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EDUCATIONAL INEQUALITY IN OHIO, 2016-17

A monograph by:

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Abstract

Conditions for students in Ohio are decidedly unequal due to a number of disparities related to race/ethnicity, gender, and socioeconomic status. Racial and economic segregation, high drop-out rates among economically disadvantaged youth, and expanding income inequality for Ohio families all contribute to the increasingly dire portrait of inequality in the state. This monograph begins to reveal an overall picture of educational inequality in Ohio, and offers some suggestions for closing the gap. First, we focus on issues such as immigration, school discipline, special education, and teacher quality in the domain of K-12. Next we provide an overview of inequalities related to access and training in educational technology. We also explore the generally poor outcomes of the "virtual schools" now gaining popularity from primary to postsecondary levels. Finally, we focus on disparities in access to higher education due to rising costs of college, decreases in state funding for students, and gaps in college readiness. With that, we highlight the unequal outcomes of higher education for students from more disadvantaged backgrounds and question the assumption that college is always a good investment. Ultimately we hope to use this emerging picture of inequality in Ohio and the preliminary discussions of potential recommendations as a starting point to begin repairing existing disparities and to aim toward a more just future for the state.

Introduction

Education in the U.S. is an immensely broad, infinitely complex, and incessantly deliberated topic. Amidst all of the nuances and complexities inherent in public and scholarly discourse, however, is the Department of Education's emphatic declaration that our nation's educational system serves two purposes: "fostering educational excellence and ensuring equal access" (Department of Education, n.d.). This monograph addresses both of these purposes, emphasizing the role of education in making a successful future available to every student regardless of race/ethnicity, gender, or socioeconomic status. We, the authors, are a class of doctoral students pursuing educational studies programs at a flagship public university. As educational scholars and leaders, we intend to examine patterns of educational inequality locally, in our own state of Ohio. We openly acknowledge that this monograph will only be an initial foray into the subject, necessarily limited in scope. Nevertheless, we offer our analysis of educational inequalities in the state, including serious challenges and our own recommendations, as a first step toward enacting change and moving in the direction of educational equality for all students.

Equality is a much-contested concept, about which political philosophers have been arguing for centuries. As Dworkin (2002) writes, "people who praise or disparage [equality] disagree about what they are praising or disparaging" (p. 2). For the purposes of this monograph, it is impossible to give any more than a cursory and incomplete treatment of educational equality. Even though we undertake an impossible task, it is still useful to communicate some understanding of what we mean when we use such weighty terms as "equality" and "success."

To start, it is important to note that the reading of equality endorsed here is not what is known as a "flat" equality (Dworkin, 2002). In other words, it does not entail the notion that all individuals are the same, or that they should receive the exact same space in the distribution of educational resources regardless of circumstances. For example, if treating students as equals implied that schools must provide for everyone in exactly the same way, then we could not offer additional aid to a person with a disability, or free and reduced lunch to students in need.

Yet, there is at least one way in which another sense of equality tends to factor into decisions made about schooling. The German philosopher Immanuel Kant, in his *Critique of Practical Reason*, situates equal respect for persons at the heart of his ethics (Strike and Soltis, 2009). Much of the modern notion of equality stems from his idea that all individuals have intrinsic worth, and should be equally valued simply because they are human (Dillon, 2015). This does not suggest that all individuals are the same with respect to abilities or capacities. Certainly people differ in terms of a number of variables, some natural and others social. Yet equal respect for

persons does not ignore these differences. In fact, it might require that these differences be taken into consideration when determining how to treat people. For students, the goal is to ensure that the distribution of educational goods (e.g. funding, teacher time, teacher quality, textbooks, etc.) reflects this equal respect for the dignity of all persons.

A particularly salient educational example might be that of a student with a disability. Insisting that a blind student use the same reading materials that sighted students use clearly would not respect her intrinsic worth. Providing adaptive reading materials is respectful not only because learning to read is an obvious important educational good to which all students are entitled; reading is not, in itself, something that is necessarily objectively good. Rather, teaching students to read is valued due to the idea that all students are equally entitled to pursue a flourishing life and that the ability to read is, at least somewhat, integral to living well, especially in our society as it is currently arranged.

Entrenched in this notion of equal respect for persons is the idea that all people should be equipped with the capacity to pursue their own conceptions of "the good life" as they conceive of it. If we take this notion seriously, then we might conclude that schools play an important role in facilitating this education for individual flourishing (Brighouse, 2005). In educational research, "success" is often measured by academic and employment outcomes such as graduation rates, college attendance, and earnings. However, it might also be useful to consider less "market based" notions of success. For example, we do not mean to imply that a person who is highly educated and works in a high-status position such as a doctor or lawyer is more successful than a person who works as an auto-mechanic or who stays at home with children. While some career paths are more highly valued than others by our society, it does not follow that people within these higher status fields enjoy a more robust and flourishing existence. It is also important to note that a re-conceptualization of the notions of success might alter our understanding of educational inequality.

With that, perhaps there is a danger in labeling certain populations as "disadvantaged" if we are not careful about what we mean by the term. First, we should attempt to understand what sorts of disadvantages educators and policymakers must acknowledge in order to uphold the value of equal respect for persons. Schools must play differing roles depending on the types of inequalities that they are attempting to alleviate. For example, if schools are charged with the mitigation of all existing inequalities, both natural and social, then there would be very good reasons to distribute most, if not all resources to those who are most disadvantaged. This might mean funneling a large proportion of funding to students with severe intellectual disabilities, while giving significantly less to non-disabled children. If schools are only responsible for diminishing the effects of "societally produced" inequalities such as racial or gender biases, low socioeconomic status, poor schooling, or difficult conditions at home, then the schools do not have to take natural cognitive abilities into account at all. If schools have no duty to diminish past injustices that occur outside the classroom, then a democratic system of equality in which all resources are evenly distributed would be promoted (Jencks, 1988).

Second, we want to avoid suggesting that students from disadvantaged backgrounds are working from some deficiency that must be corrected before they can achieve success. This acknowledges that inequality does not stem from a "natural" disparity between individuals, or even a variation of intrinsic worth between diverse communities. Instead, it comes from a difference in the way that society values particular individuals or communities. Said differently, a deficit model might imply that some populations are, in some sense, "broken" and in need of "fixing," when perhaps it is our society and its institutions that need fixing. A better way of thinking about it might

be that some populations are greatly underserved by the very institutions that are meant to help them live well. Therefore, we must acknowledge that it is not only the schools that need revising, but also all of the other economic and social policies that affect them.

Third, despite our stated value to equally respect all persons, we must acknowledge the limitations of our efforts to be inclusive. Socially constructed identities, such as race/ethnicity, gender, and social class, and the corresponding labels created to categorize people within those identities, do not capture all ways in which people identify. This monograph draws from many sources, across many disciplines that use different terms to represent the participants and populations studied. To create consistency, the authors have decided to use the terms "African American/Black," "Caucasian/White," "Latinx," and "Asian" when discussing race/ethnicity. When discussing gender, the authors will present a girl/boy binary to describe K-12 students, and a woman/man binary to refer to college students and adults. Furthermore, when referring to students in poverty, we will use Federal guidelines to establish poverty rates. Otherwise, when discussing socioeconomic status, we will use descriptors such as "high-income," "moderate-income," or "low-income," that reflect language used in the primary source. These descriptors do not go far enough to capture the complexity of social identity. However, in order to consistently use the same words that describe various identities throughout this paper, and to group students in similar ways according to race/ethnicity or gender, we may unintentionally assign labels that participants would not identify with. Challenging these labels and suggesting language that more accurately captures the great complexity of identity is work that future research may consider.

We recognize that this overview of terms might serve to confuse more than clarify. Regardless of our inability to come to a conclusion about the moral and ethical dimensions of how to approach inequality in Ohio, one thing is persistently clear: conditions for students in Ohio today remain decidedly unequal. While we do not endorse one form of educational justice over another, we do believe in the equal worth of all students, and agree that our notions of educational equality should flow from this principle. We also believe that considering these issues involving inequality and success aids us in evaluating the assumptions that our research might take for granted. And finally, it lends some insight into the prescriptions we might make as we look toward the future of education in Ohio.

History of Education in Ohio

Before looking further, to the present state of education in Ohio, it is beneficial to understand how we got to where we are today.

K-12. On February 19, 1803, Ohio became the 17th state as the first admitted to the union from the Northwest Territory. The Northwest Territory encompassed the parts of the country stretching west of Pennsylvania, north to south from the Great Lakes to the Ohio River, and the Mississippi river on the west (Bossing, 1931). The Land Ordinance of 1785 designated land in the Northwest Territory, belonging to the federal government, should be divided into townships. These townships were then further divided into sections, and numbered from 1 to 36. Section 16 of each township was set aside for school purposes, and Ohio was the first state to make this grant of Section 16 specifically for school purposes (Bossing, 1931; Miller, 1920). Being the first frontier state brought challenges, and from the moment of its inception, Ohio has worked to develop a statewide plan for education, and determine how to manage the funding for the state's education purposes (Miller, 1920). The constitution established when Ohio gained statehood remained in effect, and unchanged, until 1851. As noted by Miller (1920),

> It (the initial constitution) made no specific provisions for education but stated that means of education should be encouraged by legislative enactments; that all institutions of all grades, endowed in whole or in part from revenues derived from the donations of the United States, should be open without distinction to all scholars; and that associations of all persons might receive letters of incorporation from the legislature to enable them to hold estates for the support of their schools, academies, colleges, and universities. (p. 1)

Ohio's early educational history is marked with a clear prejudice against centralization. This early period can be characterized as having a heavy dependence upon local initiative and control, and educational initiatives were left in the hands of the local community. As the population continued to increase (45,365 in 1800 to 1,980,329 in 1850) so, too, did the need to develop a school system to meet the needs of all (Miller, 1920).

Issues affecting access and inequality in education for all of Ohio's publicly educated students is a problem the state, as well as the federal government, is working to correct. Many of these statewide problems stem from Ohio's model of funding for public schools. Ohio's school funding system is currently tied to property taxes, a system ruled unconstitutional by the Ohio Supreme Court (Innovation Ohio, 2014), and this disparity in funding only continues to perpetuate the problem of equality in state education. The Ohio Supreme Court has ruled on this unconstitutionality four times, with the first ruling, in 1997, coming in at a 4 to 3 majority. As noted by Justice Francis E. Sweeney on March 24, 1997, "By our decision today, we send a clear message to lawmakers: The time has come to fix the system. Let there be no misunderstanding. Ohio's public school-financing scheme must undergo a complete systematic overhaul" (Siegel & Vardon, 2012, para. 3). The most recent ruling came in 2002 in the case of DeRolph v. State of Ohio. The DeRolph case argued that school systems in areas with higher property taxes had a much easier time meeting the needs and providing more opportunities for students than did school systems in poorer areas. Although the court eventually overturned their previous four decisions, believing the state had made a "good faith effort," a comprehensive overhaul of the system still remains incomplete (Ohio History Central, n.d.a.). Federal accountability legislation also works in directing the actions within the state. In 1965, President Johnson enacted the Elementary and Secondary Education Act (ESEA) which provided in excess of $1 billion (through Title I) per year to assist districts in educating disadvantaged children (Klein, 2015). In 2002, No Child Left Behind (NCLB) was passed as an update to the ESEA. The primary goal of NCLB was to boost the education system to provide additional support for special education students, English-language learners, and the low-income, racial/ethnic minority children who were falling into an ever-increasing achievement gap. Under NCLB, states were not forced to comply, but if they did not, they would risk losing the Title I funding under ESEA (Klein, 2015). On December 10, 2015, the latest installment of the reauthorization in ESEA was passed with Every Student Succeeds Act. This new legislation, which will go into effect in 2017, will uphold protections for disadvantaged and high-needs students (United States Department of Education, n.d.).

Higher Education. The Land Ordinance of 1785 also impacted higher education and paved the way for the establishment of Ohio's first university, Ohio University, in 1804 (Knight & Commons, 1891). Ohio University was created to provide college education to the people of Ohio (Three Scale Research, 2012). The 19th century saw the fastest growth in the number of higher education institutions in Ohio as religious organizations established colleges to educate their members (Three Scale Research, 2012) and as legislation, such as the Morrill Act of 1862,

allowed the state to establish agriculture and mechanical arts colleges (National Academies Press, 1995).

In 1963, the Ohio Board of Regents was created (Ohio History Central, n.d.b.). Currently known as the Ohio Department of Higher Education, this cabinet-level agency for the governor of Ohio oversees higher education in the state. The Chancellor of the Ohio Department of Higher Education is a member of the governor's cabinet and advises the governor on matters related to public institutions in higher education. The Ohio Department of Higher Education impacts state policies, oversees state funded financial aid programs, and approves new degree programs (Ohio Department of Higher Education, 2016a).

As of 2016, Ohio's public institutions include 14 universities with 24 regional branch campuses, 23 community colleges, and over 120 adult workforce education and training centers (Ohio Department of Higher Education, 2016c). These institutions service around 600,000 students (Ohio Department of Higher Education, 2016c).

Additionally, there are 76 not-for-profit colleges and universities, 23 for-profit colleges and universities based in Ohio, 12 for-profit colleges and universities based outside of Ohio, and 29 out-of-state colleges and universities with campuses or certificates of authorization to operate in Ohio (Ohio Department of Higher Education, 2016c).

Ohio is also home to two Historically Black Colleges and Universities (HBCU): Wilberforce and Central State University. HBCUs were founded to provide access to higher education for African Americans (Thurgood Marshall College Fund, 2015). Wilberforce is the oldest, private HBCU in the U.S. (Wilberforce University, n.d.). Another notable institution in Ohio on the forefront of addressing inequality is Oberlin College, which was the first to admit women and African Americans/Blacks in the U.S. (Three Scale Research, 2012).

Alternative Education Options in Ohio

The State of Ohio has shifted in recent times towards providing more alternatives to the traditional public schools as a way to protect and champion disadvantaged and high needs students. Open enrollment, charter/community schools, and scholarships have given parents more educational options for their children.

The Cleveland Scholarship Program was launched in 1996 and allowed students in the Cleveland Metropolitan School District the opportunity to apply for scholarships that would pay the cost of tuition to a private or neighboring public school. This program was challenged in court, but the Supreme Court upheld its legality in a 2002 ruling in Zelman v. Simmons-Harris. In 2005, Governor Bob Taft signed legislation that created a new scholarship program, the Ohio Educational Choice Scholarship Program, also known as EdChoice (n.d.). This scholarship program was created to allow students in poorly performing districts from across the state the option to transfer to private schools (Hill, 2009). During the 2015-2016 school year, 8,088 students took advantage of the EdChoice Scholarship (Friedman Foundation, n.d.).

Ohio approved open enrollment in 1989. Open enrollment allows a student who lives in one district to attend a different one. When open enrollment was originally approved, school districts were originally only allowed to accept students from adjacent districts. However, the program was expanded in 1998 to allow districts to adopt one of three different options. First, they can accept students from any school district in Ohio. Second, districts may decide they only want to allow students to open enroll from an adjacent district. Third, districts may decide they want to decline accepting any students who wish to open enroll from other districts (Dackin, 2013).

Open enrollment is a concept with many different elements. For instance, if a family decides to enroll their student into a different district from where they live, the family is responsible for transportation. The receiving district bears no legal responsibility. Additionally, when a student open enrolls in another district, the state funding for that student follows them to the new district, which creates winners and losers. For example, Union-Scioto Local Schools had a net gain of 321 students through open enrollment during the 2014-2015, providing $1.8 million dollars in additional revenue. The state legislature convened an Open Enrollment Task Force in 2013 to study the issue and make recommendations, which included addressing the issue of compensating the districts that are losing high numbers of students to open enrollment. As of March 2, 2016, the state legislature has yet to take up any of the Task Force's recommendations (Balusik, 2015).

