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School of Education and Social Policy Partnerships with Schools

Northwestern University's School of Education and Social Policy is involved in many partnerships with schools that have significant impact on students and teachers. Following is a summary of current projects.

CHICAGO PUBLIC SCHOOLS PROJECTS:

Boys to Men

Participating Schools: Young Men's Educational Network and various public and private schools in the North Lawndale area of Chicago

Description and Goals: Young Men's Educational Network received a grant from United Way to provide financial support for mentoring programs in the North Lawndale community of Chicago. The programs mentor African American boys aged 10 to 16. Assistant professor Jelani Mandara assists in evaluating the effectiveness of the program. He collaborates in conducting surveys and interviews with the boys and their mentors.

Number of Students Involved: Approximately 300

Contact: Dr. Jelani Mandara, j-mandara@northwestern.edu

Charter Schools

Partner Schools:

Betty Shabazz International Charter School, Chicago – three campuses:
Betty Shabazz Elementary Academy
Barbara A. Sizemore Academy
DuSable Leadership Academy

Description and Goals:

With three campuses located on Chicago's South Side, the Betty Shabazz International Charter School is dedicated to the academic, cultural, social and physical development of African American children. The original campus balances instruction using African-centered themes, arts and humanities, technology, and linkages to local community resources as well as South Africa, Brazil and Ghana.

Students Involved:

Betty Shabazz Elementary Academy – 313 students grades K-8
Barbara A. Sizemore Academy – 200 students, grades K-8
DuSable Leadership Academy – 300 students, grades 9-11

Contact: Dr. Carol D. Lee, cdlee@northwestern.edu

Chicago Transformation Teacher Institutes

Partner Schools:

Professional development with Chicago Public Schools will begin in 2011.

Description and Goals:

Northwestern University is part of the Chicago-area collaborative creating the Chicago Transformation Teacher Institutes (CTTI) program. In collaboration with the Illinois Institute of Technology, the Chicago Public Schools (CPS), and other university and curriculum development partners, this project focuses on increasing the content and pedagogical knowledge and skills of teachers who occupy leadership positions in mathematics and science in CPS. Teacher courses are closely integrated with the curriculum and professional development efforts of the High School Transformation program.

Teacher courses provide expertise regarding content and curriculum as well as integration within the larger context of environmental science studies and geoscience curriculum projects at Northwestern, and with the help of the IIT faculty, in the life sciences program there. The team is developing four courses: energy in the earth system; life and environmental systems; detection and analysis in life and environmental science; and deep knowledge of life and environmental science and teaching of science.

Contact: Dr. Steven McGee, s-mcgee@northwestern.edu

A Cross-Cultural View of Biological Thought and The Cultural Context of Learning: Native American Science Education (ROLE)

Partner Schools (8):

Disney Magnet School, Chicago (CPS) - 25 teachers, 150 students
American Indian Center of Chicago Urban Explorers Program - 4 teachers, 50 students
Walker School, Evanston - 10 teachers, 30 students
Lincoln Elementary School, Shawano, Wisconsin - 12 teachers, 100 students

Olga Brener School, Shawano, Wisconsin - 12 teachers, 120 students
Keshena Public School, Keshena, Wisconsin - 12 teachers, 50 students
Menominee Tribal School, Keshena, Wisconsin - 12 teachers, 70 students
Keshena Head Start, Keshena, Wisconsin - 4 teachers, 20 students

In addition, the ROLE project works with an after-school program at the American Indian Center called Positive Paths. This program consists of K-12 grade Native students representing various CPS and private schools in the Chicago area.

Description and Goals:

These research projects are concerned with how children learn about living things. Data is collected through one-on-one interviews with children at their schools, using several tasks to identify similarities and differences in core biological concepts held by adults and children. Teachers cooperate by allowing their students to be away from the classroom for short periods for interviews. Teachers with the ROLE are also involved in the design and implementation of culturally based science education programming.

