



## **Privatization of Public Education: Lessons from New Orleans for Engineering Education in K-12 and Beyond**

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## **Abstract**

As ASEE meets in New Orleans shortly following the 10<sup>th</sup> anniversary of Hurricane Katrina, we seek to explore how disasters like Katrina reveal underlying systems of inequality, and create opportunities for the enactment of political and economic agendas that further ruling interests. What lessons can engineering education draw from the experiences of New Orleans schools after Katrina? What does it reveal to us about systems of inequality in engineering education, and how we might counter political and economic agendas that run counter to equity and social justice?

Using a case study approach, we seek to analyze the effort to rebuild New Orleans public schools as private charters, and how this effort, part of a larger trend in market-driven school reform, funneled public resources to corporate education reformers. The public school system was decimated, with all personnel fired two weeks after the disaster, the powerful union comprising mostly black, mostly female employees, was dismantled, and infrastructure and resources were redirected to private out of town corporate school reformers, mostly white elites.

The evidence from the charter experiment in New Orleans reveals that, to the extent that charters produced improved student performance, it did so only for the most elite students. Students with disabilities and students of color were systematically excluded from educational opportunities, impacting their educational outcomes and resulting in civil rights lawsuits. Moreover, the dissolution of neighborhood schools had devastating impacts beyond the classroom, as it meant a critical source of stability in students' and families' lives was removed just when they most needed to see familiar faces and sustain routines in the face of trauma.

Because engineering has largely existed outside of K-12 curricula, many engineering education efforts in K-12 are already privatized in some way. From FIRST Robotics to Project Lead the Way, engineering education in K-12 is mostly not public, and the role of teachers in developing these experiences has to date been limited. In this paper we seek to show why this is a problem, particularly for creating pathways to engineering for students of low socioeconomic status and students of color. As the Next Generation Science Standards come online, and as more and more states adopt engineering standards for K-12 education, how can engineering education be delivered as part of public education, involving teachers and unions fully in the process? What kinds of redirection are needed to reverse the privatization that has already occurred?

## **Introduction**

Engineering, along with most other STEM disciplines, has made scarce progress in addressing its problems of social inequality.<sup>1-4</sup> Riley, Slaton, and Pawley<sup>5</sup> argue that we have framed the problem poorly and failed to examine structural forces at work that maintain color lines and gender gaps in engineering. There is a need to look beyond the discipline of engineering (or

engineering education) to develop a deeper understanding of these structural forces and effective strategies for resisting or dismantling them.

On the occasion of ASEE's meeting in New Orleans, where long term social inequalities were exacerbated in the wake of Hurricane Katrina, it seems appropriate to examine the efforts to rebuild New Orleans and what it can tell us about engineering and engineering education. We chose to focus on the case of rebuilding the public school system as 100 percent private charters, and how this effort, part of a larger trend in market-driven school reform, funneled public resources to corporate education reformers and increased social inequality. We bring this discussion to the Liberal Education/Engineering and Society Division as the appropriate place to explore the intersections of engineering education with social inequality, the recent history, politics, and economics of the Katrina disaster in New Orleans, and charterization in the context of national education policy initiatives, which could be extended in short order to higher education.

While our chosen case is about K-12 education, this paper is far broader in scope. The forces of privatization are felt throughout the public sector, impacting many aspects of engineering. For example, we are not keeping pace with public investments in infrastructure for transportation, telecommunications, energy, clean water, and more;<sup>6</sup> in every case the burden of failing, poorly maintained, or missing infrastructure falls disproportionately on poor and disenfranchised populations. The water privatization disaster that Bechtel led in Cochabamba, Bolivia resulted in widespread revolt when people could no longer afford the water they needed to live.<sup>7</sup> Public higher education has seen declining support from states for many years, such that affordability of college is a crisis for many of our engineering students.<sup>8</sup> By studying one particular case of privatization in depth, we hope to draw lessons the engineering education community can apply across a wide array of settings in which we may encounter similar patterns.

After providing background on how disaster responses can contribute to social inequality, and providing context on the charter school movement and federal education policy, we will present our case study of the rebuilding of New Orleans "Public" Schools. Following this case analysis, we ask: What lessons can engineering education draw from the experiences of New Orleans schools after Katrina? What does it reveal to us about systems of inequality in engineering education and practice, and how we might counter political and economic agendas that run counter to equity and social justice in engineering education and practice at all levels? As we consider the rollout of engineering standards in K-12 in many states across the country, we offer recommendations for engineering faculty in higher education who may be called upon to participate in various ways in this effort.

## **Background**

Science and Technology Studies scholar Scott Knowles details in his book *The Disaster Experts*<sup>9</sup> the ways in which disasters are constructed via complex interrelationships among ideologies of civil defense and homeland security, the simultaneous roles of knowing and forgetting, American commitments to land development and federalism, and much more. Katrina was an exercise in multiple and layered sets of missteps that made the disaster as extensive and long-lasting as it

was. Studying these in detail as Knowles has done reveals underlying systems of inequality, such that an event such as a hurricane creates opportunities for the shaping of disasters with disproportionate impacts and enactment of political and economic agendas that further ruling interests.<sup>10</sup>

In the early 1980s the American education system was declared to be in crisis. United States Secretary of Education T.H. Bell called for the creation of the National Commission on Excellence in Education (NCEE) to oversee and ensure the quality of education in the United States. The committee's purpose was to define the problems facing the American public school systems and to devise solutions and serve as a national beacon for educational advancement and improvement in the country. The NCEE summarized and evaluated the status of public education in the nation and the resulting diagnosis and opening line in their report was that "Our nation is at risk."<sup>11</sup> The study calls for reform of the nation's educational system and for higher quality education and cites the need for global competitiveness in the wake of technological advancement from foreign countries. Citing industry and commerce concerns and the need to remain a leader in the expanding global economy, the study highlighted indicators of risk to the nation, reporting statistics in educational performance either below standard or not far reaching enough across the U.S. population. The findings were summarized in the following problem areas: curricula, expectations for graduation requirements, time spent educating, and qualification of teachers.

Casting the education system as a disaster paved the way for three decades of educational reform predicated on assumptions that schools needed higher standards, accountability for teachers, standardized testing of students, and that competition in a free market system would cause schools to improve (with private schools assumed to be superior to public schools). As with other disasters, we have seen how multiple and layered sets of missteps shaped by experts' decisions in a complex system work to shape the disaster. And as with other disasters, inequality is made visible through the unfolding of the crisis.

No Child Left Behind, enacted in 2001, took the educational reform movement even further by introducing sanctions for school failure, one of which was the introduction of school choice. Federal policy explicitly encouraged charter schools and the privatization of public education. The way in which school failure was defined under No Child Left Behind created a "diversity penalty"<sup>12</sup> in which schools with more diverse students had to parse the data into subgroups that increased likelihood of being designated failing.

