

Appendix A

Initial Project Prospectus

*Improving the Educational Outcomes of Students in Poverty
Through Multidisciplinary Research and Development**

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Improving the Educational Outcomes of Students in Poverty Through Multidisciplinary Research and Development

The need to improve the educational outcomes of students in poverty is urgent, not only in the United States, but also in most other nations of the world. In the United States, the gaps in achievement among poor and advantaged students are substantial. For example, data recently released from the Early Childhood Longitudinal Study (ECLS) show that upon entry into kindergarten, students in the lowest quintile of family income in the United States scored on average at about the 30th percentile on the ECLS reading achievement assessment, while students in the middle quintile scored at about 45th percentile, and students in the top quintile scored at about the 70th percentile. Other studies show that such gaps are present not only in reading, but also in other subjects, and that they persist into later years of schooling. International surveys of educational achievement show that similar gaps exist in most other nations. So, the problem of how to improve the academic learning of students living in poverty is a nearly universal problem in modern societies.

In the United States, education researchers, policy makers, and the public at large often see *school* improvement as the main strategy for improving the achievement of poor children. Along these lines, an entirely new thrust in school improvement has emerged in the United States over the past twenty-five years. Where once it was taken for granted that students' social and family backgrounds exercised powerful effects on students' ultimate academic achievements, the nation now seems committed to developing educational policies and practices that leave no child behind in terms of academic performance. However, a closer look at the data on educational achievement in the United States, and at the research underlying many claims about effective instructional programs for students in poverty, reveals that we have a long way to go before realizing this goal. While the achievement of students from disadvantaged circumstances (at least as measured by our national indicators) has risen over the past twenty years, poor students' achievements still lag substantially behind those of more advantaged students. Moreover, most of the school and instructional interventions that have been developed and touted in recent years as the primary means for improving the education of disadvantaged students have only small effects on poor students' levels of academic achievement.

The CARSS Initiative on Educational Research and Interventions in High Poverty Settings

The University of Michigan's newly-founded Center for Advancing Research and Solutions for Society (CARSS) proposes to address the pressing need to improve the academic outcomes of students in poverty. CARSS serves as a seedbed for innovative projects addressing central societal problems, bringing researchers from a variety of disciplines together with members of the relevant world(s) of policy and practice in order to think strategically about societal problems and their resolution. The initial activities of a CARSS project on the education of high poverty students would involve convening a working group of academic scholars, practitioners, and policy influentials to take stock of what is known about the effectiveness instructional and other social interventions designed to improve the academic achievement of students in poverty at key points in students' academic careers, to use this information to identify promising new strategies for enhancing the educational outcomes of students living in poverty at these threshold points, and to develop new programs of research and development that will enact and test these strategies in areas of high poverty. This document outlines the main ideas that would guide this venture, suggests some of the individuals who might be invited to participate in it, and describes some of the products that might be expected to result from the effort.

Background

Decades of social science research demonstrate that children move through a series of overlapping and sequenced environments during the life course, and that the combination of these settings

shapes many developmental outcomes—including students’ *academic* achievement, the outcome of primary interest in the CARSS initiative described here. Current efforts at “educational” reform rarely take explicit account of these multiple and overlapping sources of academic development, however, and tend instead to focus on a narrower set of school-based efforts to improve student learning. Indeed, since publication of *A Nation at Risk* more than twenty years ago, the main school improvement initiatives pursued in the United States have involved attempts to define higher academic standards for students, to hold schools accountable for students’ achievement of these standards, and to help schools improve standards-based learning outcomes by improving teacher and administrator quality, adopt research-based instructional practices, and/or restructure school operations in ways that support high quality instruction.

Several things are striking about this agenda. The first is the positive, but limited, effects these school-based changes have had on the academic performance of students living in high poverty settings. Of course, the academic achievement of disadvantaged students in the United States has risen over the past decade or two—more, in fact, than larger, societal-level changes in family, neighborhood, and economic conditions would predict. So, recent educational reforms have had non-trivial effects on students’ academic achievements. But no one is completely satisfied with the current level of academic achievement of disadvantaged students in the U.S., since that remains well below our societal aspirations, and often below the achievements of disadvantaged students in many other nations.