Results of this research program will provide information about how children learn about plants and animals and may eventually inform science education programs. Because research is conducted in urban and rural communities as well as on the Menominee Indian Reservation in Wisconsin (and in Indonesia), results also will contribute to the general knowledge of how culture and experience shape beliefs about nature.

The research projects offer partner schools volunteer hours equivalent to the number of hours of research conducted. Researchers tutor students, help with art projects, read stories or assist in other ways in classrooms.

Teachers and Students Involved: 91 teachers, 590 students

Contact: Dr. Douglas Medin, medin@northwestern.edu

Developing Classroom Management and Authoritative Leadership

Participating School: North Lawndale College Prep Charter School

Description and Goals:

This project involves working with the teachers and administrators on effective classroom management and leadership. Dr. Jelani Mandara gives lectures and conducts regular workshops with the faculty. The goal of the project is to foster effective classroom management and leadership, based on research evidence.

Number of Teachers Involved: All faculty and administrators at the school. Approximately 40 teachers and six administrators attend the workshops regularly.

Contact: Dr. Jelani Mandara, j-mandara@northwestern.edu

Developing Responsible Men

Participating School: North Lawndale College Prep Charter School

Description and Goals:

Along with members of the school's faculty and other professional men from the community, Dr. Jelani Mandara works with a group of boys enrolled in an elective business course. He primarily teaches them about life skills important to success and college readiness skills such as time management. The goal of the project is to encourage academic success, reduce negative behaviors and promote responsibility and mental health.

Number of Students Involved: Approximately 20

Contact: Dr. Jelani Mandara, j-mandara@northwestern.edu

Digital Literacy and Transnationalism Among Immigrant Adolescents in the U.S.

Partner School: Curie Metropolitan High School, Chicago

Description and Goals:

The study explores how adolescents of immigrant backgrounds use the Internet to organize transnational social relationships, access/utilize/produce information and media content across countries, and develop cross-cultural orientation in their language and literacy learning.

Teachers and Students Involved: 311 student participants in survey; 32 students interviewed; 7 students participating in case studies

Contact Person: Dr. Eva Lam, evalam@northwestern.edu

Early Elementary Science Partnership

Partner Schools (10):

Cesar E. Chavez Multicultural Academic Center
John Charles Haines Elementary School
Pilsen Elementary Community Academy
South Loop Elementary
John A Walsh Elementary School

Jacob Beidler Elementary School
Marconi Elementary Community Academy
Faraday Elementary School
Victor Herbert Elementary School
Martin A. Ryerson Elementary School

Description and Goals:

A two-year sequence of coursework is being offered to teachers from 10 Chicago elementary schools as preparation for a Teacher Leader Endorsement in Elementary Science. The initiative is related to Illinois's new endorsement in teacher leadership, which allows teachers to qualify themselves for leadership positions within a school organization such as department chair or curriculum director.

The program supports the Chicago Public Schools' hands-on curriculum in science. Professional development not only increases content understanding but also shows the connections between the science content and exhibits at four Chicago science museums. SESP is a partner in this project with the Field Museum, the Peggy Notebaert Nature Museum, Chicago Children's Museum, Lincoln Park Zoo and the Chicago Public Schools.

Teachers and Students: 91 teachers, approximately 2,000 students

Contact Person: Dr. Steven McGee, s-mcgee@northwestern.edu

Freezing Time: Using Digital Video to Help Teachers Reason about Classroom Events

Partner Schools (8):

Carman-Buckner Elementary School, Waukegan
Evanston High School, Evanston
Highland Park High School, Highland Park
Lakeview High School, Chicago
Lincoln Park High School, Chicago
Payton High School, Chicago
Perspectives Charter School, Chicago
Northside College Preparatory High School, Chicago

Description and Goals:

Examine the ways in which mathematics and science teachers attend to the complexity of classroom interactions. Support teachers in learning to attend to consequential events that take place in the classroom through the use of video reflection.