Ohio has had a more complex history when it comes to charter schools, or community schools, as they are known here. Community schools were originally created in the summer of 1997 when the Ohio Legislature inserted an amendment into a budget bill to help ensure successful passage. This amendment created a pilot system of community schools limited to Northeastern Ohio. Additionally, the Lucas County Service Center and the University of Toledo were the only entities approved to sponsor charter schools (Russo, 2005).

However, the state very quickly expanded access to community schools statewide. Two months after the pilot project was approved, the Ohio Legislature passed legislation that allowed any of the eight largest urban school districts and the State Board of Education to sponsor community schools. By 1999, another bill was passed that allowed new community schools to be set up in any of the state's 21 urban districts. By 2003, further bills were passed that allowed community schools to be set up within any district that had been labeled as "academic watch" or "academic emergency" by Ohio officials (Russo, 2005).

Community schools in Ohio have operated under very different rules from traditional public schools. They are not required to maintain the same levels of transparency expected of traditional public schools. For instance, $27.3 million have been misspent and over 200 community schools have closed since 1997 (Livingston, 2015). As of March 1, 2016, legislation is pending in the Ohio Legislature to provide new levels of oversight to Ohio's community schools.

Policies Affecting K-12 and Higher Education in Ohio

There are several important policy trends occurring in the state concerning K-12 and higher education funding. These policies and their associated practices are influencing the level of inequality experienced by Ohio's students. Ohio was hit hard after the recession of 2008, suffering its greatest dip in state funding in fiscal year 2012-13. State funding has been slowly rising since, but complete recovery from the recession of 2008 is not projected to occur until 2017. Although the budget for the next two years that was passed by the House increases nominal dollars to districts, it is still $447 million less than the budget during the recessionary years, 2008-09. Also, there has not been a consistent education funding formula during the last decade in Ohio. The state has put forth four different funding formulas since 2009. This uncertainty makes district leaders uneasy about spending money to increase staff and grow programs because they cannot reliably predict their schools' budget models for the following year (Patton, 2015).

The following are two examples of how districts' hesitation to spend money is impacting students, especially disadvantaged students. First, districts that are suffering budget cuts, along with others that are finally receiving more funding, do not appear likely to end the Pay-to-Play program for extracurricular activities where costs to students can range from $66 to $153 to

participate in an extracurricular program (Patton, 2015). The inherent inequality is easy to see in the Pay-to-Play policy. Those students whose families have the money will get to play while those students whose families are unable to pay will be left out of many valuable school activities. Second, approximately one-third of districts are still cutting staff to make up for decreased state funding. High staff turnover and lack of access to extracurricular activities for kids of modest to low incomes due to cost has a harmful effect on student achievement (Patton, 2015). Some districts have gone to the polls to pass levies or renew existing levies, which have been met with resistance. The "property tax rollback" tax relief limit of 12.5% for residential properties, set in the state budget bill for FY 2014-15, also applies to levies that raise new funds. Data from the Secretary of State shows that in the November 2015 elections, fewer schools sought out new monies at the polls due to the difficulties involved (Patton, 2015). Poorer districts, without a large tax base, are struggling to obtain funds to keep a stable staff and provide the resources needed to best educate their students. The state must address the funding discrepancies among districts to improve the equality of educational opportunities for all Ohio students.

Another problematic issue that needs to be addressed is that high school is often not a positive experience for struggling students. The Ohio Department of Education has instituted the Ohio Improvement Plan to provide guidance and support for those schools suffering from low ratings year after year. The goal is to improve teaching quality along with improving the whole educational experience of students in low performing schools (Ohio Department of Education, 2016b). Regardless of these school improvement efforts, many students still opt to leave high school before graduation. Those students may look to earning a high school equivalency certificate, such as the General Education Diploma (GED). However, this option for students is not without policy-driven challenges and Ohio is facing a crisis of increasing the number of poor families if the high school equivalency process is not reevaluated and fixed. The GED has been an opportunity for students to earn a high school equivalency, which was taken advantage of by more than 14,800 students each year in Ohio. Since 2013, however, that number has dropped 85% to roughly 2,200 in 2014 (Halbert, 2016). The reasons for this decline can be found in the changeover from the GED test being state funded to being purchased by Pearson, a major publisher of educational materials for K-12, higher education, and corporate training. The test questions were rewritten to be more challenging, the cost of the test increased from $40 to $120, and registration is required to be completed online with a credit card. These policies leave many students unable to register, pay for, or pass the test. Unfortunately, this leaves Ohio about 22,000 workers short in potential new hires each year in an economy that increasingly requires a high school diploma or equivalency for any job (Halbert, 2016). This means that those students who were struggling in high school, many from lower socio-economic backgrounds, now have a harder time attaining a GED and may end up in a perpetual cycle of low employability and a life of poverty.

There is much debate surrounding the worth of a college education at a time when tuition costs continue to rise and job market prospects are discouraging (Daly & Bengali, 2014). The Obama Administration argued that the fastest growing jobs require postsecondary education and that "higher education is now the clearest pathway into the middle class" (White House, n.d., para. 1). Though the former President set the goal to have the highest proportion of college graduates by 2020, there are many issues regarding access and retention within higher education that must be addressed.

Financial inequalities, college readiness, and affordability are key components when considering college access. "Just over half of our high school graduates in the poorest quarter of

families attend college" (White House, n.d., para. 2). While education is a good that all should have access to, it is evident that the financial and political complexities and inequalities that impact K-12 also influence access to higher education. Individual and institutional inequalities impact performance on college entrance exams, navigating the cost of college, and making the decision to attend college.

For those who attend college, shifts in state funding caused by the 2008 recession have impacted financial aid. The loss of grants and state funding has resulted in the reliance on student loans and more debt. Scholars argue that college graduates will recoup tuition costs by age 40 (Daly & Bengali, 2014), but there is growing concern for the nearly 23% of Ohioans who leave college with debt but no degree (Halbert, 2014). Graduation disparities also exist by race/ethnicity. From 2011, the six-year graduation rate at four-year public institution in Ohio for African-Americans/Blacks was 32%, 56% for Whites/Caucasians, and 69% for Asians. (Graphical representation of this data can be found in the *Advancing Postsecondary Opportunity, Completion, and Productivity: 2012-2013 Essential Performance Indicators for Ohio and Selected Peer States*, p. 21 http://www.mhec.org/sites/mhec.org/files/201213OH_polindicator_rpt-rev.pdf.)

Though there are many challenges, and we know that higher education will not solely end inequality, college graduation does have personal and societal benefits. It is in the best interest of Ohio to understand and address the complexities associated with access and degree completion in higher education.

Much of what we have introduced thus far will be elaborated upon later in this monograph. The issues around educational inequality in Ohio are broad and deep. It is not only policies within education that promote the continued segregation of students along lines of potential opportunities, but also social, economic, and political policies. None of the problems plaguing education in Ohio were created or exist in a vacuum, and the solution to eradicating educational inequality in Ohio will have to be borne from a consideration of the interplay between socio-economics, politics, business, and education. Housing, communities, incarceration rates, access to higher education, socioeconomic status, and ultimately poverty level, are all factors related to our failing system.

Educational Inequality within K-12 Education

In Ohio's K-12 schools, students have varied levels of educational opportunity and equality. Arguably, one of the greatest causes of educational inequality in the U.S. is related to income. Often, children living in poverty experience obstacles in and outside of the classroom that impact their educational experience, and, in turn, their educational success. This issue is particularly relevant in Ohio with the latest annual report showing that 11.6% of families in Ohio (340,000) were living in poverty in 2013-2014 (Development Services Agency, 2016). In addition to the inequality created by income differences, disparities are especially prevalent for racial and ethnic minorities such as African American/Black and Latinx students. Students from these communities drop out of school more frequently than their White peers. Additionally, they are more likely to be suspended or expelled and more likely to be placed in special education for a Specific Learning Disability (SLD) or Emotional Disturbance (ED). Finally, students of color are more likely to be secluded from their peers. In the following sections, we will explore inequalities further within the following areas: student socioeconomic status, academic achievement, school discipline, special education qualification and services, the use of restraint and seclusion, and teacher quality.

Educational inequalities are often traced back to systemic racism. Racial re-segregation in schools has been a problem since the 1980s and recently, Columbus City Schools were declared to have one of the highest segregation scores in the nation. Columbus' African-American/Black-Caucasian/White dissimilarity score is 59.9, according to a study of 2010 Census data (Logan & Stults, 2011). A score above 60 on the dissimilarity index indicates very high segregation. In nearly half (49.3%) of schools in Ohio, 90% or more of students are the same race, usually Caucasian/White, according to state data for 2012-13 (Brown, 2014). In addition to racial segregation, other factors such as social background differences were found to be associated with education inequality. A report showed that Ohio had among the largest increases in the poverty gap between 2003 and 2015 on National Assessment of Educational Progress (NAEP) reading and math scores, ranking 43rd in the nation in poverty-gap change (Education Week, 2016a). Despite this poverty gap, Ohio succeeds at driving resources to the highest-poverty districts. The districts with the higher proportion of students in poverty receive about 22% more dollars per student from state and local sources than the districts with the lower proportion of students in poverty. However, the Appalachian region of Ohio has comparatively low fund-raising capability (Baker & Corcoran, 2012).

Income Gap

Income inequality in Ohio has been widening over the last 25 years. From 1979 to 2011, income in Ohio grew on average by 20.4%; however, the income of the top 1% increased at a disproportionate rate of 70%, whereas the income of the bottom 99% shrank by 7.7%. Furthermore, the average income of the top 1% was 18.1 times greater than that of the bottom 99% (Sommeiller & Price, 2014). In a report by the Urban Institute, Columbus is the second most economically segregated major metro area in the country, after Austin, Texas (Florida & Mellander, 2015). A widening income gap results in fewer children from low-income households seeking a college degree. This income gap further exacerbates the college enrollment and completion rate of low-income and high-income earners. For instance, Baum (2014) demonstrated that individuals with higher degrees typically earn more money (Figure 1).

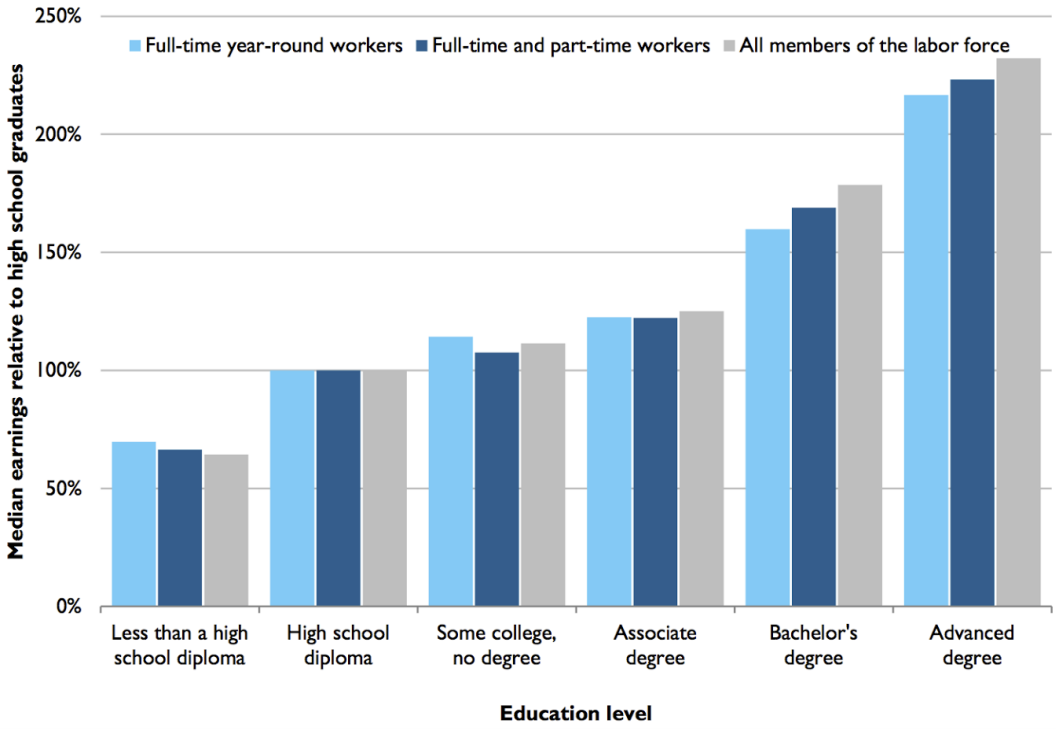

Figure 1. Median earnings of individuals ages 25 and older relative to high school graduates, by work experience and level of educational attainment, 2012. Used with permission: Baum, 2014.

Ohio poverty levels vary across the state. During the period between 2010-14, poverty rates between counties across Ohio indicate large variation. Noticeably, the 32 county Appalachian area had an average poverty rate of 17.6%. Moreover, among the counties with the highest poverty rate, 9 out of 11 were from Appalachia (Ohio Development Services Agency, 2015). Also, counties with large metropolitan areas tend to have higher poverty rates. For example, Allen (Lima), Franklin (Columbus), Hamilton (Cincinnati), Mahoning (Youngstown), and Montgomery (Dayton) counties all had poverty rates higher than the state average of 15.8% (Ohio Development Services Agency, 2015, p. 14-15). (Graphical representation of this data can be found in the Ohio Poverty Report, p. 14 https://www.development.ohio.gov/files/research/p7005.pdf.)

As the Gap Grows: Students' Socioeconomic Status and Maslow's Hierarchy of Needs

The number of young children living in poverty within Ohio is alarming. According to the *Ohio Kids Count Data Book* (Children's Defense Fund-Ohio, 2015), in recent years, the number of young children living in poverty has increased by more than a quarter of the total population. In 2016, Ohio ranked 38th, with 50 being the worst, for young children (under age 6) living in poverty. The impact of poverty in early childhood can linger throughout a child's life and across communities. Impoverished families struggle to provide enough support for their children. The data shows that 32% of children in poverty come from households where none of the parents are employed. Among racial and ethnic minority children, the situation is even worse –young African American/Black children's poverty rate is 55.5% and young Latinx children's poverty rate is 40.3% (Children's Defense Fund-Ohio, 2016).

One of the greatest challenges for low-income families is hunger. About 653,410 children in Ohio are food insecure (Children's Defense Fund-Ohio, 2016). Food insecurity can be identified

by observing whether a person has secure access to adequate amounts and quality of food in order to maintain a healthy life. Experts warn that the ripple effect of food insecurity can be enormous (Children's Defense Fund-Ohio, 2016). Malnutrition is critical because it can be directly connected to children's health status and their well-being. Early childhood food insecurity causes mental health issues such as anxiety and stress, which can affect students' learning, social relationships, and academic achievement.

If the basic needs of children are not guaranteed and are threatened, they can encounter serious barriers that hinder cognitive and behavioral development. Maslow's Hierarchy of Needs suggests that the basic needs are the most fundamental and are the pre-potent of all other needs (Maslow, 1943). Children, whose needs are not met, may develop at a slower rate.

The differences that emerge between students living in poverty and affluent students become increasingly prevalent as students move through school. When measuring academic differences between students, oftentimes reports utilize the National Lunch Program as an indicator of poverty level (see Table 1). A report from *Education Week* (2016b) found that a 28.7 point reading gap exists between fourth-grade students who are eligible for the National Lunch Program and fourth-grade students ineligible for the National Lunch Program. This represents a 4.6 point increase in the reading gap between these groups from 2003 to 2013. Nationally, the gap increased only .7 points during this period. In addition to reading ability, this gap is also prevalent in mathematics. A 27.3 point gap exists between eighth-grade students eligible for the National Lunch Program and eighth-grade students ineligible for National Lunch Program. This is a 2 point increase in the math gap compared to 2013. Identifying these specific academic gaps between students living in poverty and affluent students helps to characterize the difference in quality of education these students receive. With 44.28% of students in Ohio eligible for National Lunch Program in the 2013-2014 school year, these gaps are impacting a high volume of students (United States Department of Education, 2015).