A second feature of the U.S. “educational” reform agenda is its primary emphasis on *school related* improvements and its corresponding under-emphasis on the role of non-school factors in improving student achievement. We know from decades of research on child development generally that many factors other than schooling are related to students’ academic achievement—including children’s health status, family background, and neighborhood circumstances, as well as children’s participation in non-school institutional settings like pre-schools, after-school programs, and so on. Yet, the role of these non-school factors in enabling or constraining efforts at school improvement remain largely unexplored, particularly in the mainstream research on educational reform. To be sure, there are various lines of research focused on enhancing parents’ role in schooling, on providing integrated social services at school sites, and on the important effects of pre-school, after-school, and summer programs on students’ academic achievements. But these lines of work do not constitute the main currents of debate about educational reform in the U.S. Instead, both education research and policy remain largely focused on school-related influences on academic achievement, including the effects of higher standards, greater accountability, and improved instruction.

The CARSS project discussed here takes a different approach to the problem of improving the academic achievement of students in poverty. Rather than thinking exclusively about the role of school-based factors in improving students’ achievement, we propose to think about ways in which school and non-school factors interact to produce students’ academic outcomes. Thinking this way, we propose to take stock of what is known about the role of school- and non-school factors in affecting students’ academic achievement, especially at critical junctures in schooling, and more importantly, to think about how comprehensive intervention strategies might be designed to achieve potential synergies among the many different contexts in which child development unfolds so as to improve the academic achievement of students in poverty at these critical time points.

The CARSS Approach

Much has been learned over the past few decades about the academic trajectories of students from high poverty backgrounds. One especially important finding is that there appear to be critical junctures in students’ educational careers where high poverty students are most at risk of falling behind their more advantaged peers. One point occurs as students enter school—since students

from impoverished backgrounds begin schools academically far behind their more advantaged peers. Another occurs in the first few grades of primary schooling where the acquisition (or failure to acquire) foundational skills in literacy has tremendous bearing on students' chances for success in most other basic educational outcomes. A third critical point occurs in the middle grades, especially in mathematics, when the curriculum becomes more differentiated, and where success in basic numeracy determines students' access to the more advanced courses that serve as a gateway to higher education.

One approach to improving the academic outcomes of poor students at these critical junctures is to work at changing school-related factors known to affect the educational outcomes of poor students. Indeed, this approach has been taken in a great deal of work on school improvement, where the focus tends to be on improving what might be called the commonplaces of school learning, that is, teachers and students interacting around academic content within schools. In this approach, educational researchers and reformers typically work inside schools to improve students' readiness for and engagement in learning; they work inside schools and with other educational institutions to upgrade teachers' knowledge of students, of academic content, and of specific instructional practices; and they try to reorganize schools in ways that manage instruction better, both within and across classrooms.

All of this makes sense. Indeed, a growing body of research demonstrates that when instructional improvement efforts undertaken in high poverty schools are well-designed and well-supported, they can have positive effects on student achievement. But there are also real limitations to this approach. For example, while well-designed and intensive instructional improvement programs manage—in many schools—to accelerate students' achievement growth, even the best of these programs do not allow most poor students to catch up to their more advantaged peers or meet the increasingly high standards for achievement now required by state and federal accountability standards.

All of this leads us to ask if coordinating school improvement initiatives with initiatives designed to impact conditions outside schools might not produce new kinds of synergies previously unharnessed. To answer this question, we propose to look beyond the usual nexus of so-called educational institutions as supports for instructional improvements in order to consider more broadly the variety of agencies and institutions that influence the work of teachers and students inside schools, including families and communities, social service agencies, pre- and after-school providers, and so on. Thinking this way, we propose to look at family, neighborhood, and community influences on the work of teachers and students inside schools, at ways in which health, social welfare, and economic development policies affect educational change efforts, and at the many providers of pre- and after-school services and their effects on instructional improvement. We know from past research (and a great deal of practical experience) that healthy children learn better, that a variety of social dispositions are needed to learn well in the typical American classroom, that student mobility spawned by inadequate housing stocks works against instructional improvement efforts in many schools, that strong pre-school, summer, and after-school programs can produce higher educational outcomes, and more. So, perhaps the time has come to take stock of what we know about how these non-school institutions and agencies affect the commonplaces of school learning and use this knowledge to leverage better school-based efforts at instructional improvement.