Charter schools emerged in the 1990s as private schools that receive public funding to operate. It is not uncommon for public coffers to be depleted as funds are diverted out of local budgets to pay for private charters, undermining public school funding.<sup>13</sup> With more diverse public schools labeled as failing and subject to school choice, those communities are more likely to be impacted by fund depletion, often in locations where there is already less funding of education than in less diverse, more affluent communities.

## **Case Study**

By the early 2000s, the public school systems in Louisiana had been in decline for quite some time with issues ranging from academically unacceptable scholastic achievement to high dropout and poor graduation rates. The public school systems in New Orleans prior to Katrina consisted of roughly 65,000 students spread among ~4,000 teachers with a predominantly (~93%) black population. The term ‘white flight’ was coined in the mid 1900’s to represent the drain of white families from inner city to suburban neighborhoods after desegregation. In the late 80’s to late 90s, New Orleans, a city with a large black population, had the highest enrollment of white students in private school when compared to other metropolitan cities in the United states.<sup>14</sup> Thus despite formal efforts toward desegregation of schools, white flight ensured a semi segregated school system in the state where low socio economic and African American students attended public schools and the affluent white students attended the private institutions.<sup>14,15</sup> The New Orleans public school system was known as one of the worst performing school districts in the nation and decades of neglect and mismanagement only added to its decimation.<sup>16</sup> Over 63 percent of public schools in New Orleans were considered to be academically unacceptable by the end of the 2004-05 school year.<sup>16</sup> However poor the academic performance, the issues were beyond school failure, and involved poor management at the district level.

### ***Recovery School District***

The deplorable conditions of public schools in Louisiana and the enactment of the nation’s NCLB motivated the establishment of the Recovery School District (RSD) in the state’s 2003 legislative session.<sup>17</sup> The RSD, formed by the passage of Act 9 by the Louisiana legislature, allowed the Board of Elementary and Secondary Education (BESE) to temporarily take over the management of failing schools with two possible outcomes: i) BESE to directly operate the schools or ii) to contract out the failing school operation to charter school operators. Statewide there was only mild opposition to Act 9 as school boards across the state felt that Act 9 was intentionally aimed at addressing issues that primarily affected Orleans Parish, thus they were unconcerned.<sup>16</sup> However there was strong opposition from residents of New Orleans, the members of the OPSD and the United Teachers of New Orleans (UTNO).<sup>16</sup> Those in opposition to Act 9 were concerned that educators would lose their protection under collective bargaining and that state takeover would lead to privatization of public education.<sup>16</sup>

The criteria for state takeover were based on student academic performance, attendance, dropout rates and graduation index which accumulated to the School Performance Score (SPS). The performance label assigned to schools was based on SPS and schools that were rated as academically unacceptable schools (AUS) for four years in a row were eligible for state takeover.<sup>16</sup> To paint the picture of how Act 9 particularly targeted takeover of schools in New Orleans, in the first year 16 of the 17 schools in the state of Louisiana that were eligible for state takeover, by definition of the new Act, were in New Orleans and another third of schools in New Orleans were rated as AUS making them more than likely to be eligible for takeover in coming years.<sup>16</sup> Despite strong opposition in New Orleans, Act 9 was passed in 2003, the Louisiana constitution was amended, and the RSD was the appointed body in charge of the state-led ‘takeover’ of individually failing schools. Though the BESE reserved authority to directly

operate schools, they had no intention or experience running K-12 schools. The first school to be taken over by RSD was in 2004-05 and became a charter operated by the University of New Orleans (UNO). In total, prior to Hurricane Katrina, 5 schools in the OPSD had been turned over to the RSD and had been re-opened as charter schools either by university contracts or non-profit organizations.

Despite the establishment of RSD and takeover of a handful of schools, the OPSD still faced devastating problems with regard to corruption and ineffective remedies to change the trajectory of the chronically failing public education system. In 2004, the federal, state and local law enforcement agencies including the FBI, IRS, Department of Education and, Inspector General had set up a physical working group in OPSD central offices to probe into corruption and mismanagement practices of the OPSD governing leaders.<sup>16</sup> This would be the first instance in the FBI's history that investigative agencies took up residency at the entity being investigated. The high turnover rate of superintendents and lack of consistent and dependable leadership added to the flagrant corruption in the OPSD. The decades of financial mismanagement and the resultant investigation led to the indictments of 11 district employees in 2004 with a slew of indictments to follow, and as of 2007 the federal prosecution has convicted 26 of the 29 cases ranging from kickbacks, extortion and insurance and mail fraud, theft and Hobbs Act Conspiracy.<sup>18,19</sup> After the investigation shed light on the years of financial corruption and the misuse of multiple millions, it was no surprise that in 2005 the public school system in New Orleans was effectively bankrupt.<sup>16</sup> Under the threat of complete state takeover an outside accounting firm, Alvarez & Marsal (A&M), was hired in July of 2005 to overhaul the school system's financial affairs.<sup>16</sup>

### ***Hurricane Katrina & the Aftermath***

Just weeks after the A&M accounting firm was hired to clean up the district's finances, on August 28<sup>th</sup> the first ever mandatory evacuation of New Orleans was called by Mayor Ray Nagin. Worried about the incoming coastal storm and the catastrophic effects it would wreak on hundreds of thousands of New Orleanians who lived below sea level, Mayor Nagin encouraged residents to leave the city. Unfortunately, roughly one third of the residents in New Orleans lived in poverty and ~112,000 did not own cars.<sup>20</sup> Residents were advised to find rides with family, friends and or church members and those that had no viable options were urged to get to the city's Superdome as soon as possible. The next day on August 29<sup>th</sup> one of the worst hurricanes to strike in the United States devastated the Gulf Coast.

Hurricane Katrina had a direct impact on the states bordering the Gulf of Mexico especially the city of New Orleans, which was heavily hit as the levees weren't built or maintained to withstand the intensity of the storm. The damaging effects of the storm resulted in roughly 80% of the city of New Orleans being under water and the storm itself impacted ~90,000 square miles of land throughout the gulf coast. The majority of the damages were seen in Louisiana and its neighboring state Mississippi and resulted in over \$80 billion in property damages. The property along with the economic impact account for over 100 billion in damages, thus marking Hurricane Katrina as the costliest hurricane in U.S. history. As the disaster devastated the coastal

cities the flooding and other resultant damages were further complicated as there was no sound plan of action to meet the needs of the displaced New Orleans residents.

Critics have bashed the response efforts of the Federal Emergency Management Agency (FEMA) asserting that the response was not adequate in providing aid to the city of New Orleans. The extent of damages was not adequately communicated and the city of New Orleans was not well prepared, thus rescue efforts were slow to surmount and left hundreds of thousands of people in need of shelter, food, and water. Known today as the Katrina diaspora, many of those affected by the storm were originally from the coastal states. Thousands of families moved to neighboring states, some permanently, and sought shelter with family across the country after the hurricane. Though the entire coast was affected, most of the damage was concentrated in New Orleans where a little more than two thirds of the population were African American.

