

**Barbara Schneider**  
**AERA Annual Meeting: “Power of Education Research for Innovation in Practice and Policy”**  
**Presidential Address**  
**Saturday, April 5, 2014; 4:35 pm**  
**Pennsylvania Convention Center, Terrace Level – Terrace I**

**“Aligned Ambitions**  
**What’s Behind the College Mismatch Problem?”**

Thank you Mark, this year has taken me on an extraordinary journey, I have gained incredible insights into the contributions of AERA regarding the presence and sustainability of education research at the federal level that I was unfamiliar with, and I also suspect are many of our members. I would like to thank Felice Levine, our masterful Executive Director for this experience, Bill Tierney, Past President, who was very helpful in learning about AERA governance, and Joyce King, the incoming President, who has also been a valuable collaborator this year. It has been a pleasure to work with all of you. Additionally, I would like to thank the AERA Council and AERA staff for your dedication and support. I would also like to give a warm welcome to Jeanie Oakes, President-elect to the Presidential triumvirate—consisting of the president-elect, president, and in a few days –myself—past-president.

I chose the theme, “The Power of Education Research for Innovation in Practice and Policy,” as many of the transformations occurring in our education enterprise are unprecedented and grounded in education research, which has sometimes been undervalued. I wanted to underscore the importance of education research for designing, implementing, and assessing change. Many of our members are engaged in education reform in multiple arenas from methodology to practice, across the education spectrum and wrestling with the challenges of innovation. The work we are engaged in at Michigan State University, represents an example of some of these efforts, created to alter public high schools for low-income and minority students using innovative practices and evaluated with emerging research methods.

Now, you’re probably wondering why I have these college CAPs up on the screen. I certainly have been accused of wearing too many hats. But these CAPS are particularly meaningful for my talk today, which is about the College Ambition Program—which we call CAP—a quasi- experiment we have designed and are now implementing at Michigan State University.

Now back to the other Caps, The University of Chicago “CAP” represents where the conceptualization and original research for CAP was initiated and conducted at NORC. The bottom Northwestern University “CAP” is where I began my graduate studies with many professors including Robert Boruch, Don Campbell, and Thomas Cook all of whom introduced me to causal inference and evaluation studies. A special acknowledgement to Diana Slaughter who deepened my understanding of the education experiences of Blacks in the U.S. from slavery through modern times.

Reflecting on my schooling career at Northwestern, it was the right match for my future policy work and my focus on gender issues in the sciences. Selecting the right college match given one’s interests and skills is a topic—I will discuss later.

When a graduate student, I originally thought I would study how to improve instructional practices in disadvantaged schools. However, as part of an unusual interdisciplinary graduate program, I soon

realized my interests and talents were better suited for work in sociology of education; which I later pursued with my most influential and inspirational mentor, James Coleman at the University of Chicago. It was at the University of Chicago where I really learned what academic debate and rigor in the social sciences was all about and had the fortunate opportunity to work in addition to Jim, with Charles Bidwell, Tony Bryk, Larry Hedges, and Marta Tienda. And the scores of brilliant and talented graduate and undergraduate students I worked with, many of whom are here today with their own students and colleagues.

And of course, Mihalyi Csikszentmihalyi, that renaissance scholar in social psychology --who many of you know as the originator of— “flow,” that experience we all have, when feeling “as if time has flown by.” Hopefully that is how many of you will feel at the end of this talk.

Flow is critical for educators as it can detect optimal learning moments—which we are currently investigating in a collaboration with Finnish researchers—Katariina Salmela-Aro and Jari Lavonen. These optimal learning moments can be identified using Csikszentmihalyi’s unique approach, the experience sampling method, which is referred to as –ESM—that measures how one feels and acts during daily life.

Most recently, we have been collaborating with Robert Evans, an engineer at Google, who created an app, for smart phone technology, that we have been employing to innovate our ESM studies. This transformation in technology has produced a dramatic change in our work, something akin to moving from punch cards—for those of us who remember-- to electronic data processing.

My work with Mihalyi encouraged me to deepen my understanding of adolescent experiences in everyday life. Coupling this focus on adolescents with sociological questions of “equity” brings me to my talk today.