This research project is motivated by the belief that, in order to promote meaningful learning in the classroom, science and mathematics teachers need to substantively attend to their students' thinking. The project is thus concerned with examining what teachers

pay attention to in the classroom and how they interpret what they notice. In particular we are implementing new digital video technologies and designing new research methodologies to gain better access to teachers' tacit thinking about what moments during instruction are pedagogically relevant. Through our work with pre-service and in-service K-12 teachers, we hope to learn how to better help teachers tune their attention to their students' thinking.

Teachers and Students Involved: Approximately 25 teachers and 750 students are involved in the project.

Contacts: Dr. Miriam Sherin, msherin@northwestern.edu, Dr. Bruce Sherin, bsherin@northwestern.edu, Rosemary Russ, r-russ@northwestern.edu

The iLab Network

Partner Schools (20):

- Wheeling High School
- Fenton High School
- Illinois Virtual High School
- Monona Grove High School
- Hinsdale High School
- Evanston Township High School
- Virtual High School
- Christian Heritage Academy
- Wheaton Warrenville South HS
- Emma Willard School
- Auburn High School
- Walter Payton Preparatory High School (CPS)
- Hopkinsville Community College
- Young Women's Leadership Charter School (CPS)
- Dwight D. Eisenhower High School
- Plainfield North High School
- Wells Community Academy (CPS)
- Jones College Preparatory High School (CPS)
- Batavia High School
- Florida Virtual School

Description and Goals:

Teachers and students nationwide are discovering a new way to do science. Faculty at the Office of STEM Education Partnerships have created experimental facilities via remote online laboratories (called "iLabs") that enable students and educators to use real instruments, rather than simulations, to carry out experiments from anywhere at any time. Unlike conventional facilities, iLabs can be shared and accessed by audiences across the world that might not otherwise have the resources to purchase and operate costly, high-end or delicate lab equipment. More than 1,000 students are using iLabs to analyze real

experimental data through curricula that follow authentic scientific investigation processes. Nine labs and four new curricula for radioactivity are now available to all schools at <http://ilabcentral.org>.

Teachers and Students Involved: There are 23 teachers involved in using iLabs. More helped to design iLabs as part of a teacher design team, and there are iLabs Teacher Fellows as well. More than 1,000 students are involved.

Contact: Dr. Kemi Jona, kjona@northwestern.edu

Making Discoveries on BEAGLE

Partner School: Wildwood World Magnet School

This project implements some of the BEAGLE (Biological Experiments in Adaptation, Genetics, Learning and Evolution) models in the eighth-grade science class at Wildwood. BEAGLE is a multi-agent based modeling environment that has been carefully designed to help students learn about evolutionary processes in an engaging and accessible way. BEAGLE provides students the opportunity to explore a collection of NetLogo-based models, collect data, make and test predictions, and engage in group discussions about evolution and evolutionary mechanisms.

Teachers and students involved: 25 eighth-grade students and 1 teacher

Contact: Dr. Uri Wilensky, uri@northwestern.edu

Meaningful Science Consortium

Partner Schools (9):

Amundsen High School – 1,543 students

Austin Polytechnical Academy – 258

BEST High School – 313

Farragut Career Academy – 2,054

Gage Park High School – 1,672

Hancock High School – 933

Kenwood Academy – 1,600

Richards Career Academy – 595

High School of the Arts at South Shore – 411

Description and Goals:

The Meaningful Science Consortium, which was established to provide an instructional development system to Chicago Public Schools, is supporting the Chicago Public Schools' High School Transformation in secondary science. The Consortium seeks to

prepare Chicago high school students for college-level academic work and provide the science understanding they will need to make important personal and civic decisions. Its approach is to work collaboratively with teachers and administrators to build new strengths through professional development, coaching, assessment, leadership development and professional networking.

