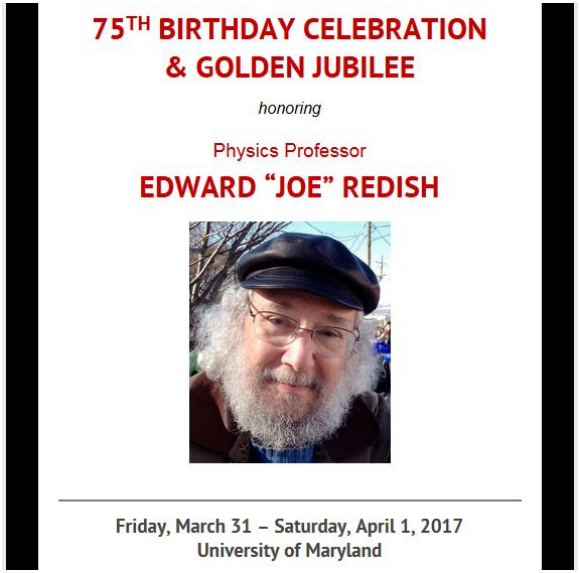
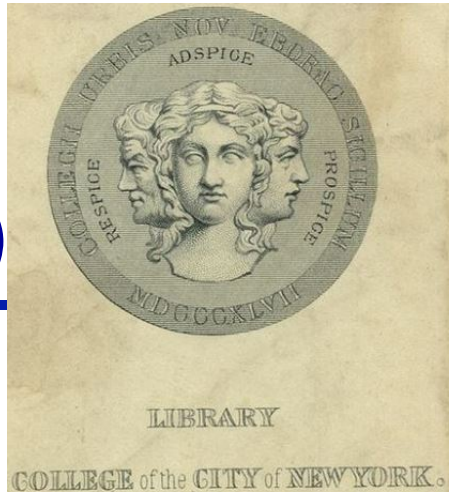
The Free Academy of the City of New York

Richard Steinberg
School of Education and
Department of Physics
City College of New York



“In celebration of Joe Redish’s skill in story telling, and in keeping to this session theme on Community, Diversity, and Ethics, I would like to tell a story of what it is like teaching at a college from which both my parents graduated.”

The Free Academy of the City of New York (founded 1847)



"Open the doors to all. Let the children of the rich and the poor take their seats together and know no distinction save that of industry, good conduct, and intellect."

- Townsend Harris, founder

"The experiment is to be tried, whether the children of the people, the children of the whole people, can be educated; and whether an institution of the highest grade, can be successfully controlled by the popular will, not by the privileged few."

- Horace Webster, first president

“In 1929, The Free Academy of the City of New York changed its name to City College of New York. In the mid 20th century, when my parents attended City College, there were many notable graduates.”

City College of New York

CCNY Alumni

- **Jonas Salk, '34**
  - » Son of Polish immigrants, Polio vaccine Pioneer
- **Edward Koch, '45**
  - » Son of Ukrainian immigrants, Mayor of New York City
- **Colin Powell, '58**
  - » Son of Jamaican immigrants, 4 star general, Secretary of State
- **Andrew Grove, '60**
  - » Born in Hungary, founder and CEO of Intel
- **Oscar Hijuelos, '75**
  - » Son of Cuban immigrants, Pulitzer Prize winner

“Jonas Salk spoke at my father’s college graduation. Ed Koch was a decorated WWII veteran. Colin Powell attended MS 22 middle school in the Bronx with my mother. Andrew Grove survived Nazi Germany and escaped fascist Hungary, then came to US at 20 with limited English. Oscar Hijuelos grew up a few blocks from City College then wrote of the immigrant experience in winning the Pulitzer Prize. This is fitting since everyone on this list either was an immigrant or the child of immigrants.”