When Caroline Hoxby and Chris Avery estimated that approximately 35,000 low income students with test scores on the SAT in the top ten percentile did not even apply to a single highly selective university, the results were all over the media.

As educators we recognize that not everyone can be in the top ten percent and qualified for admission to Harvard, Princeton, Stanford, or Yale. Even more disconcerting than the 35,000 high performing students who are mismatched are the 150,000 low-income and minority on-time high school graduates, each year that choose to enroll in postsecondary institutions that are less selective than their aspirations, grades, and test scores, would predict.

All of this suggests we are losing 150,000 students every year.

If things keep going as they are, we are likely to lose over 1.5 million of mismatched students over a decade.

These qualified low-income and minority high school graduates are not applying to institutions where they have a greater chance of obtaining a college degree, becoming gainfully employed, and continuing their postsecondary education if they so choose. Census data indicates if you have a bachelor’s degree you can expect to earn about 65% more than a high school graduate during your working life. Attaining a bachelor’s degree means not only higher incomes, but better health, and more civic involvement.

We are losing not only the most talented low-income and minority adolescents but also those talented and hard-working individuals that are the engine that makes our country run. Our increasing technological society needs an educated electorate—that requires advanced numeracy and literacy skills regardless of occupational choices and family background characteristics.

What then are the solutions to this problem? And how can we fix it?

Many of our colleagues have pointed to the need for better qualified pre-schools and early education programs to enhance academic performance and social and emotional development. We applaud their efforts; but we need to light the candle at both ends. For every year we fail to take action at the high school level an increasingly high number of young people are beginning the next part of their lives ill-equipped for the economic, social, and health issues awaiting them.

Over a hundred years ago, as a nation we decided on the importance of a k-12 education system. And now, despite our being bound by that same system, it is time to make a significant change and extend our students' educational experiences from pre-school through postsecondary school. While some have suggested extending high school to include a year of national service, or post high school programs offering more specialized technical training, my focus today is on increasing enrollment in college that matches student interests and abilities.

In the 1990s I conducted, with my colleagues Charles Bidwell, Mihalyi Csikszentmihalyi, and Larry Hedges, The Alfred P. Sloan Study of Youth and Social Development a longitudinal study of over 7,000 students across the country, to learn how adolescents form ideas of careers. Based on that data, original historical research, visits to high schools and community colleges across the country, and re-analyses of five national longitudinal data bases, my colleague David Stevenson and I, published a book in 1999 entitled the *Ambitious Generation America's Teenagers Motivated but Directionless*.

We found that nearly sixty percent of high school students were what we termed unaligned—that is their education expectations and occupational aspirations were not consistent with each other. Students either underestimated or overestimated the amount of education for the job they thought they might have in the future.

Today, the overwhelming majority of high school students across all income brackets expect to attend college. But obtaining a bachelor's degree is no longer "enough," since 1972, the percentage of high school seniors expecting to obtain an advanced degree has tripled from 12% to 38%. Moreover, since 1972 the number of high school seniors expecting to work in professional careers is at an all-time high, with now 74 percent of high income students, 62 percent of middle income students and 53 percent of low-income students aspiring to professional careers.

It is many of these low income and minority adolescents, who aspire to work in occupations that require an advanced degree as well as those desiring to work in technical fields such as data design and analysis, computer engineering, and environmental sciences that are marching down an education path that is unlikely to lead them to fulfilling their aspirations. Many are taking the wrong turn after high school graduation.

In stark contrast, among middle-and high-income homes, fewer students start down the wrong path. It is often middle- and high-income parents who are playing a major role in guiding their children down

the right path. Starting early, they socialize their children to the competitive schooling process, often preparing them for in-person interview applications to highly selective not just colleges but *preschools*.

The notion of helicoptering—parents who hover over their children to help them succeed is especially relevant in the instance of parents' role in the high school transition process to college. Middle and high income parents often engage in a host of activities to increase grades, test scores, and participation in extra-curricular activities all of which are directed at ensuring that their adolescents are competitive, smart, and well-rounded college applicants.