In New Orleans thousands of homes and businesses had been destroyed or damaged; this included school buildings as well. Of the 128 schools in the New Orleans Parish District only 16 were left undamaged after Katrina hit.<sup>21</sup> It was estimated that in total 300,000 students were displaced due to the hurricane<sup>22</sup> and as a result it was decided that there would be no Fall term in 2005 at the K-12 schools or the affected colleges. The displaced students had to resort to schooling in undamaged parts of the state and or country with most of the students arriving in neighboring states of Texas, Mississippi, and Alabama.<sup>23</sup> Due to the crisis and haphazard management of the school system prior to Katrina, relocation and placement of students after the storm was not well recorded and there were thousands of students unaccounted for. In addition to the students the teachers were also displaced due to Katrina. Days after the hurricane had hit the union contract with United Teachers of New Orleans was nullified and the predominantly black predominantly female band of teachers were fired without explanation and left in an even more vulnerable condition than when the storm destroyed their neighborhoods and demolished their homes.

The mass firing of all 7500 Orleans Parish public school employees during a mandatory evacuation has led to subsequent wrongful termination lawsuits and a request to be reviewed at the nation's Supreme Court as recently as October 2014.

### ***Changes in Public Education System***

In mid-September, amongst the aftermath of the hurricane and discussions of rebuilding the city, members of the OPSB debated on when to reopen schools. They were considering to not even reopen schools in the 2005-06 calendar year. However, there were other visions for the rebuilding of public education in New Orleans. On September 30, 2005, just a month after the hurricane hit, the U.S. Department of Education announced that the state of Louisiana would be receiving a NCLB grant through the Charter Schools Program in the amount of \$20.9 million in efforts to help reopen charter schools damaged by the hurricane in addition to creating 10 new charter schools.<sup>22</sup> It was during this time that the vice president, in conjunction with state and local lawmakers for the city of Algiers proposed to charter all 13 schools in the Algiers area. It should be noted that Algiers is located in the West Bank district of New Orleans and was one of

the less-impacted areas after Katrina, an “Immediate Opportunity Area”<sup>a</sup> as it would later be called in the action plan set forth by the Urban Planning committee for the Bring New Orleans Back Commission.<sup>23</sup> The vice president and Algiers legislators presented the proposal for the new charter schools to an invitation only group on October 5, 2005 without informing the OPSB.<sup>21</sup> The vice president for Algiers schools emailed the proposal to board members the night before the scheduled OPSB meeting, which was held on October 7, 2005. It was announced at the OPSB meeting by New Orleans Governor Kathleen Blanco that charter schools were to be built in New Orleans and the Algiers charter application passed with a 4-2 vote with 1 person abstaining.<sup>21</sup> In the press release it was estimated that the new charter schools would be open and operating by January 2006.<sup>22</sup> The money was awarded in October of 2005 and later that month the OPSB unanimously approved 20 charter applications for former district schools 13 of which were on the West Bank.<sup>21</sup> Klein<sup>10</sup> contrasts the speed of these decisions and rebuilding with the interminable processes surrounding levee repair or restoration of electricity.

The decision to charter schools was made in the wake of state charter school law requirements waived by Governor Blanco. The executive orders issued by Blanco, specifically KBB-05-58 and KBB 05-79, paved the way for charter schools in New Orleans by suspending a series of provisions for charter schools in order to assist in meeting the educational needs of Louisiana students. The justification for the suspensions was that “certain provisions of law prevent the rapid expansion of charter schools by either requiring a process that extends over a period of time or by establishing a requirement of law to which the charter cannot comply due to the disaster”<sup>24,25</sup> Among other things, the provisions regarding students eligibility to enroll in and attend charter schools and the approval by the professional faculty and staff of the preexisting school and parents or guardians of children enrolled in the school were suspended. These executive orders made conversion and creation of charter schools easier. As a result, charter school boards aren’t composed of parents, teachers or community members, thus eliminating important stakeholder input in the decision-making process and operation of the public charter schools.

In November, a special session of the Louisiana legislature convened to create Act 35 which altered the criteria upon which state authorities could intervene at the local school district level. The new act redefined how school performance was deemed failing or not. The language stated that an entire school district would be considered “Academically in Crisis” if 30 or more schools in the district had a failing rating and/or if 50% or more of the students in the district were enrolled in failing schools. This new amendment increased state power to take over failing school districts as opposed to Act 9 which limited state takeover to individually chronically failing schools. Under the new act a school would be considered failing if their SPS score fell below the state average 87.6; whereas schools in non-failing districts would be considered failing and eligible for state takeover if their SPS scores fell below 60.<sup>16</sup> Though eleven out of twenty members of the New Orleans delegation opposed it, Act 35 passed through legislation and the new criteria for performance standard allowed the BESE to takeover an additional 114 low performing schools from the OPSD and place them under the state run RSD. This new act left a mere 17 schools under control of the OPSB. Despite talk of waiting to reopen schools in the OPSD, efforts to take advantage of the \$20.9 million NCLB grant that targeted the repair and

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<sup>a</sup> Immediate Opportunity Areas were defined as areas with little or no flood damage and were characterized by concentrations of commercial, medical, residential, cultural, entertainment and hospitality activities.



expansion of chartered and not traditional public schools, the OPSD district ended up opening schools as early as January 2006. The changes in legislation altered the structure of public education to a decentralized system of a variety of schools that were either run directly by the RSD, RSD charter schools, OPSB charter schools, or in the relatively few cases OPSB public schools. The first three, RSD direct run, RSD charter and OPSB charter constituted new schools thus making them under no obligation to the union contract between OPSB and the UTNO. In early November the OPSB declined to renew the union contract that was set to expire in 2006, meaning that the union represents teachers that hold no collective bargaining agreement with any school or district.<sup>16</sup> Just like that, right after the hurricane struck the once public school system in New Orleans was decimated.