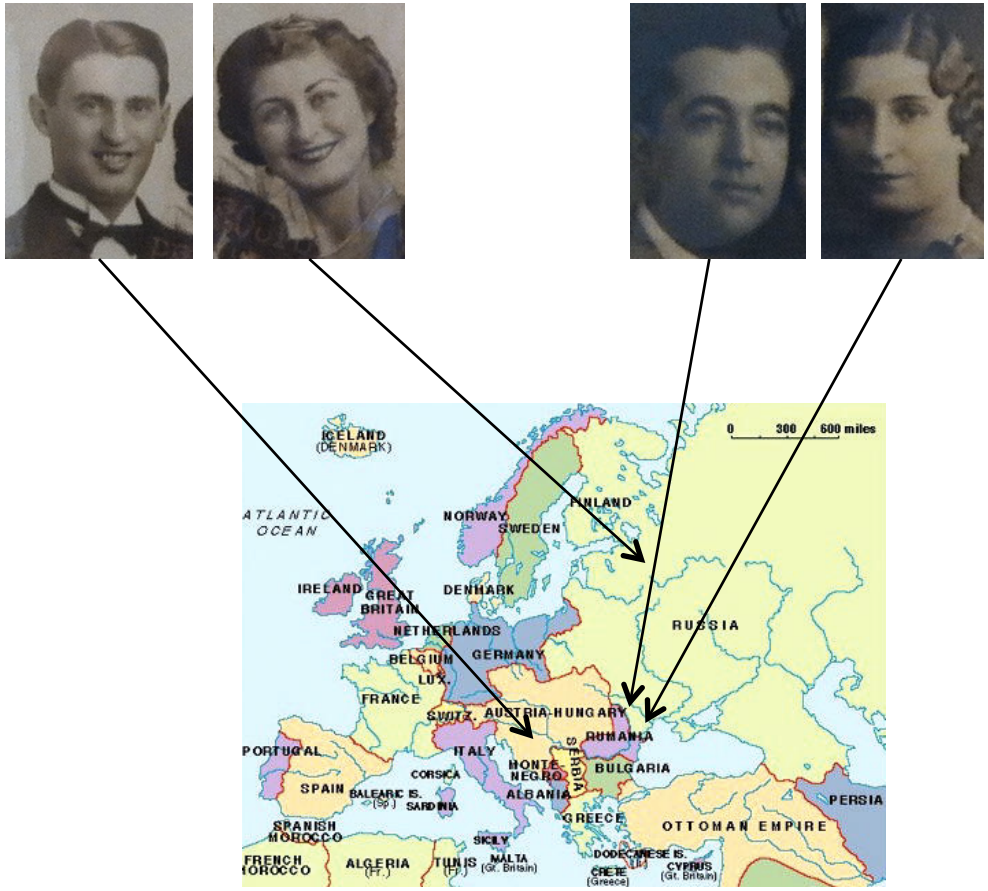
City College of New York

CCNY Alumni (Nobel Laureates)

- Julius Axelrod, '33 (medicine 1970)
- Robert Hofstadter, '35 (physics 1961)
- Jerome Karle, '37 (chemistry 1985)
- Herbert A. Hauptman, '37 (chemistry 1985)
- Arthur Kornberg, '37 (medicine 1959)
- Kenneth Arrow, '40 (economics 1972)
- Leon M. Lederman, '43 (physics 1988)
- Robert J. Aumann, '50 (economics 2005)
- Arno A. Penzias, '54 (physics 1978)
- John O'Keefe, '63 (medicine 2014)

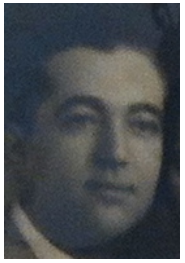
“The 10 graduates of City College who went on to win Nobel Prizes were also all immigrants or children of immigrants. They escaped poverty, persecution, and hardship. They benefitted from the generosity of this country, but they gave back, served society, and became part of the fabric of what has always made America great. They answered the call to military service, paid taxes, served under presidents, contributed to science education, had children scientists and educators. They recognized the legitimacy and value of science and obviously made great contributions.”

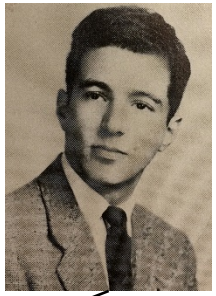
Personal history



“My grandparents were all from Eastern Europe and came here to escape religious persecution and to search for a better life.”