College consultants, pre-college summer camps, intensive tutorial programs, and multiple college visits are common. These types of expenses and resources have only increased over time. In early 2000, I conducted The 500 Hundred Family Study, an investigation of how dual earner families organize their lives and the impact it has on the achievement and well-being of their children and adolescents. In many middle-income households, families make extreme financial and personal sacrifices to send their adolescents to the best colleges they could be admitted to.

Recent research continues to demonstrate this pattern of middle-and high- income families increasing the amount of resources both in dollars and time they are willing to expend on their children's education.

It became patently clear to me that most high schools for low-income and minority students were not even on the college playing field. Parents did not have the human and financial capital to spend on the extra resources to prepare their adolescents for college and in many schools; the staff dedicated to these tasks were often overwhelmed not just with the progressively complicated college admission process but the social and psychological needs of their students.

The resource issue is often dismissed as one that can be solved by simplifying or encouraging the college application process or tutoring, this seems somewhat underdeveloped especially when examining the social and economic differences in student college attendance at four-year institutions.

In raw numbers, there are three times as many middle-income students attending college as low-income students. And, if you are wealthy, you can bet your friends will all be attending college; eighty percent of students in high-income families will attend college after high school graduation. The rising income gap may be outpacing the achievement gap but its impact on the four-year college enrollment gap may be the one we need to study more closely.

These wide differences in resources in families and schools made me think hard about how schools serving low-income and minority students could help their adolescents' access more personal and financial resources that prepared them for college and were more aligned with their future goals.

Building on the ideas in the *Ambitious Generation*, I developed the following conceptual plan and activities expected to maximize the chances of low income and minority students enrolling in college.

Here you see the three key concepts; visualization, realistic actions, and strategic plans that laid the foundation of CAP. Visualization, being able to see oneself as a college student, realistic actions—recognizing one's strengths, abilities and skills, and strategic plans—creating a college selection process

that maximized one's college expectations and occupational aspirations including personal preferences for particular academic and social environments, interests in specific majors, and financial trade-offs.

For each of these constructs a set of activities were created—including working with near age mentors, visiting colleges, selecting appropriate courses for college entrance, choosing realistic colleges, completing financial aid forms, identifying scholarships, and supporting actual fall enrollment.

Now most of you in the audience are probably thinking to yourself, I remember learning about all of this in EEPA, NBER papers, and in a variety of other publications, blogs, and media so what is new here? And in fact, the field of identifying what discrete factors would help low-income and minority students enter college has become very crowded since 1999.

These are just a few of the studies that represent some of the key exceptional work being undertaken in this area either through experiments or observational studies, all of which are focused on promoting college-going among low-income and minority youth. A recent White House Report, *Increasing College Opportunity for Low-Income Students*, summarizes many of these efforts and provides a call for action.

When initially working on this in the late 1990s, my idea was to build a college going culture in a high school, which I shared with the Gates Foundation and for a time was highlighted on their website. The college going culture idea was designed to provide some of the personal resources and information that I had previously found in middle-and high-income families and schools in the Sloan study.

Trying to obtain support for this ambitious effort of a school-wide college going culture proved quite difficult and it was not until 2009—nearly a decade later-- when the National Science Foundation—bless them—provided funding. NSF was willing to take bold steps and support this work, as well as sustaining its development and evaluation. Special recognition also to NIH for supporting additional analyses. Given the number of studies now being undertaken how is CAP different?

First, it is a whole school design; targeted at traditional public comprehensive institutions—not Charters or schools receiving substantial resources through grants and corporate support. Our sample includes urban and an overrepresentation of rural high schools. The goals are to establish personal relationships with students, teachers, and school staff and strengthen neighborhood and community connections. We believe in recycling, using materials from government websites, free information from ACT and SAT, and affiliations with other programs engaging in college visits, securing fee waivers on admission forms, and accessing scholarship dollars. All of which we argue can help to make CAP low cost and scaleable. And finally, and perhaps most importantly, we highlight for students, college majors, such as those in STEM that they may be unfamiliar with as potential areas for future postsecondary study.