The Intellectual Agenda

In our view, this agenda involves some new ways of thinking about school improvement. One shift involves thinking about how conditions in the immediate environment of schools condition efforts at instructional improvement inside schools. We know from decades of research, for example, that efforts at instructional improvement proceed variably across schools, and we often blame this problem on school-related factors such as teacher resistance to change or a lack of leadership at

school sites. Yet schools in high poverty neighborhoods often face additional conditions beyond their immediate control that constrain efforts at instructional improvement. It is difficult, for example, to implement stable instructional improvements where recruitment and retention of high quality teachers is a constant challenge and where student mobility is extreme, yet these conditions are endemic to high poverty settings. It is also difficult to enlist and build on the support of single parents who are required to work by social welfare policies, and whose educational upgrading is often oriented more to building work-related skills than general educational requirements. Moreover, it is difficult to educate students well when environmental conditions predispose students to numerous health hazards, and where social conditions do not promote the easy development of social dispositions required for success in school. So, thinking about the ways in which larger social policies related to housing, social welfare, public health, and community/economic development work to create local conditions supporting or constraining local efforts at school reform would provide one leverage point for thinking about how to make school improvement more productive in high poverty settings.

A related shift involves considering child development outcomes other than academic achievement when thinking about instructional improvement, and gaining a better understanding of how these other outcomes might in fact contribute to the process of school learning. One part of this problem involves gaining a better understanding of the biological-neurological bases of academic learning, and developing service delivery strategies (in or out of schools) that address poverty-related consequences for such development. Beyond that, we also have strong reason to suspect that promoting child health and social development more broadly can have beneficial consequences for academic growth. But specific knowledge about the inter-relationships of academic and non-academic outcomes, and especially about the effects on non academic intervention strategies on academic outcomes is scattered and thin. Thus, another step in the CARSS agenda will be take stock of what is known about the extent to which non-school intervention programs can be used to improve student outcomes at key junctures in schooling, the assumption being that we might be able to produce important boosts to students' academic achievement by simultaneously combining instructional improvement strategies with strategies designed to address other developmental outcomes.

A third shift involves taking a closer look at the possible benefits of coordinated action among the various agencies and institutions that affect child development, especially actions that boost school-based efforts at instructional improvement. Clearly, one part of the problem involves promoting better interagency coordination in a highly decentralized and bureaucratic organizational field, a problem that previous research suggests is a major stumbling block to coordinated action among the multiple agencies working with children and youth. However, the concept of coordinated action also suggests a closer look at the intentional aims of various agencies and institutions working with children outside of schools, and about the extent to which these aims align to produce developmental synergies for instructional outcomes. As one example, we know that high quality pre-school experiences affect children's cognitive development at the point of entry into elementary schooling, but that pre-school effects often "fade" as the schooling process unfolds. But, does this occur because of a lack of alignment among the curricula of most pre- and elementary schools, is it a by-product of the fact that skills learned at one point in time (e.g., decoding skills) are necessary but not sufficient to aid in the learning of skills taught at a later point (e.g., reading comprehension), or is it simply an outcome of the fact that students who receive high quality pre-schooling are no more or less likely to receive high quality elementary schooling than their peers? To take another example, research has characterized successful aftercare settings for adolescents as having the properties of an "intentional learning community." Such organizations, for example, have deliberate aims in their work with youth, and they organize systematically both to promote these aims and evaluate their organizational achievements. However, little systematic research has been done to examine how adolescents sort themselves into aftercare settings with different aims, or to examine the extent to

which settings with particular aims have more or less success producing particular academic outcomes.

In summary, we are proposing to broaden our thinking about how to effect instructional improvement. While we continue to support efforts inside schools designed to improve instruction—especially at the key junctures in the curriculum that have great bearing on poor students’ chances for continued school success—we think it is also important to move outside the realm of educational policy and practice as well. For example, we want to consider what health, welfare, and other social policies are available and can be harnessed to impact school improvement, and we want to consider designing new intervention strategies that are targeted not simply at schools, but also at families, community organizations, health and welfare agencies, and others in order to harness additional resources in attempts to improve the educational outcomes of students in poverty.

Methodological Considerations

We have argued that improvements in school learning do not occur in a vacuum and that there are potential synergies to be uncovered by casting our net more widely when thinking about how to improve the instructional work of teachers and students inside America’s high poverty schools. But this new intellectual agenda will require researchers to do more than ask new questions. To develop a sound, research-based knowledge about these synergies will also require us to address a number of significant new methodological challenges as well.