### *Charters as independent institutions*

Robert Pastorek, an attorney and former chair on the RSD advisory committee, helped to establish the Louisiana Disaster Recovery Foundation that collected over \$6 million a mere month after Katrina hit.<sup>26</sup> The recovery foundation facilitated the privatization of schools in New Orleans, operationalizing Pastorek's requisites for educational policy: accountability, capacity building, and partnerships.<sup>26</sup> Organizations like Teach For America (TFA), New Schools for New Orleans, and other nonprofit entities offered the human capital, accountability, and choice to sustain charter schools. Large foundations, corporate businesses, and federal grants provided the financial resources to realize the public-to-charter education reforms in New Orleans. The legal work that paved the way for large scale charter reform was chaperoned by Pastorek. In 2007, Pastorek replaced the late state superintendent C. Picard and went on to continue establishing financial resources that propelled the educational reform in New Orleans.<sup>26</sup>

With the policies in place and federal and private funding coming in to help reopen and rebuild charter schools in New Orleans, along with the urgency to 'get students back into school,' national and local experts joined the Louisiana Department of Education representatives to discuss a plan for opening and supporting charter schools in New Orleans. As the RSD had no prior experiences operating school districts they relied heavily on outside sources. The Bring New Orleans Back Commission<sup>23</sup> was founded by Mayor Nagin and involved a host of private sponsors from IBM to representatives from A&M. The financial firm A&M was hired to reconstruct the financial and physical infrastructure of the entire OPSD after Katrina. The managing director of A&M used the opening of charter schools as base for the cities rebuilding plan.<sup>27</sup> The post-Katrina changes were apparent in many areas of governance, not only were public schools being converted to charter schools but A&M also oversaw the recruiting of principals and teachers for the newly opened charters in New Orleans, none of whom were part of a union.<sup>21,27</sup> The union contract would have meant that in terms of hiring, former faculty would have received priority and should have been hired back based on seniority. However, the hiring process charter schools asked each teacher applicant to take a test and use the results to screen for qualified applicants, in a pool of 250 applicants the test alone screened out one fifth of applicants.<sup>21</sup> For those not eliminated by the firm's new hiring process, the 'streamlined' organizational staffing made getting things done much easier and faster.<sup>27</sup> From the year after Katrina to the summer of 2012, TeachNOLA trained more than 230 non-teacher professionals that were hired as teachers in New Orleans.<sup>28</sup>

Using the devastation of Katrina as a tool to redefine charter schools the model used in Louisiana is unique and very different from charter schools used elsewhere in the United States. In a critique by Dr. Raynard Sanders Research on Reform, he outlines unique distinctions that set Louisiana charters apart from others elsewhere in the United States. First and foremost Louisiana is/was the only state that allowed charter schools to implement admissions requirements, making charter schools in New Orleans exclusive as opposed to the inclusive charters that began decades ago.<sup>29</sup> Secondly the charter schools in Louisiana used federal funding, intended for disadvantaged students and schools and distributed them among students and socio economic areas less impacted by Hurricane Katrina.<sup>29</sup> Another important note is that the public education reform in New Orleans has resulted in a 'tiered' system where every student in the city does not have access to the same quality of education. Post-Katrina there are five distinct governance structures including the OPSB public schools, OPSB charter schools, RSD public schools, RSD charter schools and the BESE charter schools.<sup>29</sup> With respect to charter schools there exists yet another tiered system where various types of charter schools exist including type 1, type 1b, type 2, type 3, type 3b, type 4 and type 5. The oversight of type 1 and 3 charter schools is the responsibility of local school boards where each charter management organization consists of a board of directors which govern organizational duties like finances, operations and administration. Charter schools that fall into type 2, 4, and 5 however, are overseen by the Louisiana Department of Education for BESE charter schools. Charter types 2 and 5 is similarly managed by the charter board of directors and type 4 schools a governed by their local school boards.

Under the BNOBC, the urban planning committee was tasked with framing the city's reconstruction efforts. The rebuilding of schools was included in the Neighborhood Rebuilding Plan and regarding their vision for the new New Orleans, educational and medical institutions would be rebuilt by "employment powerhouses supporting their neighborhoods and energizing the economy."<sup>23</sup> Since 2006 Entergy has been one of the largest local corporate donors toward education reform in Louisiana. They have invested more than \$21 million to support education in the state of Louisiana with more than \$10 million in Orleans Parish.<sup>30</sup> Entergy works in conjunction with 11 strategic partners to impact educational outcomes of charter schools in Louisiana. Entergy provides financial support in the form of charitable foundation grants and uses the educational outcomes delivered by their strategic partners as a measure of their contribution to education reform in Louisiana.<sup>30</sup> Grants awarded to primary and secondary charter programs like TFA, KIPP Charter Schools, Firstline Schools, New Schools for New Orleans, are used to create more seats for students to attend charter schools as well as develop programs like the First Line Blended Learning program which is aimed at closing achievement gaps among students.<sup>31</sup> Entergy also partners with programs like New Orleans POSSE to provide funding for post-secondary education for high achieving but financially disadvantaged students making college access and youth leadership development hallmarks of their charitable efforts, they have also sponsored and supported the United Negro College Fund and Louisiana State University among other grants for programs and non-profits within the New Orleans-area.<sup>31</sup>

Roughly a year after Katrina, the Bush-Clinton Katrina Fund raised \$130 million for the affected Gulf coast region, donated to TFA for the recruitment and hiring of teachers. There were three other notable foundations that lent financial support to boost educational achievement for

students in New Orleans public sector. In December of 2007, more than \$17.5 million in investments funded by grants from the Eli and Edythe Broad Foundation, the Doris & Donald Fisher Funds and the Bill & Melinda Gates Foundation were given in financial support. The nonprofits New Schools for New Orleans, Teach for America (TFA), and New Leaders for New Schools were equipped with the aid they needed to recruit and train new teachers and school leaders and to create new and innovative charter schools.<sup>b</sup> Other corporate entities like Capital One and Walmart also allocated money to either establish their own charter schools, donate millions to other local and national non-profits operating in the area, or directly support the RSD in redesigning school plans.<sup>28</sup>

### ***Privatization of Engineering Education in New Orleans***

The not for profit organization Building Louisiana Science & Technology (BLaST) was founded in 2003 as a gateway for bringing science and technology programs to enrich the learning experiences of Louisiana students.<sup>32</sup> The organization is made up of members from industry academia and K-12 districts and is sponsored by Entergy. The organization's focus is to offer and support programs that spread awareness of the STEM fields. BLaST has formed an alliance with neighboring state Mississippi and was responsible for bringing FIRST Robotics Competition (FRC) and First Lego League (FLL) to the respective states.<sup>32</sup> In 2006 the first Bayou Regional was held and sponsored by BLaST, Inc. Aside from the FLL and FRC, which are largely privatized avenues to engineering for K-12 students, the other options for engineering exposure come from state and local University K-12 outreach programs in Louisiana. As an example, the University of Tulane's Science and Engineering Department offer and sponsor various engineering and STEM centered programs through their K-12 outreach programs. Tulane University offers an annual 'Greater NOLA Science and Engineering Fair (GNOSEF), which is open to any middle or high school students attending school in the New Orleans four-parish area. The GNOSEF is one of the oldest such fairs in the nation and UNO along with Tulane University are among community sponsors with foundations and national engineering societies making up various levels of corporate sponsorship. As with FLL and FRC, these competitively structured STEM programs are limited to inclusion of students already interested in STEM and those from schools and neighborhoods that have the financial means to prepare a team for regional competition.

