

Educational Inequality in Hennepin County

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## **Introduction**

The renowned American writer Mark Twain once stated that “Education is a progressive discovery of our ignorance.” With that idea, one could argue that an education provides the bridge to understand what we do not understand. This is necessary to become a meaningful, capable, and productive citizen. We each have the choice with how we would like to “show up” in life, and it is often through our education that we are introduced to and gain many of those skills. Our research is concentrated on the issue of the educational achievement gap taking place specifically in Hennepin County, with perspectives from other parts of the United States, and from other parts of the world as well.

## **Definitions**

Throughout this paper, we will be discussing local and international issues using a variety of terms. We find it important to introduce these terms so that there is a solid understanding of the context of the education system that we are presenting, before moving into the main issues. We define Socioeconomic Status (SES) as the level of income, education, and social standing relative to a given household in a calendar year. We define a low SES as having an annual household income of \$24,339 (more detailed levels according to the United States Census Bureau shown in fig 1 below) and a high SES as being above \$140,000 annually (“What is the Middle Class, Anyway?”, n.d.). Mid-range SES falls between these two figures. The achievement gap is the gap in academic test scores and high school graduation rates between students of high socioeconomic backgrounds and students of low socioeconomic backgrounds; it

can also be attributed to students from a family with low income (University of Minnesota, 2017). Finally, we define academic resources as the materials needed or preferred for student education (things like well lit classrooms, whiteboards, pencils, etc).

Size of family unit	Weighted average thresholds	Related children under 18 years								
		None	One	Two	Three	Four	Five	Six	Seven	Eight or more
One person (unrelated individual):	12,228									
Under age 65.....	12,486	12,486								
Aged 65 and older.....	11,511	11,511								
Two people:	15,569									
Householder under age 65.....	16,151	16,072	16,543							
Householder aged 65 and older.....	14,522	14,507	16,480							
Three people.....	19,105	18,774	19,318	19,337						
Four people.....	24,563	24,755	25,160	24,339	24,424					
Five people.....	29,111	29,854	30,288	29,360	28,643	28,205				
Six people.....	32,928	34,337	34,473	33,763	33,082	32,070	31,470			
Seven people.....	37,458	39,509	39,756	38,905	38,313	37,208	35,920	34,507		
Eight people.....	41,781	44,188	44,578	43,776	43,072	42,075	40,809	39,491	39,156	
Nine people or more.....	49,721	53,155	53,413	52,702	52,106	51,127	49,779	48,561	48,259	46,400

Source: U.S. Census Bureau.

Fig. 1: Poverty Thresholds for 2016 by Size of Family (US Census Bureau, 2017)

**Definition of Problem**

For most of its history, the United States has faced issues of inequality in education. Educational inequality is the juxtaposition of educators, families, health care providers, and communities that contribute to a student's ability to learn, feel supported, and access better care (University of Minnesota, 2017). The state of Minnesota alone has witnessed decades of education inequality, and a profoundly large achievement gap between students of different races and socioeconomic backgrounds. In 2017, the Minnesota Comprehensive Assessments (MCAs) showed only 42.5% of students in grades 3-8 and 10th grade meeting or exceeding standards in math, and only 43.6% in reading (King, 2017). This means that large percentages of children in these school districts are not learning and comprehending basic skills. Samuel King (2017) elaborates on the common denominator within these school districts by stating, “Both districts have high populations of students in poverty and persistent gaps between white students and

students of color” (p. 1). This issue is problematic and pressing because the Minneapolis school districts, more specifically Hennepin County, is expected to have more students of color than ever before. Jill Thompson (2013) reinforces this idea by stating, “By 2035, 44 percent of Hennepin County residents and 48 percent of Ramsey County residents will be people of color. In the suburbs, the non-white population will double by that time” (p. 1). Wealth and race each contribute to test score gaps due to the strong correlation between economic status and race in the United States (Valant & Newark, 2016). Through extensive research, our hope is to understand the correlation between poverty, race, and educational achievement within Hennepin County. In order to prevent the anticipated growth in the achievement gap and develop sustainable solutions, our goal is to discover ways to improve the standardized test scores and high school graduation rate for students of color from low SES households within Hennepin County.

The issues of low socioeconomic backgrounds and poverty connects directly with educational inequality. In a research article about poverty’s impact on education, authors Dearing et al. (2016) stated,

Poverty constrains investments of money and time into children's development (e.g., fewer learning materials in the home, less developmental stimulation from adults, and fewer organized community opportunities) and creates pervasive stress within families, neighborhoods, and schools—stress that, in turn, undermines children's self-regulatory functioning (p. 883).

Families in poverty, which we will reference as a low socioeconomic background, have a more difficult time getting their children access to resources, such as learning materials and support

from elders, which contributes to a struggle to be successful in school by increasing levels of stress. The Committee on Psychological Aspects of Child and Family Health (2012) discovered that, “Such toxic stress in early childhood leads to lasting impacts on learning, behavior, and health” (Committee on Psychosocial Aspects of Child and Family Health).

After conducting extensive research on the discrepancies of educational achievement between students of various socioeconomic backgrounds, we discovered that students living in poverty have a much more difficult time succeeding and reaching higher levels of education. On a local level, the state government has recognized that the achievement gap is an issue, but there is no sustainable solution in place. In an article by Blake Kraussel (2017), it is discussed how state policies have little effect on this issue by stating:

25% of Minnesota School districts working to cut the education achievement gap are failing. To clarify, hundreds of Minnesota School districts are not on track to meet their goals, including the state’s largest districts: Minneapolis and St. Paul public schools (p. 1).