CAP is also unique in that it was built on the conceptual work of the *Ambitious Generation* and the operational model of relational trust articulated in our book *Trust in Schools*. In the Trust book, Tony Bryk, Sharon Greenberg, Julie Kochanek, and I argue that reform, especially in schools serving low-income and minority youth, cannot occur without a deep personal commitment by school personnel to place the personal welfare of the children first and to undertake a series of moral and ethical actions to accomplish this goal.

These are the foundational pieces of CAP, which is fundamentally about changing normative values and a re-orientation of life opportunities—in the institutional context of the high school.

Essentially CAP began with two treatment and two control schools in the 2010-2011 academic year. Today we are in 13 high schools, five of which are in Detroit.

Cap is organized around a Center staffed by a coordinator that provides, tutoring and mentoring, especially in mathematics and science, course counseling and advising, special workshops and assemblies, financial aid planning, and college visits. The site coordinators are the center of this intervention and it is their relationship with their students that we monitor closely to obtain accurate measures of dosage.

This year we substituted our graduate student site coordinators with part-time teachers.

There are four reasons for this: (1) The Sloan study found that teachers in middle- and high- income schools are very adept at giving college messages in their classrooms on a continual basis. CAP is a chance for secondary teachers to increase their understanding of adolescent development and the college process especially for low income and minority students, which we expect may be reflected in their regular classrooms. (2) most high school students, especially in advanced –yes, advanced not just remedial mathematics and science courses need tutorial help; consequently, we sought highly skilled teachers who could offer this service; (3) when possible, teachers already working in the school would help to strengthen bridges with other teachers and college and social services personnel; and (4) it bolstered the possibility of scale-up.

While I have been a developer in getting CAP in place my interest and passion is being a social scientist and the question which drives my curiosity is--does it work? At the onset, the program was designed as a quasi-experiment whereby the sample, method, measures, and analytic plan would produce robust evidence that *would or would not* warrant a larger independent third party evaluation. To that end we have conscientiously produced field manuals of procedures, measures developed from existing studies and a few new ones, codebooks and a continuing chronological record of runs for future replication. Now let's look briefly at the research design.

Using state administrative data and census data we identified potential sites with lower than state average college enrollment rates. At the onset of the work, we selected schools close to MSU—to monitor the initial development goals and make modifications when necessary—such as better mechanisms for recording dosage. To obtain our control schools we used propensity score matching techniques.

The matching criteria included, postsecondary enrollment, school size, census designation, poverty rate, and racial and ethnic diversity.

This lead to a total participant sample of, a racially diverse population of students in schools ranging in size from quite small at slightly less than 400 students in rural areas to a little more than 1,300 in the urban areas. Many of the students are first in their families to attend college.

This next slide shows the differences between the treatment and control schools for both urban and rural locations. The state average for four-year college enrollment is 37% and the two year enrollment is 24%. As you see in the table, we have lower than the state average four-year college going rates in the urban location and higher two-year enrollment rates in both locations that exceed the state average.

The high two-year enrollment is likely to be associated with the economic and social resources of the students in the schools we selected as treatment and controls.

Examining differences between treatment and control schools by location our rural schools are better matched than our urban schools. One of the reasons for the difference in the urban treatment and control schools is that we are now working in Detroit. We did not want to miss the opportunity to work in these schools where the demand for resources is so dire and to understand how the program would work in severely disadvantaged school communities. And finally as the numbers show, young people who graduate from these urban schools are perhaps the most underserved with respect to selecting the best college matches.

The next slide displays our gradual rollout from 2010-2011 to today. The bottom of the table shows, based on a power analysis using *Optimal Design Plus*, that the 2013-2014 school year will be the first year we will have a large enough sample to detect the most conservative school treatment effect—the most robust indicator of real change in our treatment schools. We will have to wait until the Centennial year of AERA for that analysis. The data lag time on college going is about a year meaning the postsecondary enrollment rates for fall 2013 will not be available until June 2014—we will be busy this summer—when we are close to the 90% power range but our best estimates will not be available until the 2015-2016 academic year—although we are now using texting and other data collection methods to speed up this process.