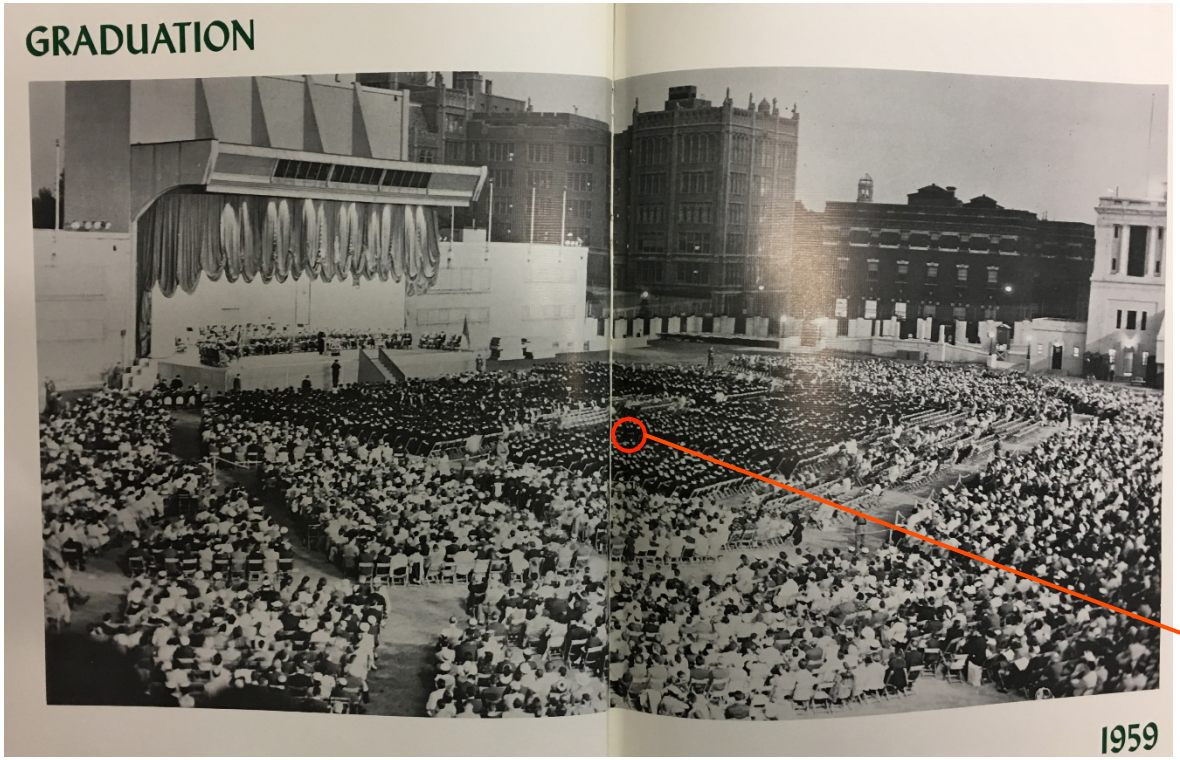
Personal history





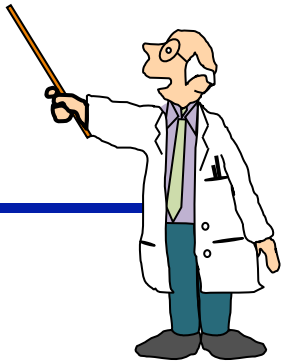
“They came through Ellis Island, in the shadow of the Statue of Liberty. They settled in the Bronx, where my parents grew up not far from City College. My parents were only able to have access to education because of the existence of public education.”

Personal history



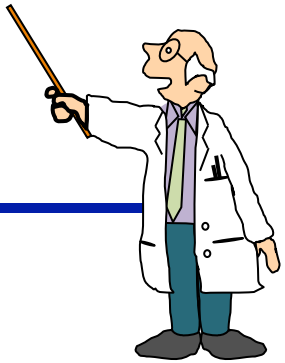
“While not as famous as the names presented earlier, my parents also graduated City College and served society. And they taught me the best way to repay generosity given is through generosity to others. I have done my best to honor this disposition in my time at City College.”

Working at CCNY (1999 - present)



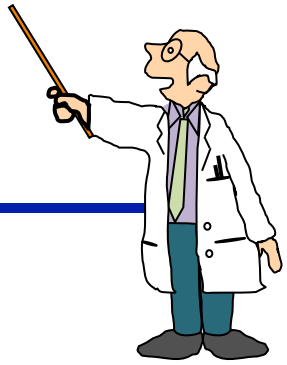
“Forty years after my mother’s graduation (44 years after my father’s), I started working at City College. At the site of Lewisohn Stadium, where my mother’s 1959 graduation ceremony took place, now stands the North Academic Center.”

Working at CCNY (1999 - present)



“… and there is my office. While the context in and around City College changed much over those 40 years, the vision of Townsend Harris continued to thrive.”

Working at CCNY (1999 - present)