Kraussel (2017) elaborates by saying that Minnesota has one of the lowest on-time graduation rates for students of color (p. 1). It is evident that this is a pressing issue with no working solution. Throughout this paper, we will be covering both race and socioeconomic status in relation to education. Even though there is a strong correlation between these two factors in terms of their impact on the achievement gap, we will be discussing them as separate entities for most of this paper in order to create a more clear picture of the problem.

## History of the Problem

### Beginnings

The problem we are examining can be attributed to both the history of race relations, as well as the history of the educational system in the United States. In regards to race, when the United States was developing as a nation, early plans for creating an educated public did not include opportunities for African Americans (Valant & Newark, 2016). The segregation and laws of the past have led to the current system we live in. With the prominence of slavery in the early 1800s, and the vast amounts of segregation that occurred after the civil war, there were not many opportunities for African Americans to receive any kind of formal education.

The Jim Crow era—from the end of the Reconstruction in the 1870s to the beginning of the civil rights movement in the 1950s (Urofsky, n.d.)—was a prominent time for racial segregation, especially in the education system in the form of lawful policies, which allowed white and students of color to be educated separately under the education system. School facilities also used to look very different for both parties, “black schools received far less state funding and inferior schools and materials to their white counterparts.” (Boyd, n.d.).

After the Jim Crow era, and even after the declaration in the *Brown vs. Board of Education* case—stating that segregation violates the Fourteenth Amendment—many states actively resisted desegregation efforts. (Manojlovic, 2017, p. 424). This goes to show that desegregation efforts in the education system was met with difficulty. The *Boston School Committee* case in the summer of 1974—20 years after the *Brown vs. Board of Education* case—was an instance where they deliberately created two separate school systems: one for

White students and another, unequal system, for Black students (Manojlovic, 2017, p. 425). This goes to show that a disruption to desegregate the education system will not easily eliminate the effects that it created, and that impact can still be felt today.

## **Impact**

In today's modern technological and social climate, we still see the impact of our history that previously segregated schools in Hennepin County. In an article about the politics of the achievement gap, Valant et al. (2016) described the impact of this segregation by writing,

The education system that emerged after Reconstruction left most Black children in segregated schools with minimal resources. Black students across the country confronted incongruence between their aspirations and career options, with educators grappling with how much and what type of education to provide Black students with little access to white-collar jobs (p. 332).

The early educational system that emerged did not provide any incentives for educating Black students. To make matters worse, when school districts and housing zones were created, they were heavily segregated, which led to high populations of Black students being grouped in the same schools. Residential segregation makes it harder for schools to become more integrated with multiple races, which currently requires buses to bring Black children from poor neighborhoods to better schools primarily populated by White students (Farley, 1975). The segregation in school districts and housing zones can be attributed to the aftermath of World War II. After World War II, the GI Bill was created to help veterans move into suburbs and get loans for housing. In an article about the GI Bill, David Callahan (2013) discusses how families of

color were often denied loans, which subsequently forced the wealth to condense into White neighborhoods (p. 1). Callahan explains the long-term impact of this by stating:

The GI Bill helped fostered a long-term boom in white wealth but did almost nothing to help blacks to build wealth. We are still living with the effects of that exclusion today -- and will be for a long time to come (p. 1).

The segregation that was created from the GI Bill is still impacting the way in which certain neighborhoods face extreme poverty. Most schools in the United States currently do not have desegregation plans in place for these segregated neighborhoods (Ayscue & Orfield, 2014). Researchers Ayscue and Orfield (2014) further explain by stating, “In the absence of school desegregation plans or voluntary cooperation among independent school districts, housing patterns determine educational opportunity” (p. 6). The segregation leftover from the GI Bill continues to have a profound impact on the educational opportunities for Black students living in these poor, segregated neighborhoods.

The history of race relations in the United States provides insight into how the current educational system was created, and how people of color and poverty are disadvantaged within that system. That being said, it is equally important to examine the history of government mandated policies regarding the education system in relation to poverty. In 1965, Title I of the Elementary and Secondary Education Act (ESEA) was created, which was used to distribute funding to school districts with high percentages of students from low-income families (Social Welfare History Project, 2016). In its creation, Title I was designed to help close the skill gap in reading, writing, and mathematics between children from low-income households from urban and rural school systems and middle-class children from suburban school systems (Jeffrey,

1978). The federal government couldn't mandate any national curriculum through Title I because it was primarily funding-based. Several other titles were added to the ESEA as part of Lyndon B. Johnson's "War on Poverty" campaign, mostly focusing on methods of providing some sort of federal funding to school districts with poor students. It eventually included students with learning disabilities as well.

Then in 1994, the Improving America's Schools Act (IASA) was created. This was created to improve Title I of the ESEA, "The IASA attempted to coordinate federal resources and policies with the preexisting efforts at the state and local levels to improve instruction for all students" (Social Welfare History Project, 2016). The IASA essentially gave more power to local governments to disperse funds among schools. In 2001, George W. Bush reauthorized the ESEA and established the No Child Left Behind Act (NCLB). The NCLB was designed to close the achievement gap and improve academic performance for certain groups of people, such as students in special education, poor students, and minority students (Klein, 2015). In an article about NCLB, author Alyson Klein (2015) wrote, "Since 2002, it's had an outsized impact on teaching, learning, and school improvement—and become increasingly controversial with educators and the general public" (p. 1). The issue was that NCLB did not provide all of the funding for schools that it promised, and the schools were not making any progress in closing the achievement gap. Klein (2015) elaborates on this by stating, "many states and districts have ignored parts of the law, including the requirement to ensure that highly qualified teachers are evenly distributed between poor and wealthier schools" (p. 1). This has caused schools to underperform; in fact, 38 percent of schools in the United States were failing to make their

designed yearly progress in test score improvements, which was up from 29 percent in 2006 (Klein, 2015).