Tulane University offers a number of STEM outreach programs that are similar to those offered elsewhere around the country. The examples listed herein are by no means exhaustive of those available in the region, but are meant to showcase the limited avenues to STEM (or more specifically engineering) that exist alongside the privatized charter school system. The existence of these programs does show an attempt to provide pathways for interested students to explore engineering education, but these face the typical problems of limited resources and necessarily narrow target audiences, often elite students. For example, the Science Scholars program is a merit based outreach program targeting students in grades 10-12 with exceptional science,

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<sup>b</sup> Additional information can be found on the Gates Foundation's webpage: December 13, 2007 Press Release: *Three Leading Nonprofits Seek to Boost Achievement in New Orleans Public Schools* (<http://www.gatesfoundation.org/Media-Center/Press-Releases/2007/12/Three-Leading-Nonprofits-Seek-to-Boost-Achievement-in-New-Orleans-Public-Schools>).

engineering, and math skills. After a selective application process, students can participate in the program for a fee (\$1250) to receive summer credit for a college course in which they enroll. There are need based tuition waivers for eligible students, available through the Bruce J. Heim Foundation and anonymous donors, but this requires a separate application. The GIST (Girls in STEM) program, also sponsored by the Bruce J. Heim Foundation, targets gender gaps through a series of workshops geared toward girls in grades 5-8. The program includes tours of laboratories on Tulane's campus and requires an application for participation where space is limited and there is a non-refundable fee (\$10). The School of Science and Engineering at Tulane also supports programs geared toward professional development of K-12 teachers to strengthen and improve quality of teaching for STEM subjects. Core Element, sponsored by Schlumberger, focuses on professional development for science and math educators for grades 4-12, and requires registration and a fee for participation. NOLA Smile focuses on improving teacher quality for educating in STEM topics and is partly sponsored by the RSD.

Some university-sponsored K-12 STEM outreach programs are aimed at a very limited number of students with low socio-economic standing and underrepresented groups. A former professor of Tulane University and a native of New Orleans, Dr. Calvin Mackie, created a weekend program to increase student exposure to STEM. The program, STEM NOLA,<sup>c</sup> has a specific focus on underserved communities, where participation costs are discounted based on a student's socioeconomic status. In order for students who receive free and or reduced lunch to participate in the program for free and reduced prices, they must show proof of residency for Orleans Parish. Students who live outside of Orleans Parish are also allowed to participate in the STEM NOLA programs but at the full cost of attendance (\$60 per session). The registration is on a first come first served basis with a limit of 100 students. UNO also offers a STEM Summer Outreach program<sup>d</sup> that targets minority high school students. The interdisciplinary program has existed a little over a decade and selects students from the metropolitan areas in New Orleans. The program is funded by grants provided by the board of regents as well as other university partnerships like the BP Gulf of Mexico Research Initiative. The program selects 10-12 students each summer. The students participate in the program for 8 weeks and are mentored by university professors and complete a research project and give a poster presentation at the culmination of their 8-week experience. This program is run similarly to an REU wherein selected students receive a stipend (\$2000) for their completed work.

As charter school reform has continued to develop in New Orleans the need for improving STEM education and developing an introduction to engineering for all students still exists. As recently as August 2015, a joint report by New Schools for New Orleans and Public Impact entitled *Ten Years in New Orleans: Public School Resurgence and the Path Ahead*, discussed the challenges remaining as New Orleans schools struggle with filling talent gaps in specific subjects, grades and educator roles.<sup>26</sup> There are notable teacher shortages in several areas for students requiring special education, English as a second language, career and technical education as well as educators for the STEM subject areas.<sup>26</sup> It is suggested that tighter partnerships between K-12 schools and teacher preparation programs will aid in the supply and

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<sup>c</sup> Additional information on STEM NOLA: <http://www.stemnola.com/>

<sup>d</sup> Additional information on UNO STEM summer outreach program: <http://www.uno.edu/news/2013/SummerOutreachProgramforHighSchoolSTEMStudentsStartsNextWeekatUNO.aspx>

demand gap for these “hard-to-staff” positions.<sup>26</sup> However, it is clear from the record of university and non-profit STEM outreach that there are limited resources available for such partnerships, and continuing in a piecemeal fashion with both teacher preparation and supplemental engineering experiences for K-12 students only benefits a select few.

## Case Analysis

Most of the studies of the charterization of New Orleans are available only in the “gray” literature of think tanks, where validity is often assessed through critical readings by peers after publication, with responses issued from other think tanks. Compounding this difficulty is the fact that Louisiana carefully controlled the data from charter schools, releasing it only to a small number of favored researchers, in violation of public records laws. The courts only sorted this out in fall 2014.<sup>33</sup>

Those who had privileged access to data touted success of charter schools: increased standardized test scores, increased graduation rates, and increased diversity (interpreted as a higher number of white students enrolled).<sup>34,35</sup> However, critics have pointed out methodological flaws in these studies, to the point where one high-profile study from Tulane University had to be retracted.<sup>34,36,37</sup> One of the methodological objections, for example, is the creation of a “Virtual Control Record” that matches a charter student with a public school student based on a series of characteristics. However, up to 20% of the students are excluded through this procedure, and this excluded group had lower scores than those included for study.<sup>37</sup>

These biases emerge not only in the studies of charters but also in the very implementation of charter schooling. First, there is typically immediate attrition upon a school takeover, altering the student population. Then, with pressure to prove one’s school a success, administrators were reluctant to accept certain students and encouraged others to leave, improving their statistics. Practices including a confusing decentralized application process, repeated suspensions and pushouts, counseling undesirable students out of the program, and “cream skimming” top students, were all used as ways to manage student populations, and thereby manage outcome measures.<sup>38</sup>

One of the greatest tragedies of this behavior is the large number of students who fell through the cracks, especially those with special education needs and English-language learners.<sup>39</sup> Charters were woefully unprepared to meet required educational needs of these populations of students. The denial of education to students with disabilities resulted in a lawsuit from the Southern Poverty Law Center, and a landmark settlement in 2014 to ensure the rights of students with disabilities.<sup>40,41</sup>

Inequities abounded for African-American students as well; a federal civil rights complaint filed in 2014 to prevent the closing of the last five public schools in New Orleans<sup>42</sup> argued two discriminatory practices in violation of Titles IV and VI of the Civil Rights Act of 1964, “subjecting African-American students to school closures at much higher rates than White students” and “failing to provide adequate educational alternatives once their schools were

closed. In essence, the State has robbed these children of their neighborhood schools while keeping them trapped in failing, underperforming schools.”<sup>42</sup>