The Consortium's science curriculum emphasizes meaningful science, sequence and structure, case-based inquiry, integrated technology, and support for literacy. Its three-year curriculum sequence, encompassing content and process goals in all the science disciplines in the Illinois Learning Standards in a sequence that builds understanding systematically within and across years, begins with an interdisciplinary year of environmental and earth science, is followed by a year of fundamental chemistry and physics, and concludes with a capstone year of contemporary biology. *A new project in 2010 will create the curriculum for a capstone space science course featuring hands-on research with NASA data.* The Consortium is composed of Northwestern University, the Biological Sciences Curriculum Study, It's About Time and the University of Illinois at Chicago.

Teachers and Students Involved:

82 teachers: 31 ninth-grade teachers, 31 10th-grade teachers, 20 11th-grade teachers; 9,379 students: 7,592 9th- to 11th-grade students, 1,787 12th-grade students

Contact: Dr. Steven McGee, s-mcgee@northwestern.edu

NetLogo Investigations in Electromagnetism

Partner School: Wildwood Elementary School, Chicago

Over the last two years, this project has been conducting classroom implementations of NetLogo Investigations in Electromagnetism (NIELS), a computer model-based curricular unit, in fifth- and seventh-grade classes at Wildwood Elementary School. Multi-agent computational models depict phenomena such as electric current and resistance as they arise out of simple interactions among thousands of *individual level agents* such as electrons and ions within the wire. Our research shows that such representations enable students as young as fifth grade to learn and reason about the relevant concepts in electricity that are typically taught in advanced undergraduate or graduate school physics courses.

Students interact with NIELS models through a set of carefully designed, innovative, open-ended activities and develop a deep understanding of the relevant phenomena. NIELS has been implemented in fifth- through seventh-grade classrooms at Wildwood and is also being implemented in two eighth-grade classes in Singapore schools.

Teachers and Students Involved: Fifth- and seventh-grade students and teachers

Contact: Dr. Uri Wilensky, uri@northwestern.edu

NU-Teach Alternative Certification Program

Partner Schools (55):

(Potentially all CPS schools and Chicago parochial schools could be partner schools. Those listed below employ NU-Teach interns for 2009-10.)

Chicago Public Schools:

Global Visions	Chicago Military Academy (Bronzeville)
Lindblom Math & Science	Tilden Career Academy
Harper High School	Michele Clark Academic Prep
Harlan High School	Nancy Jefferson Alternative
Mason Community Links	Clemente High School
Taft High School	Orr Academy High School
Fenger High School	Spry High School
Manley High School	Kinzie Elementary
Al Raby High School	Corkery Elementary
Lane Tech High School	Disney Magnet School
Ogden High School	Randolph Elementary
Hancock High School	Northwest Middle School
Corliss High School	Everett McKinley Dirksen
Jones College Prep	Jackson Language Academy
Foreman High School	Coonley Elementary
Morgan Park High School	Ernst Prussing Elementary

Chicago Parochial and Charter Schools:

UIC College Prep	St. Agnes of Bohemia
CICS – Washington Park	Academy of St. Benedicts
CICS – Avalon Campus	St. Nicholas Ukrainian
CICS – Irving Park (Victory)	St. John de la Salle
St. Gregory Episcopal	St. Barbara
Our Lady of Charity	St. Stanislaus Kostka
St. Malachy	St. Thomas the Apostle
St. Helena of the Cross	St. Francis of Rome
ASBA-Laflin	San Miguel
Our Lady of Guadalupe	St. Therese
St. Procopious	Visitation
St. Elizabeth	

Description and Goals:

Northwestern University's Alternative Teacher Certification Program is a 13-month, three-phase accelerated course of study that prepares career changers and recent baccalaureates to teach in Chicago public and parochial schools. The program is currently being implemented in partnership with the Inner-City Teaching Corps and Chicago Teaching Fellows. The intention is to encourage individuals with non-education degrees

who have a desire to teach and possess strong content knowledge, as well as the ability to impart that knowledge, to become teachers.