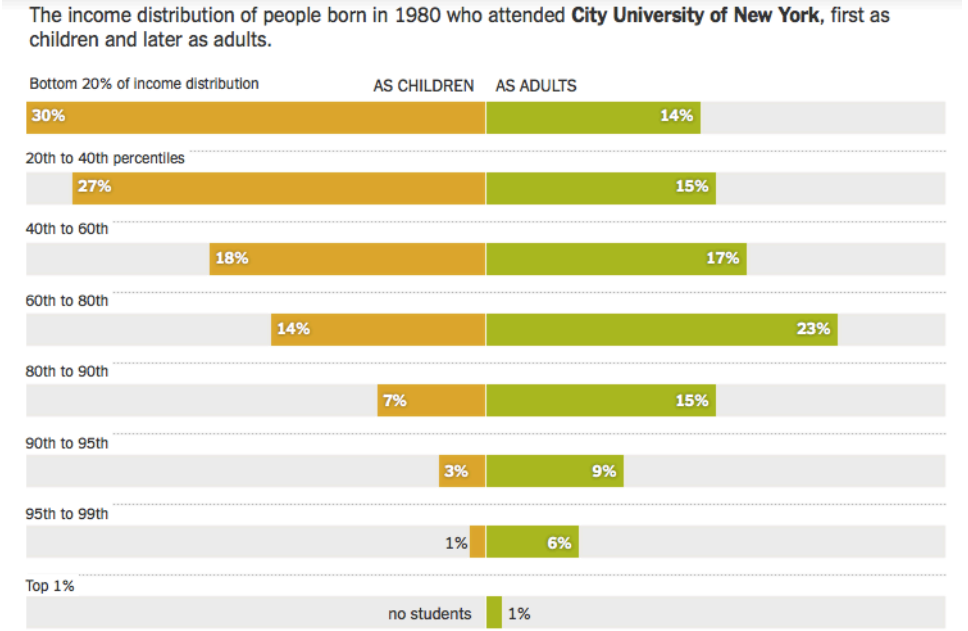
The New York Times

SundayReview | OP-ED COLUMNIST

America's Great Working-Class Colleges

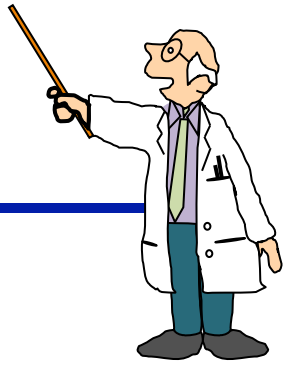
David Leonhardt JAN. 18, 2017

"At City College, in Manhattan, 76 percent of students who enrolled in the late 1990s and came from families in the bottom fifth of the income distribution have ended up in the top three-fifths of the distribution. These students entered college poor. They left on their way to the middle class and often the upper middle class."



“Despite decreasing financial support and lower than desired graduation rates, City College continues to be an institution that serves as an escape to many otherwise caught in a cycle of poverty.”

Working at CCNY (1999 - present)



The New York Times

SundayReview | OP-ED COLUMNIST

America's Great Working-Class Colleges

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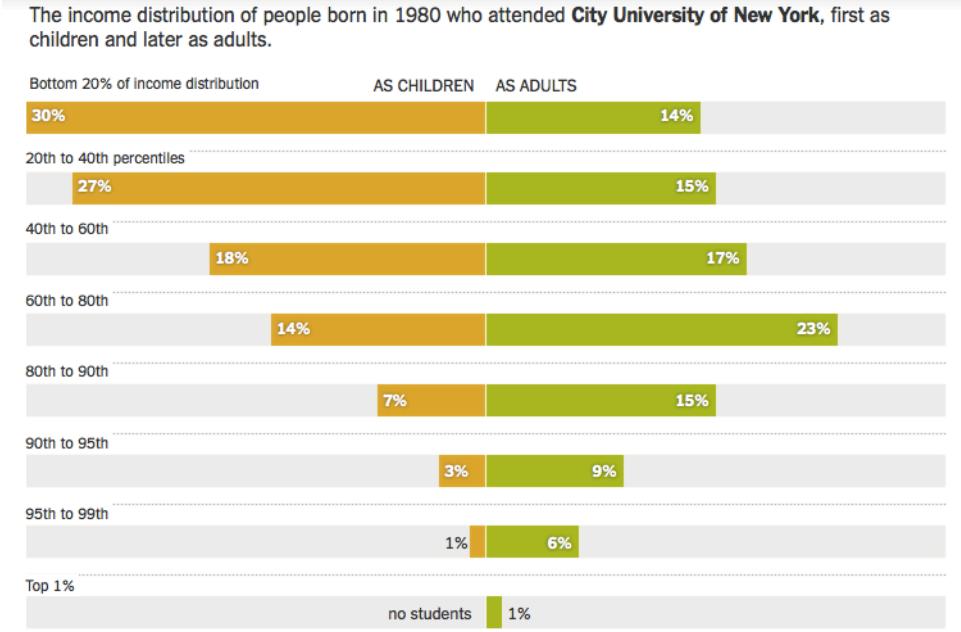
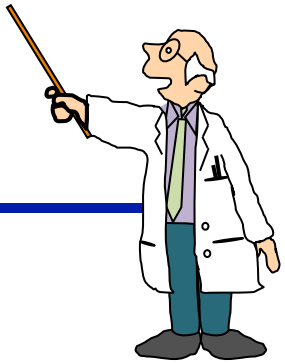
"City University of New York system propelled almost six times as many low-income students into the middle class and beyond as all eight Ivy League campuses, plus Duke, M.I.T., Stanford and Chicago, combined."



“When I got to City College, many openly questioned whether interactive physics could be successful since great diversity of language and culture could be an obstacle to such language intensive curricula…”

Working at CCNY (1999 - present)