The dissolution of neighborhood schools had devastating impacts beyond the classroom, as it meant a critical source of stability in students’ and families’ lives was removed just when they most needed to see familiar faces and sustain routines in the face of trauma. It is worth quoting at length from this editorial from May/June 2015 in the *New Orleans Tribune*,<sup>43</sup> (the first black paper in New Orleans), beginning with a header that evokes Kanye West’s famous pronouncement during the Katrina Red Cross Telethon: “George Bush doesn’t care about black people.”<sup>44</sup>

FOR THE RECORD: THEY DON’T REALLY CARE ABOUT US. The people, entities, organizations and institutions driving the education reform movement, especially here in New Orleans, don’t care whether our children receive a quality public education. Neither they nor their children attend or have attended public school in New Orleans. It is not about choice or change or charters....Still, they are happy to use that “choice” mantra so long as it means billions of dollars will continue to flow through their non-profit organizations and their new-fangled foundations.<sup>43</sup>

The editors are alluding to the replacement of experienced black teachers and district staff with inexperienced elite whites from outside the region, and to a lack of black leadership in the RSD overall.<sup>45</sup> The percentage of black teachers dropped from 71 in 2005 to 49 percent in 2014, while white teachers went from around 20 percent to nearly 50.<sup>46</sup>

One cannot examine the test performance scores without first understanding the underlying issues of equity and social justice. The evidence from the charter experiment in New Orleans reveals that, to the extent that charters produced improved student performance, it did so only for the most elite students. An analysis by Francesca López at the University of Arizona compared New Orleans charters to public schools in the rest of the state, controlling for socioeconomic status, race, and special education needs. Using the eighth grade NAEP standardized test data, charter-school students performed two to three standard deviations below their public school counterparts.<sup>47</sup> Julian Vasquez-Heilig at Sacramento State followed up this study with a policy brief analyzing a collection of available testing data, including AP participation, dropout rates, and ACT scores. Every measure contradicts the narrative of success for New Orleans charter schools, with very few students emerging college ready, and some of the highest dropout rates in the state.<sup>48</sup> The editorial from the *New Orleans Tribune* summarized the failure of the RSD citing data on overall school performance for the 2013-2014 academic year:

More than 54 percent of the charter schools under RSD control are either failing or in transition. Another 35 percent are mediocre. If they were measured by the same standards used to take over the schools in Orleans Parish in 2005, the RSD would be forced to relinquish all but four campuses under its control.<sup>43</sup>

## Implications for Engineering Education

Engineering educators, whether we work in K-12, higher education, or other sectors, have much to learn from the educational disaster in New Orleans. For those of us who work on engineering-for-development or engineering-to-help efforts, New Orleans reveals patterns that ought to be familiar. Naomi Klein<sup>10</sup> has detailed how “disaster capitalism” takes hold in the wake of extreme events to rebuild in ways that often further exacerbate social inequality. We would be wise to take a step back when presented with international education or local service learning opportunities for our students, to ask who benefits and who bears the costs of the work we are joining.<sup>49</sup> We should be wary of privatization schemes, especially when related to public goods such as energy or telecommunications access, or something as essential to life as clean water.<sup>7</sup>

Because engineering has not traditionally been a subject of study in K-12 curricula, many engineering education efforts in K-12 are already privatized in some way, and resemble the New Orleans experience in many ways. From FIRST Robotics to LEGO Mindstorms to Project Lead the Way, engineering education in K-12 is mostly not public, and Michael Lachney<sup>50</sup> has shown how many of these programs align ideologically, wittingly or unwittingly, with neoliberal ideas and the educational reform movement birthed from *A Nation at Risk*. It is important that the role of teachers in developing these experiences has to date been limited, something that must be corrected as engineering comes online as part of state standards. The engineering education community needs to be in solidarity with teachers, understand the ways in which introduction of new engineering standards as part of NGSS is introducing extra workloads without resources or professional development opportunities, and in some cases is setting up failure by administering testing before curricula are even in place.<sup>51</sup>

Professional development for teachers in the area of engineering education needs to directly involve teachers and teachers’ unions if it is to be authentic and successful. While universities can and should pursue federal funding to pilot projects for teacher development, these are self-limiting when they work only with charters, or only with supportive principals and districts, or only with communities that have established relationships with universities. In the end, access is limited to areas privileged through these relationships. Pilots cannot be scaled up without rank-and-file teacher input and teacher union backing, as well as significant strategic thinking about the current educational policy regimes and the legacy of No Child Left Behind.

For engineering educators in higher education, reductions in state support and increasing reliance on private funding should raise concerns. The corporate sponsorship of professorships, research centers and curricula introduces conflicts of interest and potentially curtails academic freedom. The rise of for-profit universities offering degrees in engineering and other fields ought to raise questions, especially when they target particular groups, such as low-income students and veterans. This amounts to a privatization of public funds from initiatives such as Pell Grants and the GI Bill, and produce poor outcomes, including high likelihood of debt defaults.<sup>52,53</sup> With low-income students over-represented in for-profit student bodies, it exacerbates inequality by creating separate pathways with less opportunity frequented by low-income students, students of color, and veterans.

Ultimately, we must join the coalition of those working to reverse privatization of education and other social goods locally, nationally, and globally. Engineers need not reinvent the wheel here, but lend our voice, our time, and our talent to movements already underway. For example, the Badass Teachers Association, or BATs are active around the nation calling for an end to high-stakes testing and opposing charters, TFA and other types of “educational deform” that undermine the strength and resources of districts and teachers.<sup>54</sup> In Higher Education, the American Association of University Professors (and for some of us, our employees’ unions) may be the best place to address privatization in higher education. The American Association of University Professors (AAUP) in particular has a campaign around Public Employees and Higher Ed under Fire that speaks directly to privatization and defunding of public higher education.<sup>55</sup> AAUP is also part of a coalition called the Campaign for the Future of Higher Education (CFHE) which speaks to a broad range of issues, including affordability and accessibility of college, diverse curricula, academic freedom, faculty labor structure and compensation, appropriate assessment, and public investment.<sup>56</sup>

## Conclusion

In the end, it is up to us. The writing is on the wall in the trends we have observed and experienced over the last three decades toward privatization of public goods, including education. The Katrina disaster in New Orleans revealed underlying priorities for the city, state, and region, and the structural inequalities embedded therein. We have taken as our case study the de-unionization, charterization, and privatization of public education, and its disastrous impacts on students, with students of color and low income students, as well as special education students, bearing the brunt of the costs and enduring disproportionate negative impacts. This provides engineering education with insights in how to be (and why we need to be) in solidarity with K-12 teachers as that sector begins to take on engineering education on a broad scale. We would be wise additionally to heed the lessons for higher education as parallel designs are afoot for those of us in that sector. The BATs in New Orleans and around the country have inspired us and reminded us that we can take education back as a public good, if we speak out, show up, and do the incredibly hard but incredibly healing work required to build the educational system we wish to see.