Teachers and Students Involved: 76 teachers at 32 Chicago Public Schools and 23 parochial and charter schools; approximately 3,000 students

Contact: Dr. Sylvia Smith-Demuth, s-smith1@northwestern.edu

Principal Policy and Practice Study

Partner Schools:

With support from the Spencer Foundation and the Consortium for Chicago School Research, the Principal Policy and Practice (P³) Study focuses on school principals who are new to their posts. In order to maintain confidentiality, figures and school names cannot be provided, but study participants are all new hires in the Chicago Public School system. In addition to surveys and interviews with principals, the research team has also interviewed CPS officials, recently retired principals, Local School Council (LSC) members, and LSC support providers.

Description and Goals:

The primary goal of the Principal Policy and Practice Study is to examine the preparation, recruitment, retention and career paths of school principals through an in-depth look within Chicago Public Schools. Supported by funding from the Spencer Foundation, this work is undertaken in collaboration with the Consortium for Chicago School Research. Our study considers principal recruitment and retention from the perspective of both supply and demand.

On the supply side, we are concerned with the preparation and career paths taken en route to principalships, as well as the preferences and constraints facing prospective principals, the characteristics of those who become principals, and the factors that impact retention. Given the professional and personal aspects of these supply-side concerns, we also explore how new principals become socialized into the role of principal over their first few years on the job and how they respond to struggles they face in their new positions. On the demand side, we focus on hiring policies and practices, decisions made by school district and Local School Council (LSC) hiring officials, and factors that impact whether principals are hired and later retained. Our goal is to generate knowledge that will inform school leadership policies and processes in Chicago Public Schools and other districts across the country.

Teachers and Students: Approximately 60 principals are currently involved the project.

Contact: Dr. James Spillane, jspillane@northwestern.edu

RETA: Distributed Leadership for Middle School Mathematics Education: Content Area Leadership Expertise in Practice

Partner Schools:

Since the inception of this grant, 122 schools have participated in this study, mainly schools that are grades 6-8 or preK-8. Due to the confidential nature of this project, school names cannot be provided, but they include schools in the Chicago metro area and Nebraska. In Philadelphia, three schools took the project's daily practice log. Through a relationship with Michigan State University, a survey instrument was distributed to 500 schools in Michigan and Ohio school districts; this data will be analyzed in the coming years and does not yet factor into reported numbers.

Description and Goals:

With the support of public school officials in the Chicago metro area and Nebraska, 122 schools participated in our School Staff Network Survey, and in Philadelphia three schools participated in the Instructional Leadership Daily Practice Log.

To date, 3,739 teachers and administrators (1,020 in Chicago) have completed the project's online survey, which investigates the sources of instructional leadership that influence teacher instructional practice. Survey questions pertain to activities and opinions related to school leadership in instructional improvement, expertise in mathematics leadership and the conditions associated with each. The survey specifically asked participants to indicate the people, resources and activities they seek out to gain information and advice related to teaching in general, math and literacy.

The goal of the Instructional Leadership Daily Practice Log is to document some of the interactions that influence the knowledge, practice and motivation of instructional leaders and school staff. Middle school administrators and teachers completed the log in an attempt to capture the nature of their interactions. Each day participants were asked to log one interaction per hour that they had with a colleague, group or resource that influenced their knowledge, practice or motivation or that was intended to influence the knowledge, practice or motivation of a colleague.

Teachers and Students Involved: 3,739 teachers and administrators

Contact: Dr. James Spillane, j-spillane@northwestern.edu

Teacher in Residence Project

Partner Schools: Roberto Clemente High School in first year; Walter Payton High School in second year; any other CPS middle and high schools in future years.

Description and Goals: Beginning in fall 2007, the School of Education and Social Policy (SESP) began awarding an academic yearlong sabbatical to a math or science teacher from the Chicago Public Schools (CPS) to become part of the SESP teaching and learning community. The Teacher in Residence works closely with SESP's faculty and students, who study how children and adults learn, reason and conceptualize the world. By allowing a public school teacher to work side-by-side with faculty and graduate students, talented individuals can reach their highest potential as classroom teachers. Further, they will be positioned as leaders of learning and innovators among the teaching work force.