Table 1

Poverty and Free and Reduced Lunch Guidelines for the U.S. of America (excluding Hawaii and Alaska)

Household Size	Federal Poverty Guidelines: Annual Income	Eligible for Reduced Price Meals: Annual Income	Eligible for Free Meals: Annual Income
1	$11,770	$21,775	$15,301
2	$15,930	$29,471	$20,709
3	$20,090	$37,167	$26,117
4	$24,250	$44,863	$31,525

5	$28,410	$52,559	$36,933
6	$32,570	$60,255	$42,341
7	$36,730	$67,951	$47,749
8	$40,890	$75,647	$53,157
For each additional family member add	$4,160	$642	$5,408

Source: United States Department of Agriculture Food and Nutrition Services, 2015/2016 National School Lunch Program Income Guidelines.

Impact of Race and Socioeconomic Status on Educational Outcomes in the State of Ohio

Previously, we argued that race and socioeconomic status are factors which contribute to educational inequality. Conversely, educational inequality perpetuates gaps in wages, health outcomes, and incarceration rates. Although students might enter schools at somewhat equal levels, the gaps in achievement between racial, ethnic, and socioeconomic groups are found before students' entry into kindergarten. Unfortunately, these disparities persist throughout every level of education. Despite wide-ranging interventions, massive achievement gaps still remain between races/ethnicities, and between the rich and the poor within Ohio. The following section provides an overview of the persistent racial, ethnic, and socioeconomic status gaps in achievement and education outcomes at all levels of education in Ohio—reading and math readiness in K-12, high school graduation and dropout rate, and postsecondary degree completion rate.

Gaps in Educational Outcomes in K-12

Educational disparities in race, ethnicity, and socioeconomic status may stem from differences in education readiness at an early age. Studies have found that White young children (aged 0-5) were read to at a much higher percentage (57.6%) than African American/Black (30.6%) or Latinx children (36%) (Children's Defense Fund-Ohio, 2013). Moreover, the gaps between children with different race, ethnicity, and high and low socioeconomic status have been found to exist at early stages of schooling. Nation's Report Card showed that in 2009 there were disparities in reading skill between African American/Black students and Caucasian/White students, and students with high and low socioeconomic status among the fourth graders in Ohio public schools (National Center for Education Statistics [NCES], 2010). These gaps have persisted since 1992. More recently, the result from *2013 Ohio Kids Count Data Book* has shown disparities still exist in fourth-grade reading proficiency rates, in the 2010-2011 school year, between students from different races/ethnicities and socioeconomic statuses (Children's Defense-Fund Ohio). Moreover, the results from *2013 Ohio's Race to the Top Year Two Progress Report* shows that in the school year of 2011, Non-White students in grades 3 through grade 10 had lower reading and math proficiency rates (60%) compared with those of Caucasian/White students (80%) (Hawley, Kortyka, Porter, Schill, & Zagorsky, 2013). Math and reading gaps between economically advantaged and disadvantaged students in grades 3 through 10 were also found and the gap has

widened from 2011 to 2012. The gap in math increased by 0.3% and the gap in reading performance increased by 0.5 percent.

In the 2012-2013 academic year, Ohio's high school students graduated at a rate of 82.2%, which is slightly higher than the national average of about 80%. However, the graduation rate of low-income students for the same year in the state was 69.6%, slightly lower than the national average of 73.3% for low-income students (ED Data Express, 2015). The results from *Ohio's Race to the Top Year Two Progress Report* confirmed this trend, showing that the four-year longitudinal graduation rate for non-economically disadvantaged students was more than 20% higher than that of economically disadvantaged students (Hawley et al., 2013). The results from *Ohio Kids Count Data Book* showed that for the 2009-2010 school year, African American/Black (65%) and Latinx (63%) students tended to have lower high school graduation rates compared with their Caucasian/White (89%) and Asian (94%) counterparts (Children's Defense Fund-Ohio, 2013). Gaps in dropout rates also exist among racial, ethnic, and socioeconomic status groups. *Ohio's Race to the Top Dropout Tracking Report* showed that the majority of ninth-grade dropouts were economically disadvantaged students and African American/Black students (Hawley, et al., 2013).

Academic Achievement Gap among Immigrant and Refugee Students and Native-Born Students

Similar to poverty and low-income influences on students' learning, social relationships, and academic achievement, racial and ethnic background also has a huge impact on students' academic success and the academic gap between students. Racial/ethnic disparities in educational achievement is an important component of the inequalities in America (Morris & Perry, 2016), and the size of the non-English –speaking school-aged students is growing rapidly in Ohio because of recently arrived refugees from Africa and the Middle East (Richards, 2014). The term "refugee" refers to someone who has been forced to leave her/his original place because of war or religious or political reasons (Refugee, 2016). Since 1983, 16,596 refugees from around the world, 57% of these refugees under the age of 18, have been resettled in Columbus and 59.25% of them came in the past 10 years (Impact of Refugees in Central Ohio-Report, 2015). The number of immigrants in the U.S. was 42.4 million in 2014 which is similar to the total number of refugees in Ohio (Zong & Batalova, 2015). According to Chung, Bemak and Grabosky (2011), there are three types of immigrants: (1) voluntary immigrants (immigrants who migrated to the U.S. for more chances and a better life), (2) involuntary immigrants (those who are forced to migrate to the U.S. due to untenable conditions in their home country), and (3) undocumented immigrants who immigrated to the U.S. without legal papers. Researchers have clearly pointed out that there is an academic gap between immigrant students, and non-immigrant students (American Psychological Association [APA], 2012; National Assessment of Educational Progress, 2005; NCES, 2013). For instance, Azzolini, Schnell, and Palmer (2012) stated that immigrant students underperform all other groups including native-born students. Research has also shown that there are many reasons for the academic disparity between native-born and non-native students. These are: socioeconomic status, the language barrier, parent participation, cultural differences, teacher expectations, peer pressure, and lack of mentors and positive role models (Leon, Villares, Brigman, Webb, & Peluso, 2011). In the same way, "cultural contradictions, or a cultural mismatch between school and home environments, can lead to lower academic performance, problems associated with students' behaviors, poor communication, and the continued use of ineffective instructional strategies" (Leon, et al., 2011, p.75). Indeed, most of the challenges faced by immigrant students are nested

in environmental dynamics and arise from the intersection of a variety of parameters such as race, ethnicity, poverty, culture, language, and psychological factors.

Race and School Discipline: The School to Prison Pipeline in Ohio

In addition to disparities in educational attainment, students of color are disproportionately disciplined in K-12 schools across the U.S. The United States Department of Education Office of Civil Rights (2014) described disciplinary trends across numerous demographic lines shows significant disparities in how different groups of students are disciplined according to race. Overall, African American/Black students are suspended or expelled 3 times as frequently as their Caucasian/White peers for the same infractions. Approximately 5% of Caucasian/White students are suspended annually. Comparatively, 16% of African American/Black students are suspended each year, and within that group, African American/Black girls were suspended at a rate of 12% — far greater than girls of other racial/ethnic groups and most categories of boys. Unfortunately, disparities begin as early as preschool. African American/Black students make up 18% of preschool enrollment, but they comprise 48% of preschool students receiving more than one suspension out of school. White students, representing 43% of preschool students, only receive 26% of out-of-school suspensions more than once (United States Department of Education Office of Civil Rights, 2014). After breaking school rules, Caucasian/White students remain connected to their school communities, while students of color are suspended/expelled and sent the message that they no longer belong. Though this phenomenon occurs across the U.S., Ohio ranks 14 out of 50 in disproportionality of discipline by race (Staats & Contractor, 2014). This means that disciplinary policies in Ohio schools are some of the most unequal in the country, which merits further exploration of causes and solutions.

One policy that contributes to inequality is "zero tolerance," the use of predetermined consequences for student misbehavior without consideration of individual circumstances (e.g., a student may be suspended for bringing nail clippers to school if the school considers nail clippers a weapon). Under zero tolerance policies, students are pushed out of the classroom and often arrested in school by a school-based police officer (also called a resource officer in many districts). This introduces students to the criminal justice system and begins the school-to-prison pipeline. Students who are frequently suspended are more likely to drop out of school and ultimately end up in prison (Rudd, 2014).

Though zero tolerance policies were initially implemented in the 1990s to reduce student misbehavior and to equally punish all rule-breaking students, they have actually increased the inequality in discipline procedures across the U.S. Since the nascence of zero tolerance policies, disparities in discipline by race have increased, and students of color are now more likely to receive harsher punishments than their White peers compared to 20 years ago (Children's Defense Fund – Ohio, 2012). Furthermore, even though the American Psychological Association Task Force stated that zero tolerance policies are not effective at making schools safer, many schools still employ such policies (APA Zero Tolerance Task Force, 2008). In Ohio, senators have proposed legislation that would abolish mandated zero tolerance policies and instead require schools to consider students' individual circumstances when determining punishments for misbehavior. This bill was proposed in February 2015, but has yet to be presented in a hearing (Gilchrist, 2015).

Although zero tolerance policies have increased in schools, the underlying mechanism that maintains the discipline gap by race is implicit bias, the often unconscious negative feelings and attitudes that individuals have toward others based on their race, ethnicity, age, or appearance (Rudd, 2014). Implicit bias contributes to the school-to-prison pipeline by subtly shaping

educators' expectations, perceptions, and discipline of students of color (Champion of Children Report, 2015). For students of all races and ethnicities, the most common classroom infraction is disobedient or disruptive behavior (Staats & Contractor, 2014). Unlike possession of a weapon on school property, disobedient/disruptive behavior is a highly subjective offense that can be viewed differently depending on the circumstances of the classroom on a particular day. The subjective nature of interpreting students' behavior allows for implicit bias to influence teachers' judgment, which makes it more likely that students of color will be punished more severely than their Caucasian/White peers. Unless implicit bias is addressed, it is unlikely that school policies alone can improve outcomes for students of color.

Special Education Qualification of Racial Minority Students

Along with disparities in academic achievement and discipline, the disproportionate representation of students of color in special education is also among the most critical issues faced by U.S. public schools. Black and African American students are 2.08 and 2.22 times more likely to have been diagnosed with either Intellectual Disability (ID) and Emotional Disturbance (ED), per the 2016 Department of Education's annual report to Congress ("Thirty-eighth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, Parts B and C. 2016.," 2016). The annual report cited the disproportionate representation of racial and ethnic minorities as a major concern for the Office of Special Education Program. Data from the annual report shows that African American/Black persons made up 14.1% of U.S. student population in the fall of 2014, but they represent 18.8% of the students classified with a disability. The same report showed that African American/Black students are diagnosed with the highest rates of ED (8% of their population), ID (10%) and the fourth highest rate of Specific Learning Disabilities (SLD)s (41.1%) than other racial/ethnic groups. Only American Indian/Native Americans (45.4%), Native Hawaiian/Other Pacific Islanders (50.7%), and Hispanic (47.4%) groups had higher rates of SLD diagnosis ("Thirty-eighth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, Parts B and C. 2016.," 2016). However, the percentage of the overall population of those first two groups does affect their diagnosis rates and representation in the general population and as compared to their counterparts. In Ohio, 19.6% of African American/Black students are diagnosed with SLDs whereas their representation in the general category is only 16.1%. Likewise, Ivey (2007) found that African American/Black students are overly identified in the disability categories of ED in urban school districts in Northeast Ohio.

There could be several contributing factors towards unequal educational opportunities for African American students as a result of disproportionate eligibility determination. Waitoller, Artiles, and Cheney (2010) conducted a review of research and found that causes of disproportionality can be defined in three broad categories**:** (1) socio-demographic characteristics (i.e., SES, health, and environment) of the individual, (2) power and structural differences due to race, (3) and biased professional decision-making practices. Also, Ivey (2007) talked about the subjective approach in assessment as a leading factor as she found that the problem of disproportional representation is more significant in the disability categories that require professional judgment such as ED and SLD as opposed to disability groups that have known organic causes and do not require professional judgment. Furthermore, multiple studies indicate race and ethnicity as influencing factors on teacher referrals for special education determination (Acker, 2006; McIntyre & Pernell, 1985; Tobias, Cole, Zibrin, & Bodlakova, 1982). Moreover, a lack of cultural competency in educators has been attributed to the failure of students of color in education (Irvine, 1990), which consequently leads them towards special education determination.

Special Education: Restraint and Seclusion

Students that have been evaluated and determined to be eligible for special education services have the right, by law, to a free, appropriate, public education. However, many of these services have shown a consistent pattern of inequality and bias. Regardless of race and ethnicity, many students diagnosed with a disability exhibit some behavior problems as a result of their diagnosis. (Disability Rights Ohio, 2016) Restraint and seclusion are two methods used to control behavior in schools. Restraint is defined as any method, physical or chemical, that prevents a student from continuing an act of aggression toward themselves or others. Physical restraint refers to using hands or other means to deny a student freedom of movement. Chemical restraint involves the use of drugs to suppress behavior. Physical restraint is the most common type used in a school setting. Seclusion is considered removing a student from a situation in which they are disruptive or causing harm to others. Most often this entails a specific room in the school building, but can also include a remote section of the room in which the behaviors are occurring. While either can be used with any student, they are, however, used more often with students with disabilities and students of color. For the purposes of this section, restraint and seclusion will be discussed as it applies to students diagnosed with a disability.

Disability Rights Ohio published a report in 2015, and again in 2016, based on data from the 2013-2014 school year, breaking down reported restraints and seclusions, as required by state law (Disability Rights Ohio, 2015). When the results were examined by school district type, they showed a pattern toward increased use of both restraint and seclusion in urban schools with high poverty. Data from the state shows that urban districts are comprised of between 45% and 70% students of color and include approximately 410,000 of the 1.6 million students in Ohio schools (Ohio Department of Education, 2015b). In order to compare equally between school districts of varying size, the report bases the number of incidents on a per 1,000 student basis.

According to Disability Rights Ohio (2015), urban school districts with high or very high student poverty reported the most restraints per students, 9.22 and 16.23 incidents per 1,000 students respectively. They were also the only district type to exceed the statewide average of 7.28 incidents per 1,000 students. Additionally, students with emotional disturbance were most likely to be restrained, encompassing 45% of total restraints in that reporting year. Students with Autism made up 28% of restraints. Of the 7,633 total incidents of restraint reported, only 290 involved general education students (3.8%). In addition, children in elementary school comprised 83% of all restraints. Students enrolled in kindergarten through grade 3 are the most restrained group, making up 61% of all restraints (Disability Rights Ohio, 2015).

The numbers on seclusion parallel the numbers for restraint. Again, the urban school districts exceeded the statewide average of seclusions per 1,000 students. Urban districts with high student poverty nearly tripled the statewide average of 7.34 with 20.35 incidents per 1,000 students. Small town districts with low student poverty reported 10.32 per 1,000. Rural districts with high poverty also reported more seclusions per 1,000 students than the state average (7.89 vs. 7.34). The numbers suggest a strong correlation between poverty and the use of seclusion. Again, children diagnosed with emotional disturbance were placed in seclusion most often, making up 57% of all incidents. The seclusion rate for children with autism was also similar (26%). General education students, however, were put in seclusion only 132 of the reported 3,050 incidents (4.3%). Districts reported 77% of all incidents of seclusion happened to elementary school children, with 48% involving children in kindergarten to third grade (Disability Rights Ohio, 2015).