The Obama administration created a new policy in 2015 to replace the NCLB, which was called the Every Student Succeeds Act (ESSA). This policy removed the some of the problems that were created from the NCLB. It removed the notion of “Adequate Yearly Progress,” which was the measurement used that required schools to have a steady increase in test scores; the catch was that schools were penalized for missing their goals of increasing scores (The Conversation, 2015). NCLB also allowed states to group students into super subgroups, which lumped together subgroups of students (english-language learners, special education, low-income, etc.), subsequently masking inequalities in the education system (The Conversation, 2015). The ESSA has worked to resolve some of the issues that were created by previous policies, but the system still isn’t perfect and leaves several groups of students vulnerable to becoming a part of the achievement gap.

### **Current Aspects Requiring Solutions**

The achievement gap battle is a difficult one to solve because of the deep historical implication that cannot be easily undone. Despite the efforts of desegregation, the education system in Hennepin County still has elements of segregation in it. Determining how to resolve issues of redistricting, fragmentation, and segregation of the education system today will be a large task that cannot be resolved with a technical solution. Ayscue and Orfield (2014) argue that there are thousands of political lines that were created after WWII that have been used to create separate spaces and social boundaries, subsequently separating people by race and class (p. 7).

Furthermore, this segregation removed thousands of school districts that were too small. Figuring out how to desegregate school districts and provide equal opportunities will be an important adaptive solution to look into.

Segregation alone is a large issue, but looking into how race and poverty have impacts on education will require more than technical solutions. Fram et al. (2007) discussed how research suggests that children who attend predominantly ethnic minority or poor schools are placed at a disadvantage academically because of social segregation (p. 309). This is one potential area to tackle and alter to create a more sustainable solution in disruption of the system. The questions that we would need to be asking would be, “How can schools with less resources create better academic opportunities? What needs to change? How do we go about creating this change?”

In addition to the allocation of academic resources and the segregation of school districts, Fram et al. (2007) addressed another issue in their study when writing, “Children with single parents disproportionately attend high-ethnic minority schools... ..Children in high-ethnic minority schools also had mothers with lower levels of education, and they lived in households with lower socioeconomic status” (p. 313). People living in lower socioeconomic areas have less access to resources and are hence trapped in a system of oppression with no simple way to escape. If we do not tackle the issue of the lack of education towards teenage parents and their children, the cycle will continue.

When children grow up in homes that are in poor neighborhoods, or from families without a lot of money, it can impact their physical and mental health. In a research study about child health, Rasheda Khanam (2012) discusses how the concept of poor health in children as an intervening factor in their schooling hasn't really been understood yet, or even looked at in depth

(p. 60). If the entire notion of child health being an influential factor in educational success is overlooked, it prevents the possibility of creating the most sustainable and adaptive fix as possible. This is because each piece of the system is incredibly important. Khanam (2012) further elaborates on the effects of child health on the education system by stating:

Children who have poor health may be more likely to have lower schooling and lower earnings as adults and raise their children in poverty, which can seriously impede the economic growth of a country. This line of insight suggests that the policies and programs that improve human capital development of children have important implications for breaking the cycle of intergenerational poverty, and thus contribute to economic development (p. 61).

Understanding the impact of child health and its impact on both educational achievement and intergenerational poverty will be helpful for creating an adaptive intervention plan for the issue we have identified within Hennepin county. Looking at these issues as part of a system, they impact the education level and income pillars described in Figure 1 above, which is our illustration of the system and its reinforcing loops. Children will continue to struggle in school as long as these issues are not addressed. Children raised in poverty with no effort to improve their health will not perform well in school, which will cause them to be stuck in poverty without the ability to finish school. Then the children of these children in the future will be trapped in the same cycle. This cycle needs to be broken with an adaptive solution.

There is not enough research and academic literature on the impact of individual students' socioeconomic status in relation to their academic achievement. Caldas and Bankston (1997) elaborate on this by saying, "The issue of the extent to which the academic achievement

of students is caused by their own input resources, versus the extent to which it is caused by the input resources of the peer population, has gone relatively unexplored” (p. 269). Researchers have not thoroughly looked into how we can create sustainable solutions for improving individual student’s academic achievement due to the many different factors contributing to a student’s access to different resources, and on top of the differing socioeconomic background. Hence, there is definitely a need to explore this issue more in depth.

### **Global Perspectives**

Through our project we are focusing on the United States, China, and South African Educational Systems. This is because the US is our country of origin and our main focus of the problem in Hennepin County and China and South Africa are at the top and bottom of the measured educational systems throughout the globe. China being at the top and South Africa being ranked at the bottom (PISA, 2015). This section seeks to provide background information on the educational systems of China and South Africa, with additional information being provided later in the paper.

In China, much like the United States, education is categorized into three levels: basic education, higher education, and adult education (Kan, 2015). Also similar to the US, children are required to attend school, with nine years being the requirement in China (Kan, 2015).