The Teacher in Residence collaborates with SESP faculty on projects and serves as a resource to faculty in their efforts to design new curricula for schools. As a practicing teacher, this person brings useful expertise to the design process. After one academic year (ten months), the Teacher in Residence returns to his or her CPS school with innovative ideas and equipped to lead reform activities related to integrating new technologies into the teaching of math and science. After the residency, the Teacher in Residence presents at least one workshop or seminar for his or her CPS colleagues and will become part of a cadre of SESP Teacher in Residence alumni who could be resources for each other and for the Chicago Public Schools.

Contact: Dean Penelope Peterson, p-peterson@northwestern.edu

Urban Suburban Northwestern Consortium

Partner Schools (10):

Chicago Public Schools:

- Hendricks Academy
- Hope College Preparatory School
- Kenwood Academy
- Whitney Young High School

Non-Chicago Public Schools:

- Evanston Township High School
- Greeley School (Winnetka)
- Hubbard Woods School
- New Trier High School
- Francis W. Parker School
- Skokie-Washburne Middle School

Description and Goals:

The Consortium, which was established in 1997, represents public, private, urban and suburban sites at elementary, middle and secondary levels. This community of educators is committed to facilitating collaborative relationships across urban and suburban boundaries.

The goals of the partnership are to foster equity across and within diverse school populations and settings; encourage collaboration across and within Consortium sites;

and develop models for cultivating skills, practices, and understandings in educational leaders. To meet these goals, professional development is provided for teachers and administrators through dinner meetings and workshops.

Contact: Mary Gajewski m-gajewski1@northwestern.edu or Mary Goosby m-goosby@northwestern.edu

NON-CHICAGO PUBLIC SCHOOLS PROJECTS:

Center for Talent Development

Description and Goals: The Center for Talent Development at the School of Education and Social Policy is an accredited learning center and research facility that has been serving gifted students, their families and educators for nearly 30 years. The Center identifies, educates and supports gifted students and serves as a leader in gifted education.

Programs of the Center include a Saturday Enrichment Program for grades preK to nine, a Summer Enrichment Program for preK through high school, the Midwest Academic Talent Search for above-grade-level testing, Gifted LearningLinks for online enrichment and honors courses for students in kindergarten through high school, and Civic Education Project to promote civic responsibility for students in grades seven through 12.

In addition to these programs, the Center offers seminars and conferences to advise parents about the needs of gifted learners, as well as ___ for educators.

Through outreach and advocacy efforts, CTD informs parents, teachers and school personnel about the characteristics and needs of gifted learners and empowers them with the knowledge and confidence necessary for meeting those needs successfully

In serving more than 500,000 families throughout the last three decades, Center for Talent Development has evolved from a single focus on talent identification to a multi-faceted operation with four central foci: talent identification, talent development, research and advocacy. Each year CTD holds a family conference, a conference for educators, a gifted education institute, Saturday parent seminars and special events.

Students Involved: 7,927 students from preK through high school in enrichment courses (3,077 in Saturday Enrichment Program, 3,353 in Summer Enrichment Program, 1,441 in Gifted LearningLinks, 56 in Civic Education Project) and 29,283 students in Midwest Academic Talent Search.

Contact: Dr. Paula Olszewski-Kubilius, p-olszewski-kubilius@northwestern.edu

Educare Post-Secondary Education Project

Partner Schools:

Educare early education centers in Chicago, Denver and Miami, operated through the Ounce of Prevention Fund

Description and Goals:

The researchers are identifying and analyzing the supports and barriers to postsecondary educational attainment among young, low-income parents.

In addition, the project is designing a pilot program that uses high-quality early childhood education centers as a context for promoting and supporting parents' continuing education. The goal is to design an innovative program that can build upon mothers' commitment to their children's successful educational advances so that mothers themselves are also able to advance their own education.

The Educare project is part of the Gates Foundation's new initiative to double the number of low-income students in the United States who earn post-secondary degrees by age 26.