It would be difficult for me to be here today and not show any empirical results of our work. I am asking you to take a short ride back to 2011-2012 when we were in four treatment and twenty control schools.

The first analysis we conducted with data from the 2011-2012 year was in the four treatment schools where we compared college enrollment rates with those students who participated in CAP with those that did not.

We find that 56% of students who received treatment enrolled in four-year colleges compared to 41% non-participants. Digging a little deeper, at the type of college CAP participants attended results showed that the difference between CAP participants attending a competitive college and non-participants was sixteen percent. As expected given our CAP four year college enrollment rates, only 44% of CAP students enrolled in two-year institutions compared to 58% of non-participants. Finally 29% of CAP participants were interested in pursuing a major in science, technology, engineering, or mathematics compared to 18% of non-participants. While these results are positive they are only based on the students within the treatment schools—this will not get you any waivers with the method police.

Taking a more conservative approach, we looked at differences between the students in the four treated schools and students in the twenty control schools. Here we use a difference in difference technique—a “dif n dif” over a five-year period. We are comparing approximately 587 treated students and 3,496 control students. These estimates are derived from the Michigan Consortium for Educational Research data-files a collaboration of Brian Jacob, Susan Dynarski, Ken Frank, myself, and the Michigan Department of Education—Thomas Howell, Venessa Keesler, and Joseph Martineau supported by IES.

This first analysis examines the impact of CAP on the four-year college enrollment rate. The dotted lines show what one would assume the college going rate would be, and the straight lines show the observed enrollments—blue is treatment, red is control. Now if you look at the control red straight line and the

red dotted line you see that the students in the control schools enrolled in college at a lower rate than would be expected. In our treatment schools—the blue lines, the students enrolled at a higher rate than would be expected by about just a single percentage point although the trend line is upward.

The next slide examines the impact of CAP on two-year college enrollment—here is a wee bit more of a success story in that fewer students in the treatment schools (approximately 2.5 percentage points) are entering two-year institutions compared with assumed numbers and in comparison to the projected and observed numbers for the control schools. However, it is still the case, as the trend line indicates that the number of students entering two year institutions in the treatment group is higher than in the control schools.

And then the final slide shows the college enrollment rates for both four and two year institutions. While the treatment students attending “any college going rate” has been increasing compared to the controls the assumed lines suggest it should have been higher, whereas the control schools projected and observed estimates are consistent. What does all of this mean?

Four-year enrollment is only one of several possible measures of college access and it often receives the most attention in research and policy. When implementing a comprehensive whole school college going intervention it often involves careful thinking about tradeoffs. A program that emphasizes four-year enrollment may have the unintended consequence of limiting two year enrollment both in community colleges and technical schools and we see some evidence of this in our two-year enrollment slide. Our treatment schools declined two percent in two year enrollment, whereas our control schools held steady against assumed declines. The final “any college enrollment,” analysis speaks to the complexity of this.

Results for “any college going” are quite mixed, and suggest that these results for CAP which is a comprehensive program may provide a more robust, albeit complicated picture of the tradeoffs one encounters when tackling problems to increase secondary school-wide college enrollment. But remember these results are very preliminary and meant to be more of a guide on the importance of measuring college enrollment by separating institutional types including not just selective from non-selective colleges but four year rates from two year ones and technical schools. We suspect that the longer we are in the schools and the more schools we are in, we will improve not only our ability to detect an effect but more precisely determine its size.

A small aside, access is only part of the college story, the next chapter foreshadows the need for multiple interventions to help students survive in college—and I would argue not because they are not smart, ambitious, or committed, but the navigation of college is as complex as the college application process itself. The social and emotional challenges of being on one’s own in college can be as difficult as finding the right college.

What are we learning?

Methodologically, the confounds for estimating the differences between treatment and control schools are perhaps more varied and greater in intensity than captured with large scale econometric models. For example at one school in 2009 there were threats of school closure and, to counteract declining enrollment, more special needs students and refugee non-English speaking adolescents were



redistricted to attend this school. This administrative policy significantly reduced our initial percent gains in college enrollment for the 2010-2011 year.