Basic education in China is inclusive of pre-school, primary school, and secondary school. Pre-school education lasts about three years, with primary lasting six and secondary lasting another six. Once past primary and into secondary, most students choose one of two routes - academic or vocational. The academic side involves three years of junior education and three years of senior schooling (Kan, 2015). One difference from the US is that in order to persist to senior education from junior, graduates must take an entrance exam, with the results dictating whether the students go on to an academic senior school or to a vocational school (Kan, 2015). Once senior schooling is done, students who would like to move on to college must take an exam titled the National Higher Education Entrance Exam, which had 9.42 million participants in 2015 (Kan, 2015).

Higher education in China includes universities offering four or five year degree programs or colleges offering three year vocational programs. Should a student wish to persist toward graduate or professional studies after their time in higher ed, they will need to have gone through a program at an academic university and received a four or five year degree (Kan, 2015). Additionally, the Chinese adult educational system includes both levels of education previously mentioned, but for non-school age adults. Programs range from primary education to higher education (Kan, 2015).

Similarly, the South African educational system is divided in primary, secondary, and higher education, with education through grade nine being required by law (Houserman, 2016). Primary education in South Africa included pre-school through 9th grade and is also referred to as the General Education and Training Phase (Houserman, 2016). Secondary education consists of grades ten through twelve and is referred to as the Further Education and Training Phase (Houserman). While continuing onto secondary is not mandatory, students who persist are much more likely to find work being that they are given a National Senior Certificate upon completion of twelfth grade and an extensive examination of knowledge (Houserman, 2016). Beginning in grade ten, students also have the option of choosing a vocational education rather than an academic one. These are similarly certified upon completion of twelfth grade (Houserman, 2016).

Higher education in south Africa corresponds to undergraduate, graduate, and professional school. Higher education institutions fall under the oversight of the Council on Higher Education who grants accreditation and sets national standards (Houserman, 2016). Differing from the United States however, is the process of entering graduate school or higher.

Students with a bachelor's degree who wish to persist toward graduate or doctoral programs must take an additional year of undergraduate education to obtain an “honours” distinction (Houserman, 2016).

### Understanding the System

#### Visual Depiction of the System

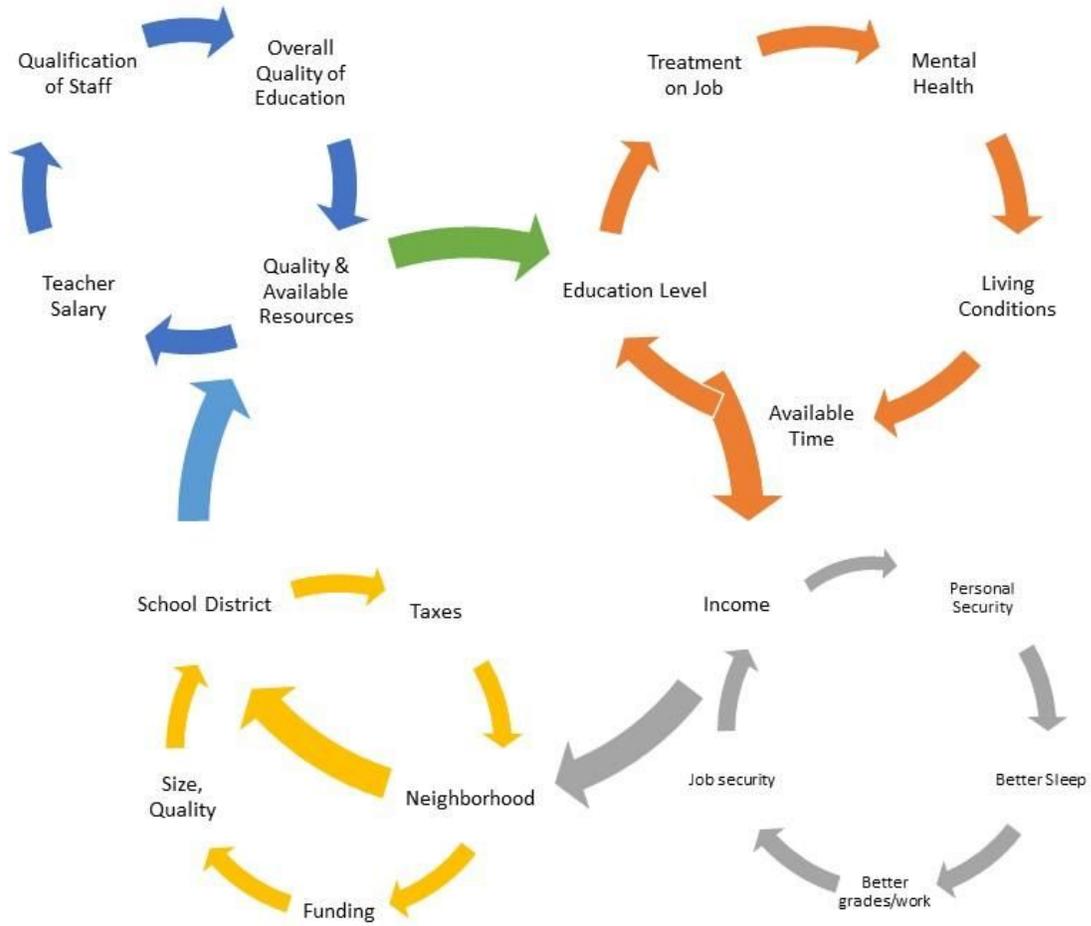


Figure 2: Reinforcing Loop

### **Narrative of the Visual Depiction**

As shown in figure 2 above, our diagram of the educational system is centered around 5 pillars. These pillars are quality and availability of resources, education level reached, income, neighborhood, and school district. Each pillar has several affecting mechanisms built into it.