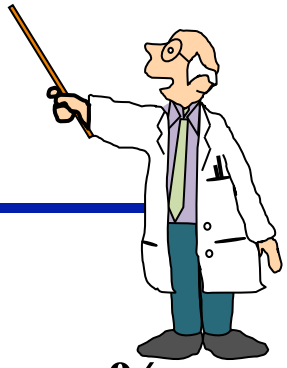
City College Students

- 153 countries
- 100 languages

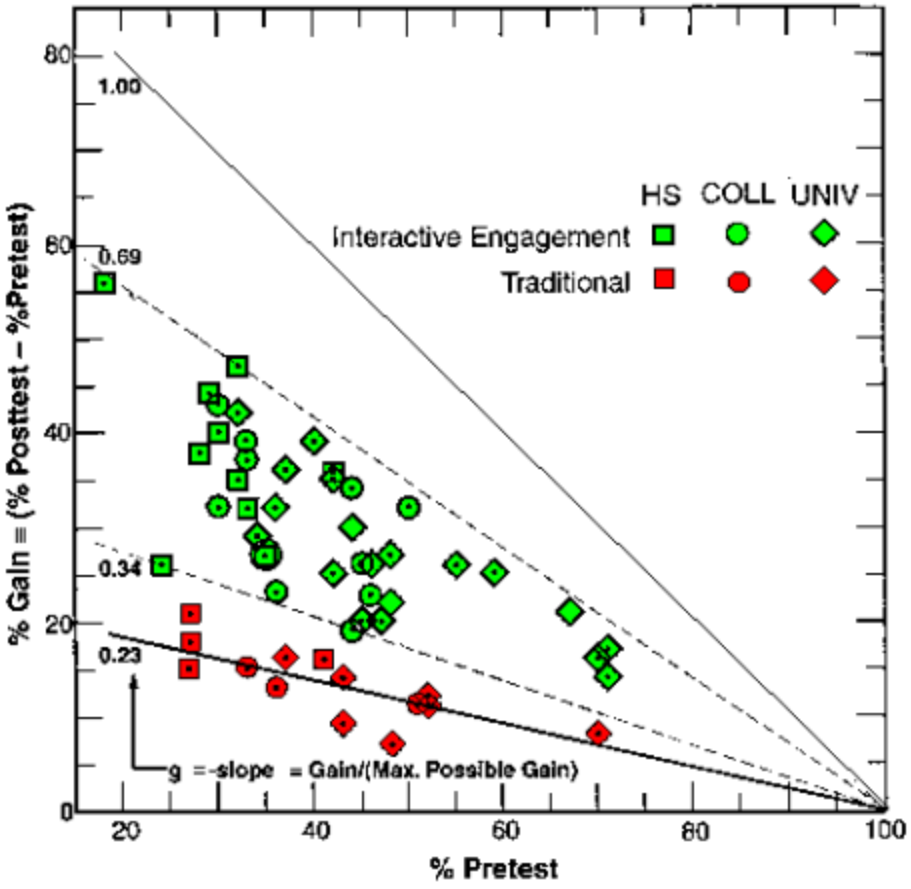
- 36% Hispanic
- 24% Asian
- 17% African American
- 15% White

“… but all evidence has indicated that the students have been successful in this environment.”

Working at CCNY (1999 - present)



FCI: Fraction of the possible gain

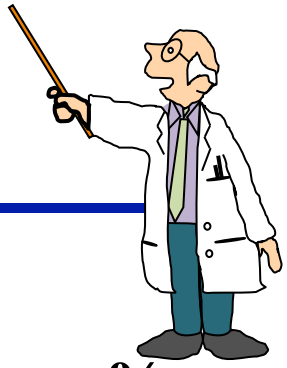


$$h = \frac{post\% - pre\%}{100 - pre\%}$$

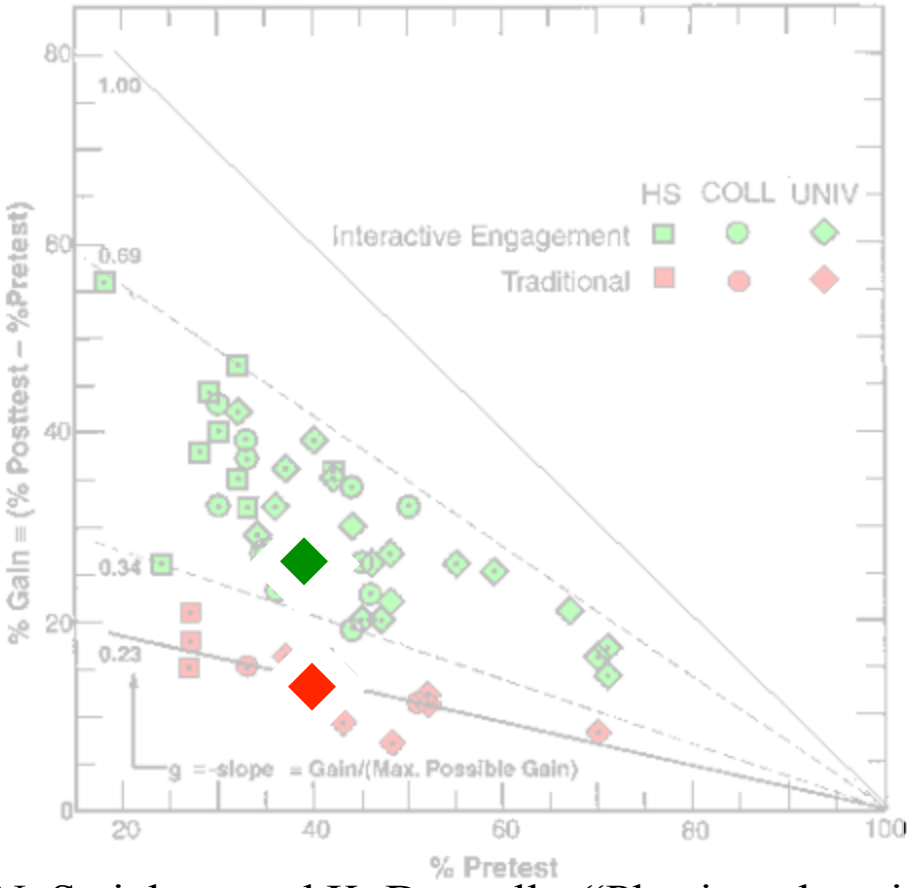
R.R. Hake, "Interactive-engagement versus traditional methods: A six-thousand-student survey," *Am. J. Phys.* **66**, 64-74 (1998).