## References

1. Price, M. Plodding Progress for Women, Minorities in Science. *Science*, March 5, 2013, published online at <http://www.sciencemag.org/careers/2013/03/plodding-progress-women-minorities-science>. DOI: 10.1126/science.caredit.a1300033.
2. Valian, V. (1998). *Why So Slow? The Advancement of Women*. Cambridge, MA: MIT Press.
3. Hill, C., Corbett, C., St, R. A., & American Association of University Women. (2010). *Why so few? Women in science, technology, engineering, and mathematics*. Washington, D.C: AAUW.
4. Frierson, H.T., Wyche, J.H. and Pearson, W. (2009). *Black American Males in Higher Education: Diminishing Proportions*. Bingley, UK: Emerald Books.
5. Riley, D., Slaton, A. E., & Pawley, A. L. (2014). Social justice and inclusion: Women and minorities in engineering. *Cambridge Handbook of Engineering Education Research*. New York: Cambridge University Press, 335–356.



6. American Society of Civil Engineers (2013). *Report Card for America's Infrastructure*. Washington, DC: ASCE. <http://www.infrastructurereportcard.org/wp-content/uploads/2013ReportCardforAmericasInfrastructure.pdf>
7. Olivera, O., & Lewis, T. (2004). *¡Cochabamba! Water War in Bolivia*. Cambridge, Mass: South End Press.
8. Oliff, P., Palacios, V., Johnson, I., and Leachman, M. (2013). *Recent Deep State Higher Education Cuts May Harm Students and the Economy for Years to Come*. Washington, DC: Center on Budget and Policy Priorities. <http://www.cbpp.org/sites/default/files/atoms/files/3-19-13sfp.pdf>
9. Knowles, S.G. (2011). *The Disaster Experts: Mastering Risk in Modern America*. Philadelphia: Penn Press.
10. Klein, N. (2009). *The Shock Doctrine: The Rise of Disaster Capitalism*. New York: Metropolitan Books.
11. United States National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: United States Department of Education.
12. Novak, J. & Fuller, B. (2003, December). Penalizing Diverse Schools? Similar test scores but different students bring federal sanctions. Berkeley, CA: Policy Analysis for California Education.
13. Narkewicz, D. (2016). Financial Trends and Projections for FY2017 Budget Process. Presentation to the Joint Meeting of the Northampton City Council and School Committee, Northampton, MA, January 28, 2016. <http://www.northamptonma.gov/DocumentCenter/View/5049>
14. Reardon, S. F., Yun, J. T., & Orfield, G. (2006). Private school racial enrollments and segregation.
15. Fairlie, R. W., & Resch, A. M. (2000). Is There "White Flight" into Private Schools? Evidence from the National Educational Longitudinal Survey. JCPR Working Paper.
16. Vaughan, D., Mogg, L., Zimmerman, J., & O'Neill, T. (2011). Transforming Public Education in New Orleans: The Recovery School District (pp. 1-47, Publication). New Orleans, LA: Scott S. Cowen Institute. Retrieved January 30, 2016, from <http://www.coweninstitute.com/library>.
17. Augustine, J. C. (2012). America's New Civil Rights Movement: Education Reform, Public Charter Schools and No Child Left Behind. *Louisiana Bar Journal*, 59(5), 340-343.
18. Burns, P. F., & Thomas, M. O. (2009). Teaching in the Storm's Wake: Post-Katrina Public Education Reform in New Orleans. Paper presented at American Political Science Association (APSA) Meeting 2009, Toronto, Canada.
19. Letten, J. (2004). Federal Grand Jury Indicts Eleven in Orleans Parish Schools Corruption Investigation. New Orleans, Louisiana: Office of the United States Attorney General, Eastern District of Louisiana, in collaboration with the U.S. Department of Education. <http://www2.ed.gov/about/offices/list/oig/invtreports/la122004.html>.
20. Russell, G. (2005). Nagin orders first-ever mandatory evacuation of New Orleans. *Times Picayune*, August 28, 2005. Retrieved February 2, 2016, from [http://www.nola.com/katrina/index.ssf/2005/08/nagin\\_orders\\_first-ever\\_mandatory\\_evacuation\\_of\\_new\\_orleans.html](http://www.nola.com/katrina/index.ssf/2005/08/nagin_orders_first-ever_mandatory_evacuation_of_new_orleans.html).
21. Newmark, K. G., & De Rugy, V. (2006). Hope after Katrina. *Education Next*, 6(4). <http://educationnext.org/hope-after-katrina/>.
22. U.S. Department of Education. (2005, September 30). Louisiana Awarded \$20.9 Million No Child Left Behind Grant to Assist Damaged Charter Schools, Create New Charter Schools Funds to be used to expand classrooms for students displaced by hurricanes [Press release]. Retrieved February 2, 2016, from <http://direct.ed.gov/news/pressreleases/2005/09/09302005.html>.
23. Roberts, W., & Todd, L.L.C. (2006). Action Plan for New Orleans: The New American City. Plan of the Bring New Orleans Back Commission, Urban Planning Committee. <http://www.npr.org/documents/2006/jan/CityPlanningFinalReport.pdf>.
24. Exec. Order No. KBB 05-58, 3 C.F.R. 1 (2005).
25. Exec. Order No. KBB 05-79, 3 C.F.R. 1 (2005).
26. Holly, C., Field, T. Kim, J. and Hassel, B.C. (2015). Ten Years In New Orleans: Public School Resurgence and the Path Ahead. Public Impact and New Schools for New Orleans, 2015. <http://www.newschooolsforneworleans.org/10years.pdf>
27. Cowen, C. (2006, April 2). A Turnaround Ace for New Orleans. Bloomberg Business. Retrieved February 2, 2016, from <http://www.bloomberg.com/bw/stories/2006-04-02/a-turnaround-ace-for-new-orleans>
28. Burns, P. F., and Thomas, M. O. (2015). The Most Reform-Friendly City in the Country. In: *Reforming New Orleans: The Contentious Politics of Change in the Big Easy*. Cornell University Press.