The first one of these is centered around education level. A study done of Turkish hospitality employees found that general education level has a correlated effect on job satisfaction, specifically that, "...the study emphasized a positive relationship between education level and job satisfaction," (Gurbuz, 2007) and thus, treatment on the job. These both affect mental health which adds to the overall quality of life of an individual.

Secondly is income. This affects personal sense of security on account of the fact that it can affect neighborhood, home, and general safety of community, with the option to move if at some point the family feels unsafe. This sense of security leads to better sleep, better grades/work which in turn lead to income level. Income level is also directly connected inversely to mortality rate among age groups, meaning that people with a higher income level are more likely to have access to better resources to handle stressors in everyday life (Jamison et al, 2006).

As mentioned, income affects neighborhood. Depending on the wealth of the neighborhood, taxes are charged to residents which go back into the school district and can affect class sizes and overall educational quality. Aside from the financial implications of where one chooses (or is given no choice) to live, the quality and safety of a neighborhood have a direct connection to how well students from that neighborhood do in their education, "...the percentage of middle-class neighbors and self-perceived academic abilities were significantly linked to

adolescents' educational values, which were, in turn, related to school effort" (Ceballo et al, 2004).

Finally, the quality of the school district determines the salaries of staff. These allocated funds affect the quality of teachers and other staff the district is able to pay for. As shown in a study funded by the United States Congress, teacher quality directly affects the quality of overall education per pupil (United States, 2016).

### **Power and Influence Within the System**

Government has been involved in education since the beginning of the United States' founding. It is stated that public education is a state's right, not federal. The Department of Education states that,

The responsibility for K-12 education rests with the states under the Constitution. There is also a compelling national interest in the quality of the nation's public schools.

Therefore, the federal government, through the legislative process, provides assistance to the states and schools in an effort to supplement, not supplant, state support (Spellings, 2005).

Federal education funding is distributed to each state and school district through grant programs and formulas. Although the federal government contributes about 8.3 percent of direct education funding for elementary and secondary schools nationally, each state government varies on the amount it distributes to each district (Spellings, 2005). Within America, The teaching staff and parents also play a large role in determining how a student is raised and what the learning process is like for that individual. A teacher's years of experience and quality of training are

correlated with children's academic achievement (Gimbert, Bol & Wallace). Furthermore, "Teacher experience is consistently associated with achievement; teacher licensure test scores associate with math achievement," (Clotfelter, Ladd & Vigdor, 2006). This supports the idea that the skill level of the teaching staff plays a large role in determining how successful the students themselves will be. This seemed to also be the opinion Bryce shared, because "Teachers that aren't as energetic won't teach as well or bring out the best in their students. A lot can go into why that teacher might not be the best, such as pay, the resources they've been given, and the type of classroom that have in terms of diversity" (Boston, 2017). As we previously mentioned that educational success in this project comes down to high school graduation and a college degree, college admissions offices hold a tremendous amount of power in terms of accepting certain students into the school or not. There has been discussion regarding the lack of variance in the diversity of students admitted each year. Numerous critics have pointed out that this problem continues, as "It is not simply by chance that the proportion of students in each of these categories rarely varies much from year to year. These may not be quotas, but they certainly represent goals or targets" (Cole, 2016).

Within that system, the organizations that create the tests that students must take and score highly on also have a legitimate and powerful stake in this issue. The ACT organization, who is responsible for creating the ACT college readiness assessment, came out with a study in 2014 that highlighted issues related to low income families and the students ability to perform well on the test. "The report highlights a plethora of reasons for why low-income students might be performing worse on the ACT than their peers. For one, the report found that low-income students—defined as having a family income of \$36,000 per year or below—were substantially

less likely to have taken the recommended core curriculum prior to the exam” (Klein, 2014).

This further supports the idea that the organizations that prepare the tests still have a major role in determining what students will be able to succeed based on their educational background.

Although these stakeholders all hold different powers in terms of what each can or cannot do in assisting the student, they are all interconnected and have the ability to truly influence the success of the student.

### **Systematic Actors**

The actors that are involved in this are the lawmakers and legislators that determine the financial distribution for each school district within the state and the standards they must reach.

An example of this is the *No Child Left Behind Act (NCLB)* that,

... gives our schools and our country groundbreaking education reform based on stronger accountability for results, more flexibility for states and communities, an emphasis on proven education methods, and more options for parents (Spellings, 2005).

This determines the spending amount per student. Numerous sub-programs were created within *NCLB* to support this reform, such as Title I, Reading First, teacher grants, English Language Acquisition, charter schools, and after-school programs. Bryce had his own experience regarding *NCLB* and felt that it “...pushed me to catch up to the others in doing assignments faster, when I just wasn’t able to learn at the same rate as others. I felt pressure from it all of the time and I don’t know if that program really helped to make students feel empowered and motivated to learn (Boston).