“For example, using the Force Concept Inventory and measuring normalized gain…”

Working at CCNY (1999 - present)



FCI: Fraction of the possible gain



$$h = \frac{post\% - pre\%}{100 - pre\%}$$

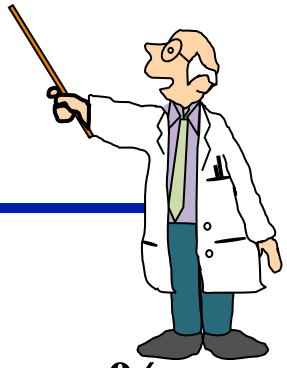
- Tutorial $h = 0.43$
- Traditional $h = 0.23$

R.N. Steinberg and K. Donnelly, "Physics education research-based reform at a multicultural institution," *Phys. Teach.* **40**, 108-114 (2002)

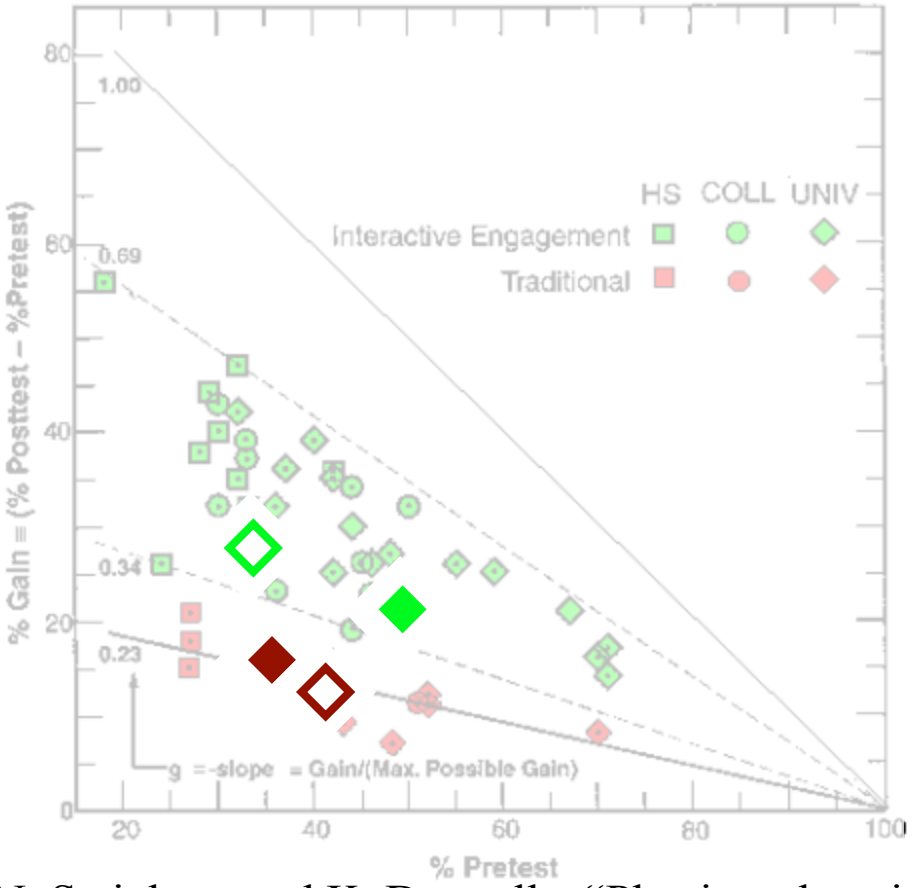
Supported by NSF grant DUE-0310799 (2003-06).

“… has shown that City College students are as successful as other national interactive engagement implementations, even when changing only one of seven contact hours.”

Working at CCNY (1999 - present)



FCI: Fraction of the possible gain



$$h = \frac{post\% - pre\%}{100 - pre\%}$$

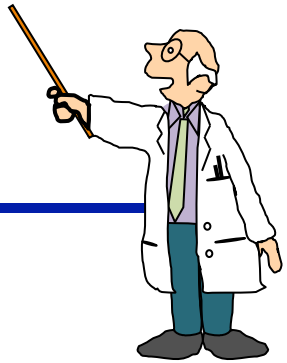
- ◆ Tutorial (native English) $h = 0.46$
- ◇ Tutorial (ESL) $h = 0.42$
- ◆ Traditional (native English) $h = 0.26$
- ◇ Traditional (ESL) $h = 0.21$