While the numbers discussed here do not specify racial and ethnic minority status, the districts that report the highest numbers of restraint and seclusion are highly representative of racial/ethnic minority students. Urban and high poverty areas are disproportionately inclusive of different classes of minorities. Previous sections have discussed the makeup of different school settings as well as the increased proportion of minorities in special education referral. Because of the disproportionate representation in special education services by students of racial and ethnic minority status as well as the over-representation of those students in urban schools, we find the possibility of mistreatment to be a concerning trend. The use of these techniques requires formal behavior plans for the students that describe some procedures to reduce the future frequency of that behavior. However, the report makes clear this is not the case. This can have some serious effects for the students.

Restraint and seclusion, when used incorrectly or inappropriately, place the student and staff in danger of physical harm. Improper restraint can lead to injury to either the student, staff, or both. Bruising, dislocated joints, and even death can result from improper use of restraint. In Ohio, restraints that have the student in a prone position or restrict breathing in any way are prohibited by law. In addition, the students may also suffer from emotional harm. (Disability Rights Ohio, 2015) This can stem from feelings of inadequacy, despair, social isolation, and embarrassment. Disproportionate placement of racial and ethnic minorities in special education services makes the use of restraint and seclusion much more likely.

In order to give equal opportunity to students, regardless of racial, ethnic, and socioeconomic status or disability, we must look at more than just the students themselves.

Quality vs. Quantity: How Teachers' Quality Affects Students

Students make up only one part of the K-12 education inequality equation. Students, regardless of their economic status and racial and ethnic identity, require capable teachers. While there are many issues related to inequality within schools, teachers' quality and distribution are prominent ones. Other potential factors include teacher experience and education, teacher-pupil ratio, teacher distribution among schools, which is dependent on salary rates and school financial and demographic status, and teacher turnover.

Peske and Haycock (2006) found that Ohio schools with lower levels of poverty and fewer students of color are more likely to have more highly qualified teachers. In high-poverty elementary schools 1 in 8 teachers are not highly qualified, compared to the 1 to 67 ratio in low-poverty schools, and this problem is more aggravated in middle and high schools, with 4 out of 10 teachers falling short of highly qualified status in high-poverty schools, compared to about 2 out 10 teachers in low-poverty schools (Figures 2, 3, and 4). Moreover, schools with fewer highly-qualified teachers also have lower performance. Aligned closely with this issue is teacher-pupil ratio, or how many students there are for every teacher. Data from the National Center for Education Statistics (2013) shows that Ohio ranks 12th in the U.S. with every teacher being responsible for 16.26 students on average, with the lowest ratio for Vermont (10.59) and the highest for California (24.33).

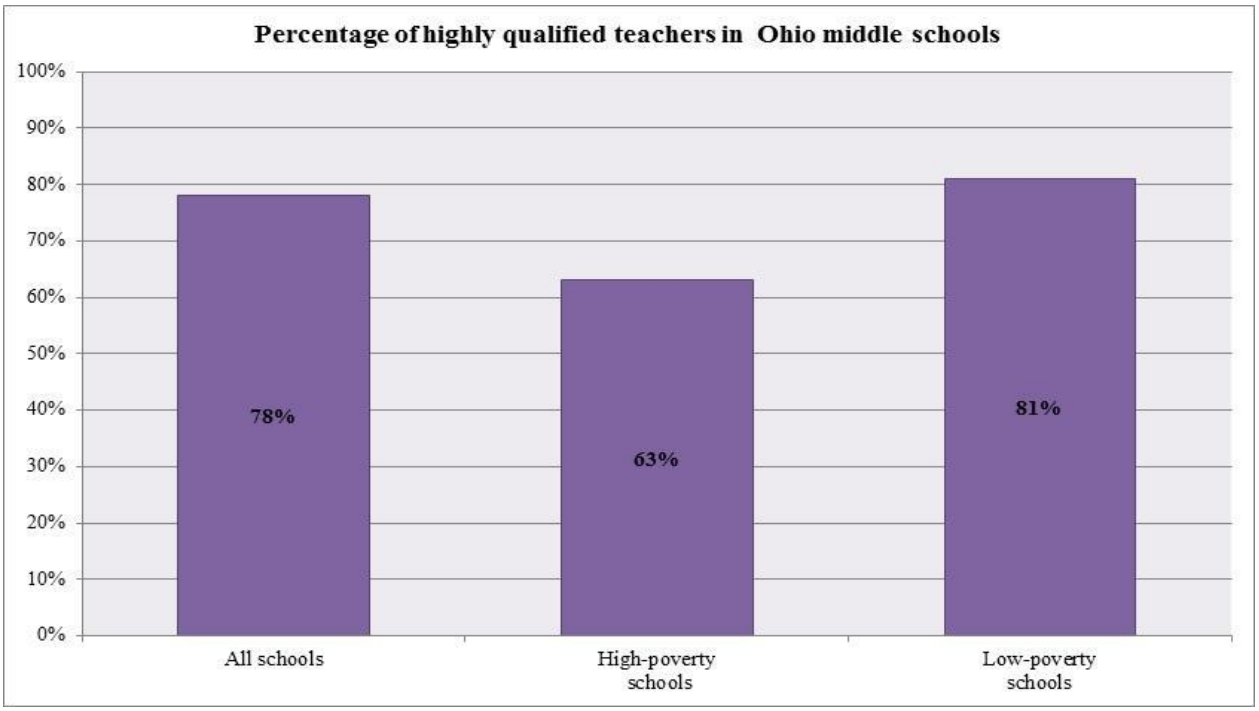

Figure 2. Percentage of highly qualified teachers in Ohio middle schools. Based on data from Peske & Haycock, 2006.

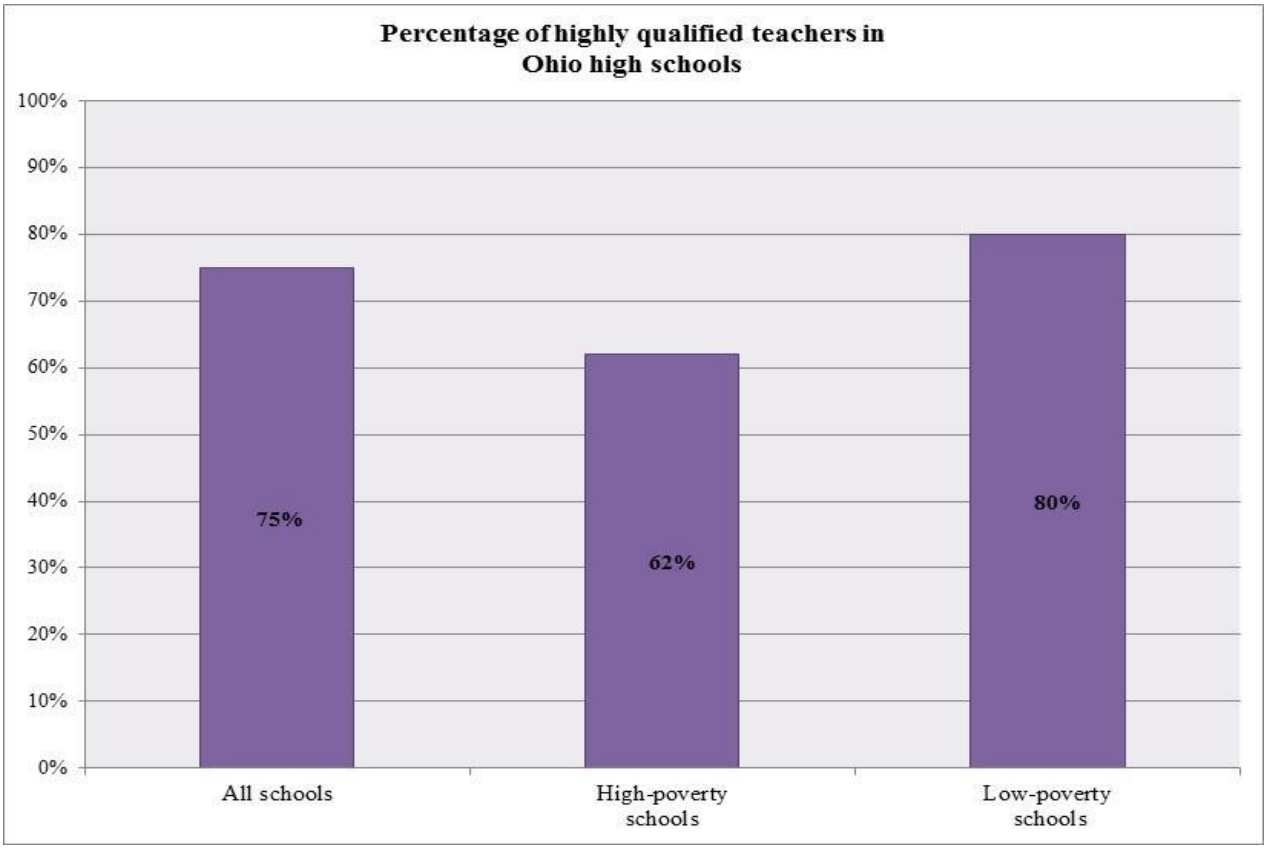

Figure 3. Percentage of highly qualified teachers in Ohio high schools. Based on data from Peske & Haycock, 2006.

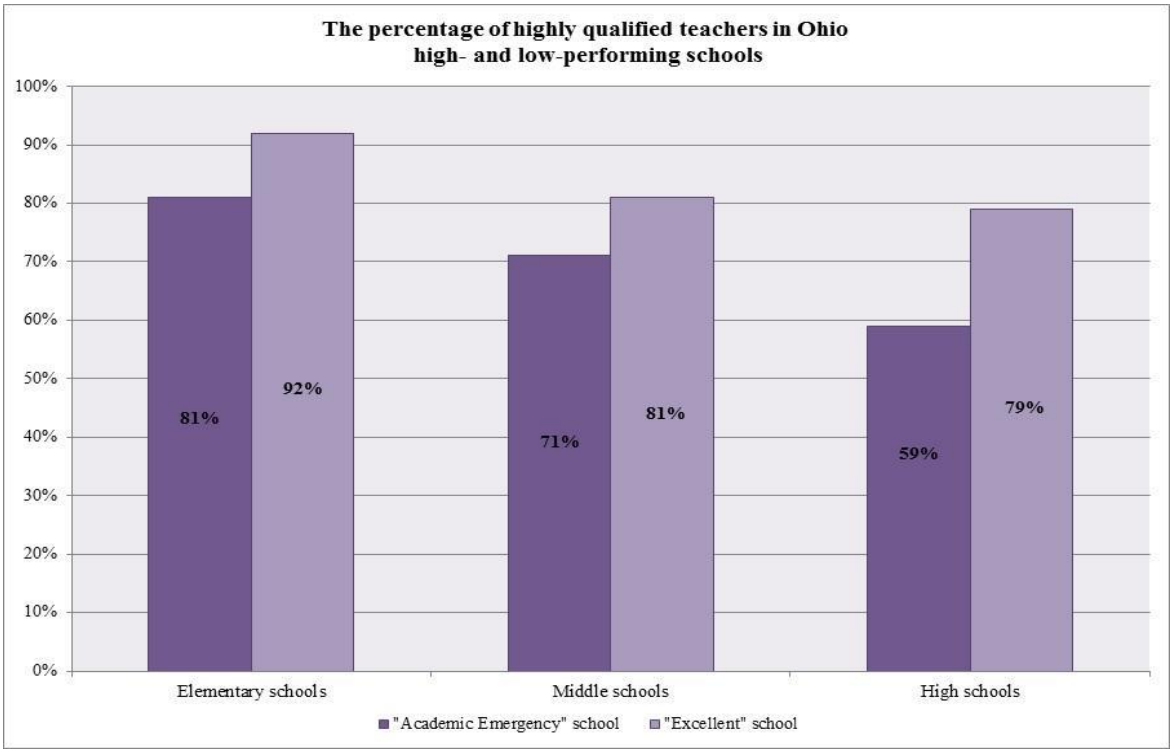

Figure 4. The percentage of highly qualified teachers in Ohio high- and low-performing schools. Based on the data from Peske & Haycock, 2006.

Ohio ranks 15th among the other states in the level of average annual teachers' wages ($56,307), with New York being at the top ($75,279) and South Dakota at the bottom ($39,018), but only 33rd in the level of starting annual salary ($33,096), with $27,274 being the lowest threshold in Montana and $48,631 being the highest point in the list (New Jersey). The situation is even more complicated by the fact that salary distribution is unequal, depending on school type (e. g., community, or charter-school teachers earn much less than those in public schools – $33,886 vs. $58,420) and school financial situation (Zagorsky, Olsen, Hawley, & Gnagey, 2013).

Teacher turnover has increased in particular Ohio districts in recent years, and some schools are struggling to find new employees (Boss, 2015; Kelley, 2015). Teacher attrition has a negative impact on a school's financial situation, staff morale, and students' well-being and achievement. Additionally, teacher turnover rates are higher for high-poverty schools (Simon & Johnson, 2015). Specifically, this affects the third level of Maslow's Hierarchy, that of belonging. With teachers changing too often, students have less chance to build strong relationships with their mentors. This problem is the result of the intricate intertwining of economic, social, and psychological factors present in schools, and its negative influences on students' well-being may not be obvious; however, this issue should also be taken into account when developing strategies and programs to improve school conditions for students.

Educational inequality in the K-12 system seems to arise from many different sources and it impacts the schooling of students in many different ways. The impact of poverty begins in early childhood with differences in access to food and continues through young adulthood (Children's Defense Fund-Ohio, 2016). In addition to the inequality created by income differences, racial and ethnic minorities receive unequal treatment in schools. Indeed, African American/Black and Latinx students tend to drop out of school, be expelled or suspended, and be placed in special education services more frequently than their White/Caucasian peers. Many of these differences in treatment stem from quality of teacher. Students who come from low-income families in Ohio tend to attend lower quality schools that have less experienced teachers (Peske & Haycock, 2006). Additionally, students attending low-income schools might struggle to build lasting relationships with teachers due to high teacher turnover (Boss, 2015; Kelley, 2015). These differences in teacher quality could be due to unequal salaries among low-income and high-income schools (Zagorsky et al., 2013). Research has supported the great difference highly qualified teachers can make on students' academic achievement and, in turn, policies are being created to encourage the hiring of high quality teachers in Ohio and monitor the distribution of teachers among high-income and low-income schools (Dohy, 2010; Department of Education, n.d.).

Systemic Effects of Technological Inequalities in Education

Technology is interwoven into most aspects of daily life and work. Access to current, reliable technology and opportunities to enhance proficiency contribute to individual success in the workplace and Ohio's success in national and global realms. Teaching students to leverage the power in a strong technological infrastructure is fundamental to expanding the capacity of citizens to lead at community, state, and national levels. However, inequities in access to technology and training for its effective use are adversely affecting the citizens of Ohio, especially students in primary and secondary education.

Disparities in funding for educational technology, quality of hardware, software, and internet access are creating a new kind of inequity which will have far-reaching impacts. Differences in how students are taught to make use of the technologies already in their pockets, homes, and workplaces can put them in a position of power or at a disadvantage. Additionally, attempting to mitigate inequity through untested technological solutions such as virtual schools can actually increase disparities in achievement. Gaps in teacher training around pedagogically driven use of technology and lack of sharing around best practices create silos of technology expertise in places where knowledge should be disseminated.

Preparing Ohio to leverage technology to create a stronger workforce built by its citizens begins with integration of strong and equitable technology resources in Ohio schools and with careful consideration of how disadvantaged populations of students are taught to leverage technology. This requires investment in teachers, students, innovation, knowledge sharing, and support, as well as hardware, software, and bandwidth.

Ohio Technology Standards and Funding

Ohio has not ignored the importance of incorporating technology in schools. Given the ubiquity of computers and other devices, use of technology standards is critical in primary and secondary education. In 2003, the Ohio Department of Education (2015c) adopted K-12 technology standards that cover three broad areas of technology use:

- Computer and Multimedia Literacy: appropriately using technology (hardware, software) for research, productivity and communication purposes.
- Information Literacy: being able to successfully find, relate and use information found on the Web; using internet resources for research purposes and other general knowledge building
- Technological Literacy: unique knowledge, devices, and capabilities to solve problems and participate in the technological world.