The educational piece deals with the actual school board, principals, teachers and instructors, and students. The power given to each respective group depends on the society and its cultural influences. This level of respect can differ from different regions where the socioeconomic background, amount of post secondary school options, and high school graduation rate varies. Diversity plays a major role in the future of education and how one goes about instructing students, as Bryce stated “Diversity in the classroom was one of the main ideas that we have discussed from my training. It starts at the elementary level and goes all the way through high school. My school district in Roseville had the v\diversity training involve all faculty all at once (Boston, 2017). The college admissions boards and organizations that create the tests for college also hold power within this system by often determining whether or not the student is accepted. This will be further discussed in the benefactors section.

### **Systematic Harms to Individuals & Groups**

The unfortunate truth of this issue in the United States is that the community is affected when a student is unable to reach full potential. That possibility is lost when graduation rates plummet, as obtaining a job without a high school diploma is that much more difficult. People in low socioeconomic areas often have a weaker education system and less opportunities to expand their knowledge. Not as many teachers willing to work in low-income areas results in a poor system that cycles itself through. In our interview with student teacher Bryce Boston, he felt that this held true. He stated, “One important piece that we studied in my class last year was the turnover rate for teachers at low income schools. If you look at how many stay after each new year in a five year term, it really shows how many either move out or quit teaching (Boston). In

other cultures, education may not be as important based on the country's main industries and jobs available. Holding education to higher standards often results in less "issues," such as low graduation rates, poor tests scores, and high dropout rates.

Along with students who don't complete school being harmed later in life when searching for jobs, the general populous of the US is also harmed by this issue. In fact, a study by McKinsey & Company estimates,

... had America closed achievement gaps between 1983 and 1998—15 years after the landmark report on education "A Nation at Risk"—the U.S. economy in 2008 would have been significantly better off. Not closing the test score gap with other countries, for example, cost the U.S. economy in 2008 between \$1.3 trillion and \$2.3 trillion in terms of gross domestic product. The study's researchers describe the existing gaps as the economic equivalent of 'a permanent national recession' (Ramírez, 2009).

Other groups harmed by the current educational system in the United States include American Indians & Alaska Natives, Asian Americans and Pacific Islanders, African Americans, Latinos/as, and students identifying as Lesbian, Gay, Bisexual, Transgender, and Genderqueer (LGBTQ+) (National Education Association, n.d.).

Internationally, we see a similar trend, although with differing groups. In a study done by Philip H. Brown and Albert Park on six communities in rural China, it was found to be overwhelmingly true that parents who have lower levels of education are less likely to both educate and invest in education for their children (Brown & Park, 2001). The reasoning for this is that parents may have low scholastic ability, value education less, or be less available to provide help to their children on schoolwork (Brown & Park, 2001). It is also stated that in rural

areas of China, a lack of community resources available for educational institutions both lowers value of the education received and discourages enrollment. The enrollment rate for children in this sample was about 79% for males and 74% for females (Brown & Park, 2001). While, in a larger national sample that took place in 2000, Knight and Song (2004) found that the rural enrollment rate for children in rural China was 91% for those aged 7-12 and 87% for those aged 13-15 (Knight & Song, 2004). In the sample of the original study of rural parts of China done by Brown and Park, it was found that the enrollment rate for these same age groups is actually higher for younger children and lower for older children in poorer areas (92.1% for 7-12 and 71.2% for 13-15) (Brown & Park, 2001). The given hypothesis for this statistic being that children in poorer or more rural areas of China begin school at a later age and are then expected to leave for work in the family business - whether that be farming or another trade industry. The author found that, “poverty significantly affects both educational investments and learning” (Brown & Park, 2001). By controlling for expenditures per capita, Brown and Park were able to conclude that rural Chinese households that are constrained financially produce students who are three times more likely to drop out of school.

Why is this important to the US educational system? It shows a trend. Despite China being at the top of the world’s various educational systems (Kristof, 2008), there is still a significant trend to be shown in terms of the achievement gap when speaking to likelihood of persistence towards higher education.

Unsurprisingly, a similar trend can be found in South Africa, one of the worst countries for educational quality as studied by a quadannual study (PISA, 2015). In South Africa, multiple studies have shown the cognitive performance of students to be far below the average threshold

when being compared on a global scale (Taylor & Burger, 2016, p.4). Furthermore, the inequality along socioeconomic and racial lines is pronounced more so than that of the rest of the world (Taylor et al., 2016, p. 4). In a study done by the Southern and Eastern Africa Consortium for Monitoring Educational Quality (Moloi & Strauss, 2005), another interesting statistic was found with global implications. The four-year study found that while socio-economic status of the individual does play a role in their retention onto higher education, an even more important variable is the socioeconomic status of the school or district of schools in which they attend. This creates a two-part complexity system which we've found applicable to the United States and discussed in the previous section. In short, the first part of determining a student's likelihood to persist towards higher education is their socioeconomic status. This determines things like the neighborhood in which they live and the amount of time able to be devoted to school work later in life. It also determines the district in which they will attend school. This is the second step. Once enrolled in a school with a determined socio-economic status (which usually corresponds with both the quality and level of functionality within the school), the socio-economic status of the student is less pronounced, and persistence is more so determined by the quality of education provided by the district (Taylor & Burger, 2016, p.6). While there are bright spots in which lower socioeconomic status schools are able to provide a high level of education, these are becoming more and more rare due to the reduced pay qualified teachers receive for teaching within these districts (Taylor & Burger, 2016, p.8).

### **Benefactors of the Current System**

Several groups benefit from the current setup of the educational system, most of which are fall into two categories: companies providing standardized testing and families with high socioeconomic status.