To begin, we have argued for an examination of multiple developmental outcomes simultaneously, and that suggests that we might profit from viewing development as a multivariate outcome, considering possible tradeoffs and synergies during the developmental process. Such an approach stands in contrast to the way educational researchers typically proceed, however, for almost all research on instructional improvement focuses narrowly on a single outcome or does not capitalize on the advantages of multivariate statistical modeling when considering multiple outcomes. More research is needed therefore, both on the extent to which multiple developmental outcomes are correlated, and on how to model potential tradeoffs or synergies in these outcomes. Clearly, such research will gain in value from being guided by theory, but research methods capable of modeling complex, multivariate outcomes also seems needed.

An associated need is to develop measures of developmental outcomes that are better suited for use over time and across multiple socialization settings. As one example, consider the typical measures of cognitive development used in child development research. Those interested in early childhood cognitive development typically use one set of outcome measures, while those interested in elementary school effectiveness have tended to use a different set of measures. The appropriateness of these measures for use in different settings, and their linkage across time, is at present largely unexplored, but the use of different measures of cognitive development at different stages of child development raises the real possibility that we have mis-estimated the effects of students’ participation in earlier settings on their outcomes in later settings, either by using the wrong instruments at different time points, or by changing measurement instruments across settings. Clearly, the psychometric and analytic problems involved in measuring developmental outcomes over time are complex and warrants further attention.

Still another problem concerns researchers’ need to take full account of the “cross-nested” nature of child development. As we have seen, developmental outcomes are presumably the product of participation in multiple institutional settings, and this situation would seem to call for the use of cross-classified statistical designs in research on educational achievement. As one example, children within specific elementary schools might have previously attended (or could be assigned to) specific pre-schools or after care environments. Cross-classified statistical designs could then be used to take

account of these “cross-nested” institutional contexts, providing better estimates of the effects of specific settings on developmental outcomes, as well as useful information on synergistic (i.e., interaction) effects that arise as a result of participation in particular combinations of settings. To date, such designs have been rare in education research, but their use in the future could produce significant gains in our knowledge about how to produce synergies across developmental settings or in the production of multiple outcomes.

Finally, research on educational achievement faces many sticky problems of research design and causal inference. Many educational researchers rely on survey designs and/or conduct theory-oriented research that attempts to make causal inferences from naturally-occurring variation in settings and outcomes. But many others conduct intervention-oriented research and use experimental designs. Neither group of researchers is completely satisfied with the outcomes of the other’s work, however, and new advances in research design and data analysis have been developed to take account of these objections. As examples, new statistical methods are being developed to assure better causal inferences in non-experimental research, and new models of “theory-oriented” interventions research have emerged. The matching of new research designs and analytic strategies to specific research problems in the field of child and adolescent development warrants further attention, as does the relevance of such research to the creation and evaluation of intervention strategies designed to promote positive developmental outcomes for children and youth.

Project Design

The project we are proposing, then, would have as its main focus how to improve the academic learning of students in high poverty schools, placing the main emphasis on achievement at critical junctures in students’ school careers. In this sense, the project originates in a core problem for the field of educational research and improvement. But rather than view problems of instructional improvement as largely influenced by school-related factors, as much of the education reform literature does, CARSS would invite scholars from many different intellectual communities to discuss how different institutions and agencies outside of schools affect how students and teachers function inside schools, and how this, in turn, affects students’ learning of academic content at critical points in time. The larger aim is to broaden analyses of school improvement by finding potential synergies across domains of research that have heretofore been only loosely connected in the field of educational research.

Along these lines, this CARSS project will undertake a series of activities that will:

- organize a group of scholars, policy makers/practitioners, and representatives of the philanthropic community into a new kind of interdisciplinary community concerned with boosting the academic achievement of children in poverty, especially at critical junctures in the schooling process;
- use this group to organize a series of “stock taking” activities that will include production of new research syntheses, secondary data analyses, identification of successful intervention programs/strategies, and location of possible partners for future research and development activities; and
- use these activities to develop proposals for an ambitious research and development agenda leading to the design, scaling up, and evaluation of new, multi-faceted, intervention programs that improve the academic achievement of students in poverty.