Among these overall goals, Ohio Department of Education (2015c) developed seven student technology standards:

1. Nature of Technology: Students develop an understanding of technology, its characteristics, scope, core concepts and relationships between technologies and other fields.
2. Technology for Society Interaction: Students recognize interactions among society, the environment and technology, and understand technology's relationship with history. Consideration of these concepts forms a foundation for engaging in responsible and ethical use of technology.
3. Technology for Productivity Applications: Students learn the operations of technology through the usage of technology and productivity tools.
4. Technology and Communication Applications: Students use an array of technologies and apply design concepts to communicate with multiple audiences, acquire and disseminate information and enhance learning.
5. Technology and Information Literacy: Students engage in information literacy strategies, use the internet, technology tools and resources, and apply information-management skills to answer questions and expand knowledge.
6. Design: Students apply a number of problem-solving strategies demonstrating the nature of design, the role of engineering and the role of assessment.
7. Designed World: Students understand how the physical, informational and bio-related technological systems of the designed world are brought about by the design process. Critical to this will be students' understanding of their role in the designed world: its processes, products, standards, services, history, future, impact, issues and career connections (p. 9-10).

Each of these standards was adopted directly from the national standards developed by the International Society for Technology in Education (ISTE). The Ohio Department of Education (2015c) suggests that, "the standards represent technology knowledge, conceptual learning and skill development needed to make successful transitions from kindergarten through grade 12 to postsecondary" (p. 18).

Although ISTE has promoted national technology standards for teachers, it is not clear if Ohio has adopted similar standards. In fact, there is little direct mention of technology in the Ohio Standards for the Teaching Profession, except for a brief mention in the standards, including exhibiting proficiency for using technology in the planning of effective instruction (Ohio Department of Education, 2016a). It is clear that Ohio must set more specific standards for its teachers regarding required technology skills necessary to perform well in their classrooms.

Technology standards provide the foundation for effective technology use in the classroom. Despite an overall slight decrease in training and support from 2013-2015, hardware and software spending continues to increase (Schaffhauser, 2016). While spending on technology does not guarantee effective use in education, funding is necessary to provide technology needed to achieve the standards and improve student achievement. Schools are funded in a variety of ways, which impacts funding of technology. Initially, local school districts bore the primary responsibility for funding schools; however, since then other efforts have included using various formulas that rely more heavily on state funding of schools (Augenblick, Myers, & Anderson, 1997). Ohio districts fund operations from several different sources of revenue. These include both state and local funding, most commonly in the form of property or income taxes from residents. The specific amount that a district receives from the state is based on student enrollment and property wealth of the district (Ohio Department of Education, 2016b). According to one report, states vary on their specific level of equity, but "there is a strong, positive relationship between resource availability and district wealth" (Augenblick et al., 1997, p. 71). Typically, districts with higher wealth have a higher per pupil revenue. This funding structure ultimately leads to an inequitable distribution of funds to each district. As a consequence, understanding, defining and clarifying equity in school funding is a challenge. Spending on technology in schools may include hardware, software, human resources and professional development. In Ohio, the Department of Education aggregates and makes public specific budget data for all of Ohio's districts, and spending by district is reported in several different categories. Some categories include: total expenditures per pupil, instructional expenditures per pupil, and pupil support expenditures by pupil (Ohio Department of Education, 2013a). Each of these indicators are useful measures to help highlight a district comparison in spending. Unfortunately, data for technology–related expenses is not reported separate from instructional expenses. Budgeting on technology professional development and general professional development is often hard to quantify. Often professional development is aggregated with instructional expenditures, which may also include technology spending. According to one estimate, districts may spend from 2% to 7% on professional development, but districts often are unable to accurately report this information (Gulamhussein, 2013).

According to some estimates, 30% of a school's total budget should be used on equipment (Ringstaff & Kelley, 2002). While the budget used on technology is difficult to obtain from the general reports, it is prudent to examine expenditures per pupil to gain a perspective on technology expenses. In Ohio, this amount differs significantly by district. For example, in FY 2014, the total expenditure per pupil ranged from approximately $7,000 to $21,000 across the 600 districts throughout the state, with a mean of $10,400. In addition, the state average for instructional expenditures per pupil in FY 2014 was $6,300, ranging from approximately $4,000 to $11,000. Consequently, the percent of total expenditures used for instructional expenses ranged from 36% to 69% across the state's districts (Ohio Department of Education, 2015a). If these are accurate figures, and technology is spent proportionally across districts, this represents a large gap in raw technology spending by district.

Hardware, Software and Internet Access

Ohio school technology budgets include investments in hardware, software, and internet access. In 2003, the student–to–computer ratio in Ohio classrooms was 10:1 (Latio, 2009) and by 2006 the ratio improved to 3.5:1 (Education Research Center, 2006). Conversely, a 2009 survey of Ohio high school teachers found that 61% of teachers had no computers or only one computer in the classroom (Latio, 2009). A survey of third grade teachers in Ohio found that 92% of teachers

reported having computers in their classrooms and there seemed to be no difference in student-to-computer ratios based on the location of the school. Differences did exist, however, in the availability of laptops versus desktops, as well as software for computers. Suburban affluent schools reported more access to laptops and software than any other type of school. While some reports tout access to computers has been achieved in Ohio schools, surveys of teachers indicate inequity in access to computers, laptops, and other hardware (Wood & Howley, 2012).

Not only is access to hardware an important step in implementing technology in schools, but access to broadband internet both at school and at home are essential pieces to proper utilization of educational technology (Horrigan, 2015). A 2012 report by Connect Ohio found that 1.5 million children in Ohio use the internet for homework. While this is a large number of students able to access the internet for homework, there are still 618,000 children who did not have broadband internet access within their homes. Children who lack access are often in rural areas of the state and live in low-income households (Connect Ohio, 2012). Nationally, Ohio falls short in the accessibility of broadband internet, ranking 39th in the Technet State Broadband Index (Horrigan & Satterwaite, 2012).

More than Equipment

Hardware and internet access are important elements in the solution to technological inequity in Ohio schools, but they are not a stand-alone answer. Bridging the digital divide will also require a commitment to the integration of technology in the educational experiences for teachers and administrators, investments in professional development for teachers, and robust technical support.

Technological inequity in a learner's educational experience may have a profound impact on a student. While national trends from the previous decade suggest that the gap of access to technology in high and low socioeconomic status schools is narrowing, results from a California study suggest that use of technology varies greatly in high socioeconomic status schools compared to low socioeconomic status schools (Warschauer, Knobel, & Stone, 2004). High socioeconomic status schools are using technology for more research and exploration-based activities. Researchers discovered several trends that existed: increased performativity, workability, and complexity regarding use of computers. Trends previously have suggested more basic uses in these areas in low socioeconomic status schools, stemming from low home access to technology, high proportions of English Language Learners in schools, and a higher amount of time devoted to high stakes test preparation (Warschauer et al., 2004). Specifically in Ohio, Wood and Howley (2012) found disparities between the complexities of technological behaviors of students in low and high socioeconomic status schools. Schools in suburban affluent locations had greater adequacy and availability of technology resources when compared to rural and urban schools. Students' technology resources at home, computer training for teachers at school, and technical support at school were also found to be stronger in suburban schools.

The *NMC Horizon Report* describes a changing K-12 classroom where deeper learning approaches boost student engagement and innovation (Johnson, Adams Becker, Estrada & Freeman, 2015). Effective integration of carefully selected technology chosen with a focus on instructional purposes supports innovative changes in the classroom such as collaborative problem-based learning and a students-as-creators movement. The *NMC Horizon Report* also cites two important, but solvable challenges to effective integration of technology in the classroom: (1) the need for teacher technology training as a core skill, and (2) scaling educational technology innovations for diffusion into mainstream practice (Johnson, et al., 2015). Educators in Ohio will

need to grapple with both of these challenges in order to integrate technology in an equitable way for learners throughout the state.

The Ohio Department of Higher Education (Ohio.gov, 2016) provided $6 million in grant funding to 271 Ohio school districts to integrate digital content into their curricula with three purposes in mind: (1) to pilot digital texts and content for the classroom, (2) providing professional development for teachers on using digital content, and (3) sharing lessons learned with other schools across Ohio. The Ohio Department of Higher Education 2015 report on this project revealed that integrating digital resources into classroom experiences provided many benefits including: increased student engagement, improved technology skills for students and teachers, increased access to quality, up-to-date content, enhanced innovation in the classroom, and new opportunities to differentiate and personalize learning. Transitioning to digital content also presented challenges, including lack of teacher buy-in, difficulties in balancing instructional time with time to implement, and using digital content. The grant report also described key factors for successful implementation of technology in the educational experience, which include readiness assessment and early planning, access to hardware and internet at home, selection of appropriate content to align with state standards, a pilot with early-adopter teachers and a reasonably sized student group, and administrative and technical support for teachers.

A meta-analysis from the Alliance for Excellent Education (Darling-Hammond, Zielezinski, & Goldman, 2014) identified three key factors in the successful use of technology with at-risk students and which might be critical in establishing equality in education in a broader context: (1) interactive learning, (2) using technology to explore and create, and (3) the right blend of technology and teachers. Only having functional hardware, software, and internet access in the classroom is a positive step toward effective integration of technology, but those elements alone are not sufficient to boost achievement and deepen learning for all students.

Online Charter Schools

Even as technological challenges and disparities abound in Ohio schools, virtual education has been offered as a solution to educational access. Proponents of virtual schools often argue that their schools frequently serve students who would otherwise drop out of the schooling system. In Ohio, a rapid expansion of online schools in recent years, with student populations growing from approximately 2,200 in the 2000-2001 school year to over 35,000 in 2014 (KnowYourCharter, 2015) could be seen as a movement toward a system which provides more flexibility and access for Ohio's students. Furthermore, with Ohio mandating that virtual schools provide students with computers (Ohio Rev. Code Ann. § 3314.22, 2015), attempts to eliminate the hardware gap for students are evident. However, there are deep flaws in virtual charter schools nationally and many of those flaws persist in Ohio regardless of students' individual possession of computers.

In order to evaluate the efficacy of online charter schools nationally, Stanford's Center for Research on Education Outcomes (CREDO) conducted a large study of online charter schools in which they compared students attending online charters to demographically identical peers (Woodworth et al., Raymond, Chirbas, Gonzalez, Negassi, & Snow., 2015). The findings show on average, online charter school students score at levels which are equivalent to losing 180 days per year of math instruction and 82 days of reading instruction when compared to their demographically identical peers. Specifically in Ohio, reading test scores indicate an equivalence of approximately 79 lost days of instruction, with math scores indicating an equivalence of 144 days of lost instruction. With these results, it is concerning that virtual schools in Ohio educate a disproportionately high percentage of many of our most vulnerable students, with over 65% of

attendees of online charters classified as economically disadvantaged and 16.6% classified as having disabilities (Wang & Decker, 2014). Since both of these populations were identified in the CREDO report as performing worse nationally in virtual schools than in brick-and-mortar schools (Woodworth et al., 2005), Ohio legislators and education experts should be mindful of how some of our most at disadvantaged citizens are being educated.

Even with such startling numbers, there is some evidence that online charter schools can succeed in certain situations, as Georgia and Wisconsin's virtual students demonstrate statistically significant improvements in reading when compared to their demographically identical peers in brick-and-mortar schools (Woodworth et al., 2015). As a state, Wisconsin requires teachers interested in teaching in online schools to complete 30 hours of professional development before starting (Wis. Stat. § 118.19, 2012) and Georgia has a virtual licensing program for educators (Ga. Code Ann. § 505-3-.95, 2016). In the case of Ohio, recent legislation aimed at virtual schools has improved academic growth (Woodworth et al., 2015). Nevertheless, virtual teacher preparation does not seem to be a national focus, with only 1.3% of teacher education programs offering virtual field experiences just a few years ago (Kennedy & Archambault, 2012). If the proliferation of virtual schools and their student populations continues in Ohio, then policymakers and educational programs should consider enacting plans to increase the efficacy of such programs and prepare teachers to be effective in serving the student populations they educate. Currently, virtual schools are falling short as an educational solution in Ohio, and as Woodworth et al. (2015) point out, claims that students served by virtual schools would otherwise drop out of traditional schools only holds so much credence when many virtual students are below the age at which dropping out is an option. If Ohio continues to increase funding for these schools, as is evidenced by the annual spending increase of $135 million between 2006 and 2015 (KnowYourCharter, 2015), then we should demand better results from schools that educate many disadvantaged students.

Technology and the Ohio Workforce

As mentioned earlier, formal planning or organized teacher preparation regarding integration of technology into pedagogy is a scarce commodity in Ohio. However, the Ohio Department of Education (2005) has developed standards for teaching professions of which two of the five standards include language pertaining to teacher responsibilities for integrating technology into the curriculum. Unfortunately, there are no standards in place for preparing future teachers on how to integrate the technology in which they are to be evaluated. Similarly, technology integration into career and technical education is only briefly mentioned in the draft of the 2016 Workforce Innovation and Opportunity Act Combined State Plan without clarity as to how this will be supported.

Since digital elements are present in every level of education, it is imperative that all educators receive equal development opportunities in technologically integrated pedagogy. We propose that this could be accomplished through establishing requirements around professional development for teachers within their continuing education units. This includes K-12 educators, traditional postsecondary educators, and career technical educators. Furthermore, it is imperative that Ohio's Department of Education align expectations and requirements of teaching and learning curriculum standards of new teachers at all levels of education with the standards they have set, so teachers are set up for success out of the gate into their new careers.

For-Profit Colleges

In addition to its role in teacher preparation, technology has experienced a surge of popularity more broadly on campuses as postsecondary institutions prepare to send students on a variety of career trajectories into the workforce. To demonstrate this growth, Gartner (2016), a research and advisory firm which specializes in information technology, predicted that global spending on educational technology within higher education would exceed $36.2 billion in 2016. Additionally, with the rapid growth of alternatives to traditional education, institutions find themselves forced to adapt to the changing landscape (Johnson, Adams Becker, Cummins, Estrada, Freeman, & Hall, 2016), and with the rise of massive open online courses (MOOCS) outside of the traditional college ecosystem (Shah, 2015), there is little doubt that the technological outlook surrounding postsecondary education is changing rapidly. However, while we acknowledge these expeditious changes and the way they have impacted the status quo, for better or worse, we feel their direct inclusion in the theme of this publication—educational inequality in Ohio—is tenuous. Nevertheless, one sector of higher education that we feel does fit this theme is the for-profit college industry, which has seen a massive growth rate over the last 20 years. As the rate of enrollment quadrupled between 2000 and 2010, much of the growth could be attributed to the expansion of the online component of the programs (Deming, Goldin, & Katz, 2011; Grinder, 2014). Recently, the internet has created opportunities for institutions to reach more students who would have otherwise not been within reach; the for-profit industry has seized this opportunity, with 58% percent of its four-year students being enrolled exclusively online in the fall of 2013 (Grinder, 2014).

Unfortunately, this meteoric rise in enrollment has been fraught with controversy, as for-profit universities have been accused of a number of abuses of the current system. A 2012 report from the Senate Committee on Health, Labor, and Pensions found that while billions of federal dollars were being spent on these institutions through student aid, high attrition rates resulted in a majority of students leaving after just a few months, thus failing to earn degrees. This report also highlighted the sometimes extreme costs of these institutions, mainly part-time faculty populations, low academic rigor, and lack of priority for career placement services. Furthermore, the costs were frequently paired with high interest rates, leading to abnormally high levels of default (Senate Committee on Health, Education, Labor, and Pensions, 2012). These default rates, which contribute significantly to the overall national rise in the number of students defaulting on loans, increase the federal burden while also harming former students of the institutions (Looney & Yannelis, 2015). Since for-profit universities tend to educate disproportionately high numbers of racial and ethnic minorities, low-income individuals, and military veterans, a disproportionate number of students who default on loans are from these populations (Deming et al., 2011; Senate Committee on Health, Education, Labor, and Pensions, 2012).