Contact: Dr. Lindsay Chase-Lansdale, lcl@northwestern.edu

IQWST Earth Science

Partner Schools (19):

18 schools in Illinois, Michigan, Texas and Florida

Description and Goals:

IQWST: Investigating and Questioning our World through Science and Technology investigates how to design middle school science curriculum materials that support students in learning ambitious science content and scientific practices through meaningful investigations. The project is building a three-year curriculum of project-based investigations in chemistry, physics, earth science and biology. Eighteen schools in several states have implemented an IQWST curriculum, and national field trials are being held to assess the impact on student achievement. Teachers involved receive professional development before beginning to teach the unit.

Teachers and Students Involved: 74 teachers, 7,411 students

Contact: Dr. Brian Reiser, reiser@northwestern.edu

NebraskaMATH

Partner Schools:

Together with colleagues at the University of Lincoln, Nebraska, the NebraskaMATH study will partner with schools in four districts in Nebraska: Omaha, Lincoln, Grand

Island and Papillion. The project will administer a survey to 2,500 teachers across these districts and at different grade levels. Data collection is currently in the early stages.

Description and Goals:

Based upon the successful model of Math in the Middle, the NebraskaMATH project will extend the successful methods of teaching enrichment and address problem areas identified beyond the middle school experience. NebraskaMATH focuses on three different transition points in mathematics education: the mathematics education of children from kindergarten to grade 3, algebra at the transition from middle to high school and the transition of new secondary mathematics teachers from certification to the classroom.

The Northwestern subcontract focuses on the Primarily Math Intervention, the goal of which is to cultivate teachers' ability to understand how children learn and use mathematics – with attention to students requiring special considerations, increase mathematics content knowledge in teachers and eventually certify teacher participants as math specialists. We will administer the NebraskaMath Survey (NMS) to 2,500 teachers across four districts in Nebraska. This survey will be used at three times and will provide information on the efficacy of the intervention, as well as illuminate the changes specific to mathematics teaching and school leadership.

Teachers involved: 2,500 teachers

Contact: Dr. James Spillane, j-spillane@northwestern.edu

NetLogo Investigations in Middle-School Science and Mathematics

Partner School: Parkview School - Morton Grove, Illinois

Description and Goals:

Over the past four years, the middle school science and mathematics teachers in this school of 900 students have piloted the use of NetLogo in a variety of contexts. Mathematics teachers have used it to teach students how to apply mathematical representations in algebra and geometry to a structured programming environment. In this context, students have created their own models for a three-week computer science project. Interest in this project carries over year after year, as many graduating students continue to use NetLogo and develop science-related models for their high school classes.

Science teachers have used it in their classes to enhance various curriculum pilot projects including piloting the Center for Connected Learning's model-based curricula, Connected Chemistry and BEAGLE evolution. Students and teachers developed and used models for selective breeding and natural selection as part of a problem-based seventh-grade science unit on genetics. They used models for molecules and chemical reactions in the sixth- to

eighth-grade chemistry units. And they have used ecosystem and cellular models in sixth- and seventh-grade units. The models have provided a dynamic and vibrant learning environment for students to help support inquiry-oriented teaching and learning of vital learning goals in the science curriculum.

Contact: Dr. Uri Wilensky, uri@northwestern.edu

Northwestern Oncofertility High School Biology Curriculum Project

Partner Schools: (4 for curriculum development phase)

Lakes Community High School

Highland Park High School

New Trier High School

Glenbrook North High School

Project Description:

Northwestern University is partnering with Chicago area high schools to develop a new high school biology curriculum that embeds contemporary biomedical research content and skills relevant to the emerging field of oncofertility. Oncofertility research is focused on novel approaches to preserve the fertility of cancer patients (see www.oncofertility.northwestern.edu for details).

The ultimate goal of the Northwestern University Oncofertility High School Biology Curriculum Project is to produce a high school biology curriculum that is designed by teachers for teachers, and incorporates cutting-edge biotechnology skills and experiences through a partnership with biomedical researchers, that will motivate and challenge high school juniors. This curriculum not only exposes students to advanced biology skills and concepts, but it also teaches real science through advanced labs and experiments, all in the real-world context of oncofertility.