Tasks

The core leadership group for this project will be: David K. Cohen (education and public policy), Stephen W. Raudenbush (education, statistics, and sociology), and Brian Rowan (education), all at the University of Michigan. These researchers have spent their careers examining conceptual and methodological issues related to the improvement of teaching and learning in schools and are prepared to lead the activities just outlined.

Task 1: Organize a New Interdisciplinary Community to Attack the Problem

The first task for this core group will be to form an interdisciplinary community of scholars and practitioners committed to developing this project. We envision a group that includes members from the research, policy, practice, and philanthropic communities whose members have expertise in a number of areas relevant to our agenda. This includes individuals with expertise in: (a) instruction and instructional improvement in the targeted areas of concern; (b) relationships of poverty, nutrition, health, and community development to academic outcomes in the areas of concern; (c) child cognitive and social development as it relates to the areas of concern; (d) the social organization of neighborhoods and communities, and especially neighborhood and community impacts on student learning; (e) interagency coordination in delivery of health, education, and welfare services; (f) successful principles for the design of complex social interventions; and (f) methodologies for conducting research on child development.

Organizing this interdisciplinary community is one of the first tasks for the core group to accomplish. In building this group, we will endeavor to recruit members from three communities:

- Scholars at other universities
- Scholars at the University of Michigan.
- Members of the policy, practice, and philanthropic communities.

From these various constituencies, we envision forming two groups: (1) a project steering committee to consist of the UM core group, 3-4 external researchers, and perhaps 2-4 policy/ practice/ foundation personnel; and (2) a project advisory group of much larger composition to include UM faculty, external scholars, and representatives of the policy/practice/foundation communities.

Task 2: Take Stock of and Extend the Knowledge Base

The steering group, with input from the advisory group, will conduct a series of activities that take stock of and extend the knowledge base in areas relevant to the project. To narrow the focus of the project, we propose to begin by focusing on poor students' literacy outcomes from the beginning of school through the first few grades—an area we have identified as a critical juncture in schooling. To take stock of the knowledge base in this area and to extend it, the steering committee will:

- Create a working staff of GSRA's and a project manager to assist the steering committee in project activities.
- The steering committee, with support from staff, will conduct a series of literature searches in domains relevant to the project and synthesize this information for access by the scholarly/policy/and practice community at large. These searches and research syntheses will:
 - identify work in many different disciplines, including research in pediatric medicine, child development, education, social work, and other fields;

- identify successful interventions in the domains of health, education, and welfare that are relevant to improving early literacy outcomes;
 - identify data sets that might be used to conduct secondary analyses on a broad number of factors that influence early literacy outcomes; and
 - identify members of the relevant scholarly, policy, practice, and foundation communities with expertise relevant to the project.
- Using information developed from these activities, the steering committee will convene a three-day conference, partly open to the public, in which a selected group of participants will be invited to envision a new research and development agenda on improving the early literacy outcomes of students in poverty.
- After this conference, the steering committee will:
 - commission a set of papers by senior scholars, policy makers, and/or members of the policy/practice/foundation communities that synthesize *and* extend the knowledge base in topical areas germane to this agenda;
 - commission a set of secondary data analyses (to be conducted by promising young scholars) that have the potential to address specific gaps in the research base identified at the conference or by the steering committee’s work or that might develop new methodological approaches relevant to the agenda; and
 - work to disseminate this work through a project web site, a possible edited volume, and/or scholarly publications.

Task 3: Launch an Ambitious and Long Term Research and Development Agenda

Completion of Tasks 1 and 2 sets the stage for Task 3, which involves mounting an ambitious and long term research and development agenda aimed at demonstrating how the educational outcomes for students in poverty can be reduced through comprehensive intervention strategies. To accomplish this agenda, the steering committee will:

- expand participation of UM faculty/researchers, faculty/researchers at other institutions, and “partner” school systems in order to develop a long term research and development agenda;
 - work with these groups to conceptualize alternative designs for comprehensive intervention strategies aimed at improving the educational outcomes of students in poverty, and to identify steps that must be taken and problems that must be resolved in order to mount these interventions in applied settings; and
 - work with these groups to generate research designs that produce social learning about these intervention designs and/or problems related to their implementation.
- develop proposals to various funding agencies for support of one or more envisioned research, development, and evaluation projects.