of-virtual-schools-full-report.pdf>
- Bathon, J. (2011). *Model legislation related to online learning opportunities for students in public elementary and secondary education schools*. Boulder, CO: National Education Policy Center. Retrieved from <http://nepc.colorado.edu/files/NEPC-VirtSchool-2-LB-Bathon.pdf>
- Brady, K., Umpstead, R. & Eckes, S. (2010). Unchartered territory: The current legal landscape of public cyber charter schools. *Brigham Young University Education and Law Journal*, 2, 191-274.
- Brown v. Board of Education, 347 U.S. 483 (1954).

- Cavanaugh, C. (2001). The effectiveness of interactive distance education technologies in K-12 learning: A meta-analysis. *International Journal of Educational Telecommunications*, 7(1), 73–88.
- Central Dauphin School District v. Founding Coalition of the Infinity Charter School, 847 A.2d 195 (Pa. 2004).
- City of Cleburne, Tex. v. Cleburne Living Ctr., 473 U.S. 432 (1985).
- Clark v. Jeter, 486 U.S. 456 (1988).
- Clark, T. (2000). Virtual high schools: States of the states—A study of virtual high school planning and operation in the United States. *Center for the Application of Information Technologies*. Retrieved from <http://www.imsa.edu/programs/ivhs/pdfs/stateofstates.pdf>
- Clark, T. (2001). Virtual schools: Trends and issues-A study of virtual schools in the United States. *Center for the Application of Information Technologies*. Retrieved from [http://www.wested.org/online\\_pubs/virtualschools.pdf](http://www.wested.org/online_pubs/virtualschools.pdf)
- Clark, T., & Berge, Z. L. (2005). Perspectives on virtual schools. In Z. L. Berge & T. Clark (Eds.), *Virtual schools: Planning for success* (pp. 9-19). New York, NY: Teachers College Press.
- Chen, X. and Kaufman, P. (1997). *Risk and resilience: The effects of dropping out of school*. Paper presented at the annual meeting of the American Association of Educational Research, Chicago, IL.
- Crawford, C. (2005). Towards digital equity within the learning environment: Overcoming the digital divide through openly accessible Internet-based tool. *International Journal of Learning*, 12(5), 61-70.
- Decker, J., Eckes, S. & Plucker, J. (2010). Charter schools designed for gifted and talented

students: Legal and policy issues and considerations. *Education Law Reporter* 259(1), 1-18.

Electronic Classroom of Tomorrow. (n.d). *Who we are*. Retrieved from

<http://www.ecotohio.org/WhoWeAre/About>

Equal Educational Opportunities Act of 1974, 20 U.S.C. sec. 1701-1721 (1974) (as amended 2000).

Findlay Digital Academy. (n.d.) *What is FDA*. Retrieved from

<http://fda.findlaycityschools.org/about.html>

Friend, B., & Johnston, S. (2005). Florida virtual school: A choice for all students. In Z. L. Berge & T. Clark (Eds.), *Virtual schools: Planning for success* (pp. 97-117). New York, NY: Teachers College Press.

Gorski, P. C. (2009). Insisting on digital equity: Reframing the dominant discourse on multicultural education and technology. *Urban Education*, 44(3), 348-364.

Grutter v. Bollinger, 539 U.S. 306 (2003).

Haughey, M., & Muirhead, W. (1999). *On-line learning: Best practices for Alberta school jurisdictions*. Edmonton, AB: Government of Alberta.

Individuals with Disabilities Education Improvement Act, 20 U.S.C. sec. 1400 (2004).

International Association for K-12 Online Learning. (2011). *Fast facts about online learning: Research, trends and statistics*. Retrieved from

[http://www.inacol.org/press/docs/NACOL\\_fastfacts-hr-web-April2011.pdf](http://www.inacol.org/press/docs/NACOL_fastfacts-hr-web-April2011.pdf)

K 12 Inc. (n.d.). *What is K12?* Retrieved from <http://www.k12.com/schools-programs>

Klein, C. (2006). *Virtual charter schools and home schooling*. Youngston, NY: Cambria Press.

Lau v. Nichols, 414 U.S. 563 (1974).

- Lin, E. (2008). "Virtual" schools: Real discrimination. *Seattle University Law Review*, 32, 177-200.
- Lorain Digital Academy. (2012). *FY 2012 Community school sponsor annual report*. Retrieved from <http://loraindigitalacademy.com/resources/AnnualReports/LorainK-12DigitalAcademySponsorReport.pdf>
- Massachusetts Bd. of Ret. v. Murgia, 427 U.S. 307 (1976).
- Miller, R. C. (2008). Validity, construction, and application of statute or regulation governing charter schools. *American Law Reports*, 78, 533.
- Miron, G., & Urschel, J. L. (2012). *Understanding and improving full-time virtual schools: A study of student characteristics, school finance, and school performance in schools operated by K12 Inc.* National Education Policy Center. Retrieved from <http://nepc.colorado.edu/files/nepcrbk12miron.pdf>
- Muller, E., & Ahearn E. (2004). Virtual schools and students with disabilities. *National Association of State Directors of Special Education*. Retrieved from [www.nasdse.org/Portals/0/Documents/Download%20Publications/DFR-0407.pdf](http://www.nasdse.org/Portals/0/Documents/Download%20Publications/DFR-0407.pdf)
- National Center for Education Statistics. (2011). *Digest of education statistics: 2010*. Retrieved from [http://nces.ed.gov/programs/digest/d10/tables/dt10\\_108.asp?referrer=report](http://nces.ed.gov/programs/digest/d10/tables/dt10_108.asp?referrer=report)
- No Child Left Behind Act of 2001, 20 U.S.C. sec. 6301 (2007).
- O'Donnell, P., & Bloom, M. (2012, September 30). How online education is changing school in Ohio. *State Impact NPR*. Retrieved from <http://stateimpact.npr.org/ohio/2012/09/30/how-online-education-is-changing-school-in-ohio/>



Ohio Department of Education. (2011). *State/Local report card*. Retrieved from

<http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEPrimary.aspx?page=2&TopicRelationID=115>

Ohio Department of Education. (2012, September 26). *Opening 5 new e-schools*. Retrieved from

<http://education.ohio.gov/GD/DocumentManagement/DocumentDownload.aspx?DocumentID=133707>

Ohio Revised Code (O.R.C.) § 3314.

