

# EXAMINING INJUSTICES AND REMEDIES IN AN URBAN SCHOOL SYSTEM GEARED TOWARDS HIGH STAKES TESTING

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## Vexation

My vexation stems from seven years of professional development with science teachers in an urban high-needs high school in upstate New York. The focus of this effort has been helping educators bring more authentic and relevant science instruction into their work teaching within a curriculum focused on high-stakes testing. While this work has been held in high regard by the teaching faculty, there has been little effect on curriculum or student achievement. Simply put, my vexation regards getting a group of overstressed science teachers to go around and beyond a strictly defined curriculum that most of their students can care less about.

It has become clear to me that the high stakes test represents an oppressive barrier to the achievement of both teachers and students in this population. The testing framework forces the teachers to administer an abstract curriculum that is largely disconnected from students' lives. In the low socio-economic community served by this school, fulfilling simple basic safety and security needs can often be the most important focus of a student's attention. Performing well on an abstract curriculum is not a real concern. The upshot of this attitude inhibits students from fully engaging in the school experience. Students are typically tenuously connected to school, 200 of the entering freshman class of 400 will drop out prior to graduation. Numbers are bleakest for black men. Only about 15% of them will graduate. That school is something so many opt out of, due to disinterest and a host of other pressures, shows that even the natural attraction of being around one's peer group isn't enough for the students to endure the drudgery of slogging day after day to master a curriculum that is irrelevant. That we continue this practice is its own type of madness.

Teachers find themselves in a "Catch-22." Large numbers of students failing the year-end assessment and thereby failing the class has induced the school district to prohibit the teachers from actually using the results of the high-stakes test as a basis for grading. Savvy student have quickly learned that they really have no incentive to actually take the test they have been preparing for all year. Teachers are disheartened; most students limp along, a few dropping out each month, the few high achieving students persevere. There is little, if any, mention of cultural relevancy or social justice. Ties to other curricular areas are weak and any authentic mention by the teachers of connections to good literary sources or current events is seen as, "not helpful for the test." Demands of teaching towards a high stakes test have limited student experiences to largely an abstract exercise in reading comprehension.

## Venture

My venture is to develop and tryout, with the teachers, a curriculum that is specifically geared to break down issues in student lives, with a focus on providing concrete examples of how to apply the processes of science. Using discrete units of instruction to identify oppressive forces in society that inhibit students' ability to flourish personally, socially and academically could provide an "antidote" for the drudgery of science instruction geared towards the test. Students become most interested in instruction when it is delivered through provocatively discrepant introductory level experiences, extending into elaborations and applications that connect substantively to their lives.

Possible, science oriented, focusing questions that might particularly pique student attention could be drawn from topics of: transportation, consumerism, self-expectancy, sexuality, violence, disease, pollution, criminality, racism, gender and disability issues. Students are disengaged and capable of much more than what they are challenged to do. Any substantive opportunity to develop problem-solving investigations that truly engage individual attention in a thoughtful, reflective manner could greatly help the overall climate for instruction.

Two exemplar curriculum units I'm calling "How many bubbles in a bar of soap?" and "Weighing fat" illustrate the type of personal experiences that may ignite student critical thinking and problem solving skills in a manner relevant to their lives. Changing how teachers and student perceive instruction is a lot to ask from any one curriculum unit. Key to the success of this effort is institutionalizing the rewarding of teachers to plan for a more transformative learning process.

"How many bubbles in a bar of soap?," is an invitation to consider aspects of social justice in the context of a Fermi question, that was asked as a poll question in the Jim Crow south. Students first consider the historical context of disconnecting Black citizens from their right to vote in the racially segregated south and then in a learning cycle format explore the chemistry and physics of soap bubbles. Students reconnect to the theme of social injustice by coming back into discussion of aspects of race, including the historical creation of the idea of race as a social phenomenon. The idea of a bubble, a series of membranes and intersecting planes becomes an important metaphorical image in discussing this content. Also exploring the, at times, dark history of science contending with race is a fascinating saga of how science and society interact and an excellent case study in the

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nature of science. Discussing the concept of race in a clear, creative and expansive manner is a provocative and potentially meaningful aspect to include in student school science experiences.