The controversial nature of many of the for-profit institutions that often cross state boundaries to increase enrollment numbers and revenue is particularly relevant to the state of Ohio, since between 2005 and 2013, enrollment increased from 26,881 to 34,487 in private, for-profit institutions (Ohio Department of Education, 2015d). There is no doubt that for-profit institutions have potential advantages related to access due to their frequently online nature, but as educational leaders, we must consider disadvantaged populations and question how for-profit institutions serve their students before we embrace their integration into the education system. We could take notes from the state of California, which recently sued the Corinthian Colleges for deceptive and predatory behavior, eventually resulting in a $1.1 billion judgment (Hamilton, 2016). Actions like

these, coupled with recent government regulations aimed at protecting students from predatory institutions, demonstrate a renewed effort to ensure that students receive adequate protections before, during, and after attending such institutions (United States Department of Education, 2016b). While it may initially seem that sanctioning for-profit colleges and the removal of federal funding would result in a reduction of educational opportunities for the disadvantaged students who often rely on them, a study of sanctioned for-profit colleges from the 1990s suggests otherwise. Cellini, Darolia, and Turner (2016) found that the public sector generally absorbs the students of sanctioned for-profit colleges in some capacity, often at lower cost. As a result, there is no net loss of education. The state government in Ohio would be wise to take note of these findings and view for-profit institutions with a critical lens, as the education of students in Ohio should take place in a fair, transparent manner.

Moving Forward with Technology

Technology provides many affordances to learners and gives them an avenue to learn 21st century skills that could help them successfully integrate into the workforce. However, a number of barriers prevent this. With the proliferation of technology in classrooms throughout the state, the increase in technological equipment does not always parallel an increase in training with that technology. Furthermore, massive funding disparities between school districts based on local tax differences and other sources of funding can widen technological gaps that may exist. Unfortunately, gaps in funding and training can be difficult to visualize, as school budgets are broken down into categories, which complicate one's ability to pare the information down into various subcategories including professional development and spending on technology.

Yet another concern is the fact that spending habits and hardware statistics do not paint a full picture of what is going on in the classroom. The location and type of equipment varies by school, with inequity in software availability also factoring into the digital divide in Ohio. Furthermore, even if all hardware and software-based inequities were leveled by school, learners would still face technological barriers, as the access to high speed internet varies, with rural and poor students lacking some of the resources available to their peers. Another variable in the technology equation is the training of teachers. Since the integration of digital content into the classroom has benefits ranging from student engagement to increased technology skills, teacher professional development is needed to increase teacher buy-in and to improve technological practices. Such development prepares teachers to effectively educate students in the 21st century, better enabling them to enter the workforce in the digital age.

One area in which the integration of technology has not seen many barriers in Ohio is that of virtual schooling, which has experienced an explosion in its student population from primary to postsecondary levels since 2001. Unfortunately, the academic outcomes of virtual schools paint a grim picture both nationally and specifically in the state of Ohio. The poor performance of virtual schools is especially concerning, considering that these schools serve many students from lower-income backgrounds, and a disproportionately higher number of students with disabilities in comparison to their brick-and-mortar peers. Even with such distressing academic outcomes, training for educators preparing to enter virtual schools is limited, with few universities nationally offering experiences in virtual schools and with no extra certification requirements for Ohio educators in the virtual realm. There is still much to learn about virtual education at every level, and we urge stakeholders in Ohio to view it through a critical lens.

Ohio does many things well, but a number of factors related to educational technology must be addressed to curb the effects of inequity. To provide an accurate picture of Ohio's

education system, transparency in the budgets and operations of schools can help give a sense of what is going on at the ground level and improvements in professional development practices can assist teachers, allowing them to more effectively utilize the tools that are entering their classrooms. Acknowledging and addressing inequities in technological access at home and at school, as well as addressing the current failures in online charter schools, could lead to improvements in the educational system of Ohio.

What may appear to be a complex and multifaceted problem of unequal opportunity around technology in Ohio is actually a dilemma that can be resolved with efforts from stakeholders in every facet of education, from preschool through the postsecondary level. With extraordinary leadership and concrete goals, we can create a robust technological and training infrastructure for learners in every phase of life. This will position Ohio to lead the nation and the world in excellence and innovation.

Disparity in Higher Education

High School to Higher Education: The Financial Challenges Begin

The American educational system aims to facilitate equal access to learning opportunities, promote student academic achievement, and strive for national excellence in terms of global competitiveness (Department of Education, n.d.). As many students in Ohio prepare to transition from their K-12 learning experiences to higher education, factors such as socioeconomic status and racial/ethnic identity continue to play a major role in determining both access to academic opportunities as well as the attainment of credentials (Duncan & Murnane, 2011; Ohio Department of Higher Education, 2011a, p. 22).

For students attending Ohio higher education institutions, the availability of individual, institutional, and state financial support substantially influences both access to and attainment at the postsecondary level. For example, recent trends in the funding of higher education that require individual students and families to bear greater responsibility for increasing costs are particularly concerning given existing inequities across socioeconomic status (Mitchell & Leachman, 2015). The financial resource levels of students and their families are closely intertwined with access to and attainment of higher education, and have been shown to exacerbate inequities. There are substantial, growing gaps in postsecondary enrollment rates, and even greater gaps in completion rates, between students from low and high income families (Scott-Clayton, 2015).

This report addresses how the financial resources of and opportunities afforded to students can influence their entire postsecondary trajectory. The educational inequities associated with financial resources begin with gaps in academic readiness and enrollment decisions. State budget models and shifts in funding sources have also impacted issues of access and affordability at Ohio colleges and universities, with inequities not only between students, but also between different types of institutions. There are several programs in Ohio designed to support students, and those that provide both financial and academic support have demonstrated limited success. Even after the completion of college, for those students who are able to successfully complete a degree, disparities remain.

By the time students complete high school, divisions in college readiness and intentions to enroll already exist. Although the ACT is not the only measure of postsecondary readiness or intentions, it is a relatively standard measure that can be useful for providing context in Ohio. Among the 91,089 students in Ohio's graduating class of 2014 who took the ACT, 17.6% planned

to earn a two-year degree and 21.1% a four-year degree. Of these students, only 32% met all four ACT benchmarks for college readiness, the minimum scores recommended for success in college — in English, math, reading, and science (ACT, Inc., n.d.). Nationally, there is a strong positive correlation between socioeconomic status (family income) and attainment of ACT college readiness benchmarks. Only 9% of students in households earning less than $24,000 and 24% of students in households earning $50-60,000 met all four benchmarks (Wilkinson, 2014). This suggests that far fewer than 32% of Ohio students in low-income families would be prepared to enroll in college-level coursework.

College Costs Create Barriers beyond Financial Burdens

The cost of college is not only a financial burden for students and families, but also influences the decisions students make about whether to enroll; evidence indicates that students enroll at higher rates when net costs are lower (Scott-Clayton, 2015). Gaps also exist in financial awareness and planning (George-Jackson & Gast, 2015). Low-income, African-American/Black, and Latinx families typically lack crucial information about the cost of college, how to apply for financial aid, and how to plan and prepare for the significant investment of a college education. This lack of sufficient information can exacerbate the inequities in postsecondary enrollment among students from low socioeconomic backgrounds, who are African-American/Black, or Latinx. The complexity of navigating the financial aid application process is a significant barrier to access to higher education, particularly for these underserved students who already have insufficient information about financing college and who may well be eligible for need-based aid, such as Pell grants, but who do not apply (Scott-Clayton, 2015). Other groups of students who are traditionally underserved may also experience additional barriers to college completion; however, the literature does not adequately address the academic needs and outcomes of students who are difficult to identify in postsecondary education, such as recent immigrants, students with disabilities, or other groups who may have received greater systematic supports throughout primary and secondary education.

In addition to creating barriers to higher education access and completion, a lack of financial resources influences the type of institutions at which students enroll. Carnevale and Strohl (2013) demonstrated that the higher education system is perpetuating inequities through separate and unequal postsecondary paths: "Since 1995, 82% of new Caucasian/White enrollments have gone to the 468 most selective colleges, while 72% of new Latinx enrollment and 68% of new African-American/Black enrollment have gone to the two-year and four-year open-access schools" (p. 9). The Midwestern Higher Education Compact (n.d.) reported that the same pattern of inequities in educational opportunities was evident in Ohio. Enrollment management policies at selective institutions, including the awarding of financial aid to recruit "high-achieving" students with prestigious academic profiles rather than low-income, financially needy students, also contribute to this trend of inequitable pathways through higher education (Burd, 2016).

Redefining State Financial Aid in a Post-Recession Era

The 2008 recession had a great impact on higher education, as state spending on higher education decreased across the nation. Ohio per-student funding has decreased by 22.6% since 2008 (Mitchell & Leachman, 2015). The decrease in state funding has been attributed to decreases in state tax revenues, greater numbers of students to support, and budget cuts.

As a result, students have become more responsible for the funding of higher education. Since the 1980s, tuition has increased faster than income. Nationally, tuition increases offset an

estimated 85% of state cuts for higher education (Mitchell & Leachman, 2015). Since the recession, tuition in Ohio has increased by 4.5%, which compared to other states, is the third lowest increase. However, Ohio has the 16th highest tuition compared to other four-year institutions, and 12th highest tuition for two-year institutions (Ohio Department of Higher Education, 2015c). While students have seen limited increases in tuition, Ohio already has higher tuition costs compared to other states (Ohio Department of Higher Education, 2015c).

Tuition increases deter students from going to college, particularly low-income students, or push some students to less selective institutions, which impacts potential future earnings. Students are also taking on greater levels of debt. The national college debt exceeded $1 trillion in 2013 (Ohio Department of Higher Education, 2016d) and U.S. students graduated in 2014 with an average loan debt of $28,950 (The Institute for College Access & Success, 2015). Ohio graduates carry more debt than the national average (Ohio Department of Higher Education, 2015c). The average debt for Ohio graduates as of 2014 was $29,353 with 67% of graduates carrying student loan debt (The Institute of College Access & Success, 2015).

However, Ohio increased funding between 2013-2014 and 2014-2015 by 1.1% while state tuitions dropped by $6 (Mitchell & Leachman, 2015). From 2014-2015 to 2016-2017, state funding rose 7.8% (Patton & Halbert, 2015). The 2016-2107 budget demonstrates growth but is still $556 million smaller than it was in 2008. While this growth is well below that of other states, the trend is starting to move toward increased funding for higher education (Mitchell & Leachman, 2015).

Defining Affordability

A major concern in the conversation about tuition and higher education funding is the complex issue of affordability. Affordability is a subjective measure, for which there is no universal definition (Institute for Higher Education Policy, 2012; Welbeck, Diamond, Mayer, Richburg-Hayes, Gutierrez, & Gingrich, 2014). Despite this lack of a common definition, affordability is often a key component of the discourse concerning accessibility. Education is purported to be a long-term investment with long-term benefits for the individual and society (Institute for Higher Education Policy, 2012). Education is also seen as a public good, similar to housing and health care, which should be accessible to all. The Institute for Higher Education Policy (2012) identified two challenges to affordability. "First, the cost and benefits of college are widely misunderstood" (Institute for Higher Education Policy, 2012, p. 3). "Second, the uncertain return on higher education makes the investment risky and therefore less attractive to many people" (Institute for Higher Education Policy, 2012, p. 3). The perception of affordability is influenced by experiences, perceptions and priorities as they relate to college costs and attendance.

The Ohio Department of Higher Education (2015c) defines affordability as a function of price and quality. The cost of education for a student is compared to the value of education a student receives for their time and money. Others argue that the definition is more complicated. Students do not pay the same price for college, based on family contribution, federal assistance, or other sources of support. The advertised cost of higher education that is posted on a website is not the "net price," or the actual cost a student might pay after funding sources are considered (Institute for Higher Education Policy, 2012). While net price is a better measure of affordability, the complexity of the financial aid system coupled with the uniqueness of each student situation adds to the misperceptions and confusion surrounding affordability.

The Lumina Foundation (2015) argues the focus should be on "whether students, regardless of their ages when they enrolled in college, can reasonably expect to improve their long-term standards of living, even after paying for college" (p. 3). The Lumina Foundation also shifts the conversation of affordability away from parental income and unmet need to students. A question that needs to be addressed is "whose financial situation is relevant – the student's or the family's" (Institute for Higher Education Policy, 2012, p. 5).

The recommendations for improving affordability also vary. One argument surrounds the framing of the affordability discussion. The Institute for Higher Education Policy (2012) recommends considering college as an essential cost and a long-term investment that pays off in the long run, similar to how one considers the investment of buying a house. The Lumina Foundation's Affordability Benchmark also proposes reframing the affordability discussion through a common definition. College is more affordable when families can pay for it through a combination of family savings as a percentage of income over a set number of years and through money earned from student employment while in college (Anderson Weathers, 2015). For example, each source of funding would be capped at a value of 10; families would save no more than 10% of their income for 10 years and a student would work 10 hours per week at college. While these benchmarks are suggestions, each source of funding would also be influenced by each student situation. For example, a family below the poverty line might not be able to contribute 10% of their income; however, a student may be able to work while in college (Anderson Weathers, 2015).

Some argue that "college does not pay off for everyone" (Institute for Higher Education Policy, 2012, p. 9). The state of the economy, level of college education, field of study, job prospects, and amount of debt are many factors that influence the worth of a college degree. Simplified and transparent financial processes and clear information outlining the benefits of higher education may help students and families understand the benefit of higher education (Institute of Higher Education Policy, 2012). From cutting college costs through collaboration and efficiency recommendations (Ohio Department of Higher Education, 2015c) to increasing need-based aid (Patton & Halbert, 2015) and enhancing the programs that support the statewide remediation-free, standards for Ohio public institutions (Ohio Department of Higher Education, 2015d), all stakeholders seem to agree that more needs to be done to make higher education accessible to all students.

Affordability's Impact on Student Outcomes and Financial Aid

Despite ongoing debate on what fiscal and structural approaches will most likely increase economic access to higher education, college affordability remains one of the most important reasons why some students may start college, but not persist. Financial aid and the corresponding college costs affect students' retention decisions. In the 2006-2007 academic year, Ohio enacted a new need-based financial aid policy, the Ohio College Opportunity Grant. Using student-level data from the Ohio Board of Regents, Bettinger (2015) examined the effects of need-based aid policies on student outcomes. The results showed that students who received more aid after the new policy implementation were less likely to leave college or transfer from their original institution after one year than they would have been under the old policy. The average impact of the program was a 2% decrease in dropout rates among the students who enjoyed the benefits of the new program. Students who received higher awards as a result of the program were also more likely to attend a four-year institution and had higher grade point averages (GPAs) after the first year.

Furthermore, using the data from the 2010 Ohio Student Financial Wellness Survey, Letkiewicz, Lim, Heckman, Bartholomae, Fox and Montalto (2014) explored the financial and sociological factors associated with college persistence. A statistical analysis using logistic regression indicated that college environment and personal financial characteristics play essential roles in determining time-to-degree. Students who overspend, have a car loan, credit cards, or high debt, and those who feel stress from their finances tend to take longer than four years to graduate. Students are more likely to graduate in four years or less if they live or work on campus, have a high GPA, or have met with a financial counselor or advisor.