Parents Involved in Community Schools v. Seattle School District No. 1, 551 U.S. 701 (2007).

Perry, T., Steele, C., & Hilliard, A. III. (2004). *Young, gifted, and black: Promoting high achievement among African-American students*. Boston: MA: Beacon Press.

Picciano, A. G., & Seaman, J. (2009). *K-12 Online learning: A 2008 follow-up of the survey of*

*U.S. school district administrators*. Retrieved from

<http://sloanconsortium.org/publications/survey/k-12online2008>

Pape, L., Adams, R, & Ribeiro, C. (2005). The virtual school: Collaboration and online

professional development. In Z. L. Berge & T. Clark (Eds.), *Virtual schools: Planning for success* (pp. 118-132). New York, NY: Teachers College Press.

Price, H. E., (2010). Does No Child Left Behind really capture school quality? Evidence from an

urban school district. *Educational Policy*, 24(5), 779-814.

Queen, B., & Lewis, L. (2011). *Distance education courses for public elementary and Secondary*

*school students: 2009-10* (NCES 2012-008). U.S. Department of Education, National

Center for Education Statistics. Washington, DC: Government Printing Office. Retrieved

from <http://nces.ed.gov/pubs2012/2012008.pdf>

- Rapp, K. E., Eckes, S. E., & Pucker, J. A. (2006). Cyber charter schools in Indiana: Policy implications of the current statutory language. *Education Policy Brief, 4*(3). Retrieved from [http://ceep.indiana.edu/projects/PDF/PB\\_V4N3\\_Winter\\_2006\\_CyberCharter.pdf](http://ceep.indiana.edu/projects/PDF/PB_V4N3_Winter_2006_CyberCharter.pdf)
- Rose, R. M., & Blomeyer, R. L. (2007). *Research committee issues brief: Access and equity in online classes and virtual schools*. North American Council for Online Learning. Retrieved from [http://www.inacol.org/research/docs/NACOL\\_EquityAccess.pdf](http://www.inacol.org/research/docs/NACOL_EquityAccess.pdf)
- Schoonover, J. & Feist, C. (2007). Using computers to design accessible learning environments. *School System Special Interest Section quarterly, 14* (1), 1-4.
- Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. sec. 794 (2000).
- Solomon, G., Allen, N., & Resta, P. (2003). *Toward digital equity: Bridging the divide in education*. Boston, MA: Allyn and Bacon Publishers.
- Thomas, S. B., Cambron-McCabe, N. H., & McCarthy, M. M. (2009). *Public school law: Teachers' and students' rights*. Boston, MA: Pearson.
- Title VI of the Civil Rights Act of 1964, 42 U.S.C. sec. 2000 (2007).
- U.S. Department of Commerce. (2011). *Exploring the digital nation: Computer and Internet use at home*. Department of Commerce's Economics and Statistics Administration and National Telecommunications and Information Administration. Retrieved from [http://www.ntia.doc.gov/files/ntia/publications/exploring\\_the\\_digital\\_nation\\_computer\\_and\\_internet\\_use\\_at\\_home\\_11092011.pdf](http://www.ntia.doc.gov/files/ntia/publications/exploring_the_digital_nation_computer_and_internet_use_at_home_11092011.pdf)
- U.S. Department of Education, Office of Educational Technology. (2012). *Understanding the implications of online learning for educational productivity*. Office of Educational Technology, U.S. Department of Education. Washington, D.C. Retrieved from <http://ctl.sri.com/news/ImplicationsOnlineLearning2.pdf>

- U.S. Department of Education. (2004). *Overview: Four pillars of NCLB*. Retrieved from <http://www2.ed.gov/nclb/overview/intro/4pillars.html>
- Warschauer, M., Knobel, M., & Stone, L. (2004). Technology and equity in schooling: Deconstructing the digital divide. *Educational Policy*, 18(4), 562-588.
- Watson, J., & Gemin, B. (2008). *Promising practices in online learning: Using online learning for at-risk students and credit recovery*. North American Council for Online Learning. Retrieved from [http://www.inacol.org/research/promisingpractices/NACOL\\_CreditRecovery\\_PromisingPractices.pdf](http://www.inacol.org/research/promisingpractices/NACOL_CreditRecovery_PromisingPractices.pdf)
- Watson, J., Murin, A., Vashaw, L., Gemin, B., & Rapp, C. (2011). *Keeping pace with K-12 online learning: An annual review of policy and practice*. Evergreen Education Group. Retrieved from <http://kpk12.com/reports/>
- Watson, J., Murin, A., Vashaw, L., Gemin, B., Rapp, C. (2012). *Keeping pace with K-12 online & blended learning: An annual review of policy and practice*. Evergreen Education Group. Retrieved from <http://kpk12.com/cms/wp-content/uploads/KeepingPace2012.pdf>
- Zucker, A. (2005). *A study of student interaction and collaboration in the Virtual High School*. Naperville, IL: Learning Point Associates.