Michigan has the largest school choice program in the country and in nearly all of the low-income and minority schools we find declining enrollments with students moving to Charters or other public schools. Our best matched urban control schools often are the ones that have closed and for this preliminary analysis we have had to replace three of the ten urban control schools. By actually being on the ground and knowing our schools so closely we are aware of changes in leadership, student composition, state and district policy and teacher and student mobility—all of which destabilize the possibility of achieving stable unit treatment effects.

The school communities we serve write about us in church bulletins, interview us for local presses, and we have school districts asking us to bring CAP to their schools. But I am not going to be Pollyannaish about what we see. Change in urban and rural schools is exceedingly difficult. We have had some success stories but the methodological, statistical, and contextual issues are real and need further research and understanding.

Substantively, at an institutional level we have learned that college visits tend to change expectations and form concrete visualizations especially for students who have never been on a college campus—which in this case is most of the students. Scholarship aid is fundamental to attendance but students need additional help in learning how much they need to pay for college—the college bills can be as daunting as the financial aid form itself.

On the more personalized student side, our surveys and interviews show that subjective feelings are domain specific; adolescents can be confident about a lot of things, but not confident about applying to college. CAP has taught us that with the site coordinator an adolescent is more likely to follow through on their plans. Filling out the forms and learning about different colleges is not enough. Students need to see realistic evidence that attending a different type of postsecondary institution will make a difference in their present and future lives.

The challenges for changing college enrollment patterns of urban and rural youth are simply not the same. Some of the constraints that rural students encounter in choosing the right college for themselves are very different from the constraints of urban youth. Matching colleges to student interests and abilities is more than a list especially when taking into account familial expectations and historical and cultural contexts.

In summary, schools are dynamic places where leadership, teacher, students, and curriculum are often in a state of flux, partnerships are key for research in schools—we are guests in schools—students, teachers, and administrators are not our clients or patients—we are all on the same page working together and trying to improve the students' achievement and life opportunities. Changing student behaviors and plans depends in large part on personal interactions with a trusted knowledgeable individual—personal contact cannot be underestimated. And finally, college interventions should be low-cost and designed from the onset to be scaleable—can the costs be reasonable enough to implement in the approximately six thousand public high schools serving low income and minority students in the U.S.

And now for the young scholars in the audience

Don't give up, have grit, and a flexible mindset—. I pursued multiple avenues for support for my alignment work and was quite unsuccessful. When I finally received funding, there were a host of other excellent researchers, many with sophisticated econometric skills, who were already in the field, testing a number of the ideas and solutions we had crafted a decade before.

If you enter, as I did, a very crowded field you need to be sure there is something distinctive about what you are doing—something different that sets your work apart. Replication is indeed important but the real key is replication with variation—from sample to methodology.

Don't even think about pursuing your ideas if you are not passionate about the problem. As my students remind me it is the mission of what we are trying to accomplish that keeps us as a team working toward a common goal.

And this work could not happen without them—a special call out to our research team Justina Judy who has been the most incredible Data Manager—who always gives me time, an ear, and sharp criticism even when she has a huge to-do plate including three of her own AERA presentations to prepare for this meeting, Christina Mazuca, Project Coordinator who has and makes this happen every day and just about everything else in our research work—from buses to careful editing, budgeting, and IRB negotiations and keeps us from taking ourselves too seriously—go Spartans, Mike Broda, for his expertise in analyses and willingness to try new technique in his rapidly expanding methodological portfolio, and Kri Burkander who keeps us listening and reporting what the teens are truly feeling and our newest research program director—Ryan Goodwin and the many exceptional individuals who have and are making our ideas a reality including the amazing teachers who now are working with us. It's the Academic Oscars and I am running out of time—

And being at the academic Oscars, I finally want to thank my family- husband, children, grandchildren, and siblings whose support and personal investments in education through their careers and life styles that have made this all possible.

Finally, I would like to show you just a few of our success stories

—yes I have IRB permission to show some of their faces and colleges they are attending—and this is really what makes it all worthwhile. I only wish there were thousands of them. Thank you