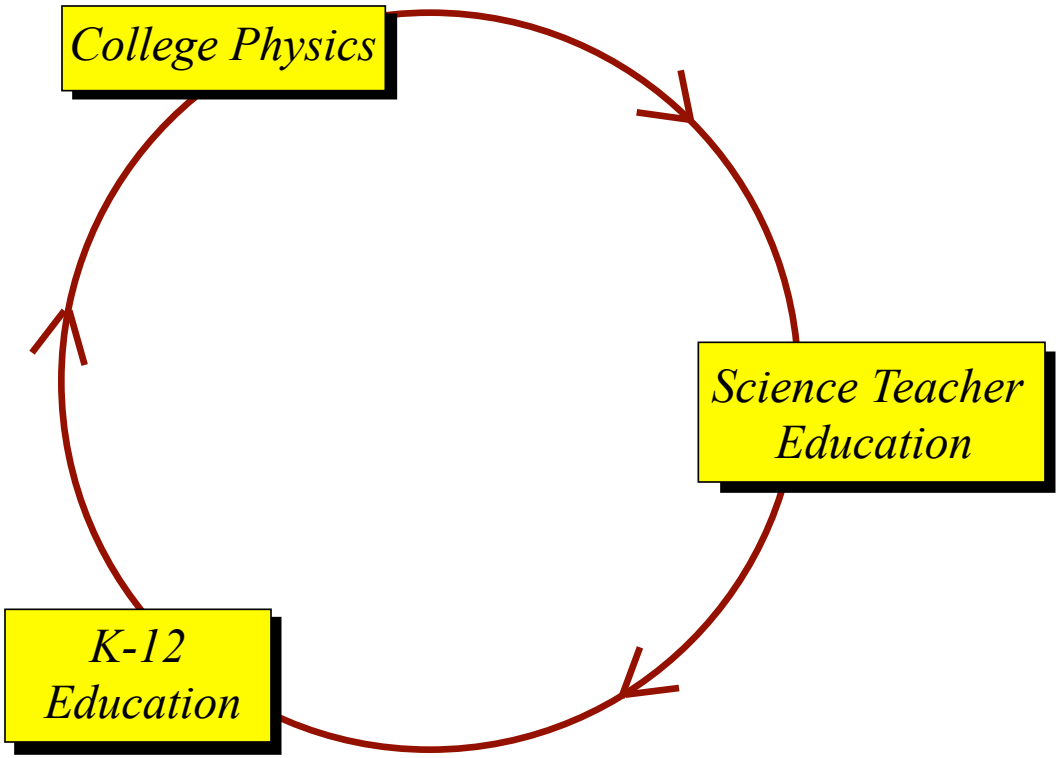
R.N. Steinberg and K. Donnelly, "Physics education research-based reform at a multicultural institution," *Phys. Teach.* **40**, 108-114 (2002)

Supported by NSF grant DUE-0310799 (2003-06).

“These successes exist regardless of whether students are native English language speakers.”

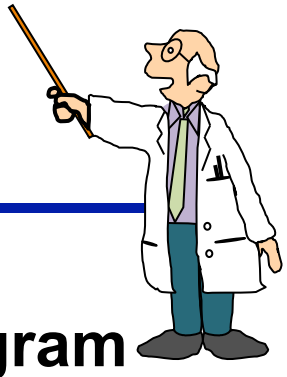
Working at CCNY (1999 - present)





“Like others, when I teach introductory physics, weaknesses in the development of epistemological dispositions and understanding of content knowledge from K-12 is clear. How these dispositions and content knowledge develop in K-12 is guided by the preparation of their teachers. How their teachers’ dispositions and content knowledge developed was affected by their experience as learners in college, including in their introductory physics classes. Furthermore, I am in a system where almost all of our students come from NYC schools and many of their teachers come from City College. In working with undergraduate physics students and science teacher candidates, I have tried to explore this highly interconnected system and tap into it as impactfully and positively as possible.”

Working at CCNY (1999 - present)

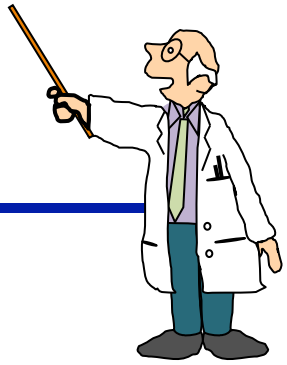


Secondary Science Teacher Certification Program

Supported by NSF grants TPC-055269 (2006-11) and DUE-1245037 (2012-17).

“We work with preparing and certifying high school science teachers, with an emphasis on recruiting candidates from the NYC system who will go back to their communities.”

Working at CCNY (1999 - present)

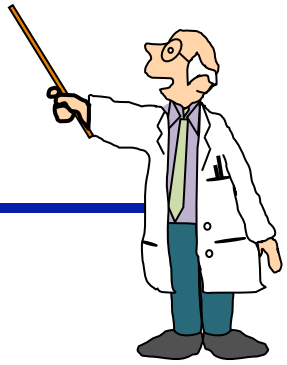


Middle School Science Teacher Certification Program

Supported by grants from the, NYS Dept. of Ed. Eisenhower Professional Development (2001-02) and TOC (2001-02 and 2003-05) Programs.