State of Financial Aid in Ohio

In Ohio, from 2010 to 2014, more than 450,000 undergraduate students were enrolled yearly in postsecondary institutions, including 37 main and regional public campuses, 23 community colleges, and 142 non-profit and for-profit private campuses. The cost to attend college in Ohio varies depending on type of institution. The United States Department of Education, National Center for Education Statistics (2015c) released the Integrated Postsecondary Education Data System survey that reported costs of college for the 2014-2015 academic year. According to this survey, in Ohio, the average annual in-state tuition and fees at four-year public colleges was $9,631, $3,610 for two year colleges and $27,761 for non-profit private colleges.

On average, 90% of total students received financial aid, mainly from loans and grants made at federal, state, and institutional levels. The Ohio Department of Higher Education (2011, 2013, 2015a, 2015b) reported that between 2010 and 2013, the proportion of total enrolled students who were financial aid recipients increased: the recipients of the grants from 75% to 81%, and the recipients of loans from 72% to 74% (Figure 5). Although the proportion of recipients increased, the average aid they received decreased. Federal grants decreased from $4,616 to $4,477, which significantly impacted the public and private four-year colleges. Moreover, state grants dramatically declined 42% from $2,568 to $1,477, due to budget cuts by the state (Mitchell & Leachman, 2015). Private two-year and four-year colleges were influenced most by the reduction of state grants, compared to other types of postsecondary institutions. Due to the reduced federal and state grants, students seemed to take more loans and colleges increased state grants (Perna, 2006). Average loans rose approximately 6% and institution grants increased by 29% from 2010 to 2013 (Perna, 2006).

FIGURE 1. *The Recipients of Financial Aid Out of The Total Enrolled Students*

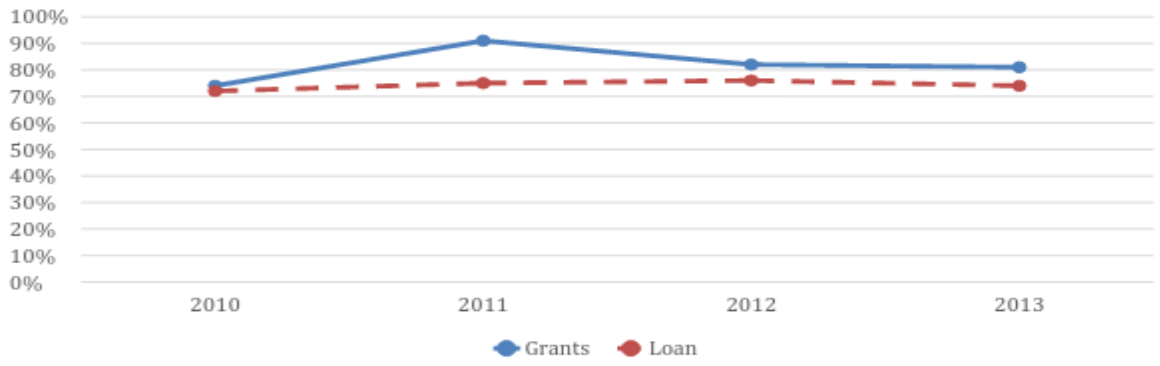

Figure 5. The Recipients of Financial Aid Out of the Total Enrolled Students, 2010-2013. Data from the Ohio Department of Higher Education (2011, 2013, 2015a, 2015b).

Due to the decrease in all types of financial aid, the number of colleges with students receiving aid declined. Therefore, from 2010 to 2013, colleges with student recipients of financial aid decreased about 1% to 4% in all types of financial aid except state grants (Figure 6). State grants reached more students in more colleges, but they were awarded smaller grants. Financial aid in Ohio was awarded to greater numbers of college students per year, but the average aid they received gradually decreased and the aid tended to reach fewer colleges.

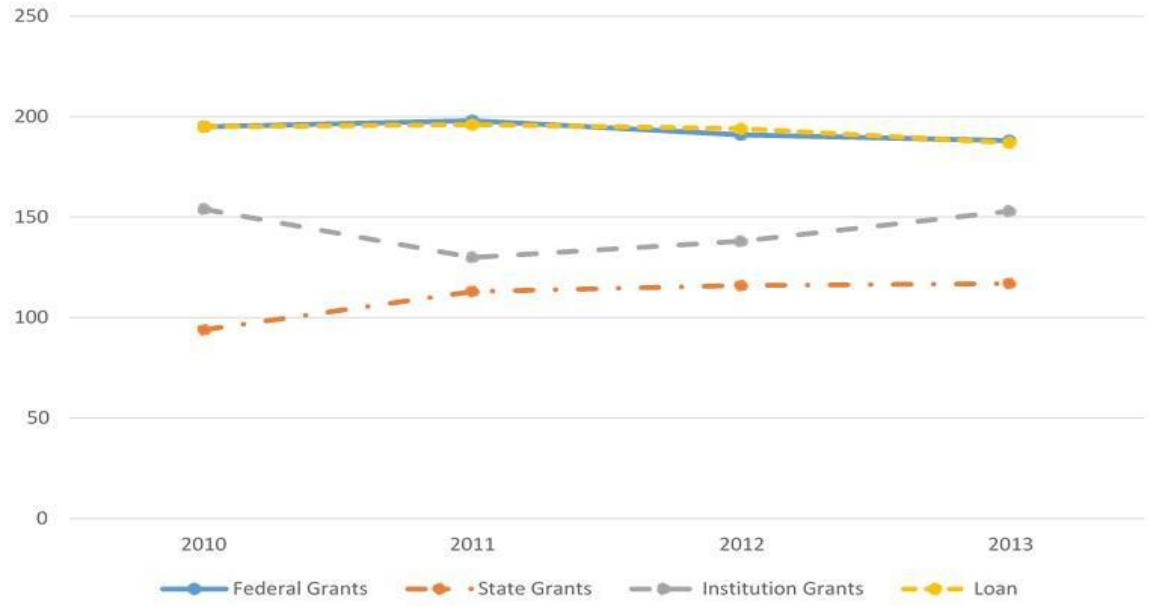

Figure 6. The Number of Colleges with Students Receiving Financial Aid, 2010-2013. Data from the Ohio Department of Higher Education (2011, 2013, 2015a, 2015b).

Is the Issue about More Than Just Money?

In addition to growing financial concerns, certain racial and ethnic student populations also appear to be facing unique structural barriers to their academic success. Promoting programs and resources that address both the financial needs and on-campus structural impediments to retention, scholars assert that student populations from Appalachian, African-American/Black, and Latinx backgrounds whose retention rates appear to be significantly linked to not only financial aid, but also institutional support, will likely not only thrive in college, but eventually graduate (Dougherty, Marshall, & Soonachan, 2006; Newman & Newman, 1999; University System of Board of Regents, 2014).

Another example of this balance between fiscal and structural support is a national project that began in 2012 and now includes three Ohio community colleges. The Performance Based Scholarships (PBS) initiative provides financial assistance based not on academic merit achieved prior to college, but instead as a retention and graduation incentive during college. This initiative has demonstrated significant increases in academic credits earned, the number of academic credits attempted, and in students' ability to meet end-of-term academic benchmarks (Patel & Richburg-Hayes, 2012). The findings of the initial study were so well-received by the state legislature that when funding for the initial project as part of the Temporary Assistance for Needy Families (TANF) Educational Awards Program (TEAP) were depleted, the program was subsequently funded by the Ohio Department of Jobs and Family Services (ODJFS) as a way to promote and retain college graduates in the state (Mayer, Patel, & Gutierrez, 2015). Further study is needed, however, on whether or not providing student services, such as tutoring and advising, in addition to the funding, as is done in similar programs in New York and Florida, would further enhance the results of the Ohio initiative.

Ohio hosts other efforts that go beyond just providing financial support to students in need, including several summer programs designed to increase access to higher education. Support programs in Ohio include College Credit Plus, the Young Scholars Program, the Ohio Reach Scholars Program, Academic Investment in Math and Science Program (AIMS), and the Todd Bell Resource Center Early Arrival Program. The College Credit Plus program promotes academic pursuits by providing the opportunity for high school students to take college credits prior to attending college (Ohio Department of Higher Education, 2016d). The Ohio Reach Program aids foster youth. Nationally, about 20% of foster youth enroll in higher education compared with 60% of their peers (Wolanin, 2005). Additionally, researchers have found that students who participate in summer bridge programs also indicate an increased academic self-efficacy (Vera, Shriberg, Alves, Montes de Oca, Reker, Roche, & Rau, 2016). The Ohio Reach program also provides scholarships and outreach to increase enrollment (Okumu, 2013). Bowling Green State University's AIMS program is a five-week pre-college summer program focusing on developing a bridge from high school to college for women and minority STEM (science, technology, engineering and math) students. In 2002, AIMS had a 66.7% retention rate compared with 25.7% of general STEM students. Researchers found that academic success in the first semester sustained long-term and participation in the summer program assisted students with doing well in their first semester (Gilmer, 2007).

In addition to these programs, Columbus State Community College has partnered with 11 colleges within Ohio, and 68 K-12 schools, industry partners, and public sector agencies to create the Central Ohio Compact (n.d.). The vision of the Central Columbus Compact is that by 2025, 60% of central Ohio students will earn a postsecondary certificate or degree. In Indiana,

researchers studied the effects of these programs and suggested an integration of summer bridge programs, learning communities, and first-year seminars in support of completion goals (Chism, Baker, Hansen, & Williams, 2008).

College Graduation Alone, However, is Not the Cure-All to Economic Disparity in Ohio

Even after college, disparities remain and in many ways reinforce cycles of educational inequality within the state. Specifically, there is data that questions the future benefits of a college education compared to its lingering costs for individuals, bleak prospects for college graduates who remain in Ohio's workforce, and the cost to the state for students who drop out of college.

First, recent data from graduates of Ohio colleges and universities problematize the perception of higher education as a universally good investment. Nationally, the median earnings of students who received federal financial aid, 10 years after entering college, is $34,300 (United States Department of Education, 2016a). Ohio fares slightly better than the nation, with graduates from the median institution reporting average salaries of $34,700 ten years after beginning college. Yet concerns remain about the average annual costs of Ohio institutions, and whether or not the investment in a college education offers students the prospect of increased future earnings and repayment of educational debt accrued. For example, the median annual average cost to attend an Ohio college or university is $19,416. At one institution, average annual cost of attending is $36,461, yet alumni of that institution report average salaries of $32,800 ten years after enrollment. (United States Department of Education, 2016a). This disparity between cost of attendance and future earnings is reflected throughout available data, and suggests the debt that some students accumulate in order to receive an education may offer limited prospects for repaying student loans. Therefore, for some Ohio students, the decision to pursue higher education may in fact cause the student to accumulate debt that cannot be easily repaid. Considering this information in the context of arguments presented earlier in this monograph, one begins to see how attending college is not a guarantee for disrupting the effects of wealth inequality that play such a salient role in the state's education system.

Another concern for the state is that, among Ohio students who do complete college, many pursue employment outside of the state. As recently as 2009, 58% of Ohio's college students report planning to leave the state within three years of graduation (Farkas & Duffett, 2009). Referred to as "brain drain," the loss of these individuals is problematic for the state's education system for several reasons. One has to do with the means by which the state funds public education through property taxes. Data reflecting the median earnings of full-time workers aged 25-34 shows that employees with a Bachelor's degree earned $48,500 in 2013 (United States Department of Education, National Center for Education Statistics, 2015a). Earnings were even higher among those with Master's degrees or higher, but median earnings of those with only a high school diploma were $30,000 (United States Department of Education, National Center for Education Statistics, 2015a). Assuming that typical college graduates will earn more over the course of their lifetimes than those with less than a college degree, the loss of higher-earning employees through this "brain drain" effect could mean that the state will have a smaller tax base to fund public schools – again fueling the cycle of inequality described throughout this monograph.

This migration trend is particularly alarming in the state's Appalachian counties. Between 1995 and 2000, eastern Ohio witnessed a total of more than 4,000 adults with at least a Bachelor's degree move out of the area, the largest net migration of any Appalachian region (Haaga, 2004). Compared to the 25.6% of Ohio residents who have earned at least a Bachelor's degree (United States Census Bureau, 2016), only 12.3% of Appalachian Ohio residents are college graduates

(Haaga, 2004). So, this economically depressed region is being doubly affected with a loss of population as well as a loss of potential tax revenue.

Although the presence of the "brain drain" effect is concerning, there are steps Ohio can take to address the loss of college graduates through migration. For example, 58% of students say they prefer to live somewhere, "active, exciting, and fun," but only 10% give Ohio an "excellent" rating in this dimension (Farkas & Duffett, 2009). Furthermore, 89% of students say that job or career opportunities will be important factors for where they live, but only 11% say Ohio is "excellent" in this measure (Farkas & Duffett, 2009). The good news is that there are opportunities for the state to respond to these concerns and reframe students' perceptions. For example, one recommendation states that it has become increasingly important for Ohio colleges and universities to connect students with local communities and employers while they are still students at state institutions, to help ease their transition toward building a future in the state following graduation. These efforts can include more opportunities for students to participate in co-ops or internships, but there is also tremendous value in simple efforts such as helping students find social opportunities off-campus by visiting museums, sporting events, concerts, or performances (Farkas & Duffett, 2009).

While college graduation has both personal and societal economic benefits, it is important to consider the economic implications of student attrition. When students leave college before graduation, their potential personal monetary gains diminish and the loss of state and federal financial aid, along with potential taxpayer revenue, has widespread impact. The U.S. Department of Education's Integrated Postsecondary Education Data System reports that 6.2 billion dollars of state appropriations were provided to colleges and universities to cover the costs of students who did not return for a second year between 2003 and 2008 (Schneider, 2010). Funding in the form of grants for those students who did not return after their first year total $1.4 billion of state funding and $1.5 billion of federal funding (Schneider, 2010). These are staggering numbers when considering that the national trend is a reduction in state funding to colleges and universities. In a report by the American Institutes for Research, Ohio is ranked 7th of the states that spent the most state money on first-year dropouts with a total of over $300 million spent from 2003 to 2008 (Schneider, 2010). In terms of states that spent the most federal student aid on first-year dropouts, Ohio is ranked 5th with $66.8 million spent in the five years between 2003 and 2008 (Schneider, 2010).

Along with the state and federal funding lost on students who do not continue their college education, it is important to consider the effects of college attrition on potential income and federal taxes on which states and the federal government rely heavily. In a report by the American Enterprise Institute for Public Policy Research by Schneider and Yin (2012), it was found that increasing the number of community college graduates by only half of those currently dropping out would increase the total earning potential of these students by $30 billion in their lifetimes. This would also result in an overall $5.3 billion in taxpayer revenue (Schneider & Yin, 2012). In this report, Ohio is 5th in the states that stand to gain the most in income and federal taxes in 2010, the most recent census year. Ohio is also 13th on the list of states that would gain the most in present value, not accounting for inflation, of lifetime income and lifetime federal income taxes. In total, the state of Ohio would have gained over $68 million in 2010 and over $789 million over the lifetime of potential graduates (Schneider & Yin, 2012).

These numbers support the notion that Ohio must continue to work on retaining college students in the state. In 2009, former President Obama announced the goal that, in order for the

U.S. to remain competitive in the world economy, America would need to "once again have the highest proportion of college graduates in the world" by 2020 (Schneider, 2010, p. 3). Unfortunately, Ohio is far from that goal (United States Department of Education, 2011). At the time of Obama's announcement in 2009, only 37% of students in Ohio were graduating from college. In order to meet the 2020 goal, the state would need to increase student completion rates to over 56%, an increase of over 300,000 students per year (United States Department of Education, 2011). The economic consequences for students' earning potential and the loss of aid dollars and taxpayer revenue for students who do not complete degrees is detrimental to the state of Ohio and its residents. In addressing Obama's call, educators, policymakers, and other stakeholders must encourage and support students to persist and complete their degrees in both four-year and two-year institutions for the benefit of the state and the nation.