Companies providing standardized testing are major benefactors of the current American Educational System. Specifically, Harcourt Educational Measurement, CTB McGraw-Hill, Riverside Publishing (a Houghton Mifflin company), and NCS Pearson (Frontline, n.d.). It is estimated that these companies made \$400-700 million in 2001 alone from testing brought about by the No Child Left Behind Act (Frontline, n.d.). Harcourt Educational Measurement, CTB McGraw-Hill, and Riverside Publishing alone own over 90% market share in educational testing, with NCS Pearson being the leader in scoring the tests (Frontline, n.d.).

The socioeconomic condition of a child's family is also a large beneficiary of the current educational system. In fact, students who are considered to be in the bottom 20% of family socioeconomic status score over one standard deviation worse than those in the top 20% - and that is just when they enter kindergarten (Reardon, 2011). This head start has been proven to be accentuated by the years following kindergarten and shown to affect both test scores and likelihood to persist towards higher education (Reardon, 2011). "That means students who have the same academic potential but less family wealth end up attending colleges with fewer resources, lower graduation rates, lower-paying job prospects, and less access to competitive leadership roles in the government or large corporations," (Mulhere, 2016).

In the Chinese educational system, a positive correlation can be seen between school fees and distance to the school being compared to retention rates within the school. In other words, the further a student travels to get to school, and the more money is expected of them for attending, the less likely they are to drop out (Brown & Park, 2001). This statistic remains nearly the same among rural, suburban, and urban populations within the studied areas of China (Brown & Park, 2001). While this statistic is a bright spot amongst schools in China, the notion that in order to be significantly more successful in one's education the family needs to put additional financial resources into that education is less than desirable when focusing on populations of lower socioeconomic status.

### **Ethical Considerations**

There are several ethical dilemmas that currently exist within the educational system in the United States. One of the most common ethical issues that currently exists is the premise of using national standards as a measurement tool for judging a student's success. A student's ability to answer multiple-choice and essay questions has now become the determining factor in deeming a student qualified for going to college (Berube, 2004). Educators use these multiple-choice tests to convince themselves that students truly "understand" what they are being taught, when in reality these tests are used because they are cheap, easy to read, and simple to grade (Berube, 2004). It is ethically questionable that achievement for all students is based on these high-risk tests, especially when areas with poverty are at a disadvantage. Proof of this can be found in Philadelphia, where 79% of the public students are eligible for the free or reduced lunch program, a key signal for poverty (Broussard, 2014). The high school graduation rate there is only at 64%, with fewer than half of the students being able to score proficient or above on the Pennsylvania System of School Assessment (PSSA), which is the state's standardized test (Broussard, 2014). The students living in poverty are clearly not as well equipped to succeed on standardized tests.

Another ethical dilemma we face in the educational system is on current efforts to reduce inequality. Although we want to admit more students coming from lower socioeconomic background, it conflicts with the idea of "equal opportunity" if we admit more students just because they have extenuating circumstances. This dilemma remains controversial: On one end, since colleges did not make much progress in admitting more low-income students over the last

decade, there is a demand for “calling for a “poverty preference” in college admissions.” (Fain, 2016). The aim for this “poverty preference” is to foster a more active recognition of high-achieving low-income students’ abilities (Mulhere, 2016). On the other end, there are legality implications with any race-conscious admissions. There have been many Supreme Court cases in which admitting or rejecting any student based on their race, such as the . It might be unethical if schools are admitting people from a lower socioeconomic background just because it is a “viable alternative strategy to promote racial diversity on campus” (Fain, 2016). It may provide better opportunities for underprivileged students, but this educational equality is achieved in an unequal manner.

Teachers are crucial in students’ development and learning as they act “as primary facilitators of the social and learning environment, and as resources, mentors, and supports for children’s development.” (Fram et al, 2007, p. 311). However, minority students tend to be left with less qualified and experienced teachers, thereby segregating many low-income and minority students and exacerbating educational inequalities (Smedley et al, 2001, p. 208). One specific data points to the fact that, “the difference between what the highest- and lowest-paid African-American teacher earned widened considerably.” (Strike & Soltis, 1998). In essence, if we cannot pay our teachers equally based on their race and gender, how can we expect the same quality teaching for students?

One of the global perspectives we looked at for this project was China. In China, the educational system is known for creating students with high achievement on international standardized tests. Even though the college graduation rate has quadrupled there in the past decade, it has created a system that discriminates against the less wealthy and well-connected

citizens (Gao, 2014). Urban students are typically in state-of-the-art facilities with well-trained teachers, while rural students are forced to learn in decrepit school buildings with horrible teaching (Gao, 2014). This is an ethical dilemma because China is in the top ten in science and math for the Programme for International Student Assessment (PISA) ranking (Wang & Anderson, 2016). If the country is continuing to increase their scores, and more and more students are graduating than ever before, what incentive does the Chinese government have to step in and help out the mass quantity of poor children who aren't succeeding? Is it the responsibility of the schools to close the achievement gap?