“We created a middle school science teacher preparation program. Middle school science teachers are greater in number than high school science teachers and almost never have degrees in science. In our program, we emphasize that candidates learn science content in a way that reflects how we hope they will teach it.”

Working at CCNY (1999 - present)

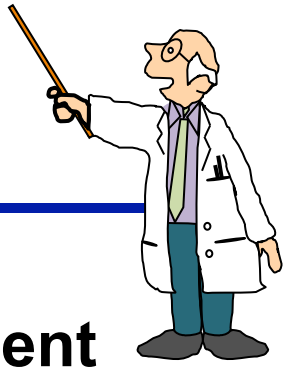


Science Gen. Ed. courses for Elementary Education majors

R.N. Steinberg, Y. Wyner, G. Borman, and I. Salame, "Targeted courses in inquiry science for future elementary school teachers," *JCST* **44**, 48-53 (2015).

“Over the last 10 years, we have developed a series of inquiry-based, content and pedagogy appropriate general education science courses for elementary education majors. These have replaced the large lecture survey science courses with multiple choice exams that they used to take. All students in the elementary education program now take these new courses. This is the same program from which my mother graduated (with very different science courses).”

Working at CCNY (1999 - present)



Collaborative Science Professional Development Program

Teachers:

- » enroll in CCNY science courses
- » participate in workshops bridging college course work and classroom practice
- » receive class materials linked to college course work
- » host project staff to support classroom implementation

Supported by grants from NYS Dept. of Ed., TLQP (2012-15 and 2015-18) and MSP (2014-17) Programs.

“For the last 5 years, we have implemented a professional development program for current middle school science teachers, most of whom have limited science background and lack of access to materials and training necessary to teach inquiry science. We provide them with multiple college science courses, workshops designed to connect these courses to their own school context, coordinated classroom science materials with training on their use, and on-site support implementing them with their students. To date we have provided over $70,000 of supplies to over 100 middle school science teachers throughout NYC, including to the school district where my mother taught at PS 4 across the street from Crotona Park in the Bronx.”

People at CCNY

Students from the City College of New York on graduation day. Sam Hodgson for The New York Times

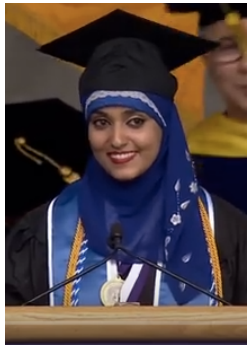
Dylan

Georges

Tyra

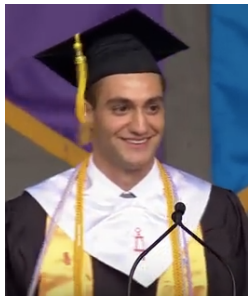
Lyle

Marleny



Orubba

"What I used to see as endless walls, they just became obstacles that I either needed to break down or climb. "



Andoni

"Before I came here I didn't know what an undocumented student was and today they are some of my closest friends. I had never seen a single mother work full time while raising her children and putting herself through college, but I have now… Diversity of people give rise to diversity of thought."

and so many more…

“As this celebration has demonstrated, Joe has earned the deepest respect of so many people, and he respects them deeply as well. In tribute to him, I would like to share some of the students at City College who have enriched my life.

Dylan was a cab driver who had no background in science or education. He came to my office wanting to be a science teacher. After years of taking courses part time, he now teaches middle school science. I have confidence that he is far more successful than most Ph.D. scientists would be.

Georges was born in Rwanda amid tribal violence. A rebel raid killed his father and sister. He survived malaria which put him in a coma. He eventually made it to City College, graduated in physics with honors, and went on to a Ph.D. in physics at Stanford.

Tyra is as bright and delightful as Dylan and Georges, but like far too many students that come to City College, she did not succeed, failing out after her first year. My ongoing work now is to understand how this comes to happen and improve the likelihood of success for others like Tyra…”

"… Lyle was a physics major who encountered challenges in his personal life and in finishing his degree. He came to me with an interest in teaching. He is now on track to be a physics teacher, and likely a very good one.

The first thing one notices about Marleny is that she is a sweet, regular young woman. She grew up in NYC having lived there since she was 2. She aspires to teach high school chemistry, and NYC could benefit from that. The challenge is that her parents are undocumented immigrants.

Orubba was salutatorian of City College and spoke at 2016 graduation. She grew up in Yemen where girls were not allowed to go to school. With determination, she made it through college. Despite great academic accomplishments, she spoke most proudly of leading the way for other young girls in her family now pursuing school and aspiring to go to college.

Andoni was valedictorian and also spoke at 2016 graduation. After a degree in Biomedical Engineering, he is pursuing a Ph.D. at Berkeley. Despite growing up in a homogenous Italian-American community, he spoke passionately about the value of diversity in learning and in leading.

In conclusion, I would like to thank my parents, City College, and today Joe for teaching me to respect and value ALL people."