Another personally relevant curriculum that engages students in considering how science impacts their lives is looking at the biological effects of a continual high fat diet, in the context of a low exercise lifestyle and over-consumptive habits. Students begin this learning cycle by discussing their experiences with fast food and overeating. The critical inquiry of this exercise involves students weighing out lumps of fat. "Crisco" works well because it looks a lot like what one imagines fat would look like in your body. Further, the manufacturing process involves adding air to the product, decreasing the density, thus increasing the volume of the mound of white fat that represents a typical fast food meal and heightening the visual impact on students. Students are typically amazed at the size of the amounts that they weigh out. Additionally, weighing out the piles of refined sugar and salt in a typical fast food meal provide a great basis for discussion of the serious nature of childhood obesity, high blood pressure and the increasing prevalence of diabetes. Extending the investigation into unhealthy and healthy eating habits during an elaboration phase tasks students with applying what they know into a culturally relevant discussion of positive lifestyle choices. To be most effective, learning experiences must delve deeply into each student's psyche. Meeting this goal should be the singular focus of curriculum development.

Both these, and other similarly constructed units of instruction, if presented as intended, through powerful investigative moments, defy the ability to be encapsulated within the context of high stakes testing. Due to the nature of controversial discussions and idiosyncratic presentations possible through the transformative nature of this curriculum, it is impossible to construct valid and reliable test questions on a large scale that actually reflect the curriculum. If we value positive personal science experiences for our most disadvantaged students, then we need to seriously rethink what we present in instruction and how we intend to assess the experience. Concept driven curricula fail to engage students, particularly students of the greatest need. Expansive lesson ideas and conceptual presentations that strive to connect, in a personal way, to students, could meet today's educational challenges.

The context for this work is one that many teachers face today. Even if they bring a personal interest, strong teaching skills and good content knowledge, they still face an overly dogmatized curriculum that promotes mediocrity in statewide achievement and at the same time promotes disengagement, particularly among populations of individuals most in need of an inspiring educational experience. Teachers in urban settings try to sow the seeds of complex and abstract ideas in ground where it is difficult to grow anything, under any circumstance. The rocky, barren, thinness of an unyielding curriculum, designed to funnel students through a high stakes test, ensures everyone must persist through instruction that students don't see as relevant to their lives in any real way.

The crux of this venture is to work towards supplanting a curriculum that works against the best interest of the students it is supposedly designed to serve. It is the nature of change to not abandon a strongly held view until overwhelming contradictory evidence presents itself. Teachers have a great stake in the curriculum. The framework in place has a tremendous inertia, replacing it wholesale with a more stimulating course of study is a real challenge.

Years of working in urban classes shows that, among large numbers of students, there is a pervasive lack of desire to meet the challenges of meaningful and authentic learning. The current situation is the fault of everyone in the system: students, parents, teachers, administrators, everyone. Teachers however, are the only ones in place to implement the curriculum; they are the only ones capable of starting the change process. It is incumbent on them, and ultimately it is incumbent on professional developers as "initiators" of teachers to develop experiences that have potentially transformative properties, which draw all stakeholders into making change. This work is intended to take a creative and experimental tone. Constant iterations of trying out complex and meaningful curriculum, embodies the nature of scientific investigation and has a potential to engage learners in an manner that transforms how they relate to the school experience. It is the intended nature of this proposed transformative curriculum to examine relevant and controversial ideas. In a school climate geared towards the blandness of high-stakes testing, this work necessarily pushes teaching into being somewhat of a subversive act. Convincing teachers to work within this framework entails getting them, to some degree, to work against their own interests. Teachers satisfied with the status quo, or resistant to change would tend to cling to the old curriculum, despite prevalent student dissatisfaction and high dropout rates. The tremendous need that exists in stressed urban environments begs for a change in viewpoint of what an effective curriculum means and an all hands on deck approach to implementing the work necessary to realize the great potential of all students.