Another ethical issue is the rise of private schooling, and its impact on those students who can't afford to pay for a better education. Fram et al. (2007) discuss the issue within the United States by talking about how many are considering if the public schooling system in the U.S. is worth keeping (p. 318). This is an ethical issue because it puts even more stress on families in poverty, but is that a fair price to pay for other kids getting better educational opportunities? This is also becoming a pressing issue in South Africa, which was another global educational environment we studied. Poor families in South Africa are faced with an impossible choice to buy the bricks to build a house, or to get better education for their children (Smuts, 2014). Melanie Smuts (2014) further explains this issue by stating:

And though some proponents will say this is not a choice a poor family ought to make, the reality is that it's a choice many poor families must make. Their sacrifice means a chance at an education in a country where the statistical odds of receiving it in a public school are worse than most places on earth (p. 1).

When families are faced with the decision to sacrifice their well-being, or put their children through a good school, it can put an enormous amount of weight on a family. If private schools continue to rise in popularity, is it fair to put a price on education when so many families are struggling?

### **Existing Technical Solutions**

After researching the problem on a local level, country-wide level, and on a global level, we began to find some technical solutions that currently exist. One research study we found focused on the creation of an educational intervention system. Dearing et al. (2007) discovered that children going to high-poverty, urban schools saw an increase in educational success when they received school-based support (p. 892). When the authors reference “school-based support,” they are talking about training teachers to specifically address the needs of students, providing families with training on how to support their children, and creating time before and after school for students to get additional help. This intervention system proved to be effective as the school that implemented it saw improvements in math and readings scores (p. 892). This solution was within a very small sample size of one school, but it can be considered a technical solution because there is no current study of how this plan can be implemented on a larger scale, such as statewide or countywide. That being said, Dearing et al. (2007) provides the framework for the student needs’ that need to be addressed to make this plan adaptive and sustainable; they say the issues that need to be addressed are:

- (a) Developing a support plan for all children in socially disadvantaged schools (rather than only those with exceptional mental health or special education needs);
- (b) attending to each child’s unique developmental strengths and needs;
- (c) supporting not only learning and cognitive growth, but also social, emotional, and physical growth; and
- (d) aligning assets and resources across families, schools, and communities in a culturally competent manner (p. 895).

In addition to the technical solution of creating a support system for students through teachers and families, another potential solution can be found in child nutrition. A recurring technical solution that we've observed is having government's attempt to fix the educational system through the creation of policies. A study from Bangladesh looked at the connection between nutrition and education. Khanam (2012) discusses this issue in relation to policy creation by stating:

This study reveals the importance of childhood nutrition, which has never got policy priority as an intervening factor in education. In fact, the role of childhood nutrition in economic development (through better schooling) has not properly recognized, as feeding children does not provide immediate, demonstrable, and measurable economic growth. (p. 70-71).

Khanam (2012) discovered that policy makers typically neglected other factors outside of funding for schools as a fix for resolving the lack of academic achievement. An article about the achievement gap in Minnesota schools confirms this when Christopher Magan (2017) states, "Minnesota now spends about \$75 million a year on programs to integrate schools and close the achievement gap, but the funding has no clear direction" (p. 1). Throwing money at the problem is the current technical fix, but there needs to be more clarity in what that money should be going towards. Khanam's (2012) study addresses a potential fix when she discovered that, "Childhood malnutrition is a life cycle process, rather than short term crisis, which affects schooling, future health, productivity and earning over a lifetime" (p. 71). This solution is a potential bright spot as malnutrition is often an overlooked factor.

Fixing this problem actually requires an adaptive solution, but it is viewed as a technical problem that can be fixed by throwing money at it. This claim was further supported in another research study we found about schools in the United States. Della Sala et al. (2016) discuss how most states don't actually distribute funds to school's based on a poverty index, meaning they don't look to provide more funding to schools with less money and more struggling students (p. 198). They elaborate on the importance of expanding upon the technical fix of funding policies by stating:

The additional poverty weighting would direct funds to school districts to provide them the capacities to devise programs or structures that have been proven to recruit, retain, and train teachers and administrators to work in schools with students living in poverty” (p. 198).

What they are getting at here is the idea that considering poverty within school districts when allocating funds should be a more central concern. Reframing how policies can make an impact on education will be beneficial for finding a more sustainable, adaptive solution.

### Summary

Education is an intricate system made up of many pieces that affect quality, type, and value throughout the world. We are interested in learning more about how these issues affect test scores, graduation rates, and overall spending per student. We believe that these parts are connected to the issue at hand, which is that each student doesn't have the same level as opportunity as the other due to outside forces, and are determined to figure out their significance.

The issues of the achievement gap have been around for awhile, but there has been little to no signs of significant improvement. Fram et al. (2007) discuss what is starting to happen and what the future might look like if no one solves this problem. The authors write, "The past decade has seen a heightened emphasis on school reform but arguably no improvement in achievement gaps (Lee, 2006). Consequently, many have begun to doubt whether the U.S. public school system is worth keeping" (p. 318). The rise of private schools and the reduction of public schools would make the system more broken than it already is. A student's ability to simply attend a private school is typically based off of their socioeconomic status, so this would increase the achievement gap.

Should this trend continue in lower education levels for less socioeconomically healthy families, we can expect to see a significant increase in the achievement gap (Kraussel, 2017). A steady decline of test scores throughout the last 8 years has shown a similar trend, "Overall, 60.1 percent of Minnesota public school students tested proficient in math, a decline of 1.2 points. Minneapolis Public Schools were down 1.7 points to 43.4 percent." (Verges, 2017). Our research has shown the impact that income, socioeconomic background, and government funding have on

the quality of education students receive throughout the county, state, country, and world.

Cultural values, ethics, and outlook also affect the level of education received and are issues that continue to impact the achievement gap.

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