Common Methodologies used in Educational Research Studies, and Limitations with the Data Collected

Commonalities in the assessment of student achievement and inequalities strengthen the comparisons being made in the large body of work on educational inequality. These common methods are described below, along with some of the problems researchers must consider while evaluating the educational issues in Ohio, such as issues with fraud, reporting, and interpretability of data. As we address the evidence of educational inequalities in Ohio presented in this monograph, it is important to understand the sources of information and the roles which methodology and data collection play in interpreting the evidence.

Common Methodologies for Educational Research

As demonstrated from the numerous reports investigated in this monograph, there exists a broad range of methodologies used for describing educational inequalities in Ohio, the most common being descriptive statistics, with few statistical comparisons being made. Although statistical comparisons provided recognizable evidence of effects and differences among groups, descriptives at least provide a clear picture of yearly trends and discrepancies between groups. Other researchers take advantage of statistical modeling using hierarchical linear modeling (Skiba, Chung, Trachok, Baker, Sheya, & Hughes, 2014), which helps model the contribution and interactions of student-level and school-level variables.

Likewise, multilevel growth models (Downey, Von Hippel, & Broh, 2004) allow for longitudinal studies to be analyzed appropriately as repeated measures. Regression methods (Cornwell, 2014) allow researchers to examine the contribution of different variables to explaining the variation observed between groups. Econometric analyses (Stiefel, Schwartz, & Wiswall, 2015) are useful for data analysis pertaining to socioeconomic status. Given the numerous choices in evaluating data, careful pre-data collection planning can provide a strong experimental design, and lead to stronger arguments about the data.

Issues with Data Interpretability

There are several factors that may influence the interpretability of findings of current and future reports and research studies. For example, many studies use the number of students who are enrolled in Free and Reduced Lunch programs as a measure of poverty. A new federal program called Community Eligibility is changing the way in which students receive free lunch. This new program allows a school or district to provide free lunch to all students if a minimum percentage of students qualify (Kamenetz, 2015). This could substantially change the number of students

receiving free lunch, the way that researchers will be able to measure poverty and investigate its impact on education, and the way stakeholders interpret the results. In Ohio, cities such as Cleveland report that all students receive free and reduced lunch (Kamenetz, 2015). If other cities and districts follow this trend, then more recent data might be biased towards high numbers of students in poverty, even though the reality may be quite different. The Ohio Department of Education is looking for alternative ways of measuring the percentage of students in poverty in addition to new ways of collecting that data.

Issues with Data Reporting

In addition to issues with measuring poverty, there exist issues with measuring school progress through testing. Ohio's schools and school progress are often measured in terms of yearly district report cards, which in turn are based on testing. More frequently, parents are choosing to "opt-out" their students from these tests. In Ohio, a growing opt-out movement is forcing the Ohio Department of Education to provide two separate grades on these report cards for the 2014-15 school year only (O'Donnell, 2016). In the 2014-15 school year, approximately 1% of students opted out of Ohio's state tests, which resulted in the two reports. In one of the reports, the students who opted out were recorded as zeros, resulting in lower grades for the state. In the other report, only those students who took the tests were counted. Providing two reports is seen as a compromise between state lawmakers and the ODE to address concerns from districts that the students who opted out of the tests and were counted as zeros would damage the districts' grades. Alternatively, when opt-outs are not counted, there are concerns that teachers might advise poorer performing students not to take tests, resulting in higher scores (O'Donnell, 2016). The year 2016 provided a unique opportunity to have the two reports, which illuminated the differences between the two groups, and perhaps shed light on the nature of future reporting. Currently, there are no plans for the continuation of two reports in future school years. It is important to keep in mind that if fewer than 95% of students take the tests, Ohio risks losing federal funds (O'Donnell, 2016). This could present additional pressure for the districts, and increase the incidence of data fraud. Therefore the debate will continue about the best way to present the report card data.

Further compounding the issue, for the 2014-15 school year, the Ohio Department of Education transitioned to new state tests based on recommendations from the Ohio General Assembly. As a result, lawmakers suspended the consequences for poor performing schools until after the 2016-17 school year (Ohio Department of Education, 2015b). This "safe harbor" policy allows for all parties to adjust to the new exams, but it also makes it difficult to compare the new exams to previous ones without making assumptions about their measurement.

Issues with Data Fraud

One potential consequence of high stakes testing is that some districts may be compelled to falsify data in order to meet state standards. One example was the data fraud reported in Columbus City Schools (CCS) from July 2010-June 2011 (Ohio Auditor of State, 2014). The Ohio State Auditor found evidence of deliberate data tampering and considerable lack of documentation for the changes. Approximately 7000 grade changes were made, with approximately 40% being from D's to F's. "Zombie 12th graders" with no documentation of ever being enrolled existed, and unearned Virtual Credit Advancement Program credits were awarded to non-participating students. Count week absences were also modified, and rules were not followed regarding requirements of parental documentation within a certain time-period. Finally, there were numerous instances in which students were withdrawn and then re-enrolled without documentation to support these changes. Performance bonuses were offered as incentives for CCS administrators and

teachers, which were questionably earned (Ohio Auditor of State, 2014). This brings much of the data presented by school districts under scrutiny. This example illustrates large scale data fraud; however, it is difficult to evaluate the presence and persistence of cases of fraud or data manipulation. Singular or small infractions may not be detected. Due to the high stakes nature of the education sector and the pressure to improve performance each year, researchers, educators, and policymakers must exercise caution while dealing with the data in this field.

Ohio's education stakeholders must first recognize that these issues exist. Next, we must work to develop strong study designs, appropriate measures and data analyses, and uphold the standards set by the law and our duty as educational researchers. With due diligence and vigilance, the issues of measurement and fraudulent data can be managed. By using appropriate statistical methods, it will be easier to study the nature of inequality, provide consistent evidence, and devise policies to improve the situation right here in Ohio.

A Call to Action

Ohio has a long history of supporting and encouraging education. Indeed, all students have access to a K-12 public education and many opportunities are available to pursue a higher education degree. However, inequalities in educational access have become larger and more glaring over time. Furthermore, inequality has permeated all areas of education, including K-12 education and higher education, with issues surrounding emerging educational technology impacting both fields.

To this point, we have examined existing educational inequalities in the state of Ohio, and have begun to explore potential sources of these inequalities. Based on these existing inequalities, we offer recommendations and practices that educators, researchers, policymakers, community members, and other stakeholders might adopt in order to begin to address educational inequalities in Ohio.

Addressing Inequality in K-12 Education

Inequalities have many different sources in K-12 education. Indeed, families' socioeconomic backgrounds, students' refugee/immigrant status, students' racial and ethnic backgrounds, students' disability status, and teacher quality all contribute to both the quality of education a student receives and a student's treatment in school. Students attend schools that are often unprepared or ill-equipped to meet their unique needs. In order to begin to address the inequalities in Ohio's K-12 schools, parents, researchers, educators, and policy makers must all take action.

First, school personnel should be trained in cultural responsiveness and student mental health. Professional development in the areas of diversity and mental health will better prepare school staff to meet students' needs. It will enable them to understand students' unique backgrounds and how those backgrounds contribute to students' behavior in school. Cultural sensitivity training may improve dropout and special education qualification rates for minority and refugee students within a school because teachers are able to provide culturally appropriate services to students (Kearns, Ford, & Linney, 2005). Furthermore, professional development in diversity and mental health may help interrupt the school-to-prison pipeline if teachers begin to develop higher expectations for students of color and implement alternative discipline practices (Rudd, 2014; Champion of Children Report, 2015). Professional development in mental health will also teach school personnel about the connections between student misbehavior and exposure

to stress or trauma, which can enable the school to develop effective behavior policies based on students' needs (Children's Defense Fund – Ohio, 2012; Franklin County Children's Report, 2014).

Second, school personnel should seek to implement Positive Behavior Intervention and Support (PBIS) services within their buildings. PBIS programs teach students the social and emotional skills demanded by the school environment and reward students for positive behavior rather than focusing solely on punishment (Staats & Contractor, 2014; Rudd, 2014; Children's Defense Fund – Ohio, 2012). PBIS practices within schools may have the potential to reduce disproportionality in the restraint and seclusion of children with disabilities, interrupt the school-to-prison pipeline, decrease dropout rates, and improve relationships between students and teachers if they are implemented effectively.

Third, schools should cultivate strong partnerships with parents and community organizations. This increases accountability for both parties in supporting students' education. Connecting with the community also broadens the resources available to a school. It enables parents to have a voice in the school community. Parents who are knowledgeable about their children's schools and advocate for more effective educational practices have the ability to influence school policies for their children and future students. Developing relationships with parents also helps school staff to increase their multicultural competency, which can decrease inequality across a number of domains, such as discipline and special education status (Goh, Wahl, McDonald, Brissett, & Yoon, 2007).

Fourth, schools must use data-based decision making in their everyday practices. Data on teacher performance variables can be used to track educator data over time. Reporting these findings will inform policy makers so they may monitor the distribution patterns of Ohio's effective teachers across urban, high poverty and low-achieving schools and address inequalities in this distribution of teacher quality (Peske & Haycock, 2006). Data-based decision making also has the ability to improve disproportionality in special education when qualification is based on well-established psychoeducational test batteries and evidence-based interventions (Rebora, 2011).

Though inequalities abound in the K-12 setting as a function of socioeconomic background, refugee/immigrant status, racial and ethnic background, disability status, and teacher quality, Ohio's teachers, parents, and lawmakers have the ability to improve outcomes for students. By increasing professional development in cultural awareness and mental health, implementing PBIS systems within buildings, cultivating relationships with parents and community members, and collecting data in order to make decisions about teachers and students, educational inequality in Ohio's grade schools can begin to be remedied.

Addressing Technological Inequalities

Another topic that affects inequality in both K-12 and higher education settings is technology, which has had a critical contribution to student learning and teacher preparation by offering new, innovative ways to approach instruction. It has also helped to increase efficiency in the classroom and provide global learning opportunities that, until recently, were not possible without technology. Nonetheless, there is a lack of transparency in how schools spend and report their technology budget. Even as technology continues to become more ubiquitous, the manner in which technology is used for education is basic, and gaps in computer and broadband access persist. Professional development and training, proper availability and adequacy of resources, and

sophisticated use of technology leads to better results, but differ widely among schools. Online K-12 charter schools and online for-profit colleges have been hailed as an answer to improving access. Unfortunately, the former has only led to unequal and poor academic outcomes, and the latter has led to high attrition rates, high student loan debt, and few positive measurable outcomes. Despite these issues, we strongly believe there are practical solutions that can begin to mitigate these issues.

First, we recommend that Ohio districts increase transparency in how technology is afforded and utilized in schools. For example, technology funding, when possible, should be listed separately in a district's budget rather than integrated into instructional expenditures in general. Transparency in the general operation of virtual schools and for-profit institutions in both K-12 and postsecondary settings is another area for improvement. As these organizations grow due to their close ties to the proliferation of the internet, they should be closely monitored. As mentioned previously, some steps have been taken nationally to regulate for-profit colleges and limit predatory behavior, but it is currently unclear what direction the new presidential administration will take on this issue and the issue of virtual charter schools. Regardless of the decisions that are made at the national level, the state of Ohio must act in a way that puts the needs and vulnerabilities of its students at the forefront of any decision-making, regardless of the level of education.

Second, teacher education programs and school districts should enact comprehensive initiatives to enhance the technological literacy of preservice and in-service teachers. Preservice teachers have relatively few opportunities to take formal courses to learn about technology integration; however, they should be required to have more class and observation opportunities. Also, classroom teachers often do not know how to properly integrate technology and evaluate the sophistication of computer use, including helping improve students' sophistication of use. Improved training and professional development can aid in achieving this goal. In addition, Ohio should require teachers working in virtual schools to receive preparation and training for teaching in an online setting.

Third, policymakers should adopt legislation to improve the technological infrastructure, therefore improving out-of-school access to technology. Not all families have the resources to have internet or computer access at home due to financial or geographic constraints. This further leads to differences in educational experiences, as opportunities to extend learning at home are diminished.

Fourth, researchers should consider the efficacy of schools that educate disadvantaged students to ensure that the schools are providing high quality, equitable, and affordable educational opportunities at all levels. Finally, educational leaders, scholars, policymakers, and other stakeholders should constantly seek opportunities for schools to collaborate on effective educational technology programs and policies, sharing best practices and strategies to improve achievement.

Addressing Inequality in Higher Education

Inequality exists not only in K-12 education but also in higher education. Unevenly distributed financial resources at the individual, institutional, and state levels become one of the major causes for inequality in higher education in Ohio. This influences the entire postsecondary trajectory, from pre-college, through college, and post-college. Students from low-income families typically do not have access to financial resources and are severely marginalized in collegiate academic readiness, enrollment, affordability, and completion. Consequently, they prefer not to go to college or they enroll in less selective, but more affordable colleges. These decisions, in turn, impact the community in which the students reside, as reduced future earnings lead to a smaller tax base and less funding for the school district.

First, the work to reduce inequalities in higher education needs to begin well before high school, with additional resources to help students with financial awareness and planning. Policymakers need to consider dedicating additional funding to extra school counselors and organizations that can help students and families understand how to save early for college, how to understand the sticker price of higher education in context with financial aid, and how to navigate the process of applying for financial aid. Higher education institutions should make financial information about their institutions available in more accessible, simple, and transparent ways for families, including data regarding cost, financial aid sources, average debt, and average salaries earned. Tools such as FAFSA guides, net price calculators, and other aid applications should be featured prominently on institutional websites and materials.

Second, institutions of higher education should also consider focusing institutional aid on need, rather than solely on merit. Programs that tie financial aid to additional support, such as tutoring, can be models for new practices. One such example is the Performance Based Scholarships initiative.

Finally, policymakers need to consider higher education as a serious priority when assigning budgets and determining state funding levels. Researchers can provide information to policymakers about the significant and real costs of attrition and "brain drain" in support of funding requests. Investments in students pursuing higher education, through state funding, financial aid programs, and community engagement have the potential to deliver high returns if stakeholders in education are willing to make changes and take action in support of students' success.

Conclusion

Although the numbers presented might paint a bleak picture of the state of educational inequality in Ohio, there is still hope. There are many individuals and organizations in Ohio that are taking steps in the right direction and are working to obtain resources to strengthen school systems in areas with higher poverty rates.

While we, the authors, understand that adequately addressing educational inequality within our state, or on a nationwide level, is a difficult prospect, we also feel that not addressing it is an egregious disservice to Ohio's students. This country relies on an educated electorate for its strength. Providing each student with an equal opportunity for success, however that student defines success, is critical to our continued prosperous future. A collective effort between families, teachers, school officials, and government agencies is needed to begin addressing these inequalities. It is incumbent upon us, as scholars, to promote reasonable solutions that can be implemented in a cooperative manner. After beginning the dialogue with this monograph, it is our

hope that educational practices in Ohio will continue to shift to provide more equal educational opportunities for all students.

That shift must take place on across multiple levels of education. At the K-12 level, we must ensure that all students have access to high-quality educational opportunities regardless of the racial, linguistic, socioeconomic, and geographic status of students. We must also ensure equitable access to powerful learning technologies that can transform learning for the better at K-12 and postsecondary levels, while safeguarding against the abuse and inequity that sometimes accompanies new educational paradigms related to technology. For our postsecondary students, we must guarantee that higher education remains a sound investment across all demographics by ensuring that students are provided with the financial and institutional support that is needed for them to succeed and contribute in a democratic society. Finally, when researching all of these areas, we must ensure that our practices are transparent, methodologically sound, and not agenda-driven, instead focusing on honest evaluations of the status quo and authentic attempts to help students at every level overcome educational barriers. If these goals are sincerely pursued, we feel that the educational infrastructure in Ohio will be better situated to serve all learners going forward.

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