The purposes of this program are twofold. The first purpose is to design an engaging and up-to-date high school core biology curriculum in the context of oncofertility. This curriculum will utilize modern biotechnology laboratory techniques in order for students to learn biology content through active, hands-on investigation and experimentation. The second purpose is to create a model for strategically forging relationships between schools and research institutions to create curriculum that is based on real-world biotechnology techniques and careers.

Teachers and Students Involved: For pilot program, 8 teachers and 800 students.

Contact: Dr. Kemi Jona, kjona@northwestern.edu

Parenting and Adolescent Behavior

Participating School: Evanston Township High School.

Description and Goals:

Dr. Jelani Mandara and his research staff are conducting a survey with approximately 300 students and one parent for each student. The goal of the survey is to assess the relationship between various parenting strategies and adolescent academic achievement and high-risk behavior.

Number of Students: Approximately 300

Contact: Dr. Jelani Mandara, j-mandara@northwestern.edu

Project BLAST

Partner Schools (4):

Evanston School District 65
Aurora School District 129
Antioch School District 34
Highland Park/Highwood District 112

Description and Goals:

A three-year project of the Center for Talent Development funded by the Jack Kent Cooke Foundation, Project BLAST (Building, Learning, Achieving, Succeeding Today) targets approximately 120 low- and moderate-income gifted students and their families and is now in its third year. The project has the following goals:

- to provide challenging academic experiences to children that will reinforce their identity as gifted learners;
- to increase peer support for high achievement by placing children together with other high achieving children;
- to raise the expectations of their parents and teachers regarding their achievement;
- to give children knowledge of high school and college course taking that more advantaged children acquire more readily;
- to give children cultural experiences that will enable them to compete with more advantaged children;
- to empower parents over the three-year period to search out educational and cultural opportunities for their child; and
- to increase teachers' awareness of students' abilities and needs.

The program includes the following components to support students: Center for Talent Development Saturday enrichment classes, testing through Midwest Academic Talent Search, family meetings on parent education, information sharing about opportunities for students, field trips for cultural and academic enrichment, family participation in a CTD conference to assist with high school planning and career exploration, subscriptions to

content-based magazines, a newsletter for families about cultural opportunities and other enrichment programs, and meetings to keep teachers informed.

Teachers and Students Involved: Approximately 120 students and their teachers

Contact: Dr. Paula Olszewski-Kubilius, p-olszewski-kubilius@northwestern.edu

Project EXCITE

Partner Schools (9):

Evanston Township High School	Chute Middle School
King Lab School	Haven Middle School
Kingsley School	Nichols Middle School
Lincoln School	Rhodes Magnet School
Lincolnwood School	

Description and Goals:

Project Excite is a collaborative research endeavor involving the Center for Talent Development, Evanston Township High School District 202 and Evanston/Skokie School District 65. The goal of the project is to increase the number of underrepresented minority students taking upper-level mathematics and science courses when they are in high school. Project Excite identifies gifted minority students from Evanston schools' third-grade classrooms and provides enrichment mathematics and science education and support to prepare the students for advanced classes in middle school and at Evanston Township High School. For more information, visit www.ctd.northwestern.edu/excite.

Teachers and Students Involved: Approximately 120 third- to eighth-grade students, 11 teachers and 10 to 15 Evanston High School students acting as after-school volunteers.

Contact: Dr. Paula Olszewski-Kubilius, p-olszewski-kubilius@northwestern.edu

Reducing the Achievement Gap

Participating Schools: Oak Park Elementary District K–8 Schools

Description and Goals: Assistant professor Jelani Mandara conducts parenting workshops with small groups of parents of African American children. He teaches parenting strategies that the empirical literature shows relate to academic achievement.

Students Involved: Parents of approximately 150 students have been to at least one workshop.

Contact: Dr. Jelani Mandara, j-mandara@northwestern.edu