29. Sanders, R. (2012). New Orleans Charter Schools: What is the Problem? Research on Reforms. [http://www.researchonreforms.org/html/commentary/researchpapers/Charter Schools - What is the problem.pdf](http://www.researchonreforms.org/html/commentary/researchpapers/Charter_Schools_-_What_is_the_problem.pdf).
30. Entergy. (n.d.). Katrina @10. Retrieved February 02, 2016, from [http://www.entropy.com/csr/katrina\\_3.aspx](http://www.entropy.com/csr/katrina_3.aspx).
31. Entergy, Entergy New Orleans, Inc. (2009, September 2). Entergy Charitable Foundation Awards More than \$980,000 in Grants [Press release]. Retrieved February 2, 2016, from [http://www.entropy-mississippi.com/news\\_room/newsrelease.aspx?NR\\_ID=1553](http://www.entropy-mississippi.com/news_room/newsrelease.aspx?NR_ID=1553)
32. BLaST - First Robotics Competition Bayou Regional. (n.d.). Retrieved February 2, 2016, from <http://frcbayouregional.com/about-bayou/blast/>.
33. *Dr. Barbara Ferguson and Charles J. Hatfield v. LOUISIANA DEPARTMENT OF EDUCATION*. No. 2014 CA 0032. Sept. 19, 2014. The Honorable William A. Morvant, Judge Presiding. [https://deutsch29.files.wordpress.com/2014/12/student\\_data\\_case\\_c\\_court\\_of\\_appeal\\_notice\\_judgment\\_and\\_disposition\\_2014.pdf](https://deutsch29.files.wordpress.com/2014/12/student_data_case_c_court_of_appeal_notice_judgment_and_disposition_2014.pdf).
34. Sims, P. and Vaughan, D. (2014). Beating the Odds: Academic Performance and Vulnerable Student Populations in New Orleans Public High Schools. New Orleans: Cowen Institute for Public Education Initiatives. [http://media.nola.com/education\\_impact/other/Beating-the-Odds.pdf](http://media.nola.com/education_impact/other/Beating-the-Odds.pdf).
35. CREDO (2015). Urban Charter School Study: Report on 41 Regions. Palo Alto, CA: Center for Research on Education Outcomes, Stanford University. [https://urbancharters.stanford.edu/download/Urban Charter School Study Report on 41 Regions.pdf](https://urbancharters.stanford.edu/download/Urban_Charter_School_Study_Report_on_41_Regions.pdf).
36. Williams, J. (2014). Tulane's Cowen Institute retracts New Orleans schools report, apologizes. *Times-Picayune*, October 10, 2014. [http://www.nola.com/education/index.ssf/2014/10/tulanes\\_cowen\\_institute\\_retracts\\_new\\_orleans\\_schools\\_report\\_apologizes.html](http://www.nola.com/education/index.ssf/2014/10/tulanes_cowen_institute_retracts_new_orleans_schools_report_apologizes.html).
37. Maul, A. (2015). Review of Urban Charter School Study 2015. Boulder, CO: National Education Policy Center. <http://nepc.colorado.edu/files/ttr-urbancharter-credo.pdf>.
38. Jabbar, H. (2015). How Do School Leaders Respond to Competition? Market-Based Competition and School Leader Strategies. New Orleans: Education Research Alliance. <http://educationresearchalliancenola.org/files/publications/Tech-Report-Final-w-cover.pdf>.
39. Dreilinger, D. (2014). New Orleans' charter school system ill-prepared for jump in Central American immigrants. *Times-Picayune*, August 22, 2014. [http://www.nola.com/education/index.ssf/2014/08/central\\_american\\_immigrants\\_po.html](http://www.nola.com/education/index.ssf/2014/08/central_american_immigrants_po.html).
40. SPLC (2014). SPLC Negotiates Landmark Settlement to Help New Orleans Students with Disabilities. December 18, 2014. Montgomery, AL: Southern Poverty Law Center. <https://www.splcenter.org/news/2014/12/19/splc-negotiates-landmark-settlement-help-new-orleans-students-disabilities>.
41. Davis, O. (2015). The Uncounted. *International Business Times*, August 28, 2015. <http://www.ibtimes.com/uncounted-2062614>.
42. Journey for Justice Alliance (2014). Letter to Attorney General Eric Holder and Secretary of Education Arne Duncan. May 13, 2014. [http://b3cdn.net/advancement/24a04d1624216c28b1\\_4pm6y9lvo.pdf](http://b3cdn.net/advancement/24a04d1624216c28b1_4pm6y9lvo.pdf).
43. Editorial Staff. (2015). For the Record: You Ain't Done a Thing. *New Orleans Tribune*, 31(5). <http://www.theneworleanstribune.com/main/for-the-record-you-aint-done-a-thing-a-tribune-editorial/>.
44. Kaplan, R. and Radice, F. (Producers). (2005, September 2). *A Concert for Hurricane Relief* [Television Broadcast]. New York, NY: National Broadcasting Corporation. <https://www.youtube.com/watch?v=zIUzLpO1kxI>.
45. Gabor, A. (2015). The Myth of the New Orleans School Makeover. *New York Times*, August 22, 2015. <http://www.nytimes.com/2015/08/23/opinion/sunday/the-myth-of-the-new-orleans-school-makeover.html>.
46. Barrett, N. and Harris, D. (2015). Significant Changes in the New Orleans Teacher Workforce. New Orleans: Education Research Alliance. <http://educationresearchalliancenola.org/files/publications/ERA-Policy-Brief-Changes-in-the-New-Orleans-Teacher-Workforce.pdf>.
47. López, F. & Olson, A. (2013). Report to the Network for Public Education: Charter and traditional public school achievement on 4th and 8th grade 2011 reading and mathematics NAEP.
48. Vasquez-Heilig, J. (2015). POLICY BRIEF: Should Louisiana and the Recovery School District receive accolades for being last and nearly last? Tucson, AZ: Network for Public Education. [http://networkforpubliceducation.org/2015/08/policy\\_brief\\_louisiana/](http://networkforpubliceducation.org/2015/08/policy_brief_louisiana/).

49. Nieuwsma, D. and Riley, D. (2010). Designs on Development: Engineering, Globalization, and Social Justice. *Engineering Studies*, 2(1): 29-59.
50. Lachney, M. (2015). Open Education and Personal Technologies: Neoliberal Ideologies and Educational Technology Research at MIT in the 1970s and 1980s. Society for the History of Technology, Albuquerque, NM, October 8-11, 2015.
51. Muntean, L. (2014). Remarks on K-12 Engineering Education. NSF EEC Engineering Education PI Meeting, Arlington, VA, September 30, 2014.
52. Wong, A. (2015) 'Dollar Signs in Uniform': Why For-Profit Colleges Target Veterans. *Atlantic*, June 24, 2015. <http://www.theatlantic.com/education/archive/2015/06/for-profit-college-veterans-loophole/396731/>.
53. Webley, K. (2011). Are For-Profit Colleges Targeting Low-Income Students? *Time*, June 15, 2011. <http://business.time.com/2011/06/15/are-for-profit-colleges-targeting-low-income-students/>.
54. Badass Teachers Association. (2016). <http://www.badassteacher.org/>.
55. American Association of University Professors. (2016). Public Employees and Higher Ed Under Attack. Washington, DC: AAUP. <http://www.aaup.org/get-involved/issue-campaigns/public-employees-and-higher-ed-under-fire>.
56. Campaign for the Future of Higher Education (2016). <http://futureofhighered.org/>